IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Patent of

MAIL STOP *INTER PARTES* REEXAM

Mansour SAMADPOUR
U.S. Patent No. 7,534,584 Control No. 95/001,294

Issued: May 19, 2009 Control No.: 95/001,294
Docket No.: 2781-129

For: MODULAR COMPOSITING-MULTIPLE LOT SCREENING PROTOCOLS FOR DETECTION OF PATHOGENS, MICROBIAL CONTAMINANTS AND/OR CONSTITUENTS

REPLACEMENT REQUEST FOR *INTER PARTES* REEXAMINATION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to 35 U.S.C. § 311 and in response to the Notices of Failure to Comply with *Inter Partes* Reexamination Request Filing Requirements (37 CFR 1.915(d)) dated March 8, 2010 and March 16, 2010 (collectively, "Notice of Failure to Comply"), requester, bioMérieux, Inc. ("Requester"), hereby submits this Replacement Request for *Inter Partes* Reexamination and requests *inter partes* reexamination of claims 1-33 (all claims) of U.S. patent 7,534,584 (the "'584 patent") (Exhibit 1). Requester, a Missouri corporation, is the real party in interest. Requester is a wholly owned subsidiary of bioMérieux S.A., a corporation organized under the laws of France.

The '584 patent issued from a patent application filed on August 8, 2005 and claims priority from a U.S. provisional application filed on August 6, 2004.

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Reexamination is appropriate in view of the substantial new questions of patentability set forth herein. In general, the claims of the '584 patent are directed to a method for the sampling, testing and validating of products for microbiological testing. The principal focus of the '584 patent is the microbiological testing of food products. As of the provisional filing date of August 6, 2004, microbial contamination of foods was recognized to present a significant risk of illness and death to the consuming public. Outbreaks of pathogenic *E. coli* contamination of ground beef used in fast-food restaurants had been widely publicized, and *Salmonella* contamination of foods such as produce and poultry was known to be a significant cause of illness.

By 2004, food microbiology was a sophisticated field and the level of ordinary skill of scientists responsible for developing sampling, testing and validation methods was high. Culturing and serological tests for pathogenic organisms was being supplemented or replaced by so called "Rapid" test methods. These methods, which utilized immunochemical (*e.g.*, ELISA) or nucleic acid (*e.g.*, polymerase chain reaction (PCR) and nucleic acid probe) based molecular biological procedures for detecting and identifying microorganisms were faster and often more sensitive than methods that were used earlier.

Section I. of this request provides in a brief summary of the '584 patent and its prosecution history. Section II. provides an explanation of the scope and content of the prior art. Section III. provides an identification by patent number of the patent for which reexamination is requested and every claim for which reexamination is requested. Section IV. refers to a citation of the patents and printed publications which are presented to provide a substantial new question of patentability. Sections V. and VI. provide each

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statement of substantial new question of patentability and the detailed explanation of the pertinency and manner of applying the patents and printed publications. Section VII. provides detailed claim charts comparing the elements of the claims to the teachings of the prior art.

I. The '584 Patent and Its Prosecution

The '584 patent claims a combination of steps for sampling, testing and validating "test lots" for microbial contamination. The multi-step method involves nothing more than an aggregation of known steps that perform their art-recognized functions in a predictable way. Bailey Decl. at ¶8a.[1] The steps are combined in the claimed method in an obvious way to achieve predictable results. The method is described generally for a variety of products, and most of the disclosure focuses on food products.

Claims 1 and 17 are independent and define the alleged invention in its broadest aspects. They are of very similar scope and will be discussed together. These claims are directed to a method that involves two separate compositing procedures. The first compositing procedure is defined by steps a) and b) of each of claims 1 and 17 and is referred to herein as "sample compositing." (When referring to non-liquid meat or produce products, the step is sometimes called "dry compositing." Other terms for this procedure that appear in prior art literature are "pooling" and "lumping.") The sample-compositing step involves separately combining two or more portions of test lots of product to form a set of "test lot samples."

The second compositing procedure, referred to herein as "wet compositing," is defined by steps c) and d) of each of claims 1 and 17 and involves combining aliquots of

[1] The declaration under 37 C.F.R. §132 of Dr. J. Stan Bailey, a noted expert in the field of microbiological testing of food products, accompanies this request.

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incubation solutions (pre-enrichment or enrichment cultures) of the sample composites into a single "modular wet composite sample (MWS)." Microbiological testing typically involved incubating the sample or composite in a nutrient broth for enrichment or pre-enrichment of the target microbe. This step caused resuscitation and multiplication of contaminating microbial cells. Bailey Decl. at ¶ 9d. The wet composite is then tested for the target microorganism using a "suitable detection assay."

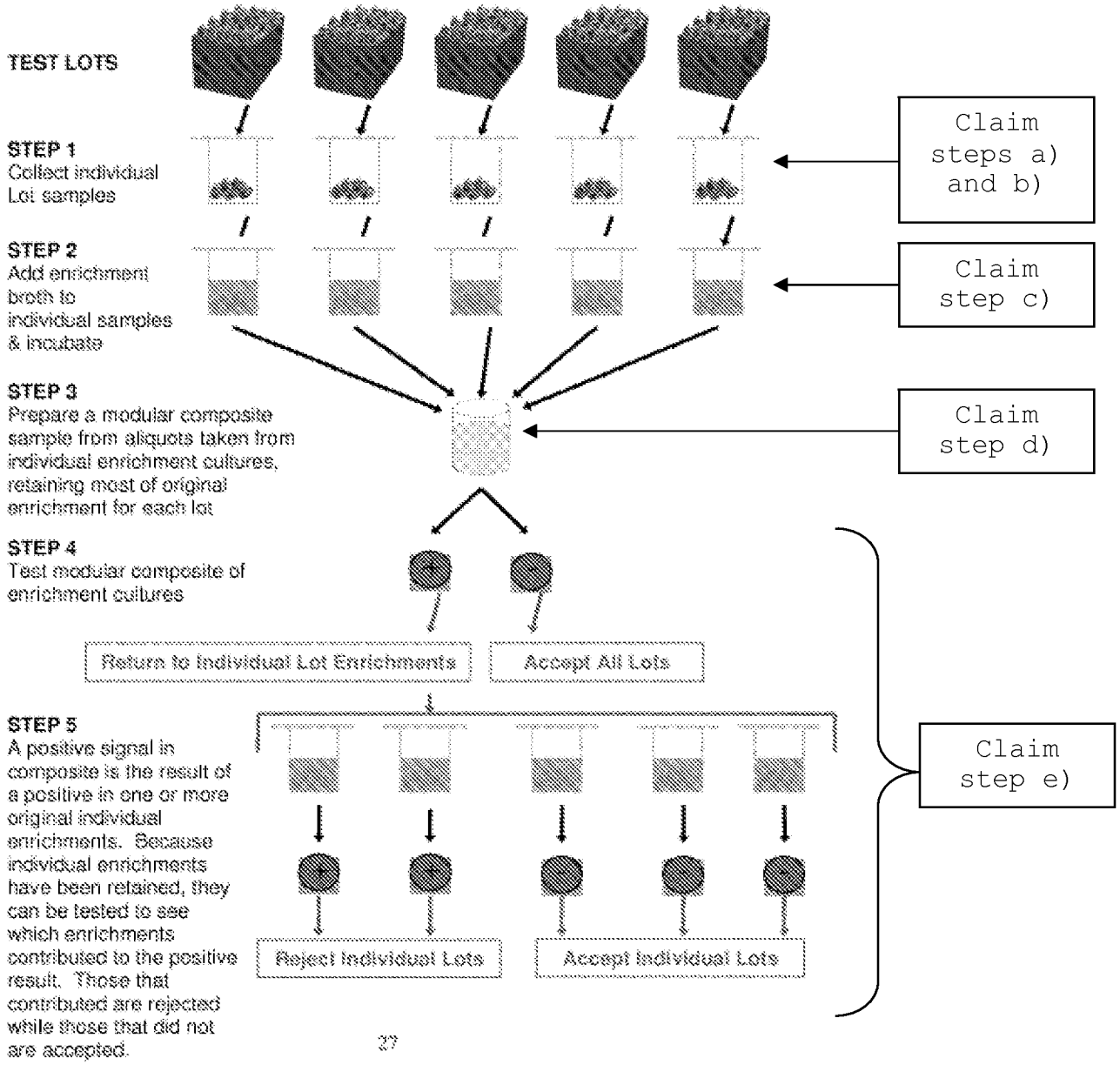
The stated motivation for the sample compositing and wet compositing procedures was to minimize the number of microbial assays that must be performed (e.g., by a food processor), thereby reducing costs and improving efficiencies. The wet compositing procedure is said to avoid the necessity of destroying uncontaminated batches of product when a positive result (indicating microbial contamination) is obtained. This goal is said to be achieved by assaying each retained sample composite incubation solution, using the same or a more sensitive testing procedure, to identify the sample composite(s) that were contaminated. Test lots or batches corresponding to uncontaminated sample composites may thus be released, thereby avoiding the costs associated with their destruction or other disposition.

During prosecution, the patentee emphasized this alleged advantage of the claimed method, and presented a drawing (Exhibit A to the Amendment dated October 24, 2004) alleged to represent the prior art. According to this argument, when samples of multiple test lots were composited and tests conducted on the composited samples, a positive result would require that all of the lots combined to make the composite be destroyed or otherwise disposed of at substantial economic loss. As demonstrated herein,

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the patentee characterized the prior art too narrowly. Bailey Decl. at ¶ 16. Moreover, the patentee's solution to the alleged problem was already known in the art.

During prosecution of the '584 patent, the patentee illustrated the claimed method by the following diagram (with the addition of claim steps corresponding to the illustrated steps):



The patentee acknowledged during prosecution that sample compositing (steps a) and b)) to produce what the claims refer to as "test lot samples" was known in the art. For example, in an amendment dated October 24, 2008 (responsive to an office action dated August 20, 2008), the patentee made the following concession while traversing a rejection under 35 USC § 102(b) over Davies et al., *J. Appl. Microbiol.*, 2003, *95*;1016-25 (Attached as Exhibit 2):

> In fact, Davies does not teach or suggest all of the elements of the presently claimed subject matter, because Davies does [not] teach or suggest enrichment of a "test lot sample" as recited in present claim 1 steps b) and c) for use in preparing a "modular composite sample" (as recited in present claim 1d). Rather, Davies only teaches simple sample pooling to make a classical composite sample for enrichment and then assaying the enriched sample directly (see Applicant's Exhibit A attached hereto) **which in terms of Applicant's novel scheme, only amounts to preparation and enrichment of a "test lot sample,"** but in Davies, there is a complete absence of preparing and assaying a modular composite sample as presently claimed (see Applicant's Exhibit B attached hereto) and which allows, in the case of a positive testing modular composite sample, for returning to assay the retained individual enriched test lot samples determined which enriched test lot samples contributed to the positive result such that positive enriched test lots are rejected while negative test lots are accepted.

(Underlining in original, bold added.) The patentee made a similar argument in response to a rejection over Skov et al., 1999, *J. Appl. Microbiol.*, *86*:697-700.

The claim term, "test lot sample" is defined in the '584 patent specification as follows:

> The term "test lot sample" or "single-unit production lot sample" or "single production unit lot sample," as used herein refers to a sample formed by combining multiple product portions from a test lot (e.g., single production unit), such that each test sample (e.g., each single-unit production lot sample) is attributed to a particular test lot (e.g., production unit) . . .

'584 patent, col. 5, line 57-col. 6, line 7.

Similarly, by reference to sampling guidelines published by various U.S. and international bodies, the patentee acknowledges in the "Background" section of the

specification that sample compositing was well known in the prior art. See, e.g., '584 patent, col. 2, lines 13-26:

> With respect to E.coli O157 testing, for example, a typical plan calls for a taking 60 samples (e.g., sample pieces) from a production lot to form a composite sample. With respect to sterility testing, a typical plan may call for compositing 10-100 units of the product and in the case of environmental sampling, 2-10 samples are often composited. Generally, the number of samples that are composited reflects: the overall sensitivity of the test method and the limit of detection that applies to the test unit; the ability to concentrate/enrich the composite sample to achieve the desired sensitivity; and the cost of sampling compared with the cost of analysis.

In addition to acknowledging that the prior art taught the sample-compositing steps of the claimed method to produce a "test lot sample," the patentee also acknowledged that it was known to incubate the composite sample in enrichment media to grow and multiply the target microorganism to a detectable level and then to test for it using a suitable detection assay:

> Typically, once a composite sample is constructed (following the art with respect to particular testing) it is then enriched for the presence of a given pathogen/microbe by addition of appropriate amounts of enrichment media and incubation at an appropriate temperature for a given amount of time. If the pathogen/microbe is present, then it grows and multiples under the favorable conditions of enrichment, thereby providing more material which can be detected by subsequent analysis. The composite sample is then tested by one or more available, art recognized methods including, for example, enrichment followed by immunoassay-based tests or PCR-based methods, or culturing of the microorganism of interest or other DNA- or immunochemical-based methods.

'584 patent, col. 2, lines 46-58.

Thus, during prosecution the patentee acknowledged that the sample-compositing procedures (steps a) and b)) were known and argued that the claimed method differed from the prior art in the use of the wet-compositing procedure and the validation steps that involved re-testing retained incubation enrichment solutions to identify contaminated

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and uncontaminated test lot samples. As will be demonstrated herein, those steps also were known and described in the scientific literature before the patentee's invention.

II. Scope and Content of the Prior Art

Each of the elements of the claims of the '584 patent was well known in the prior art and was used in the claimed method to perform its known function. The combination of these elements in the manner set forth in the claims yielded predictable results and would have been obvious to a person of ordinary skill. Bailey Decl. at ¶ 8a. The prior art with respect to each element of claim 1 is discussed in this Section, and the specific application of the art to the claims is set forth in the next Section and the accompanying claim charts.[2]

A. Sample Compositing

Steps a) and b) of claim 1 of the '584 patent provide for sample compositing as follows:

> a) collecting a plurality of portions from each of a plurality of test lots, the test lots each comprising an assemblage of one or more specimens, wherein each test lot is separately sampled by taking said plurality of portions thereof;
> b) combining the collected plurality of portions corresponding to each of the separate test lots to provide a corresponding set of separate test lot samples, wherein each separate test lot sample is attributed to a particular corresponding separate test lot.

As discussed above, the patentee acknowledged in the Background section of the specification and during prosecution of the '584 patent that the compositing of samples to prepare "test lot samples," as set forth in steps a) and b) were known in the art. In fact, as

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[2] The discussion also applies to claim 17, which differs from claim 1 only in that the test lot is specified to be a "single-unit production lot." "Single-unit production lot" is identified in the specification as a form of "test lot." *See* col. 5, lines 33-38. The prior art discussed herein relates equally to "test lot" and "single-unit production lot." Bailey Decl. at ¶ 16. Therefore, the discussion for the prior art applies to both claims 1 and 17.

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discussed below, numerous prior art references described such sample-compositing procedures for the microbiological testing of food products.

A standard reference textbook for food microbiologists was the "Compendium of Methods for the Microbiological Examination of Foods," 4th Ed., Eds. Frances Pouch Downes and Keith Ito, American Public Health Association, 2001 (the "Compendium"). That textbook contains numerous references to sample compositing. For example, Chapter 2, entitled "Sampling Plans, Sample Collection, Shipment and Preparation for Analysis" (Exhibit 3) describes the principles for sampling of food products for microbiological testing as well as various sampling techniques. That chapter discusses the importance of developing sampling plans designed to insure that a representative sample for testing is obtained, and it recommends that a professional statistician be consulted "to ascertain that the lot of food to be sampled meets the criteria required by that particular sampling plan." *See* § 2.51.

The term "Representative Sample" is defined in § 2.511. The definition identifies four requirements for a truly representative sample: "(a) determine the location of sampling points; (b) establish a sampling method representing the population characteristics; (c) select the sample size; and (d) specify the frequency of sampling." These criteria demonstrate that samples taken from a plurality of "sampling points" at different locations of the lot of product being tested was an accepted way of creating a representative sample. In § 2.512 (page 17), specific reference is made to the pooling of samples, indicating that a positive test on the pooled sample indicates that one or more of the pooled units was positive.

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Section 2.52 describes sampling procedures for various types of products. For samples such as liquids, the sample is mixed until homogeneous before drawing a sample. For samples that cannot be adequately mixed or bulk solids or semisolids, the reference teaches that multiple samples or aliquots should be taken from several areas of the food to ensure that a representative sample is obtained.

In Chapter 35 dealing with "Pathogenic Escherichia Coli" (Exhibit 4), the Compendium discusses a procedure described in the United States Department of Agriculture's Food Safety and Inspection Service (FSIS) Microbiology Laboratory Guidebook[3] ("FSIS Protocol") for the testing of raw ground beef for *E. coli* O157:H7 (*see* § 35.243). The first step of the procedure is described as follows:

> 1. **Enrichment.** Blend 65g of ground beef (usually 5 samples are analyzed as a composite) with 300 mL of mEC with novobiocin; add more media (about 285 mL) to bring the total volume to 650 mL. Incubate at 35° C for 18 to 24 hr.

This step involves the same sample-compositing procedure that is defined by steps a) and b) of the claims of the '584 patent.

Sample compositing also is described in connection with *Salmonella* testing in Chapter 37 of the Compendium (Exhibit 5). That chapter describes the increasing need

[3] During prosecution of the '584 patent, the Examiner made several requests under 37 C.F.R. § 105 for information relating to the FSIS procedures and others described in the Backgound section of the specification. The patentee never provided the FSIS material. In addition to the FSIS Protocol, a copy of the FSIS Directive dated March 31, 2004 accompanies this request as Exhibit 6. In that Directive, FSIS referred to its previous determination that non-intact raw beef products contaminated with *E. coli* O157:H7 were considered adulterated. Establishments producing such products were required to develop Hazard Analysis and Critical Control Point ("HACCP") plans to identify processes that were likely to produce product contaminated with *E. coli* O157:H7. The directive refers to the testing of products for *E. coli* O157:H7 contamination by FSIS or other testing facilities.

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to monitor enteric pathogens in food products. In section 37.122 (page 360), the authors state that,

> [v]arious studies have demonstrated that dry compositing (combining analytical units into a single test) [footnotes omitted] or wet compositing (combining pre-enrichment cultures of individual analytical units) [footnotes omitted] substantially reduces the analytical workload without compromising method sensitivity. In the FDA sampling plan, up to 15 x 25g analytical units may be combined and tested as a single 375 g composite unit. The presence of *Salmonella* in foods assigned to Categories I, II or III may be determined by the analysis of 4, 2, 1 composite units respectively.

The Compendium thus teaches dry sample compositing and provides a motivation for utilizing the technique in a microbiological testing procedure, namely, to reduce analytical workload without compromising sensitivity. As discussed below, this chapter of the Compendium also provides a motivation for combining dry compositing and wet compositing of incubation solutions in a microbiological testing procedure. Among the references cited in the above passage is an article by Silliker, J.H. and Gabis, D.A., 1973. ICMSF methods studies. I. Comparison of analytical schemes for detection of *Salmonella* in dried foods. *Can. J. Microbiol. 19*:475 (attached as Exhibit 7) (for the discussion of dry compositing) and an article by Price, W.R. et al.. 1972. *Salmonella* testing of pooled pre-enrichment broth cultures for screening multiple food samples. *Appl. Microbiol. 23*:679 (attached as Exhibit 8) (for the discussion of wet compositing). The Silliker et al. and Price et al. references are discussed in greater detail below.

More than twenty years before the application for the '584 patent was filed, Silliker et al. addressed methods for the analysis of large lots of dried food products for *Salmonella* contamination. In the introduction, the authors state that it is not economically feasible to test sixty 25 g samples of a product lot on a routine basis, and point out that examination of larger subsamples, such as fifteen 100 g samples or three

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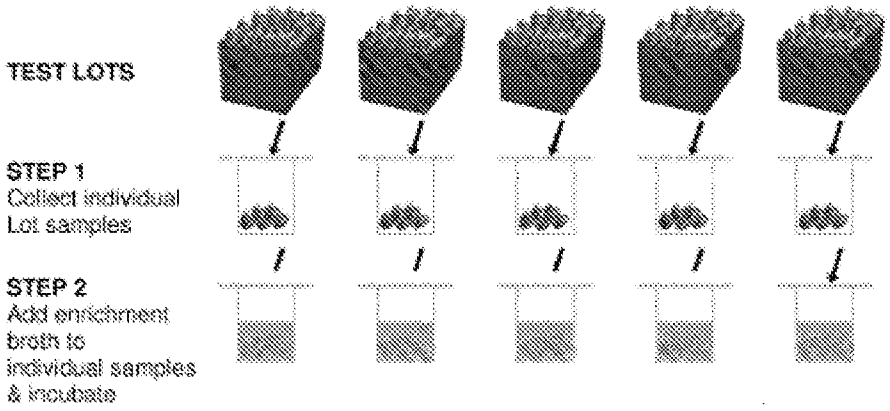
500 g samples would reduce the laboratory work, but would only be warranted if the sampling and analytical scheme were as efficient in detecting positive lots as one involving the analysis of sixty 25 g samples. The authors state that compositing of multiple subsamples (lumping) and wet compositing of pre-enrichment cultures have been tested as economical approaches to *Salmonella* control, and that, as of 1973, both approaches were used widely in the food industry in the United States. *Id.* at 475.

Silliker et al. describe experiments involving the testing 70-80 kg samples of commercial products believed to be contaminated with salmonellae. In the "Methods" section, the authors describe the following "Sampling" procedures:

> In tests 1-21 the mixed products were sampled directly, i.e., sixty 25-g, fifteen 100-g and three 500-g subsamples were weighed directly into the pre-enrichment broth. In tests 22-26, 180 25-g subsamples were weighed into 180 sterile sample bottles. Sixty of the 180 subsamples were randomly selected for the 25-g subsamples. The 100-g subsamples were prepared by randomly pooling four 25-g subsamples to for 15 groups. The 500-g subsamples were prepared by randomly pooling groups of twenty 25-g subsamples.

Id. at 476. In the section of the reference entitled "Pre-Enrichment," the authors state that "[t]he 100-g subsamples were enriched in 900 ml of broth contained in 1500-ml bottles with screw-cap lids. The 500-g subsamples were enriched in 4500 ml of broth in 8-liter polyethylene containers (Rubber-Maid Company, Commercial Division, Winchester, Va.)" These sampling and enrichment procedures involved the sample-compositing steps defined by steps a) and b) of the claims of the "584 patent. Using the drawing that the patentee used during prosecution to illustrate the invention, the preparation of the 100g and 500g pooled samples and their enrichment, as described by Silliker et al., can be illustrated as follows:

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In the "Discussion" section, the authors concluded that "[a]nalytical results from 26 samples of naturally contaminated dried foods indicate that *Salmonella*-positive samples may be detected with equal facility by analyzing sixty 25-g subsamples, fifteen 100-g subsamples, or three 100-g subsamples." This reference, therefore, taught the sample-compositing procedures of steps a) and b) of the '584 patents, and disclosed that the rationale for using sample compositing was to minimize the number of tests required, thereby reducing costs. ("Routine surveillance requires collection and examination of large numbers of samples, especially in a large plant producing many products. If the samples from individual lots can be lumped as described here, the monetary and time savings are obvious." *Id.* at 479.) *See* Bailey Decl. at ¶ 20.

In a 1974 article, the same authors who published the Silliker et al. reference discussed above published a follow-up study to investigate whether the sample-compositing procedures used for dried foods by Silliker et al. could also be applied to "large sample units for the analysis of high-moisture foods, such as meats, poultry, and eggs." *See*, Gabis, D.A., and Silliker, J.H., 1974. ICMSF Methods Studies. II. Comparison of analytical schemes for detection of *Salmonella* in high-moisture foods. *Can. J. Microbiol. 20*:663-669 (attached as Exhibit 9). In the introduction to the article,

the authors state that "[t]he economic advantage of lumping samples is obvious; indeed, this approach makes statistical quality control over the *Salmonella* defect economically feasible, particularly for high-risk foods where analysis of as many 60 25-g subsamples has been recommended [citing National Research Council—National Academy of Sciences. 1969. Committee on *Salmonella,* and Evaluation of the *Salmonella* Problem. Publ. 1683. Washington, D.C.]. As in the Silliker et al. publication, Gabis et al. investigated the feasibility of compositing and testing subsamples randomly selected from meat and poultry samples. The "Materials and Methods" section contains the following description of the "Sampling" procedures:

> The acceptance criteria for category III products in the NRC Report [footnote omitted] was followed. Products in this category are accepted if thirteen 25-g subsamples are analyzed for *Salmonella* and are found negative. Accordingly, 13 of the 25-g units were used for analysis as individual subsamples. Three lumped subsamples of 108.3 g each were prepared by combining the four 25-g units and weighing an additional 8.3-g subsample from one of the 25-g units. A 325-g lumped subsample was prepared by combining 13 25-g units. In addition, a 500-g subsample was included in view of our previous experience with the analysis of 500-g dried food samples [citing Silliker et al.]. Thus for each analytical procedure, thirteen 25-g, three 108.3-g, one 325-g, and one 500-g subsamples were analyzed.

Id. at 664. The composited samples were then placed either into non-selective pre-enrichment media or directly into selective enrichment media. Following incubation, the samples were then tested for the presence of *Salmonella* using culturing techniques. *Id.* In the "Discussion" Section, the authors concluded:

> The results clearly indicate that lumping of 25-g subsamples to produce larger samples for analysis is as sensitive for the detection of positive samples as is the analysis of individual 25-g subsamples. This finding parallels the results of our previous study [citing Silliker et al.] on dried foods. The importance of this is obvious and as been discussed.

Id. at 668.

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The Gabis et al. reference discloses the use of sample compositing and incubation of samples in pre-enrichment and enrichment broths, as defined in steps a) and b) of the claims of the '584 patent for meat and poultry products. *See* Bailey Decl. at ¶ 20. The reference explicitly states that the rationale for compositing samples is to reduce the number of tests that must be performed, thereby decreasing costs and improving efficiencies.

The International Committee on Microbiological Specifications for Foods ("ICMSF") was formed in 1962 as a standing committee of the International Association of Microbiological Societies. ICMSF publishes recommended methods for analyzing food products for microbiological contamination. In the ICMSF publication "Microorganisms in Foods 1 their significance and methods of enumeration, Second Edition, University of Toronto Press 1978 ("ICMSF") (attached as Exhibit 10), a description of *Salmonella* testing in food products emphasizes the importance of sample compositing:

> Research sponsored by the ICMSF and others has shown that it is unnecessary to analyze each of several samples or analytical units drawn from a particular food lot [citing Silliker et al.]. The multiple analytical units may be combined or "lumped" to provide larger units for testing purposes. For example, the sixty 25-g units selected from a particular product lot may be combined or "lumped" to produce three 500-g samples for analysis. If all three 500-g samples are found to be negative by the test, then the inference is that the level of *Salmonella* is no greater than one in 500 g. Similarly, foods presenting a lesser degree of consumer risk, such as those requiring the analysis of thirty 25-g samples, may be "lumped" into a smaller number of units for analysis. For 25-g samples, two "lumped" samples each weighing 375 g would be analyzed. If the two were negative, then the probability would be 95% that the level of contamination in the lot analyzed was no greater than one *Salmonella* in 250 g, which is the same probability that ould exist if each of the thirty 25-g samples had been analyzed and found negative. The practical importance of the "lumping" approach is obvious. It permits statistical quality control over the *Salmonella* defect with analytical costs that are economically feasible.

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Id. at 163.

The 2004 FSIS directive (Exhibit 16) refers to sampling of raw ground beef products for testing for *E. coli* O157:H7. At page 4, the directive refers to sampling conducted at official establishments and states that "[i]nspection program personnel may be instructed to collect more than one sample per lot in certain circumstances (e.g., if FSIS has reason to believe that product is at high risk of being contaminated with *E. coli* O157:H7 because of illnesses or outbreaks that may have been associated with the establishment, or because the establishment or its suppliers have previously produced product that tested positive in FSIS-collected verification samples for *E. coli* O157:H7)."

Attachment 2 to the FSIS Directive describes procedures for sampling raw ground beef components and raw beef patty components. *Id.* at 27-28. Those procedures emphasize the need for randomized or representative sampling and instruct that representative samples be taken by various means (depending on the type of product) from a production lot, as defined by the establishment. While the FSIS Directive did not address the testing of samples, it did specify the utilization of a plurality of samples as required by step a) of the '584 patent claims.

Another official document describing the sampling of food products for microbiological testing was a procedure published by the U.S. FDA in its Bacteriological Analytical Manual ("BAM"). Chapter 1 of the April 2003 edition is entitled "Food Sampling/Preparation of Sample Homogenate. (Copy attached as Exhibit 11.) The BAM procedure describes sampling plans for *Salmonella* testing. In Section A.1.a.1) and 2), the reference describes compositing representative samples of food products and combining the composite with its pre-enrichment medium. Thus, like other references

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discussed above, the BAM reference describes the sample compositing steps as set forth in steps a) and b) of the '584 patent claims. *See* Bailey Decl. at ¶ 11.

B. Incubation and Enrichment

The incubation step c) of claim 1 of the '584 patent requires:

> Incubating the set of separate test lot samples under conditions suitable to allow levels of a target microbial agent or organism that is present in one or more of the separate test lot samples to reach detectable levels and become uniform, or substantially uniform, throughout the respective one or more separate test lot samples, to provide a set of separate test lot samples enriched for the target microbial agent or organism.

As discussed above, the patentee has acknowledged that the incubation of sample composites in enrichment media to result in proliferation of the target microorganism to detectable levels was known in the art. The typical procedure is described in the Background section of the '584 patent:

> Typically, once a composite sample is constructed (following the art with respect to particular testing) it is then enriched for the presence of a given pathogen/microbe by addition of appropriate amounts of enrichment media and incubation at an appropriate temperature for a given amount of time. If the pathogen/microbe is present, then it grows and multiplies under the favorable conditions of enrichment, thereby providing more material which can be detected by subsequent analysis. The composite sample is then tested by one or more available, art recognized methods including, for example, enrichment followed by immunoassay-based tests or PCR-based methods, or culturing of the organism of interest, or other DNA- or immunochemical-based methods.

'584 Patent, col. 2, lines 46-58.[4] *Also see* col. 6, lines 36-48, which describes the procedures for enrichment as "consistent with conventional methods for expanding and testing a variety of target agents/organisms as set forth in widely recognized published methods."

[4] The specification makes clear that these and the other procedures described in the Background section of the specification are admitted state of the prior art. For example, at col. 2, line 59, the specification refers to alleged deficiencies of "[t]he above-described prior art."

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Indeed, enrichment and pre-enrichment of microorganisms by incubation with nutrient media was a well-known, widely used procedure. Chapter 5 of the Compendium (attached as Exhibit 12) describes "Cultural Methods for the Enrichment and Isolation of Microorganisms." In Section 5.1, it is stated that, "[t]here are several reasons for the use of enrichment methods. Primary among these is the need to grow a detectable population of cells from a very low initial level." This chapter describes in general terms the principles behind pre-enrichment and enrichment, including selective enrichment for microorganisms. It describes the types of conditions that should be investigated for achieving the desired pre-enrichment or enrichment of microorganisms.

The FSIS Protocol for testing for *E. coli* O157:H7, as described in Chapter 35, Section 35.243 of the Compendium (Exhibit 4), describes the incubation of composited samples in enrichment media for subsequent microbiological testing. As discussed above, the first step of the procedure is described as follows:

> 1. **Enrichment.** Blend 65g of ground beef (usually 5 samples are analyzed as a composite) with 300 mL of mEC with novobiocin; add more media (about 285 mL) to bring the total volume to 650 mL. Incubate at 35° C for 18 to 24 hr.

The enrichment step results in multiplication of any *E. coli* cells to detectable levels, because the following step of the procedure directs that the analyst "[a]pply the enrichment culture to a commercial O157:H7/NM (non-motile) antibody-based test kit (Table 2) according to the manufacturer's instructions." The enrichment step involves the same sample-compositing procedure that is defined by steps a) and b) and the incubation procedure of step c) of the claims of the '584 patent.

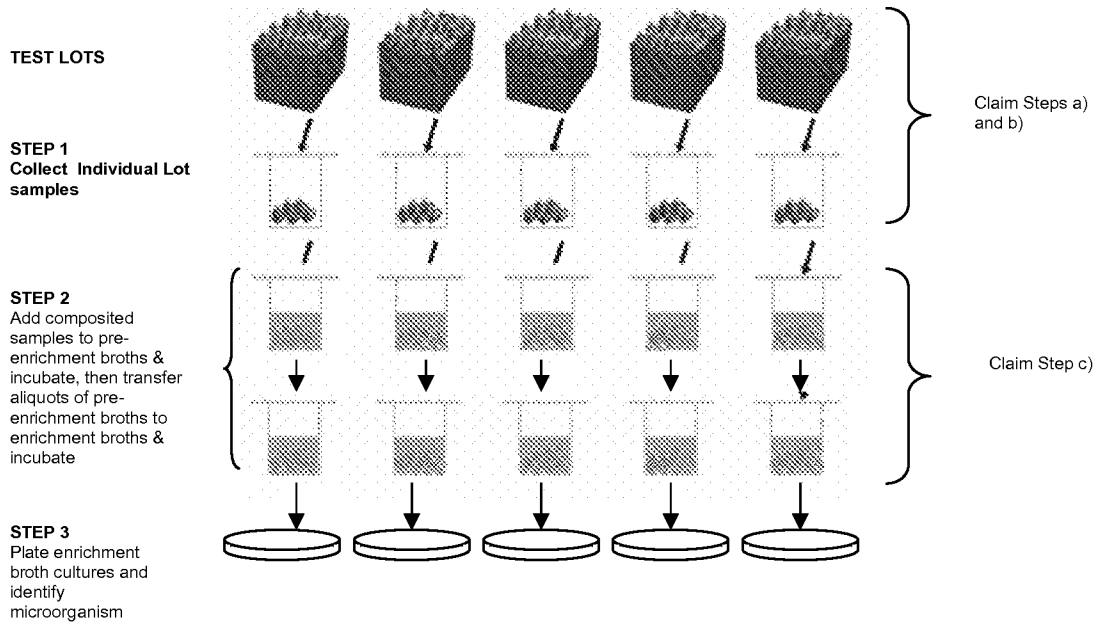
The 1973 Silliker et al. publication (Exhibit 7) describes a procedure in which fifteen 100 gram sample composites (each of which was prepared by combining four 25

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gram subsamples) were placed in pre-enrichment cultures and incubated. Following incubation, 1 ml aliquots of each of the cultures was introduced into 9 ml of selenite-cystine broth and 9 ml of tetrathionate broth.[5] After incubation, the cultures were streaked onto selective plates and the *Salmonella* colonies were identified. This procedure thus meets the requirement of step c) of the '584 patent claims. The claim language requires only "incubating . . . under conditions suitable to allow levels of target microbial agent or organism . . . to reach detectable levels and become uniform, or substantially uniform, throughout the respective one or more separate test lot samples, to provide a set of separate test lot samples enriched for the target microbial agent or organism." Silliker et al. incubate composite samples first in pre-enrichment media then in enrichment media to multiply the microbial cells to a detectable level. Nothing in the claim language precludes the sequential use of pre-enrichment and enrichment media to grow the target microbes. The procedures described by Silliker et al. and their correspondence to the '584 patent claim steps may be illustrated by the following drawing:

[5] Silliker et al. also tested the effectiveness of wet-compositing, in which aliquots of the pre-enrichment cultures were combined in enrichment broths.

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Moreover, the *Salmonella* cells are expanded to a detectable level after enrichment in the pre-enrichment broth, because enrichment and detection is achieved by transferring a 1 ml aliquot of the pre-enrichment media..

C. Wet Compositing, Testing and Validation

Steps d) and e) of claim 1 of the '584 patent provide for:

> d) removing portions of each enriched separate test lot sample, and combining the removed portions to provide a modular composite sample; and
> e) testing of the composite sample, using a suitable detection assay, for the target microbial agent or organism, wherein when such testing is negative all of said separate test lot samples are validated, and wherein when such testing is positive, individual separate test lots are validated by further testing of a portion of the respective enriched separate test lot sample using the same or a more sensitive protocol and obtaining test result for each test lot.

Like the preceding claim steps, steps d) and e) also were known and well documented in the microbiological testing literature prior to the invention of the '584 patent. Wet compositing to produce a modular composite sample, as described in step d) was recognized as another means of reducing the number of tests required, therefore reducing costs and improving efficiencies.

Chapter 8 of Jarvis, B. Statistical Aspects of the Microbiological Analysis of Foods. Progress in Industrial Microbiology Vol. 21, Elsevier. 1989 ("Jarvis") (Exhibit 13) contains the following text in Section 8.4.2.1:

> *Compositing of samples.* When a number of samples is to be tested it is sometimes recommended that the samples be composited in order to reduce the work load on the laboratory. Several methods of compositing can be undertaken:
>
> (1) Combine all samples at pre-enrichment stage; i.e., for 10 X 25 g samples inoculate all 250 g directly into 2250 ml of pre-enrichment medium. After incubation, carry out test on the same basis as for a single sample (i.e. inoculate 10 ml into 100 ml enrichment medium).
>
> (2) Prepare 10 pre-enrichment series (i.e. one for each 25 g sample) and after incubation composite equal volumes of each pre-enrichment medium (e.g. 10 X 1 ml to inoculate the 100 ml enrichment broth.
>
> (3) A combination of (1) and (2) above where, say, 5 samples are composited at pre-enrichment stage and aliquots of the duplicate pre-enrichment media are composited at the stage of inoculating the enrichment medium.
>
> (4) Composite all 10 samples and then test one (or rarely two) 25 g aliquots from the bulk composited samples.
>
> Methods (1), (2) and (3) provide the same degree of statistical confidence as would be attained by testing the 10 samples separately, in so far as a negative result indicates no sample contamination and therefore <11 organisms/kg (at $P = 0.95$). However, if a positive result is obtained, it is not possible to estimate (even approximately) the degree of contamination. Method (2), at least in theory, permits the tests to be repeated on stored pre-enrichment cultures so that some indication of the proportion of contaminated samples can be obtained. Method (3) is a compromise between Methods (1) and (2).
>
> Method (4) is based on a fallacious concept, since by compositing the original sample and testing only one aliquot of the composite sample, the results will provide no more information about the lot than would testing of a single sample of, say, 25 g. It is totally incorrect to interpret a negative result as indicating (at $P = 0.95$) a maximum contamination level of 11 organisms/kg, which would have been given by 10 negative results.

Method (2) described by Jarvis is the wet-compositing procedure of step d) of the'584 patent claims. Jarvis provides the same rationale for this wet-compositing procedure as is discussed in the '584 patent, namely, "in order to reduce the work load on the laboratory." Jarvis teaches that the wet composites be tested by a "suitable detection assay," as required by step e) of the claims: "Methods (1), (2) and (3) provide the same

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degree of statistical confidence as would be attained by testing the 10 samples separately, in so far as a negative result indicates no sample contamination and therefore <11 organisms/kg (at $P = 0.95$)." The preceding sentence demonstrates that Jarvis recognized and teaches that a negative test result on the wet composite validates all of the samples, as required by step e). Moreover, Jarvis discloses the re-testing procedure of step e) in the event of a positive test result for the wet composite: "Method (2), at least in theory, permits the tests to be repeated on stored pre-enrichment cultures so that some indication of the proportion of contaminated samples can be obtained." Accordingly, Jarvis taught all of the elements of steps d) and e) of the '584 patent claims. For a more complete discussion of the Jarvis reference, see the accompanying declaration of Dr. J. Stan Bailey at ¶¶ 9a – 9f.

Another prior art reference that taught the wet-compositing, validation and re-testing procedures of steps d) and e) of the '584 patent is the publication by Price, W.R., Olsen, R.A. and Hunter, J.E., *Salmonella* Testing of Pooled Pre-Enrichment Broth Cultures for Screening Multiple Food Samples. *Applied Microbiology*, *23*:679-82. 1972 ("Price et al.") (Exhibit 8). Price et al. explained the rationale for their work in the opening paragraph of the article:

> Positive test results are relatively rare among the many samples of food ingredients and products which are analyzed for *Salmonella*. Therefore, a test procedure that gives a single negative answer for many negative samples offers an important saving in the analytical effort required for quality control. These studies support the conclusion that *Salmonella* pre-enrichment broths can be pooled for analysis without loss in sensitivity to *Salmonella* in the individual samples.

Id. at 679. Price et al. describe a method for analysis of samples of dried egg albumen, cocoa, and nonfat dry milk, each of which had been inoculated with *Salmonella*. For a

complete description of the Price et al. procedures, see the accompanying declaration of Dr. J. Stan Bailey, ¶¶ 10a – 10i. The "Materials and Methods" section of the article indicates that the analyses were carried out as described in the "*Bacteriological Analytical Manual* (BAM)," except for the pooling of pre-enrichment broths. The authors describe the pooling procedure by reference to the following illustration of Figure 1:

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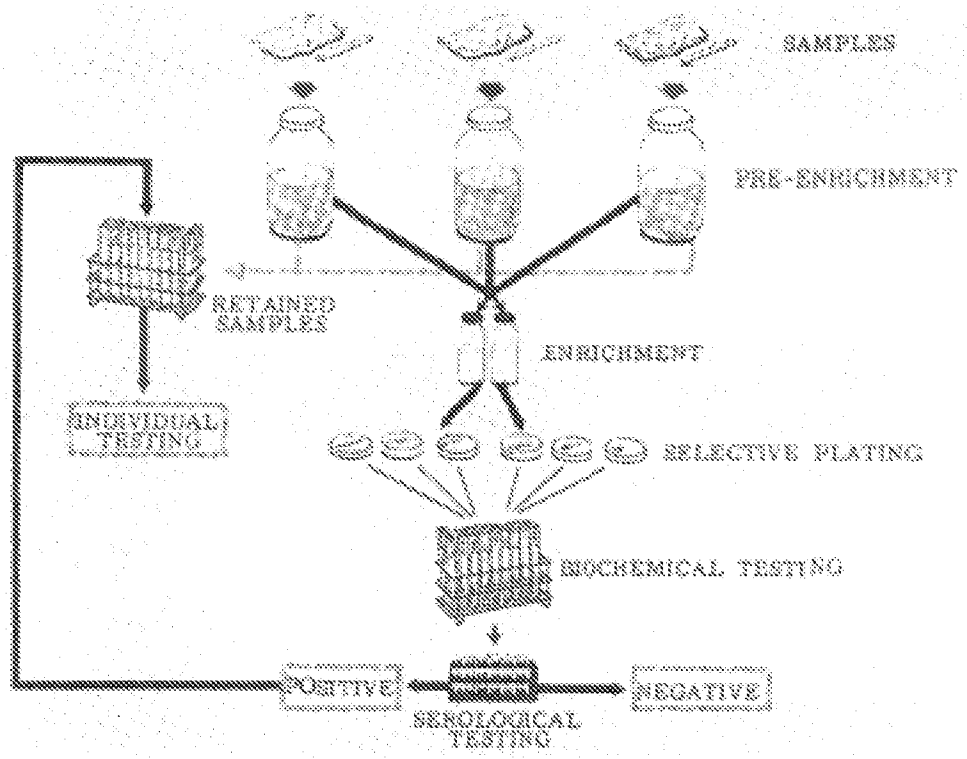


FIG. 1. *Salmonella* testing of pooled pre-enrichment broths.

Id. at 680. As described (see p. 679), this figure shows that multiple samples of test lots are individually pre-enriched in pre-enrichment solutions. The pre-enrichment steps resulted in proliferation of the microbial cells to detectable levels. Bailey Decl. at ¶ 10e (*also see* ¶ 9d). Following pre-enrichment, aliquots of each pre-enrichment broth were composited into two separate enrichment broths (selenite and tetrathionate broths) for enrichment. This procedure corresponds to step d), wherein each of the enrichment broth composites correspond to a "modular composite sample." Following enrichment, the wet composites were tested for *Salmonella* using a selective plating procedure (corresponding to the requirement of claim step e) that the composite sample be tested "using a suitable detection assay.") As required by claim step e), a negative test result for the wet

composite validated that each of the samples was negative. The re-testing procedure of claim step e) also is disclosed by Price et al.: "If the *Salmonella* test of the pooled pre-enrichment broths is positive, individual tests on the retained samples can be made to determine which sample or samples contributed *Salmonella* to the pool." *Id.* at 679.

Price et al. described the testing of dried products that were in the form of powders. Those products could be mixed to homogeneity; therefore, it was not necessary for the authors to take multiple samples from different locations within the test lots. Bailey Decl. at ¶ 10b. Thus, in Fig. 1, Price et al. illustrate a strip of sample from each test lot for use in testing. It was, however, well known at the time of the '584 patent invention, that for test lots that could not be mixed or for solid or semisolid products, a plurality of portions of the test lot should be sampled to obtain a representative sample. As discussed above, Section 2.52 of the Compendium (Exhibit 3) describes sampling procedures for various types of products. For samples such as liquids, the sample is mixed until homogeneous before drawing a sample. For samples that cannot be adequately mixed or bulk solids or semisolids, the reference teaches that multiple samples or aliquots should be taken from several areas of the food to ensure that a representative sample is obtained. Thus, if the Price et al. procedure were to be used to assay test lots of solid or semisolid food products (*e.g.*, beef trim or ground beef), a person of ordinary skill would have recognized that multiple portions of the test lot would be sampled and composited to obtain a representative sample. *See* Bailey Decl. at ¶ 10b.

The Silliker et al. reference (Exhibit 7) further taught that wet-compositing could reduce the number of microbiological tests of food samples; thereby, improving

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efficiency. As discussed above, Silliker et al. taught a procedure using both sample compositing and wet compositing:

> Compositing of multiple subsamples (lumping) and wet compositing of pre-enrichment cultures have been tested as economical approaches to *Salmonella* control. Both approaches are being used widely by the food industry in the United States, but little has been published on the efficacy of either technique.

Id. at 475. In the "Methods" section, Silliker et al. described "Subculturing of Pre-Enrichment Cultures" as follows:

> Sixty 25-g pre-enrichment cultures were randomly assigned to 12 groups of five. Each of these groups was used to prepare wet composites as follows: 1 ml from each of the five pre-enrichment cultures was introduced both into 45 ml selenite broth and 45 ml tetrathionate broth. Similarly, the fifteen 100-g pre-enrichment cultures were prepared in the same manner as described above.

Id. at 476. The wet composites were then tested for the presence of *Salmonella* using "conventional biochemical and serological procedures." *Id.* at 477. The authors concluded that, "[p]ooling sixty 25-g or fifteen 100-g pre-enrichment cultures into groups of five (wet compositing) followed by selective enrichment of the composites apparently results in the same assurance of detection of positive lots as analysis of individual samples." *Id.* at 478. Silliker et al. thus taught the wet-compositing and testing procedures of steps d) and e) of the '584 patent claims. Bailey Decl. at ¶ 20.

D. Combining the Steps Taught by the Prior Art Would Have Been Obvious to a Person of Ordinary Skill in August 2004

The field of microbiology pertinent to the subject matter of the '584 patent relates to the microbiological analysis of food and industrial food safety. A person of ordinary skill in that field in August 2004 would have been involved in developing sampling, testing and validation methodology and plans and would have been familiar with the literature discussed above, all of which involves prominent journals and textbooks in the field of microbiological testing of foods. Such a person would have possessed either an advanced scientific degree in microbiology, environmental health and safety, or food

science or would have possessed a Bachelor's degree and had several years of experience in developing methodology for the sampling and analysis of food products. The person of ordinary skill would have been familiar with the scientific literature relevant to the microbiological analysis of food also would have been required to possess a working knowledge of rules, regulations, guidelines and directives relating to sample preparation and testing methodology to evaluate food for the presence of absence of pathogenic microorganisms. *See* Bailey Decl. at ¶ 8b.

The sample-compositing, incubation, wet-compositing, testing, validation and re-testing procedures set forth in the steps of the '584 patent claims all perform their art-recognized functions in the method of those claims. In that regard, the method defined by the '584 patent is merely an aggregation of known steps performing their known functions. The combination of the steps in the manner prescribed by the claims yields results that would have been predictable to a person of ordinary skill at the time of the alleged invention. *See* Bailey Decl. at ¶ 8a.

III. Identification of the Patent by Patent Number and Every Claim for Which Reexamination is Requested

Requester requests reexamination of claims 1-33, all of the claims, of U.S. patent 7,534,584 patent.

IV. Citation of the Patents and Printed Publications Which Are Presented to Provide a Substantial New Question of Patentability

The list of references upon which Requester relies is attached to the Request in the Appendix, and the references are also cited on form PTO/SB/08a which accompanies this Request.

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V. Statement Pointing Out Each Substantial New Question of Patentability Based on the Cited Patents and Printed Publications and a Detailed Explanation of the Pertinency and Manner of Applying the Patents and Printed Publications to Every Claim for Which Reexamination is Requested

A. First Substantial New Question of Patentability -- Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) and Compendium Chapter 2

None of Jarvis (Exhibit 13), the FSIS Protocol, reproduced as Section 35.243 of the Compendium (Exhibit 4), or Chapter 2 of the Compendium (Exhibit 3) were of record during prosecution of the '584 patent. Claims 1 and 17 are unpatentable under 35 USC § 103(a) over the combination of these references (comments below directed to claim 1 apply also to claim 17).

By August, 2004, the combination of the teachings of Jarvis and the FSIS Protocol would have been obvious to a person or ordinary skill in the art. The FSIS Protocol was a food-testing protocol developed and published by an agency of the United States government (United States Department of Agriculture) having responsibility for food safety. It is summarized in the Compendium which was a well known and widely used reference book for food microbiologists. Bailey Decl. at ¶ 16. These references would have been well-known to persons skilled in the art having responsibility for the development of methods for the sampling, testing and validation of food products. Jarvis describes the statistical aspects of microbiological analyses of food products. Persons of ordinary skill in the art would have been aware of the importance of insuring the statistical validity of methodology developed for the analysis of food products. Bailey Decl. at ¶ 9a. *Also see* Compendium at Section 2.51 recommending that a professional statistician be consulted "to ascertain that the lot of food to be sampled meets the criteria required by [the] particular sampling plan." Jarvis describes procedures for improving

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efficiencies of the testing procedure and reducing the work of laboratories involved in testing food for microbial contamination. Therefore, a person of ordinary skill in the art charged with developing methodology for the microbiological analysis of food products would have been motivated to combine the teachings of these references.

The FSIS Protocol describes a method for testing raw ground beef for the pathogenic *E.coli* strain 0157:H7. The method refers to sampling, testing and validating test lots of ground beef for contamination with that microorganism. The combination of Jarvis and the FSIS Protocol are described below with reference to claim 1 (referring to Compendium Chapter 2 for definitions and general concepts).

As required by step a) of claim 1, the FSIS Protocol describes collecting a plurality of portions from a test lot of raw ground beef. Step 1 of the Protocol refers to combining five samples of ground beef for analysis as a composite. As of the effective filing date of the '584 patent, a person of ordinary skill in the art would have understood to apply the FSIS Protocol to a "test lot" which is defined in the '584 patent as including a single production unit. Bailey Decl. at 16. The '584 patent defines "single production unit" or "single unit production lot" as a form of "test lot" and states that it is a single unit of production rather than "a composite comprised of multiple, non-operationally linked single production units (production sublots)." '584 patent, col. 5, lines 33-38.

By August 2004, a person of ordinary skill would have understood that "test lots" or "single production units" or "single-unit production lots" of food products such as meat (e.g., raw ground beef), poultry, dried food products, produce and the like would have been sampled and tested for microbial contamination. For example, Chapter 2 of the Compendium, in Section 2.511, defines "Lot" as

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> the number of sample units produced in one batch or in some specified period of time such that the units will be about the same quality. Each lot or batch should consist of units of product of a single type, grade, class, size and composition. The lot should be manufactured under the same conditions and at essentially the same time.

Bailey Decl. at 16. In that same section, "Sampling Plan" is defined as a design that indicates the number of units to be collected from each lot and the criteria to be applied in accepting or rejecting that lot." Thus, by August 2004, a person of ordinary skill would have understood that the FSIS Protocol would be applied to "test lots" or "single production units" as set forth in the '584 patent. Bailey Decl. at 16.

Step a) of claim 1 requires that "the test lots each [comprise] an assemblage of one or more specimens." Neither "assemblage" nor "specimens" is defined in the "584 patent. A lot of ground beef to be tested according to the FSIS Protocol includes numerous specimens of beef assembled together and which can be removed by sampling and tested according to a sampling plan. Bailey Decl. at 16.

Step b) of the claim 1 requires

> combining the collective plurality of portions corresponding to each of the separate test lots to provide a corresponding set of separate test lot samples, wherein each separate test lot sample is attributed to a particular corresponding test lot.

The FSIS Protocol describes the analysis of a 65-gram sample of ground beef usually consisting of a composite of five samples. As discussed above, a person of ordinary skill in the art would have understood that these five samples would be derived from a "test lot" or "single-unit production lot." Indeed, as taught in Section 2.511 of the Compendium, a proper sampling plan indicates the number of units to be collected from each "lot" and explains in the definition of "lot" that "the lot should be manufactured

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under the same conditions and at essentially the same time." The Compendium also teaches in § 2.511 the importance of obtaining a representative sample for testing.

> Step c) requires
>
> incubating the set of separate test lot samples under conditions suitable to allow levels of a target microbial agent or organism that is present in one or more of the separate test lot samples to reach detectable levels and become uniform, or substantially uniform, throughout the respective one or more separate test lot samples, to provide a set of separate test lot samples in which for the target microbial agent or organism
>
> .

The FSIS Protocol teaches that the composite sample of ground beef should be blended with an enrichment medium (defined as mEC with novobiocin) and should be incubated at 35°C at 18 to 24 hours. Bailey Decl. at 16. This is described as the "enrichment" step. The enrichment step of the FSIS Protocol results in the growth of the target *E.coli* cells to detectable levels, as required by step c), because the next step of the protocol is to [a]pply the enrichment culture to a commercial 0157:H7-NM (non-motile) antibody-based test kit (Table 2) according to the manufacture's instructions." Because the enrichment culture is immediately subjected to a commercial test for *E.coli*, it is clear that the enrichment step multiplies the target microorganism to detectable levels. Because the enrichment solution is a liquid, the test lot sample derived from the incubation of the composite test lot in the enrichment medium would be uniform. Bailey Decl. at ¶ 9d.

Claim steps a), b) and c) require the sampling, compositing and enrichment of "a plurality of test lots" to produce a "set of separate test lot samples." The FSIS Protocol describes the procedure for analyzing a test lot of raw ground beef. Persons skilled in the art would have readily understood that the FSIS Protocol would be applied to multiple separate test lots of raw ground beef to produce a set of separate test lot samples.

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Particularly in a large operation producing multiple production lots on a regular basis. Bailey Decl. at ¶ 19.

The FSIS Protocol describes testing of the enriched test sample using a commercial antibody-based test kit. The Protocol provides that "negative samples are reported (i.e. the test lot is validated), and are discarded. Positive samples are further tested to confirm contamination with the pathogenic *E.coli* O157:H7 stream.

Step d) of claim 1 requires "removing portions of the enriched separate test lot sample, and combining the removed portions to provide a modular composite sample." The FSIS Protocol describes sampling, enriching and analyzing each test lot sample separately. Bailey Decl. at ¶ 19.

In Section 8.4.2.1, Jarvis (Exhibit 13) describes various compositing procedures for "[reducing] the work load on the laboratory." See Jarvis at 141-142. The wet-compositing procedure of step d) is defined in method (2), which directs that aliquots of ten separate pre-enrichment solutions be composited into a single enrichment broth. It would have been obvious to a person of ordinary skill to have wet composited enrichment media described in the FSIS Protocol generated for separate test lots, according to the procedure described by Jarvis, to reduce laboratory workload. As Jarvis explains, this method will provide "the same degree of statistical confidence as would be obtained by testing the ten samples separately, in so far as a negative result indicates no sample contamination . . . ." Jarvis at 141. Thus, Jarvis provides the motivation for the wet-compositing step d) of claim 1; namely, to reduce laboratory workload without sacrificing statistical confidence in a negative test result.

Step e) of claim 1 requires

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> testing of the composite sample, using a suitable detection assay, for the target microbial agent or organism, wherein when such testing is negative all of said separate test lot samples are validated, and wherein when such testing is positive, individual separate test lots are validated by further testing a portion of the respective enriched separate test lot sample using the same or a more sensitive protocol and obtaining test result for each test lot.

Jarvis teaches that the wet composite should be tested by a "suitable detection assay." He refers to the fact that a "negative result indicates no sample contamination." A negative result could not be obtained without subjecting the samples to a suitable assay. The FSIS Protocol describes a suitable assay for *E.coli*. Jarvis also teaches the claim requirement, "wherein when such testing is negative all of such separate test lot samples are validated." As discussed above, Jarvis emphasizes that Method 2 provides "the same degree of statistical confidence as would be obtained by testing the ten samples separately insofar as a negative result indicates no sample contamination . . . ." Thus Jarvis contemplates validating a negative result for all ten samples by a negative rest result on a single composited sample.

In addition, Jarvis describes the re-testing procedure of claim step e) "wherein when such testing is positive, individual test lots are validated by further testing of a portion of the respective enriched test lot sample using the same or a more sensitive protocol and obtaining test result for each test lot." Specifically, Jarvis states that "Method (2), at least in theory, permits the test to be repeated on stored pre-enrichment cultures so that some indication of the proportion of contaminated samples can be obtained." Jarvis at 141-42. A person of ordinary skill would have readily understood from this teaching by Jarvis that portions of individual test lot samples should be retained and individually tested in the event of a positive result on the composited test lot samples. Bailey Decl. at ¶ 9f.

Accordingly, all of the steps of claims 1 and 17, combined in the same way as specified in that claim, would have been obvious to a person of ordinary skill in the art by August 2004 in the view of the combined teachings of Jarvis and the FSIS Protocol, together with general concepts taught by Chapter 2 of the Compendium.

B. Second Substantial New Question of Patentability – FSIS Protocol in Combination With Price et al. and the General Teachings of Chapter 2 of the Compendium.

Claims 1 and 17 are unpatentable as obvious over the FSIS Protocol (Exhibit 4) in combination with Price et al. (Exhibit 8). As discussed above, the FSIS Protocol was not of record during prosecution of the '584 patent. Price et al. was made of record within an Information Disclosure Statement filed on December 4, 2008 (after the response to the second non-final office action) but was never applied.

The combination of the FSIS Protocol and Price et al. presents a substantial new question of patentability. Like the FSIS Protocol, Price et al. describe a method for the microbiological testing of foods. The Price et al. article states that "a test procedure that gives a single negative answer for many negative samples offers an important saving in the analytical effort required for quality control." A person of ordinary skill in the art involved in developing methods for the sampling, testing, and validation of food products would have been motivated to combine the teachings of Price et al. with the FSIS Protocol for the purpose of improving efficiencies and reducing laboratory workload.

Claims 1 and 17 are unpatentable under 35 USC § 103(a) as obvious over the combination of the FSIS Protocol (Exhibit 4), Price et al. (Exhibit 8) and the general teachings of Chapter 2 of the Compendium (Exhibit 3). The FSIS Protocol, in light of Chapter 2 of the Compendium, is applied as discussed above in Section V.A. for the

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teaching of steps a), b) and c). Price et al. teach the wet compositing procedure of step d) and the testing, validation and potential re-testing procedures of step e). Price et al. describe their method by reference to Figure 1 at page 680, reproduced above in Section II.C. Price et al. place individual samples of test lots separately into pre-enrichment media. By August 2004, a person of ordinary skill in the art would have understood that the test lot samples would be incubated in these media until the organism reached detectable levels. Bailey Decl. at paragraph 10i. Indeed, it was known at that time that pre-enrichment of samples resulted in both resuscitation and growth of the test microorganisms. Bailey Decl. at ¶¶ 9d and 10d.

Claim step d) requires "removing portions of each enriched separate test lot sample and combining the removed portions to provide a modular composite sample." Price et al. removed 1 ml aliquots of each of the pre-enrichment broths and composited them separately into two enrichment broths, a selenite broth and tetrathionate broth. The step corresponds to claim step d), inasmuch as two separate "modular composite samples" were prepared. Bailey Decl. at ¶ 10g.

As illustrated in Figure 1 of Price et al. and described in the test accompanying that Figure, each of the composite enrichment broths was then tested for the presence of the target microorganism (*Salmonella*) by conventional plating techniques. Thus, the testing procedure required by claim e) was disclosed by Price et al. Figure 1 of Price et al. indicates that a negative test result for the composited wet sample validates that each of the test lots was negative for the target microorganism. Indeed, the goal of the Price et al. study was to provide "a test procedure that gives a single negative answer for many negative samples [to offer] an important saving in the analytical effort required for

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quality control." Price et al. at 679. Accordingly, the validation procedure of claim e) was taught by Price et al. Price et al. also disclosed the retention of the individual pre-enrichment media (test lot samples) for re-testing in the event the composited enrichment broth yielded a positive result for the target microorganism. Price et al. stated, "[i]f the *Salmonella* test of the pooled pre-enrichment tests is positive, individual tests on the retained samples can be made to determine which sample or samples contributed *Salmonella* to the pool." A person of ordinary skill would have understood Price et al. to describe using the same or more sensitive protocol for re-testing. Bailey Decl. at ¶ 10g. Thus, Price et al. taught the re-testing/re-validation procedures of claim step e).

Accordingly, the combination of the FSIS Protocol and Price et al. teach each of the steps of claims 1 and 17 of the '584 patent organized in the manner specified in those claims. The method claimed in those claims was, therefore, unpatentable under 35 USC § 103(a) as obvious over the combination of those references.

C. Third Substantial New Question of Patentability -- Combination of Jarvis et al. and the Admitted State of the Art

As discussed above in Section V.A., Jarvis was not of record during prosecution of the '584 patent. It would have been obvious to a person of ordinary skill in the art to have combined the teachings of Jarvis with the admitted state of the art as discussed in the Background section of the '584 patent and its prosecution history. Jarvis provides a method for improving the efficiency and reducing the workload associated with microbiological testing procedures, such as those set forth in the Background section of the '584 patent. Thus, a person of ordinary skill in the art in August 2004 would have looked to Jarvis to improve the efficiency of those conventional procedures, while maintaining statistical confidence in the results. Bailey Decl. at ¶ 9a Both the admitted

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state of the prior art, as discussed in the Background section, and Jarvis relate to the microbiological testing of food products. A person of ordinary skill in the art involved in the development of methods for the sampling, testing and validation of food products for microbiological testing would have been motivated to combine the teachings of the background art and Jarvis.

During prosecution, the patentee acknowledged that sample compositing (steps a) and b)) to produce what the claims refer to as "test lot samples" was known in the art. *See* Section I. *supra*. The patentee acknowledged in the Background section that was it was known to composite samples for testing. For example, at col. 2, lines 13-26, the patent states that:

> With respect to *E.coli* 0157 testing, for example, a typical plan calls for taking 60 samples (e.g., sample pieces) from a production lot to form a composite sample. With respect to sterility testing a typical plan may call for compositing 10-100 units of the product and in the case of environmental sampling, 2-10 samples are often composited. Generally, the number of samples that are composited reflects: the overall sensitivity of the test method and the limit of detection that applies to the test unit; the ability to concentrate/enrich the composite sample to achieve the desired sensitivity; and the cost of sampling compared with the cost of analysis.

Thus, the patentee acknowledged that the compositing of samples from a "production lot" for analysis for microbial contamination was known in the art. This admitted state of the art corresponds to steps a) and b) of the '584 patent.

The patentee also acknowledged in the Background section that incubating composited samples in enrichment media to increase the target to a detectable level also was known in the art. Specifically, a col. 2, lines 46-58 of the '584 patent, the patentee stated:

> Typically, once a composite sample is constructed (following the art with respect to particular testing) it is then enriched for the presence of a given pathogen/microbe by addition of appropriate amounts of enrichment media and

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> incubation at an appropriate temperature for a given amount of time. If the pathogen/microbe is present, then it grows and multiples under the favorable conditions of enrichment, thereby providing more material which can be detected by subsequent analysis. The composite sample is then tested by one or more available art recognized methods including, for example, enrichment followed by immunoassay-based tests or PCR-based methods, or culturing of the microorganism of interest, or other DNA- or immunochemical-based methods.

Thus, the patentee acknowledged that it was known in the art to perform the procedures set forth in claim step c) to increase the target microorganism to detectable levels.

The patentee describes, as background art, the compositing of samples from a single production lot and the enrichment of the composited sample into a single test lot sample enriched for the target microorganism. It would have been obvious to a person of ordinary skill in the art that multiple production lots would be tested by this procedure to produce a set of separate test lot samples corresponding to separate production lots. Bailey Decl. at 16.

Jarvis describes compositing test lot samples (pre-enrichment broths) into a single enrichment broth and testing that composite by suitable detection assay for the target microorganism. Jarvis is applied to as described above in Section V.A.

Thus, claims 1 and 17 would have been obvious over the combination of Jarvis and the admitted state of the art and are therefore unpatentable under 35 U.S.C. §103(a).

D. Fourth Substantial New Question of Patentability--The Admitted State of the Art in Combination with Price et al.

Claims 1 and 17 are unpatentable under 35 USC § 103(a) as obvious over the combination of the admitted state of the art together with Price et al. As discussed in the preceding section, the patentee acknowledged that the collection and compositing of portions of a production lot (test lot) corresponding to claim step a) and b) was known. Further, as discussed in the preceding section, the patentee acknowledged that incubating

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the composited samples under suitable conditions to increase the target microorganism to detectable levels, thereby producing test lot samples enriched for the target microorganism also was known.

As discussed in Section V.B. above, Price et al. taught the wet compositing procedure of claim step d) and the testing, validation and re-testing procedures of claim step e). Thus, the admitted state of the prior art and Price et al. are applied to claims 1 and 17 as described in the preceding sections. Price et al. was made of record during prosecution of the '584 patent but was not applied to the claims. The combination of the teachings of Price et al. and the admitted state of the art presents a substantial new question of patentability.

Each of the elements of claims 1 and 17, arranged as set forth in those claims, was taught by the combination of Price et al. with the admitted state of the prior art. Accordingly, those claims are unpatentable under 35 USC §103(a).

E. Fifth Substantial New Question of Patentability – Compendium Chapter 37 (*Salmonella* Testing) In Combination With Price et al., In View of the General Teachings of Compendium Chapter 2

Chapter 37 of the Compendium describes methods for the sampling, testing and validation for *Salmonella* contamination in food products. The chapter was co-authored by Dr. Bailey, whose declaration accompanies this request. Compendium chapter 37 was not of record during prosecution of the '584 patent. As discussed above, the Compendium was a widely used reference book for scientists involved in the microbiological testing of foods. Bailey Decl. at ¶ 16. *Salmonella* was known to be a pathogenic organism capable of causing human illness and was known to be a common contaminant of a variety of food products. Accordingly, methods for testing food

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products for *Salmonella* contamination were of interest to persons of ordinary skill in the art responsible for developing methods for the sampling, testing and validation of food products for microbiological contamination.

As discussed above, Price et al. described the use of wet-compositing procedures for improving the efficiency of food-testing methods. Accordingly, a person of ordinary skill in the art in August 2004 would have been motivated to combine the teachings of Price et al. with those of Compendium Chapter 37 to improve the efficiencies of the *Salmonella*-testing procedures described in that chapter. Furthermore, a person of ordinary skill in the art would have been familiar with the Compendium and would have been motivated to refer to the general concepts and procedures described in Chapter 2 for sampling of food products as described in Chapter 2. In Section 37.122 (page 360), Compendium Chapter 37 states that:

> Various studies have demonstrated that dry compositing (combining analytical units into a single test) [footnotes omitted] or wet compositing (combining pre-enrichment cultures of individual analytical units) [footnotes omitted] substantially reduces the analytical workload without compromising methods sensitivity. In the FDA sampling plan, up to 15 X 25-g analytical units may be combined and tested as a single 375-g composite unit. The presence of *Salmonella* in foods assigned to Categories I, II or III may be determined by the analysis of 4, 2, 1 composite unit(s), respectively.

Compendium Chapter 37 thus teaches the sample-compositing procedures of claim steps a) and b) and provides a motivation for utilizing the technique in a microbiological testing procedure, namely, to reduce analytical workload without compromising sensitivity.

As of August 2004, a person of ordinary skill in the art would have understood to apply the sampling procedures described in Compendium Chapter 37 to a "test lot" which is defined in the '584 patent as including a "single production unit" or a "single-unit

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production lot." Bailey Decl. at 16. The '584 patent defines "single production unit" or "single unit production lot" as a form of "test lot" and states that it is a single unit of production rather than "a composite comprised of multiple, non-operationally linked single production units (production sublots)." '584 patent, col. 5, lines 33-38.

By August 2004, a person of ordinary skill would have understood that "test lots" or "single production units" of food products such as meat, poultry, dried food products, produce and the like would have been sampled and tested for microbial contamination. For example, Compendium Chapter 2, in Section 2.511, defines "Lot" as

> The number of sample units produced in one batch or in some specified period of time such that the units will be about the same quality. Each lot or batch should consist of units of product of a single type, grade, class, size and composition. The lot should be manufactured under the same conditions at essentially the same time.

Bailey Decl. at ¶ 16. In that same chapter, the importance of developing a sampling plan for obtaining a representative sample is discussed, and "Sampling Plan" is defined as a "design that indicates the number of units to be collected from each lot and the criteria to be applied in accepting or rejecting that lot." Thus, by August 2004, a person of ordinary skill would have understood that the sample-compositing procedure described in Compendium Chapter 37 would be applied to "test lots" or "single-unit production lots," as set forth in the '584 patent. Bailey Decl. at ¶ 16. Furthermore, a person of ordinary skill in the art in August 2004 would have understood that samples would have been taken from numerous individual "test lots" or "single production units" especially in a large food processing facility producing a number of lots on a regular basis. Bailey Decl. at ¶ 16.

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Compendium Chapter 37 also describes procedures for pre-enrichment and enrichment of contaminating *Salmonella* organisms in food product samples by incubating the food product with appropriate media. *See* Sections 37.123 and 37.124 (page 360). The function of these pre-enrichment and enrichment procedures is to multiply the target microorganism cells to detectable levels. Bailey Decl. at ¶¶ 9d and 10d .

Accordingly, Compendium Chapter 37, read in view of Compendium Chapter 2, describes the sample-compositing and incubation procedures of claim steps a), b) and c). Compendium Chapter 37 also describes methods for detecting contaminating *Salmonella* organisms using selective plating techniques. *See* Section 37.125. As shown in Table 3 (p. 361), the techniques described in Compendium Chapter 37 are applicable to a wide variety of food products.

Price et al. teach the wet-compositing, testing, validation and re-testing procedures of claim steps d) and e). That reference is applied as discussed above in Sections V.B. Compendium 37 provides a motivation for utilizing the wet-compositing procedures of Price et al. with the dry sample compositing procedures described in that chapter for *Salmonella* testing:

> Various studies have demonstrated that dry compositing (combining analytical units into a single test) [footnotes omitted] or wet compositing (combining pre-enrichment cultures of individual analytical units) [footnotes omitted] substantially reduces the analytical workload without compromising method sensitivity.

Compendium Chapter 37, Section 37.122 (p. 360). Thus, Compendium Chapter 37 read in light of the general concepts discussed in Compendium Chapter 2, together with Price et al., teach and suggest all of the steps of claims 1 and 17 organized as set forth in those

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claims. Those references also provided a motivation for combining their teachings, namely, to improve efficiencies and reduce laboratory workload. Accordingly, the methods of claims 1 and 17 are unpatentable under 35 USC § 103(a) over this combination of references.

F. Sixth Substantial New Question of Patentability—Silliker et al. in Combination with Price et al., In View of the General Teachings of Compendium Chapter 2

Silliker et al. state that compositing of multiple subsamples (lumping) and wet compositing of pre-enrichment cultures have been tested as economical approaches to *Salmonella* control, and that both approaches were used widely in the food industry in the United States. Silliker et al. at 475. The authors describe experiments involving the testing of 70-80 kg. samples of commercial products believed to be contaminated with *Salmonella.* The following sampling procedure is described in the "Methods" section of the publication:

> In tests 1-21 the mixed products were sampled directly, i.e., sixty 25-g, fifteen 100-g and three 500-g subsamples were weighed directly into the pre-enrichment broth. In tests 22-26, 180 25-g subsamples were weighed into 180 sterile sample bottles. Sixty of the 180 subsamples were randomly selected for the 25-g subsamples. The 100-g subsamples were prepared by randomly pooling four 25-g subsamples to form 15 groups. The 500-g subsamples were prepared by randomly pooling groups of twenty 25-g subsamples.

Id. at 476. The authors stated that "[a]ll test samples were commercial products, believed to be naturally contaminated with salmonellae. Each sample comprised 70-80 kg.; the major portion of this was consumed in primary testing." Thus, the sample compositing procedure described in the "Sampling" section of the Silliker et al. publication meets the requirement of steps a) and b) of the '584 patent claims. Step a) of claim 1 refers to "collecting a plurality of portions from each of the plurality of test lots." By August

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2004, a person of ordinary skill would have understood that "test lots" or "single-unit production lots" of food products of the type described in the Silliker et al. publication would have been sampled and tested for microbial contamination. For example, Chapter 2 of the Compendium, in Section 2.511, defines "Lot" as:

> The number of sample units produced in one batch or in some specified period of time such that the units will be about the same quality. Each lot or batch should consist of units of product of a single type, grade, class, size and composition. The lot should be manufactured under the same conditions and at essentially the same time.

Bailey Decl. at ¶ 16. In that same section, "Sampling Plan" is defined as a design that indicates the number of units to be collected from each lot and the criteria to be applied in accepting or rejecting that lot." Thus, by August 2004, a person of ordinary skill would have understood that the methodology described in the Silliker et al. publication would be applied to "test lots" or "single-unit production lots" as set forth in the '584 patent. Bailey Decl. at ¶ 16.

Step a) of claim 1 further requires that "the test lots each [comprise] an assemblage of one or more specimens, wherein each test lot is separately sampled by taking said plurality of portions thereof." Silliker et al. describes the preparation of samples from certain dried food products, including ground chocolate-almond bars and milk chocolate, black pepper, whole egg solids, egg yolk solids, egg albumin solids, isolated soy protein, meat meal, cottonseed meal, fish meal and coconut. By August 2004, a person of ordinary skill in the art would have recognized that these food products are made up of one or more pieces or specimens of the food assembled as a test lot or batch.

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Step b) of claim 1 of the '584 patent requires that the portions corresponding to each of the separate test lots be combined. The above quoted language from Silliker et al. indicates that the 100 gram subsamples were prepared by combining (pooling) four 25 gram subsamples and the 500 gram were prepared by combining groups of 25 gram subsamples. Thus, the requirements of claim step b) are met by the Silliker et al. publication.

Claim steps a) and b) require that samples be taken from a "plurality" of test lots and combined to form a "set of separate test lot samples." Table 1 of the Silliker et al. publication (p. 477) demonstrates that multiple sets of 100 gram and 500 gram composite samples were prepared from a number of the food products (e.g., chocolate almond bars, egg albumin solid, lot 1, egg albumin solid, lot 2, meat meal lot 1, etc. A person of ordinary skill in the art in August 2004 would have understood that samples would be taken from numerous "test lots" or "single-unit production lots" especially in a large food processing facility producing a number of lots on a regular basis. Bailey Decl. at 20.

The procedure described by Silliker et al. also meets the requirements of step c) of claim 1. Silliker et al. describe the placement of the 100 gram composited subsamples and the 500 gram composited subsamples into pre-enrichment broths followed by incubation of those broths. After incubation, one ml. aliquots from each of the pre-enrichment cultures was introduced into either a selenite-cystine broth or a tetrathionate broth. Following incubation in those broths, the test samples were streaked onto plates for identification of the microorganism. The incubation of the test lot samples described by Silliker et al. in pre-enrichment and enrichment broths multiplied the target microorganism (*Salmonella*) to detectable levels, which was apparent from the fact that

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colonies of the organism were identified by the subsequent plating technique. Because the pre-enrichment and enrichment broths are liquids, the microorganism became uniform or substantially uniform throughout the samples. Thus, Silliker et al. satisfied all of the requirements of step c) of claim 1 of the '584 patent.

As discussed above in Section V.B., Price et al. describe the wet compositing, testing, validation and re-testing procedures of claim steps d) and e). Price et al. is applied as described in those sections.

Silliker et al., Compendium Chapter 2, Price et al. all relate to the microbiological testing of food products. It would have been obvious to a person of ordinary skill in the art in August 2004 who was involved in the development of methods for sampling, testing and validation of food products to combine the teachings of the references. Moreover, Silliker et al. discuss both sample compositing, which the authors refer to as "lumping" and wet compositing of pre-enrichment cultures. Silliker et al. point out that "[e]xamination of fifteen 100-g subsamples would require one-fourth the laboratory work [involved with the analysis of sixty 25-g subsamples]." *Id.* at 475. Silliker thus suggest combining the sample compositing steps with the wet compositing procedures, as described in Price et al., to improve efficiencies and reduce laboratory workload. Accordingly, the methods of claims 1 and 17 of the '584 patent are unpatentable under 35 USC §103(a) as obvious over the combined teachings of these references.

G. Seventh Substantial New Question of Patentability—Gabis et al. in Combination with Price et al., in View of the General Teachings of Compendium Chapter 2

Claims 1 and 17 are unpatentable under 35 USC 103(a) because the claimed invention would have been obvious over Gabis et al., in view of the general concepts and

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teachings of Compendium Chapter 2, together with Price et al. Gabis et al. described a follow-up study to the study reported in the Silliker et al. publication discussed in the preceding section. The stated purpose of the study was "to determine whether multiple 25-g subsamples could be similarly lumped to provide large sample units for the analysis of high-moisture foods, such as meats, poultry, and eggs." Gabis et al., like Price et al., are concerned with the analysis of food products for microbiological contamination. Both references are directed to methods involving the compositing of samples to improve efficiencies, reduce laboratory workload and reduce costs. Accordingly, a person of ordinary skill in the art involved with the development of sampling, testing and validation methods for microbiological analysis of foods would have been motivated to combine the teachings of these references.

Gabis et al. was concerned with methods for the detection of *Salmonella* contamination of high-moisture foods. The authors investigated the feasibility of compositing samples of such foods for analysis. They stated that: "[t]he economic advantage of lumping samples is obvious; indeed, this approach makes statistical quality control over the *Salmonella* defect economically feasible, particularly for high-risk foods where analysis of as many sixty 25-g subsamples has been recommended. [Footnote omitted]." *Id.* at 663. In the introduction to their study, the authors stated "[t]he United States Food and Drug Administration [footnote omitted] has officially recognized the lumping of multiple 25-g samples to produce 375-g samples for analysis."

Gabis et al. describe a study in which samples of frozen raw meat products obtained from human food processors and organ meat and organ-skeletal mixtures were obtained from pet food processors. They stated that salmonellae in these samples were

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natural contaminants. *Id.* at 664. The reference contains the following description of the procedures used for sampling:

> The acceptance criteria for category III products in the NRC report [National Research Council-National Academy of Sciences. 1969. Committee on *Salmonella* and Evaluation of the *Salmonella* Problem. Publ. 1683. Washington, D.C.] was followed. Products in this category are accepted if thirteen 25-g subsamples are analyzed for *Salmonella* and found negative. Accordingly, thirteen of the 25-g units were used for analysis as individual subsamples. Three lumped subsamples of 108.3 g each were prepared by combining four 25-g units and weighing an additional 8.3-g subsample from one of the 25-g units. A 325-g lumped subsample was prepared by combining thirteen 25-g units. In addition, a 500-g subsample was included in view of our previous experience with the analysis of 500-g dry food subsamples [citing Silliker et al.]. Thus, for each analytical procedure, thirteen 25-g, three 108.3-g, one 325-g, and one 500-g subsamples were analyzed.

Id. at 664. The samples were prepared by grinding or, in the case of egg samples, hand mixing. The foregoing description meets the requirements of steps a) and b) of claims 1 and 17 of the '584 patent. Steps a) requires collecting a "plurality of portions" from "test lots" or "single-unit production lots." The '584 patent defines "single production unit" or "single unit production lot" as a form of "test lot" and states that it is a single unit of production rather than "a composite comprised of multiple, non-operationally linked single production units (production sublots)." '584 patent, col. 5, lines 33-38. By August 2004, a person or ordinary skill would have understood that "test lots" or "single-unit production lots" of food products, such as meat, poultry and eggs, would have been sampled and tested for microbial contamination. For example, Compendium Chapter 2, in Section 2.511, defines "Lot" as

> The number of sample units produced in one batch or in some specified period of time such that the units will be about the same quality. Each lot or batch should consist of units of product of a single type, grade, class, size, and composition. The lot should be manufactured under the same conditions at essentially the same time.

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See Bailey Decl. at ¶ 16. In that same chapter, the importance of developing a sampling plan for obtaining a representative sample is discussed, and "sampling plan" is defined as a "design that indicates the number of units to be collected from each lot and the criteria to be applied in accepting or rejecting that lot." Thus, by August 2004, a person of ordinary skill would have understood that the sample-compositing procedure described by Gabis et al. would be applied to "test lots" or "single production units," as set forth in the '584 patent. Bailey Decl. at ¶ 16. Furthermore, a person of ordinary skill in the art in August 2004 would have understood that samples would have been taken from numerous individual "test lots" or "single production units" especially in a large food processing facility producing a number of lots on a regular basis. Bailey Decl. at ¶ 20.

Claim step a) further specifies that each of the test lots comprises "an assemblage of one or more specimens." Neither "assemblage" nor "specimens" is defined in the '584 patent. It is apparent that the meat, poultry and egg products discussed in the Gabis et al. publication are assemblages or combinations of individual pieces or specimens of the meat, poultry, or eggs. Bailey Decl. at ¶ 20. Thus, the sampling procedures described in claim steps a) and b) are fully met by the sampling procedures described in Gabis et al. read in light of Compendium Chapter 2.

Gabis et al. also describe the incubation and enrichment steps set forth in claim step c). The authors studied two approaches to enrichment for *Salmonella*. The first was to place the composited samples in pre-enrichment broths, incubate and then transfer aliquots of the pre-enrichment cultures to selective enrichment broths. The second was to enrich directly in enrichment broths. *Id.* at 664 (see the sections entitled "Enrichment

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Procedures" and "Subculturing of Enrichment Cultures"). Following these procedures, the cultures were plated for the identification of *Salmonella* organisms.

The authors reported that the procedures involving pre-enrichment were more sensitive then those involving direct enrichment of the sample composites. Nevertheless, both procedures resulted in positive results indicating that the microorganisms were multiplied to detectable levels. Either procedure (incubation in pre-enrichment media followed by incubation in enrichment media, or direct enrichment) satisfies the requirements of claim step c), inasmuch as the test lot samples were incubated under conditions suitable to allow levels of the target microorganism to reach detectable levels and become uniform or substantially uniform. Thus, Gabis et al. meet the requirements of claim step c).

Gabis et al. conclude that,

> [t]he results clearly indicate that lumping of 25-g subsamples to produce larger subsamples for analysis is as sensitive for the detection of positive samples as is the analysis of individual 25-g subsamples. This finding parallels the results of our previous study [citing Silliker et al.] on dried foods. The importance of this is obvious and has been discussed.

Id. at 668.

Price et al. describe wet compositing of the incubation media, as described in claim step d). As discussed above in Section V.B., this reference describes the wet-compositing, testing, validation and re-testing procedures set forth in claim steps d) and e). The reference is applied as discussed in that section.

For these reasons, Gabis et al. read in light of the general concepts and procedures described in Compendium Chapter 2, together with Price et al. disclose each of the steps claims 1 and 17 arranged as set forth in those claims. Accordingly, the invention would

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have been obvious to a person of ordinary skill in the art in August 2004 and the claims are unpatentable under 35 USC §103(a).

H. Eighth Substantive New Question of Patentability—Jarvis in view of BAM.

Claims 1 and 17 are unpatentable under 35 U.S.C. §103(a) as obvious over Jarvis in view of BAM. The Patentee admitted and original examination established that the sample preparation steps a) - c) of claims 1 and 17 were known in the prior art, Chapter 1, entitled "Food Sampling and Preparation of Sample Homogenate," of Bacterial Analytical Manual ("BAM") provides explicit evidence that the steps were known. As discussed above, Jarvis describes the compositing, testing, validation and re-testing, steps d) and e) of claims 1 and 17, which the Patentee alleged were missing from the references during prosecution. Thus, the combination of Jarvis and BAM discloses all of the elements of claims 1 and 17.

By August 2004, it would have been obvious to the skilled artisan to have combined the teachings of Jarvis and BAM. BAM was a well-known government publication of FDA guidelines on food sampling and preparation of sample homogenate. It disclosed the preparation of food homogenate samples for testing so that the food homogenate samples will be representative of a designated lot of food product. See p. 1.

On p. 117, in the introduction to chapter 8, Jarvis discloses that the sample could be an "initial food homogenate (or culture)." Jarvis leaves to the skilled artisan the preparation of the "initial food homogenate (or culture)." In August 2004, the skilled artisan would have looked to the disclosure of BAM to prepare an "initial food homogenate." Such a combination of Jarvis and BAM would have been no more than applying BAM's known (and FDA recommended) technique of preparing foods

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homogenate samples to the method of Jarvis (which requires that one begin with food homogenate samples) to yield predictable results. Thus, one of ordinary skill in the are would have found it obvious to combine the teachings of Jarvis and BAM, and to practice the subject matter of claims 1 and 17 (steps a) - e)), and those claims are, therefore, unpatentable under 35 U.S.C. § 103(a) as a result.

I. Ninth Substantial New Question of Patentability – Price et al. in view of BAM and Davies

Claims 1 and 17 are unpatentable under 35 USC § 103(a) as obvious over Price et al. in view of BAM. Price et al. provides a roadmap for practicing all of steps a) - e) of claims 1 and 17. That is, Price et al. points the skilled artisan to BAM which discloses steps a) and b), and Price itself discloses steps c) - e).

In August 2004 and 2005, it would have been obvious to the skilled artisan to have combined the teachings of Price et al. and BAM. Specifically, rather than expressly disclosing the steps of collecting and preparing the separate samples, Price et al. disclose that "the analyses were carried out as described in [BAM]."[6] Based on this express teaching, in 2004 and 2005, the skilled artisan would have looked to BAM for the collection and preparation of the samples and combined the teachings of BAM with the teachings of Price. See MPEP §2143(G). Thus, one of ordinary skill in the are would have found it obvious to combine the teachings of Price and BAM, and to practice the subject matter of claims 1 and 17 (steps a) - e)) as a result.

The Patentee admitted and original examination established that the sample preparation steps a) - c) of claims 1 and 17 were known in Davies. Price et al. teach

[6] Price cites the 1969 edition of BAM. However, in August 2004 and 2005, the skilled artisan would have looked to the most recent edition of BAM at that time, which was the 2003 edition.

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compositing and testing steps d) and e) of claims 1 and 17, which the Patentee alleged were missing from the references during prosecution.

In August 2004 and 2005, it would have been obvious to the skilled artisan to have combined the teachings of Price et al. and Davies. At that time, the combination of Price and Davies would have been no more than applying Davies' known technique of preparing samples to the method of Price (which does not expressly limit the steps of collecting and preparing the samples) to yield predictable results. Thus, one of ordinary skill in the art would have found it obvious to combine the teachings of Price and Davies, and to practice the subject matter of claims 1 and 17 (steps a) - e)) as a result.

VI. Dependent Claims

The foregoing sections discuss substantial new questions of patentability with respect to independent claims of the '584 patent. The dependent claims, 2-16 and 18-33, do not add of limitations of patentable significance to the independent claims, but instead, specify additional features of the claimed methods that were described and known in the prior art or that were matters of obvious selection or design choice. Therefore, substantial new questions of patentability exist with respect to each of the dependent claims. Each of the bases for the substantial new questions of patentability is further explained below and in the accompanying claim charts.

A. Claim 2

Claim 2 reads as follows:

> 2. The method of claim 1, wherein the test lot is a single-unit production lot, comprised of operationally-linked product specimens.

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This claim is of essentially the same scope as claim 17, which is discussed above. A "single-unit production lot" is defined in the specification as "a single unit of production (e.g., for beef trim a "combo" or for almonds a "bin") rather than, as in the prior art, to a composite comprised of multiple, non-operationally linked single production units (production sublots)." '584 patent, col. 5, lines 33-38. A "single-unit production lot" is also described in the '584 patent as a form of "test lot." *Id.* As explained by Dr. Bailey, by August 2004, it was common practice for microbiologists to use operationally linked production lots for microbiological testing. The statement in the above quotation implying that the prior art employed a "composite comprised of multiple, non-operationally linked single production units (production sublots)" is an overstatement. Regardless of whether some processors combined production lots before sampling for microbiological testing, it is also clear that the use of single production units or lots for sampling was also commonplace. Compendium Chapter 2 describes the importance of developing a "sampling plan" and of obtaining "representative samples" for microbiological testing. In Section 2.511, "Sampling Plan" is defined as "[a] design that indicates the number of units to be collected from each lot and the criteria to be applied in accepting or rejecting the lot." "Lot" is defined as

> [t]he number of sample units produced in one batch or in some specified period of time such that the units will be about the same quality. Each lot or batch should consist of units of product of a single type, grade, class, size and composition. The lot should be manufactured under the same conditions and at essentially the same time.

1. Tenth Substantial New Question of Patentability (Claim 2) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) and Compendium Chapter 2.

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A substantial new question of patentability exists for Claim 2 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with Claim 1 together with the following comments. Claim 2 adds nothing of patentable significance to Claim 1.

Compendium Chapter 2 makes clear that prior to August 2004, appropriate sampling plans involved sampling a "number of units to be collected from each lot" and that a "lot" was understood to be a production batch consisting of operationally linked units. Accordingly, a person of ordinary skill in the art was aware that a "test lot" or "single-unit production lot" consisted of an assemblage or specimens operationally linked by "type, grade, class, size and composition" and "manufactured under the same conditions and at essentially the same time." Bailey Decl. at ¶ 16. Thus, utilizing "single-unit production lots" in the method of claim 1, as required by claim 2, would have been obvious to a person of ordinary skill in the art in August 2004.

2. Eleventh Substantial New Question of Patentability (Claim 2) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243), Compendium Chapter 2 and Admitted State of the Art.

A substantial new question of patentability for claim 2 exists for the reasons discussed above in Section V.A in connection with claim 1, together with the admitted state of the art. The admitted state of the prior art, as set forth in the "Background Section" of the '584 patent renders the subject matter of claim 2 obvious. At col. 2, lines 13-16 of the '584 patent it is stated that "[w]ith respect to *E.coli* 0157 testing, for example, a typical plan calls for taking 60 samples (e.g., sample pieces) from a production lot to form a single composite sample." Thus, the patentee has acknowledged that compositing multiple samples from a "production lot" was disclosed in the prior art.

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3. Twelfth Substantial New Question of Patentability (Claim 2) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243), Compendium Chapter 2 and BAM.

A substantial new question of patentability for claim 2 exists for the reasons discussed above in Section V.A in connection with claim 1, together with the teachings of the BAM reference. The BAM reference also would have rendered the subject matter of claim 2 obvious. Some of the specific examples of the lots (test lots) in BAM are "a consumer-sized container of product" such as a 10 lb. wheel of cheese or an 8 oz. bag of almonds. See p. 4. The specification states that "a single-unit production lot" can be all of the product "produced by a particular production line in a particular period of time." The consumer-sized containers disclosed in BAM are "single-unit production lots," because they are all of the product produced by a particular line in a particular period of time, the period of time necessary to fill a single container.

The "584 patent also states that a "single-unit production lot" can be "a volume of product . . . produced on a particular production line." The consumer-sized container disclosed in BAM are also a volume of product produced on a particular production line, and thus correspond to the claimed "single-unit production lot." The food items in consumer-sized containers are operationally linked.

Accordingly, Compendium Chapter 2, the admitted state of the prior art or BAM, together with the prior art discussed above in Section V.A. in connection with claim 1, would have rendered the method of claim 2 obvious. Claim 2 is, therefore, unpatentable under 35 USC § 103(a).

4. Thirteenth Substantial New Question of Patentability (Claim 2) –USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al. and the General Teachings of Compendium Chapter 2.

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A substantial new question of patentability exists for claim 2 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 and the reasons discussed above in Section VI.A.1. in connection with claim 2.

5. Fourteenth Substantial New Question of Patentability (Claim 2) –USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2 and the Admitted State of the Art.

A substantial new question of patentability exists for claim 2 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 and the reasons dicussed above in Section VI.A.2. in connection with claim 2.

6. Fifteenth Substantial New Question of Patentability (Claim 2) –USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2 and BAM.

A substantial new question of patentability exists for claim 2 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 and the reasons discussed above in Section VI.A.3. in connection with claim 2.

B. Claim 3

Claim 3 reads as follows:

3. The method of claim 1, further comprising incubating the modular composite sample of d), prior to testing in e).

1. Sixteenth Substantial New Question of Patentability (Claim 3) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) and Compendium Chapter 2.

A substantial new question of patentability exists for claim 3 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1

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in further view of the comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 3 adds nothing of patentable significance. As discussed above in connection with step c) of claim 1, the FSIS Protocol discloses incubation in pre-enrichment and/or enrichment media prior to testing for the target microorganism. Accordingly, the prior art discussed above in connection with claim 1 would have rendered the method of claim 3 obvious. Claim 3 is, therefore, unpatentable under 35 U.S.C. §103(a).

2. Seventeenth Substantial New Question of Patentability (Claim 3) –USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al. and the General Teachings of Compendium Chapter 2.

A substantial new question of patentability exists for claim 3 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 in further view of the comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 3 adds nothing of patentable significance. As discussed above in connection with step c) of claim 1, Price et al. disclose incubation in pre-enrichment and/or enrichment media prior to testing for the target microorganism. Bailey Decl. at ¶ 10d. Accordingly, the prior art discussed above in connection with claim 1 would have rendered the method of claim 3 obvious. Claim 3 is, therefore, unpatentable under 35 U.S.C. §103(a).

C. Claim 4

Claim 4 reads as follows

> 4. The method of claim 1, wherein incubating each separate test lot sample in c) comprises incubating each separate test lot sample with enrichment medium suitable to enrich for the target microbial agent or organism, and wherein

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removing in d) comprises removing a portion of the enrichment medium from each enriched separate test lot sample and combining the removed portions to provide a modular composite sample.

1. Eighteenth Substantial New Question of Patentability (Claim 4) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) and Compendium Chapter 2.

A substantial new question of patentability exists for claim 4 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 4 adds nothing of patentable significance. Jarvis describes placing samples in pre-enrichment media (separate "test lot samples"). See Section 8.4.2. Then, each pre-enrichment medium is incubated to make a pre-enrichment broth culture (enriched separate test lot sample). See Sections 8.4.2 and 8.4.2.1. This incubation causes the *Salmonella* (target microbial agent or organism) to multiply and grow to detectable levels. See Section 8.4.2. and Bailey Decl. at ¶¶ 9d and 10d. Thus, the pre-enrichment media must be suitable to enrich for *Salmonella*. After enrichment, equal 1 ml. portions of each pre-enrichment culture are added to the composite enrichment broth (modular composite sample). See Section 8.4.2.1. Thus, Jarvis, in combination with the prior art discussed above in connection with claim 1 meets all of the limitations of claim 4.

2. Nineteenth Substantial New Question of Patentability (Claim 4) –USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al. and the General Teachings of Compendium Chapter 2.

A substantial new question of patentability exists for claim 4 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1

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in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 4 adds nothing of patentable significance.

Price et al. teach placing samples in separate pre-enrichment broths (separate "test lot samples"). See p. 679 and Figure 1. Price et al. teach incubating the separate pre-enrichment broths to make pre-enrichment broth cultures (enriched separate test lot samples). See p. 682. Also see Bailey Decl. at ¶ 10d. This incubation causes any *Salmonella* (target microbial agent or organism) to become enriched. Thus, the pre-enrichment broth must be suitable to enrich for *Salmonella*. After this enrichment caused by incubation, separate 1 ml or 2 ml portions of each pre-enrichment broth culture are added to two enrichment broths (each corresponding to a modular composite sample). See p. 682, p. 679 and Figure 1. Thus, Price et al., together with the prior art discussed above in connection with claim 1, meets all of the limitations of claim 4. Accordingly, claim 4 is unpatentable under 35 USC §103(a).

D. Claim 5

Claim 5 reads as follows:

> 5. The method of claim 1, wherein testing of the modular composite sample, using a suitable detection assay further comprises a concentration step to concentrate the microbial agent or organism.

1. Twentieth Substantial New Question of Patentability (Claim 5) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243), Compendium Chapter 2 and Compendium Chapter 10.

A substantial new question of patentability exists for claim 5 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 together with the teachings of Compendium Chapter 10. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 5 adds nothing of patentable significance.

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The '584 patent specification refers to the use of antibody-coated paramagnetic beads as one example for concentration of the target organism. '584 patent, col. 8, lines 11-25. Compendium Chapter 10 (Exhibit 15) describes, at Section 10.27 and in Figure 3, the use of antibody-coated magnetic beads to concentrate microbial cells from an enrichment culture prior to detection by a method such as enzyme immunoassay, plating, etc. Accordingly, the method of claim 5 would have been obvious over the prior art discussed above in connection with claim 1 together with Compendium Chapter 10. Therefore, claim 5 is unpatentable under 35 USC §103(a).

2. Twenty-First Substantial New Question of Patentability (Claim 5) –USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2 and Compendium Chapter 10.

A substantial new question of patentability exists for claim 5 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 5 adds nothing of patentable significance.

The '584 patent specification refers to the use of antibody-coated paramagnetic beads as one example for concentration of the target organism. '584 patent, col. 8, lines 11-25. Compendium Chapter 10 (Exhibit 15) describes, at Section 10.27 and in Figure 3, the use of antibody-coated magnetic beads to concentrate microbial cells from an enrichment culture prior to detection by a method such as enzyme immunoassay, plating, etc. Accordingly, the method of claim 5 would have been obvious over the prior art discussed above in connection with claim 1 together with Compendium Chapter 10. Therefore, claim 5 is unpatentable under 35 USC §103(a).

E. Claim 6

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Claim 6 reads as follows:

> 6. The method of claim 1, wherein testing in e) of the modular composite sample is positive, and wherein the individual separate test lot samples are further tested, such further testing comprises the more sensitive protocol.

Claim 6 recites "the individual separate test lot samples" which does not have antecedent basis in claim 1. For purposes of this analysis it is assumed that "the individual test lot samples" refers to the "enriched separate test lot samples" that correspond to the "individual separate test lots."

1. Twenty-Second Substantial New Question of Patentability (Claim 6) – USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al. and the General Teachings of Compendium Chapter 2.

A substantial new question of patentability exists for claim 6 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 6 adds nothing of patentable significance. The use of a "more sensitive protocol" for further testing after a positive result on the modular composite sample was a matter of obvious design choice. As discussed above, Price et al. teach further testing (individual testing) of the stored portions of the incubated pre-enrichment broth cultures (enriched separate test lot samples) when the pooled enrichment (modular composite sample) tests positive. Price et al. further disclose that direct selective enrichment or further selective enrichment may be used before performing the individual testing (further testing). See p. 682. As discussed above, selective enrichment causes further growth of *Salmonella* (target microbial agent or organism), thereby concentrating it. Performing the same test with a more concentrated

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target microbial agent or organism would result in a more sensitive protocol. See Bailey Decl. at ¶ 10g.

Therefore, Price et al., together with the prior art discussed above in connection with claim 1, would have rendered the method claimed in claim 6 obvious. Claim 6 is, therefore, unpatentable under 35 USC §103(a).

F. Claim 7

Claim 7 reads as follows:

> 7. The method of claim 1, further comprising, forming an additional modular composite sample from the set of enriched separate test lot samples of c) and testing the additional modular composite sample, using the same or a different suitable assay, to confirm the testing result.

1. Twenty-Third Substantial New Question of Patentability (Claim 7) – USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al. and the General Teachings of Compendium Chapter 2.

A substantial new question of patentability exists for claim 7 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 7 adds nothing of patentable significance. Conducting additional confirmatory testing is a matter of obvious design choice. In addition, Price et al. teach that two pooled enrichment broths (modular composite samples) are prepared. Specifically, one selenite broth and one tetrathionate broth are prepared, each including equal portions of each pre-enrichment broth culture (enriched separate test lot sample). *See* Bailey Decl. at ¶ 10g. Also s*ee* p. 679 and Figure 1. These two enrichment broths are separately plated and tested. See Figure 1. Thus, one broth constitutes a pooled composite and the other broth constitutes an additional pooled

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composite. Because both enrichment broths (modular composite samples) include equal portions of each of the same pre-enrichment broth cultures (enriched separate test lot samples), testing would have to be for the purpose of confirming the testing result. Price and all of the cited references disclose utilizing a "suitable assay."

Accordingly, Price et al., together with the prior art discussed above, in connection with claim 1, would have rendered the method of claim 7 obvious. Therefore, claim 7 is unpatentable under 35 USC 103(a).

G. Claim 8

Claim 8 reads as follows:

> 8. The method of claim 1, further comprising, forming an additional modular composite sample from an additional enriched separate test lot sample along with any enriched separate test lot samples of c) that test negative in e), and testing the additional modular composite sample, using the same or a different suitable assay.

1. Twenty-Fourth Substantial New Question of Patentability (Claim 8) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) and Compendium Chapter 2.

A substantial new question of patentability exists for claim 8 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 8 adds nothing of patentable significance. Jarvis describes re-testing of retained pre-enrichment cultures in the event of a positive result for a wet-composited sample. See the discussion above for claim 1, step e). Re-testing by re-combining negative testing enriched test lot samples as confirmatory testing was a matter of obvious design choice. Adding an additional test lot sample to that composite, so as to determine whether that test lot sample was positive, was also an obvious design choice, because, assuming, as is likely, the additional test lot sample is

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also negative, then the confirmatory testing on previous tested negative samples and the new testing on an additional sample could be accomplished with a single test.

Accordingly, the prior art discussed above in connection with claim 1 would have rendered the subject matter of claim 8 obvious. Claim 8 is, therefore, unpatentable under 35 USC 103(a).

2. Twenty-Fifth Substantial New Question of Patentability (Claim 8) –USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al. and the General Teachings of Compendium Chapter 2.

A substantial new question of patentability exists for claim 8 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 8 adds nothing of patentable significance. Price et al. describe re-testing of retained pre-enrichment cultures in the event of a positive result for a wet-composited sample. See the discussion above for claim 1, step e). Re-testing by re-combining negative testing enriched test lot samples as confirmatory testing was a matter of obvious design choice. Adding an additional test lot sample to that composite, so as to determine whether that test lot sample was positive, was also an obvious design choice, because, assuming, as is likely, the additional test lot sample is also negative, then the confirmatory testing on previous tested negative samples and the new testing on an additional sample could be accomplished with a single test.

Accordingly, the prior art discussed above in connection with claim 1 would have rendered the subject matter of claim 8 obvious. Claim 8 is, therefore, unpatentable under 35 USC 103(a).

H. Claim 9

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Claim 9 reads as follows:

> 9. The method of claim 1, further comprising, where testing of the modular composite sample in e) is negative, forming an additional modular composite sample from the set of enriched separate test lot samples of c), and testing the additional modular composite sample, using a different suitable assay, to confirm the negative testing status.

1. Twenty-Sixth Substantial New Question of Patentability (Claim 9) –USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al. and the General Teachings of Compendium Chapter 2.

A substantial new question of patentability exists for claim 9 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 9 adds nothing of patentable significance. Preparing an additional modular composite sample from the set of enriched test lot samples and conducting confirmatory testing using a different assay was a matter of obvious design choice. It was obvious to conduct duplicate tests to confirm results using a different assay method. Moreover, Price et al. teach that two pooled enrichment broths (modular composite samples) are prepared. Specifically, one selenite broth and one tetrathionate broth are prepared, each including equal portions of each pre-enrichment broth culture (enriched separate test lot sample). See p. 679 and Figure 1. Bailey Decl. at ¶ 10g. These two enrichment broths are separately plated and tested. See Figure 1. Thus, one broth constitutes a pooled composite and the other broth constitutes an additional pooled composite. Because both enrichment broths (modular composite samples) include equal portions of each of the same pre-enrichment broth cultures (enriched separate test lot samples) testing each would have to be for the purpose of confirming the testing result.

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Price et al. teach using a different assay, because one selenite broth and one tetrathionate broth (both modular composite samples) are prepared. That is, because selenite broth and tetrathionate broth are different enrichment broths, they will enrich *Salmonella* differently. Thus the selenite broth and the tetrathionate broth will have different concentrations of *Salmonella* from one another. The broth having the higher concentration will result in a more sensitive assay then the broth having the lower concentration. Bailey Decl. at ¶ 10g. Because one assay will be more sensitive then the other, the assays will be different.

Price et al. always perform this dual testing, and thus it is performed every time one or both of the pooled enrichments (modular composite samples) tests negative. The dual testing in Price is not specifically based on whether the original test of the composite sample is negative or positive; however, claim 9 does not recite "only when the testing of the modular composite sample in e) is negative." And thus covers the situation in which the dual testing is always performed.

Accordingly, Price et al., together with the prior art discussed above in connection with claim 1, would have rendered the subject matter of claim 9 obvious. Claim 9 is, therefore, unpatentable under 35 USC §103(a).

I. Claim 10

Claim 10 reads as follows:

> 10. The method of claim 1, wherein the test lot is selected from the lot group consisting of a single combo, single bin, single pallet, and a production assemblage.

1. Twenty-Seventh Substantial New Question of Patentability (Claim 10) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) and Compendium Chapter 2.

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A substantial new question of patentability exists for claim 10 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 10 adds nothing of patentable significance.

The '584 patent specification identifies "combo" and "bin" as examples of "single production unit" or "single-production unit production lot." Col. 5, lines 33-38. As explained by Dr. Bailey (Bailey Decl. at ¶ 16), by August 2004, it was common practice for microbiologists to sample operationally linked production lots for microbiological testing. Compendium Chapter 2 discusses the importance of developing a "sampling plan" and obtaining "representative samples" for microbiological testing. In Section 2.511 "sampling plan" is defined as "[a] design that indicates the number of units to be collected from each lot and the criteria to be applied in accepting or rejecting the lot." "Lot" is defined as,

> [t]he number of sample units produced in one batch or in some specified period of time such that the units will be about the same quality. Each lot or batch should consist of units of product of a single type, grade, class, size and composition. The lot should be manufactured under the same conditions and at essentially the same time.

Thus, Compendium Chapter 2 makes clear that, prior to August 2004, microbiologists utilized sampling plans that involved sampling a "number of units to be collected from each lot" and that a "lot" was understood to be a production batch consisting of operationally linked units. Accordingly, a person of ordinary skill in the art was aware that a "test lot" or "single-unit production lot" consisted of an assemblage of units or specimens operationally linked by "type, grade, class, size and composition" and "manufactured under the same conditions and at essentially the same time." Bailey Decl.

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at ¶ 16. Thus, Compendium Chapter 2 described the selection of a "production assemblage" for testing and contemplated that such testing would be based on obtaining representative samples. Accordingly, Compendium Chapter 2, together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 10 obvious. Claim 10 is, therefore, unpatentable under 35 USC 103(a).

2. Twenty-Eighth Substantial New Question of Patentability (Claim 10) – USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al. and the General Teachings of Compendium Chapter 2.

A substantial new question of patentability exists for claim 10 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 10 adds nothing of patentable significance.

The '584 patent specification identifies "combo" and "bin" as examples of "single production unit" or "single-production unit production lot." Col. 5, lines 33-38. As explained by Dr. Bailey (Bailey Decl. at ¶ 16), by August 2004, it was common practice for microbiologists to sample operationally linked production lots for microbiological testing. Compendium Chapter 2 discusses the importance of developing a "sampling plan" and obtaining "representative samples" for microbiological testing. In Section 2.511 "sampling plan" is defined as "[a] design that indicates the number of units to be collected from each lot and the criteria to be applied in accepting or rejecting the lot." "Lot" is defined as,

> [t]he number of sample units produced in one batch or in some specified period of time such that the units will be about the same quality. Each lot or batch should consist of units of product of a single type, grade, class, size and composition. The lot should be manufactured under the same conditions and at essentially the same time.

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Thus, Compendium Chapter 2 makes clear that, prior to August 2004, microbiologists utilized sampling plans that involved sampling a "number of units to be collected from each lot" and that a "lot" was understood to be a production batch consisting of operationally linked units. Accordingly, a person of ordinary skill in the art was aware that a "test lot" or "single-unit production lot" consisted of an assemblage of units or specimens operationally linked by "type, grade, class, size and composition" and "manufactured under the same conditions and at essentially the same time." Bailey Decl. at ¶ 16. Thus, Compendium Chapter 2 described the selection of a "production assemblage" for testing and contemplated that such testing would be based on obtaining representative samples. Accordingly, Compendium Chapter 2, together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 10 obvious. Claim 10 is, therefore, unpatentable under 35 USC 103(a).

J. Claim 11

Claim 11 reads as follows:

> 11. The method of claim 1, wherein the number of separate test lots is from 3 to 10.

1. Twenty-Ninth Substantial New Question of Patentability (Claim 11) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) and Compendium Chapter 2.

A substantial new question of patentability exists for claim 11 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 11 adds nothing of patentable significance. Jarvis teaches compositing 10 pre-enrichment cultures. See method (2) of Section

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8.4.2.1. According to the language of claim 1 and the combination of references discussed above regarding claim 1, the 10 pre-enrichment cultures would have each been drawn from a corresponding test lot. Thus, according to the combination of references the number of test lots is 10, which is within the claimed range.

2. Thirtieth Substantial New Question of Patentability (Claim 11) –USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al. and the General Teachings of Compendium Chapter 2.

A substantial new question of patentability exists for claim 11 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 11 adds nothing of patentable significance. Price et al. teach compositing 5 or 9 pre-enrichment broth cultures. See p. 679. According to the language of claim 1 and the combination of references discussed regarding claim 1, the 5 or 9 pre-enrichment broth cultures are each drawn from a corresponding test lot. Thus, according to the combination of references, the number of test lots is either 5 or 9, which is within the claimed range.

Accordingly, the prior art discussed above in connection with claim 1 would have rendered the method of claim 11 obvious. Claim 11 is, therefore, unpatentable under 35 USC 103(a).

K. <u>Claim 12</u>

Claim 12 reads as follows:

> 12. The method of claim 1, further comprising where testing of modular composite sample is positive, determining which individual separate test lots are positive, application of remedial measures to said separate positive test lots, and validating by further testing of a portion of the respective remediated separate test lots and obtaining a negative test result.

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1. Thirty-First Substantial New Question of Patentability (Claim 12) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243), Compendium Chapter 2 and Mauer.

A substantial new question of patentability exists for claim 12 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 together with the teachings of U.S. Patent 6,080,437, which issued to James E. Mauer, et al. on June 27, 2000 ("Mauer") (attached as Exhibit 14). Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 12 adds nothing of patentable significance.

The specification does not define or provide examples of remedial measures, but refers to "cooking, disposal, or other acceptably safe endpoint" as ways of handling lots that test positive. Col. 5, lines 10-11; col. 8, lines 31-33. The specification does not disclose what types of testing are contemplated by the recitation of "further testing" of the remediated separate test lots. In fact, the specification fails to provide any disclosure or support for the step of further testing remediated separate test lots, which was added to the claims in the April 25, 2008 amendment.

Mauer teaches cooking methods that substantially eliminate (i.e., remediate) bacterial contamination from contaminated food. *See* abstract, col. 2, lines 57-63; col. 3, lines 35-43; col. 4, lines 3-5 and 40-43; col. 7, lines 46-48; col. 8, lines 54-60; col. 9, lines 56-58; and col. 10, lines 16-22. In addition to remediating bacterial contamination, Mauer's cooking method produces cooked food that retains a fresh, moist taste and appearance, and that can be readily and easily prepared by the end consumer. *See*, e.g., col. 2, lines 57-63. It would have been obvious to the skilled artisan to cook food according to the method of Mauer to reduce waste, substantially eliminating the

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contamination, and producing cooked food that retains a fresh, moist taste and appearance, and that can be rapidly and easily prepared by the end consumer.

2. Thirty-Second Substantial New Question of Patentability (Claim 12) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243), Compendium Chapter 2, Mauer and BAM.

A substantial new question of patentability exists for claim 12 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 together with the teachings of Mauer and BAM (attached as Exhibit 11). Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 12 adds nothing of patentable significance.

BAM teaches validating, by further testing of a portion of the respective remediated separate test lots, and obtaining a negative test results. In that reference, the FDA recommends preparing samples of foods for testing that "will not be subject to a process that will be lethal to *Salmonella* between the time of sampling and consumption," e.g., food that has been cooked before distribution to the consumer. *See*, e.g., p. 6. In view of BAM's recommendation to sample such food for testing, the skilled artisan would have had reason to prepare and test samples of the food cooked according to Mauer to ensure that the bacteria had been eliminated by the cooking, thereby obtaining a negative test result.

Accordingly, Mauer and BAM, together with the prior art discussed above in connection with claim 1, would have rendered the method claimed in claim 12 obvious. Claim 12 is, therefore, unpatentable under 35 USC 103(a).

L. <u>Claim 13</u>

Claim 13 reads as follows:

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13. The method of claim 1, wherein, in a), separately collecting said plurality of portions from each of said plurality of separate test lots comprises separately collecting from each separate test lot a number of portions from 5 to 100.

1. Thirty-Third Substantial New Question of Patentability (Claim 13) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) and Compendium Chapter 2.

A substantial new question of patentability exists for claim 13 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 13 adds nothing of patentable significance. Each of the references discussed in connection with claim 1, steps a) and b) describes compositing from 5-100 portions

Accordingly, the method of claim 13 would have been obvious over each of the references discussed above in connection with claim 1. Claim 13 is, therefore, unpatentable under 35 USC 103(a).

2. Thirty-Fourth Substantial New Question of Patentability (Claim 13) – USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al. and the General Teachings of Compendium Chapter 2.

A substantial new question of patentability exists for claim 13 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 13 adds nothing of patentable significance.

Each of the references discussed in connection with claim 1, steps a) and b) describes compositing from 5-100 portions. Price et al. describe a sample from a particulate (powdery) product made up of numerous particles.

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Accordingly, the method of claim 13 would have been obvious over each of the references discussed above in connection with claim 1. Claim 13 is, therefore, unpatentable under 35 USC 103(a).

M. Claim 14

Claim 14 reads as follows:

> 14. The method of claim 1, wherein, in a), separately collecting said plurality of portions from each of said plurality of separate test lots comprises separately collecting from each separate test lot 30 to 60 portions.

1. Thirty-Fifth Substantial New Question of Patentability (Claim 14) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243), Compendium Chapter 2 and BAM.

A substantial new question of patentability exists for claim 14 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 in combination with the teachings of BAM. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 14 adds nothing of patentable significance. The BAM reference discloses taking 60 or 30 analytical units (portions) for Food Category I and II, respectively, each of which is within the claimed range. *See* p. 3. Claim 14 is, therefore, unpatentable under § 103 over the combination of references discussed above.

2. Thirty-Sixth Substantial New Question of Patentability (Claim 14) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243), Compendium Chapter 2 and Silliker et al.

A substantial new question of patentability exists for claim 14 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 in combination with the teachings of Silliker et al. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 14 adds nothing of patentable significance.

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Silliker et al., at p. 478, discuss the analysis of a single 1500 gram subsample. Each subsample described in the reference was made by compositing 25 gram samples; therefore, the 1500 gram subsample was prepared by compositing sixty 25 gram samples, which is within the claimed range. Claim 14 is, therefore, unpatentable under § 103 over the combination of references discussed above.

3. Thirty-Seventh Substantial New Question of Patentability (Claim 14) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243), Compendium Chapter 2 and the Admitted State of the Art.

A substantial new question of patentability exists for claim 14 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 in combination with the admitted state of the art. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 14 adds nothing of patentable significance. The admitted state of the prior art, as set forth in the Background section of the '584 patent at col. 2, lines 13-16 refers to *E.coli* 0157 testing. The patentee describes as a "typical plan" taking "60 samples (e.g., sample pieces) from a production lot to form a single composite sample." Thus, the patentee acknowledges that the prior art taught collecting a number of samples falling within the claimed range. Claim 14 is, therefore, unpatentable under § 103 over the combination of references discussed above.

4. Thirty-Eighth Substantial New Question of Patentability (Claim 14) – USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2 and BAM.

A substantial new question of patentability exists for claim 14 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1

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in combination with the teachings of BAM. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 14 adds nothing of patentable significance.

The BAM reference discloses taking 60 or 30 analytical units (portions) for Food Category I and II, respectively, each of which is within the claimed range. *See* p. 3. Claim 14 is, therefore, unpatentable under § 103 over the combination of references discussed above.

5. Thirty-Ninth Substantial New Question of Patentability (Claim 14) – USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2 and Silliker et al.

A substantial new question of patentability exists for claim 14 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 in combination with the teachings of Silliker et al. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 14 adds nothing of patentable significance.

Silliker et al., at p. 478, discuss the analysis of a single 1500 gram subsample. Each subsample described in the reference was made by compositing 25 gram samples; therefore, the 1500 gram subsample was prepared by compositing sixty 25 gram samples, which is within the claimed range. Claim 14 is, therefore, unpatentable under § 103 over the combination of references discussed above.

6. Fortieth Substantial New Question of Patentability (Claim 14) –USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2 and the Admitted State of the Art.

A substantial new question of patentability exists for claim 14 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1

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in combination with the admitted state of the art. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 14 adds nothing of patentable significance.

The admitted state of the prior art, as set forth in the Background section of the '584 patent at col. 2, lines 13-16 refers to *E.coli* 0157 testing. The patentee describes as a "typical plan" taking "60 samples (e.g., sample pieces) from a production lot to form a single composite sample." Thus, the patentee acknowledges that the prior art taught collecting a number of samples falling within the claimed range. Claim 14 is, therefore, unpatentable under § 103 over the combination of references discussed above.

N. Claim 15

Claim 15 reads as follows:

> 15. The method of claim 1, wherein, in a), separately collecting said plurality of portions from each of said plurality of separate test lots comprises separately collecting 30 portions from each separate test lot.

1. Forty-First Substantial New Question of Patentability (Claim 15) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243), Compendium Chapter 2 and BAM.

A substantial new question of patentability exists for claim 15 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 in combination with the teachings of BAM. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 15 adds nothing of patentable significance.

The BAM reference describes taking 30 analytical units (portions) for Food Category II. See p. 3. Moreover, selecting 30 samples from the ranges described in the prior art described in connection with claim 15 was a matter of obvious design choice.

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Accordingly, the BAM reference, together with the prior art discussed above in connection with the claim 1, would have rendered the method of claim 15 obvious. Claim 15 is, therefore, unpatentable under 35 USC 103(a).

2. Forty-Second Substantial New Question of Patentability (Claim 15) – USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2 and BAM.

A substantial new question of patentability exists for claim 15 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 in combination with the teachings of BAM. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 15 adds nothing of patentable significance.

The BAM reference describes taking 30 analytical units (portions) for Food Category II. See p. 3. Moreover, selecting 30 samples from the ranges described in the prior art described in connection with claim 15 was a matter of obvious design choice.

Accordingly, the BAM reference, together with the prior art discussed above in connection with the claim 1, would have rendered the method of claim 15 obvious. Claim 15 is, therefore, unpatentable under 35 USC 103(a).

O. <u>Claim 16</u>

Claim 16 reads as follows:

> 16. The method of claim 1, wherein, in a), separately collecting said plurality of portions from each of said plurality of separate test lots comprises separately collecting from each separate test lot about 60 portions.

1. Forty-Third Substantial New Question of Patentability (Claim 16) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243), Compendium Chapter 2 and Silliker et al.

A substantial new question of patentability exists for claim 16 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1

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in combination with the teachings of Silliker et al. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 16 adds nothing of patentable significance.

As discussed above in connection with claim 14, Silliker et al. describe combining 60 samples for preparing a sample composite for testing.

Accordingly, Silliker et al. together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 16 obvious. Claim 16 is, therefore, unpatentable under 35 USC 103(a).

2. Forty-Fourth Substantial New Question of Patentability (Claim 16) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243), Compendium Chapter 2 and the Admitted State of the Art.

A substantial new question of patentability exists for claim 16 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 in combination with the admitted state of the prior art. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 16 adds nothing of patentable significance.

As discussed above in connection with claim 14, the admitted state of the art, as set forth in the Background section of the '584 patent at col. 2, lines 13-16, describes combining 60 samples for preparing a sample composite for testing.

Accordingly, the admitted state of the art together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 16 obvious. Claim 16 is, therefore, unpatentable under 35 USC 103(a).

3. Forty-Fifth Substantial New Question of Patentability (Claim 16) –USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2 and Silliker et al.

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A substantial new question of patentability exists for claim 15 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 in combination with the teachings of Silliker et al. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 15 adds nothing of patentable significance.

As discussed above in connection with claim 14, Silliker et al. describe combining 60 samples for preparing a sample composite for testing.

Accordingly, Silliker et al. together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 16 obvious. Claim 16 is, therefore, unpatentable under 35 USC 103(a).

4. Forty-Sixth Substantial New Question of Patentability (Claim 16) –USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2 and the Admitted State of the Art.

A substantial new question of patentability exists for claim 15 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 in combination with the admitted state of the art. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 15 adds nothing of patentable significance.

As discussed above in connection with claim 14, the admitted state of the art, as set forth in the Background section of the '584 patent at col. 2, lines 13-16, describes combining 60 samples for preparing a sample composite for testing.

Accordingly, the admitted state of the art together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 16 obvious. Claim 16 is, therefore, unpatentable under 35 USC 103(a).

P. Claim 18

Claim 18 reads as follows:

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18. The method of claim 1, wherein removing portions in step d) is removing equal portions, aseptically, so as to preclude contamination of the enriched separate test lot samples.

1. Forty-Seventh Substantial New Question of Patentability (Claim 18) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) and Compendium Chapter 2.

A substantial new question of patentability exists for claim 18 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 18 adds nothing of patentable significance.

Compendium Chapter 2, in Section 2.4, contains an extensive discussion of precautions that "shall be taken to prevent microbial contamination of samples from external sources, including the person taking the samples, air, sample containers, sampling devices, and the shipping vehicle." Thus, Compendium Chapter 2 would have taught the person of ordinary skill in the art to use aseptic conditions when transferring or removing sample portions.

Jarvis, in method 2, Section 8.4.2.1, discloses compositing equal 1 ml volumes of each of the 10 pre-enrichment cultures (enriched separate test lot samples). Claim 18 is, therefore, unpatentable under 35 U.S.C. § 103 in view of the prior art discussed above.

2. Forty-Eighth Substantial New Question of Patentability (Claim 18) – USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2.

A substantial new question of patentability exists for claim 18 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 15 adds nothing of patentable significance.

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Price et al. disclose separately pooling (i.e., compositing) equal 1 ml portions or 2 ml portions of each incubated pre-enrichment broth culture (enriched separate test lot sample) in two different enrichment broths (each corresponding to a modular composite sample). *See* pp. 679 and 682, and Figure 1.

Accordingly, Price et al., together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 18 obvious. Claim 18 is, therefore, unpatentable under 35 USC 103(a).

Q. <u>Claim 19</u>

Claim 19 reads as follows:

> 19. The method of claim 1, wherein the target microbial agent or organism comprises at least one selected from the group consisting of *Listeria, Salmonella* and *Escherichia coli.*

1. Forty-Ninth Substantial New Question of Patentability (Claim 19) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) and Compendium Chapter 2.

A substantial new question of patentability exists for claim 19 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 19 adds nothing of patentable significance.

The FSIS Protocol discusses *E.coli* O157:H7 testing. Thus the subject matter of claim 19 would have been obvious over the references discussed above and the claim is unpatentable under 35 U.S.C. § 103.

2. Fiftieth Substantial New Question of Patentability (Claim 19) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243), Compendium Chapter 2 and the Admitted State of the Art.

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A substantial new question of patentability exists for claim 19 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 together with the admitted state of the art. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 19 adds nothing of patentable significance.

The admitted state of the prior art provided in the Background section of the '584 patent discloses testing for *E.coli* O157, *Salmonella*, and *Listeria monocytogenes*. Thus the subject matter of claim 19 would have been obvious over the references discussed above and the claim is unpatentable under 35 U.S.C. § 103.

3. Fifty-First Substantial New Question of Patentability (Claim 19) –USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2, Jarvis, Price et al. and BAM.

A substantial new question of patentability exists for claim 19 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 19 adds nothing of patentable significance.

Each of the FSIS Protocol, Jarvis, Price et al., and BAM describe testing for *E. coli* or *Salmonella*.

Accordingly, the subject matter of claim 19 would have been obvious over the prior art discussed above and the claim is, therefore, unpatentable under 35 USC 103(a).

R. <u>Claim 20</u>

Claim 20 reads as follows:

> 20. The method of claim 1, wherein the target microbial agent or organism comprises at least one selected from the group consisting of *Listeria spp., Listeria monocytogenes, Salmonella spp., Escherichia coli* O157:H7, coliforms and fecal coliforms

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1. Fifty-Second Substantial New Question of Patentability (Claim 20) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243), Compendium Chapter 2 and the Admitted State of the Art.

A substantial new question of patentability exists for claim 20 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 together with the admitted state of the art. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 20 adds nothing of patentable significance.

The admitted state of the prior art provided in the Background section of the '584 patent discusses testing for *E.coli* O157, *Salmonella,* and *Listeria* m*onocytogenes*.

2. Fifty-Third Substantial New Question of Patentability (Claim 20) –USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2, Jarvis, Price et al. and BAM.

A substantial new question of patentability exists for claim 19 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 19 adds nothing of patentable significance.

Jarvis and Price et al. each teach that the target microbial agent or organism is *Salmonella* without identifying a particular species. Thus, each of these references teaches that the target microbial agent includes plural species (abbreviated "spp.") of *Salmonella*.

BAM teaches preparing samples to test for "*Salmonella* species," without identifying a particular species. See, e.g., p. 2. Thus, BAM teaches that the target microbial agent includes plural species (abbreviated "ssp.") of *Salmonella*.

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Accordingly, each of Jarvis, Price et al.and BAM, together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 20 obvious. Claim 20 is, therefore, unpatentable under 35 USC 103(a).

S. Claim 21

Claim 21 reads as follows:

> 21. The method of claim 1, wherein the target microbial agent or organism comprises a spoilage organism.

1. Fifty-Fourth Substantial New Question of Patentability (Claim 21) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243), Compendium Chapter 2 and Compendium Chapter 13.

A substantial new question of patentability exists for claim 21 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 together with the teachings of Compendium Chapter 13. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 21 adds nothing of patentable significance.

Compendium Chapter 13 (Exhibit 16) describes psychotrophic microorganisms and their role in food spoilage. That chapter describes various methods for testing for psychotrophic microorganisms, and it would have been obvious to combine the sampling, validation, and re-testing procedures of the references discussed above in connection with claim 1 with the psychotrophic microorganism testing procedures described in Compendium Chapter 13.

Accordingly, Compendium Chapter 13, together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 21 obvious. Claim 21 is, therefore, unpatentable under 35 USC 103(a).

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2. Fifty-Fifth Substantial New Question of Patentability (Claim 21) –USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2 and Compendium Chapter 13.

A substantial new question of patentability exists for claim 21 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 together with the teachings of Compendium Chapter 13. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 21 adds nothing of patentable significance.

Compendium Chapter 13 (Exhibit 16) describes psychotrophic microorganisms and their role in food spoilage. That chapter describes various methods for testing for psychotrophic microorganisms, and it would have been obvious to combine the sampling, validation, and re-testing procedures of the references discussed above in connection with claim 1 with the psychotrophic microorganism testing procedures described in Compendium Chapter 13.

Accordingly, Compendium Chapter 13, together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 21 obvious. Claim 21 is, therefore, unpatentable under 35 USC 103(a).

T. <u>Claim 22</u>

Claim 22 reads as follows:

22. The method of claim 1, wherein removing portions of each enriched separate test lot sample comprises removing equal volume portions of each enriched separate test lot sample.

1. Fifty-Sixth Substantial New Question of Patentability (Claim 22) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) and Compendium Chapter 2.

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A substantial new question of patentability exists for claim 22 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 22 adds nothing of patentable significance.

Jarvis teaches compositing equal 1 ml volumes of the pre-enrichment cultures (enriched separate test lot samples). *See* Method (2) of Section 8.4.2.1. Accordingly, Jarvis together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 22 obvious. Claim 22 is, therefore, unpatentable under 35 USC 103(a).

2. Fifty-Seventh Substantial New Question of Patentability (Claim 22) – USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al. and the General Teachings of Compendium Chapter 2.

A substantial new question of patentability exists for claim 22 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 22 adds nothing of patentable significance.

Price et al. teach compositing equal 1 ml. volumes or alternatively equal 2 ml. volumes of the pre-enrichment broth cultures (enriched separate test lots samples). *See* p. 682. Accordingly, Price et al., together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 22 obvious. Claim 22 is, therefore, unpatentable under 35 USC 103(a).

U. Claim 23

Claim 23 reads as follows:

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23. The method of claim 1, wherein testing of the modular composite sample, using a suitable detection assay comprises use of at least one of a DNA-based method, an immunochemistry-based method, and a biosensor-based method.

1. Fifty-Eighth Substantial New Question of Patentability (Claim 23) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243), Compendium Chapter 2 and Price et al.

A substantial new question of patentability exists for claim 23 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 together with the teachings of Price et al. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 23 adds nothing of patentable significance.

Price et al. disclose testing the pooled enrichments (each corresponding to a modular composite sample) for *Salmonella* using "biochemical testing" and "serological testing." *See* Figure 1. Serological testing is an "immunochemistry-based method." Thus, Price et al. teach testing the modular composite sample using an immunochemistry-based method.

2. Fifty-Ninth Substantial New Question of Patentability (Claim 23) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243), Compendium Chapter 2 and Compendium Chapter 10.

A substantial new question of patentability exists for claim 23 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 together with the teachings of Compendium Chapter 10. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 23 adds nothing of patentable significance.

Compendium Chapter 10 describes numerous so-called "Rapid" methods for microbiological testing. It would have been obvious to combine these testing procedures,

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which included immunochemistry-based procedures (e.g., enzyme immunoassay, ELISA, etc.), with the sampling, validation and re-testing procedures described by Jarvis.

Accordingly, Compendium Chapter 10 together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 23 obvious. Claim 23 is, therefore, unpatentable under 35 USC 103(a).

3. Sixtieth Substantial New Question of Patentability (Claim 23) –USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2 and Compendium Chapter 10.

A substantial new question of patentability exists for claim 23 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 23 adds nothing of patentable significance.

Price et al. disclose testing the pooled enrichments (each corresponding to a modular composite sample) for *Salmonella* using "biochemical testing" and "serological testing." *See* Figure 1. Serological testing is an "immunochemistry-based method." Thus, Price et al. teach testing the modular composite sample using an immunochemistry-based method.

Compendium Chapter 10 describes numerous so-called "Rapid" methods for microbiological testing. It would have been obvious to combine these testing procedures, which included immunochemistry-based procedures (e.g., enzyme immunoassay, ELISA, etc.), with the sampling, validation and re-testing procedures described by Jarvis.

Accordingly, Price et al. and Compendium Chapter 10, together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 23 obvious. Claim 23 is, therefore, unpatentable under 35 USC 103(a).

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V. Claim 24

Claim 24 reads as follows:

> 24. The method of claim 1, wherein the separate test lots are production lots of a meat or poultry product, comprising an assemblage of one or more meat or poultry specimens, respectively.

1. Sixty-First Substantial New Question of Patentability (Claim 24) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) and Compendium Chapter 2.

A substantial new question of patentability exists for claim 24 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 in view of the further comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 24 adds nothing of patentable significance. Jarvis discloses that the sample to be tested can be an "initial food homogenate (or culture)." *See* p. 117. Compendium Chapter 2 described sampling plans that involved sampling a "number of units to be collected from each lot" and that a "lot" was understood to be a production batch consisting of operationally linked units. Accordingly, a person of ordinary skill in the art was aware that a "test lot" or "single-unit producton lot" consisted of an assemblage of units or specimens operationally linked by "type, grade, class, size and composition" and "manufactured under the same conditions and at essentially the same time." See Bailey Decl. at ¶16.

Accordingly, Jarvis, together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 24 obvious. Claim 24 is, therefore, unpatentable under 35 USC 103(a).

2. Sixty-Second Substantial New Question of Patentability (Claim 24) – USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2 and BAM.

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A substantial new question of patentability exists for claim 24 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 together with the teachings of BAM. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 24 adds nothing of patentable significance.

BAM discloses many different types of food homogenate samples, including meat and poultry samples that would be representative of production lots of food products. Thus, in August 2004, the skilled artisan would have looked to the disclosure of BAM to collect and prepare a "production lots of a meat or poultry product, comprising an assemblage of one or more meat or poultry specimens." Specifically, BAM teaches that the separate test lots (sampled lots) are production lots of meat or poultry product, comprising an assemblage of one or more meat or poultry specimens, respectively. BAM discloses that food category II includes "meat and meat products, poultry and poultry products." See p. 6. As discussed above, the sampled lots in BAM can include foods listed in Food Category II, and thus the lots would include specimens of those food.

Price et al. disclosed screening multiple types of food samples. Price et al. expressly mentioned BAM as disclosing the method by which the samples in Price et al. were prepared. Thus, based on the express teaching of Price et al., in August 2004, the skilled artisan would have looked to the cited disclosure of BAM to collect and prepare samples disclosed in Price et al.

Accordingly, Price et al. and BAM, together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 24 obvious. Claim 24 is, therefore, unpatentable under 35 USC 103(a).

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3. Sixty-Third Substantial New Question of Patentability (Claim 24) –USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2 and Gabis et al.

A substantial new question of patentability exists for claim 24 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 together with the teachings of Gabis et al. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 24 adds nothing of patentable significance.

Gabis et al. describe sampling, compositing and testing of meat, poultry and egg food products. The samples of these products are combinations of individual pieces of meat, poultry or egg specimens.

Accordingly, Gabis et al., together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 24 obvious. Claim 24 is, therefore, unpatentable under 35 USC 103(a).

W. Claim 25

Claim 25 reads as follows:

> 25. The method of claim 1, wherein the separate test lots are separate production lots of a fish or a seafood product, comprising an assemblage of one or more fish or seafood specimens, respectively.

1. Sixty-Fourth Substantial New Question of Patentability (Claim 25) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243), Compendium Chapter 2 and Silliker et al.

A substantial new question of patentability exists for claim 25 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 together with the teachings of Silliker et al. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 25 adds nothing of patentable significance.

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Silliker et al. describe the testing of fish meal, which is a "fish or seafood product." *See* Table 1 at p. 477.

Accordingly, Silliker et al., together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 25 obvious. Claim 25 is, therefore, unpatentable under 35 USC 103(a).

2. Sixty-Fifth Substantial New Question of Patentability (Claim 25) –USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2 and Silliker et al.

A substantial new question of patentability exists for claim 25 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 together with the teachings of Silliker et al. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 25 adds nothing of patentable significance.

Silliker et al. describe the testing of fish meal, which is a "fish or seafood product." *See* Table 1 at p. 477.

Accordingly, Silliker et al., together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 25 obvious. Claim 25 is, therefore, unpatentable under 35 USC 103(a).

X. Claim 26

Claim 26 reads as follows:

26. The method of claim 1, wherein the separate test lots are separate production lots of a ready-to-eat product.

1. Sixty-Sixth Substantial New Question of Patentability (Claim 26) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) and Compendium Chapter 2.

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A substantial new question of patentability exists for claim 26 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 in further view of the comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 26 adds nothing of patentable significance.

Compendium Chapter 2, in Section 2.521, describes the sampling of "finished products." It refers to the sampling of consumer packages of food for testing of microbiological contamination. Such consumer packages of food would include read-to-eat foods.

Accordingly, Compendium Chapter 2 together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 26 obvious. Claim 26 is, therefore, unpatentable under 35 USC 103(a).

2. Sixty-Seventh Substantial New Question of Patentability (Claim 26) – USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2 and Silliker et al.

A substantial new question of patentability exists for claim 26 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 together with the teachings of Silliker et al. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 26 adds nothing of patentable significance.

Silliker et al. describe the testing of chocolate almond bars, milk chocolate and black pepper, each of which is a ready-to-eat food. *See* Table 1, p. 477.

Accordingly, Silliker et al. together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 26 obvious. Claim 26 is, therefore, unpatentable under 35 USC 103(a).

Y. Claim 27

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Claim 27 reads as follows:

> 27. The method of claim 2, wherein product specimens are synonymous with product portions.

1. Sixty-Eighth Substantial New Question of Patentability (Claim 27) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) and Compendium Chapter 2.

A substantial new question of patentability exists for claim 27 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 in further view of the comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 27 adds nothing of patentable significance.

Compendium Chapter 2 defines "sample unit" as:

> [t]he smallest definable part of a lot, also called a unit, for example a singleton or a package is a single unit. When lots are bulk packaged in bins, barrels, bags, etc., then the sample unit is arbitrary and may depend on the sampling device. The use of the word in this context should be differentiated from the analytical sample unit specified by the analytical method.

A specimen or portion taken from a lot as a sample unit, i.e., the unit removed from the lot for compositing with other samples.

Accordingly, Compendium Chapter 2, together with the prior art discussed above in connection with claims 1, would have rendered the method of claim 27 obvious. Claim 27 is, therefore, unpatentable under 35 USC 103(a).

Z. Claim 28

Claim 28 reads as follows:

> 28. The method of claim 4, wherein the medium comprises a selective agent that will inhibit a competing non-target microbial agent or organism.

1. Sixty-Ninth Substantial New Question of Patentability (Claim 28) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243), Compendium Chapter 2 and Compendium Chapter 37.

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A substantial new question of patentability exists for claim 28 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 together with the teachings of Compendium Chapter 37. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 28 adds nothing of patentable significance.

Compendium Chapter 37, in Sections 37.124 and 37.125, describes selective enrichment media and selective plating media for *Salmonella*.

Accordingly, Compendium Chapter 37, together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 28 obvious. Claim 28 is, therefore, unpatentable under 35 USC 103(a).

2. Seventieth Substantial New Question of Patentability (Claim 28) –USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2 and Gabis et al.

A substantial new question of patentability exists for claim 28 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 together with the comments that follow and the teachings of Gabis et al. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 28 adds nothing of patentable significance.

Gabis et al. describe direct selective enrichment of *Salmonella* in samples introduced into tetrathionate broth containing brilliant green dye and selenite cystine broth. P. 664.

Price et al. teach that direct selective enrichment broths (selective agent) may be used when forming the individual samples (separate test lot samples) instead of pre-

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enrichment broths when numerous non-*Salmonella* (competing non-target microbial agent or organism) colonies exist on selective agar plates. See p. 682.

Accordingly, each of Gabis et al. and Price et al. together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 28 obvious. Claim 28 is, therefore, unpatentable under 35 USC 103(a).

AA. Claim 29

Claim 29 reads as follows:

> 29. The method of claim 5 wherein the concentration step comprises at least one of immunomagnetic bead separation, and affinity chromatography.

1. Seventy-First Substantial New Question of Patentability (Claim 29) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243), Compendium Chapter 2 and Compendium Chapter 10.

A substantial new question of patentability exists for claim 29 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 together with the teachings of Compendium Chapter 10. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 29 adds nothing of patentable significance. Compendium Chapter 10 describes the concentration of target microorganism from an enrichment medium using antibody-coated magnetic beads. See the discussion above concerning claim 5.

Accordingly, Compendium Chapter 10 together with the prior art discussed above in connection with claims 1 and 5, would have rendered the method of claim 29 obvious. Claim 29 is, therefore, unpatentable under 35 USC 103(a).

2. Seventy-Second Substantial New Question of Patentability (Claim 29) – USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2 and Compendium Chapter 10.

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A substantial new question of patentability exists for claim 29 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 together with the teachings of Compendium Chapter 10. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 29 adds nothing of patentable significance.

Compendium Chapter 10 describes the concentration of target microorganism from an enrichment medium using antibody-coated magnetic beads. See the discussion above concerning claim 5.

Accordingly, Compendium Chapter 10 together with the prior art discussed above in connection with claims 1 and 5, would have rendered the method of claim 29 obvious. Claim 29 is, therefore, unpatentable under 35 USC 103(a)

BB. Claim 30

Claim 30 reads as follows:

> 30. The method of claim 6, wherein the more sensitive protocol further comprises a concentration step to concentrate the microbial agent or organism, in combination with the same test protocol that is used to test the modular composite sample.

1. Seventy-Third Substantial New Question of Patentability (Claim 30) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243), Compendium Chapter 2 and Compendium Chapter 10.

A substantial new question of patentability exists for claim 30 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 in further view of the comments presented below and Compendium Chapter 10. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 30 adds nothing of patentable significance.

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Compendium Chapter 10 describes a concentration step utilizing affinity chromatography, antibody-coated magnetic beads and the like. Compendium Chapter 10 also describes so-called "Rapid" test methods for analyzing for microorganisms with a high degree of specificity and sensitivity.

Accordingly, Compendium Chapter 10 together with the prior art discussed above in connection with claims 1 and 6, would have rendered the method of claim 30 obvious. Claim 30 is, therefore, unpatentable under 35 USC 103(a).

2. Seventy-Fourth Substantial New Question of Patentability (Claim 30) – USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2 and Compendium Chapter 10.

A substantial new question of patentability exists for claim 30 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 together with the teachings of Compendium Chapter 10. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 30 adds nothing of patentable significance.

Compendium Chapter 10 describes a concentration step utilizing affinity chromatography, antibody-coated magnetic beads and the like. Compendium Chapter 10 also describes so-called "Rapid" test methods for analyzing for microorganisms with a high degree of specificity and sensitivity.

Accordingly, Compendium Chapter 10 together with the prior art discussed above in connection with claims 1 and 6, would have rendered the method of claim 30 obvious. Claim 30 is, therefore, unpatentable under 35 USC 103(a).

CC. Claim 31

Claim 31 reads as follows:

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31. The method of claim 17, wherein removing portions in step d) is removing equal portions, aseptically, so as to preclude contamination of the enriched separate single-unit production lot samples.

1. Seventy-Fifth Substantial New Question of Patentability (Claim 31) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) and Compendium Chapter 2.

A substantial new question of patentability exists for claim 31 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claims 1 and 17 in view of the further comments presented below. Claims 1 and 17 are unpatentable for each of the separate reasons discussed above. Claim 31 adds nothing of patentable significance.

Compendium Chapter 2, in Section 2.4, contains an extensive discussion of precautions that "shall be taken to prevent microbial contamination of samples from external sources, including the person taking the samples, air, sample containers, sampling devices, and the shipping vehicle." Thus, Compendium Chapter 2 would have taught the person of ordinary skill in the art to use aseptic conditions when transferring or removing sample portions.

Jarvis, in method 2, Section 8.4.2.1, discloses compositing equal 1 ml volumes of each of the 10 pre-enrichment cultures (enriched separate test lot samples).

Claim 31 is, therefore, unpatentable under 35 U.S.C. § 103 in view of the prior art discussed above.

2. Seventy-Sixth Substantial New Question of Patentability (Claim 31) – USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2.

A substantial new question of patentability exists for claim 31 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claims 1

and 17 in further view of the comments presented below. Claims 1 and 17 are unpatentable for each of the separate reasons discussed above. Claim 31 adds nothing of patentable significance.

Compendium Chapter 2, in Section 2.4, contains an extensive discussion of precautions that "shall be taken to prevent microbial contamination of samples from external sources, including the person taking the samples, air, sample containers, sampling devices, and the shipping vehicle." Thus, Compendium Chapter 2 would have taught the person of ordinary skill in the art to use aseptic conditions when transferring or removing sample portions.

Price et al. disclose separately pooling (i.e., compositing) equal 1 ml portions or 2 ml portions of each incubated pre-enrichment broth culture (enriched separate test lot sample) in two different enrichment broths (each corresponding to a modular composite sample). *See* pp. 679 and 682, and Figure 1.

Accordingly, Compendium Chapter 2 and Price et al., together with the prior art discussed above in connection with claims 1 and 17, would have rendered the method of claim 31 obvious. Claim 31 is, therefore, unpatentable under 35 USC 103(a).

DD. Claim 32

Claim 32 reads as follows:

> 32. The method of claim 24, wherein the meat or poultry specimens are meat trim pieces or poultry trim pieces, respectively.

1. Seventy-Seventh Substantial New Question of Patentability (Claim 32) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243), Compendium Chapter 2 BAM and ICMSF.

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A substantial new question of patentability exists for claim 32 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 in view of the further comments presented below and BAM and ICMSF. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 32 adds nothing of patentable significance.

BAM does not specifically disclose that the meat or poultry specimens described therein are "trim pieces." However, BAM discloses that ICMSF (Exhibit 10) discloses more detailed sampling and sample plans. ICMSF discloses that trimmings may be used when sampling raw meat. See, p. 135. In August 2004, the skilled artisan would have looked to ICMSF because BAM expressly identifies ICMSF as a source of more detailed sampling in sample plans.

Accordingly, BAM and ICMSF, together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 32 obvious. Claim 32 is, therefore, unpatentable under 35 USC 103(a).

2. Seventy-Eighth Substantial New Question of Patentability (Claim 32) – USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2 and Gabis et al.

A substantial new question of patentability exists for claim 32 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 in further view of the comments presented below. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 32 adds nothing of patentable significance.

Gabis et al. describe sampling skeletal meat samples obtained from human meat processors and organ meat and organ-skeletal mixtures obtained from pet food

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processors. *See* p. 664. Table 1 (p. 666) describes, *inter alia* test results for beef trimmings.

Accordingly, Gabis et al., together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 32 obvious. Claim 32 is, therefore, unpatentable under 35 USC 103(a).

EE. Claim 33

Claim 33 reads as follows:

> 33. The method of claim 24, wherein the meat is that of beef, pork, sheep or bison.

1. Seventy-Ninth Substantial New Question of Patentability (Claim 33) – Jarvis in Combination with USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243), Compendium Chapter 2 and Gabis et al.

A substantial new question of patentability exists for claim 33 and that claim is unpatentable for the reasons discussed above in Section V.A. in connection with claim 1 in view of the further comments presented below and Gabis et al. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 33 adds nothing of patentable significance.

The FSIS Protocol describes sampling and testing of raw ground beef. Gabis et al. (Table 1, p. 666) describe results for testing of various beef and pork parts.

Accordingly, the FSIS Protocol or Gabis et al., together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 33 obvious. Claim 33 is, therefore, unpatentable under 35 USC 103(a).

2. Eightieth Substantial New Question of Patentability (Claim 33) –USDA FSIS Microbiology Laboratory Guidebook (Compendium Section 35.243) in Combination with Price et al., the General Teachings of Compendium Chapter 2 and Gabis et al.

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A substantial new question of patentability exists for claim 33 and that claim is unpatentable for the reasons discussed above in Section V.B. in connection with claim 1 in further view of the comments presented below and Gabis et al. Claim 1 is unpatentable for each of the separate reasons discussed above. Claim 33 adds nothing of patentable significance.

The FSIS Protocol describes sampling and testing of raw ground beef. Gabis et al. (Table 1, p. 666) describe results for testing of various beef and pork parts.

Accordingly, the FSIS Protocol or Gabis et al., together with the prior art discussed above in connection with claim 1, would have rendered the method of claim 33 obvious. Claim 33 is, therefore, unpatentable under 35 USC 103(a).

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VII. Detailed Claim Charts

A. Claim 1

PREAMBLE

Claim	Teaching References
1. A Method of sampling, testing and validating test lots for microbial contamination, comprising:	Each of the FSIS Protocol, the Admitted State of the Art, Compendium Chapter 37, Silliker et., Gabis et al., BAM, Davies et al., Jarvis and Price et al. describe methods for the sampling, testing and validation of test lots for microbial contamination. Compendium Chapter 2 describes sampling and the importance of developing sampling plans and obtaining representative samples. Requester does not admit that the preamble is a limitation.

STEP a)

Claim	Teaching of References
a) collecting a plurality of portions from each of a plurality of test lots, the test lots each comprising an assemblage of one or more specimens, where each test lot is separately sampled by taking said plurality of portions thereof; *The term "test lot" is defined in the specification as an assemblage of one or more specimens of a medium or process (e.g., assemblage of specimens of air, water, solids, or of products of a production process, etc.), where such assemblage can be sampled by taking portions of the one or more specimens thereof, and where the one or more specimens of the assemblage are operationally linked in a manner (e.g., proximity, time, process step, etc.) whereby information derived about sampled portions is operationally applicable to all specimens of the assemblage, and thus to the test lot. C5:L21-32.*	Compendium Chapter 3 Section.2.511 defines "Lot" and Section 2.5 generally describe sampling plans and the importance of obtaining a representative sample. The definition includes the concept that the Lot is of a "single type grade, class, size and composition," and should be manufactured under the same conditions and at essentially the same time." The "Lots" of food product, such as meat, poultry, produce, eggs and the like all involve collections (assemblyages) of component food units or pieces (specimens). To the extent that "specimens of the assemblage," are required to be "operationally linked," the definition of "Lot" in Compendium Chapter 2 meets the requirement, and to the extent that "information derived from sampled portions is operationally applicable to all specimens of the assemblage, and thus to the test lot, the definition of "Representative Sample" in Compendium Chapter 2 meets that requirement. FSIS Protocol The FSIS Protocol describes combining five samples of raw ground beef for testing for *E.coli* contamination as a composite. The ground beef includes an assemblage of individual specimens of beef. Admitted State of the Art Background section of specification at col. 2, lines 13-26 admit that a "typical plan" for *E.coli* testing involved taking samples from a "production lot" and compositing them for testing. Compendium Chapter 37 Dry compositing of samples of food products for testing for *Salmonella* contamination is described in Sections 37.122 (page 360) Silliker et al. Silliker et al. describe compositing of samples of dried food products for *Salmonella* testing. *See, e.g.*, p. 476. The reference teaches separately testing a plurality of composite samples (test lots).

	Gabis et al. Gabis et al. describe compositing (lumping) samples of high-moisture food products, such as meat, poultry and eggs, for *Salmonella* testing. *See, e.g.,* p. 664. The reference teaches separately testing a plurality of composite samples (test lots) BAM BAM discloses sampling "lots" so that the samples will be representative of the lots. See p. 1. Thus, in BAM the sampled lots correspond to the claimed "test lots." Depending on the type of food being tested, either 15, 30, or 60 analytical units are collected from each lot. See p.3. Thus, in BAM, "each test lot is separately sampled by taking said plurality of portions thereof." Analytical units are composited into a single sample. *Id.* Thus, the analytical units disclosed in BAM correspond to the claimed "plurality of portions" that are collected from "each of a plurality of test lots." The sampled lots in BAM are lots of food product, which can be a collection of finished products or the collection of factory samples of raw materials in identifiable lots of processed units and/or finished products. See p. 4. The food products that make up the lots in BAM are thus "an assemblage of one or more specimens" of food. Davies et al. At least at p. 1017, Davies discloses collecting pig pen faeces samples consisting of approximately 15 pinch-sized samples (plurality of portions) from the pen (test lot) containing faeces (specimens). Thus, each sample in Davies is an assemblage of approximately 15 portions of the particular pen's faecal material. The reference teaches separately testing a plurality of composite samples (test lots). Jarvis In Section 8.4.2.1 in method (1) Jarvis teaches compositing samples at the pre-enrichment stage

STEP b)

Claim	Teaching of References
b) combining the collected plurality of portions corresponding to each of the separate test lots to provide a corresponding set of separate test lot samples, wherein each separate test lot sample is attributed to a particular corresponding separate test lot.	**FSIS Protocol** The FSIS Protocol describes combining five samples of raw ground beef for testing for *E. coli* contamination as a composite. The ground beef is made up of an assemblage of individual pieces or specimens of beef. **Admitted State of the Art** Background section of specification at col. 2, lines 13-26 admit that "typical plan" for *E.coli* testing involved taking samples from a "production lot" and compositing them for testing. In the amendment dated October 24, 2008 (responsive to an office action dated August 20, 2008), the patentee admitted that the prior art (Davies et al.) disclosed "the preparation and enrichment of a 'test lot sample'." **Compendium Chapter 37** Dry compositing of samples of food products for testing for *Salmonella* contamination is described in Section 37.122 (page 360)

	Silliker et al. Silliker et al. describe compositing of samples of dried food products for *Salmonella* testing. *See, e.g.,* p. 476. The reference describes testing a plurality of separate composites ("set of test lot samples") from a plurality of individual product batches from which the samples making up the composites were derived ("test lots"). **Gabis et al.** Gabis et al. describe compositing (lumping) samples of high-moisture food products, such as meat, poultry and eggs, for *Salmonella* testing. *See, e.g., p. 664.* The reference describes testing a plurality of separate composites ("set of test lot samples") from a plurality of individual product batches from which the samples making up the composites were derived ("test lots"). **BAM** BAM discloses sampling "lots" so that the samples will be representative of the lots. See p. 1. Thus, in BAM the sampled lots correspond to the claimed "test lots." Depending on the type of food being tested, either 15, 30, or 60 analytical units are collected from each lot. See p. 3. Thus, in BAM, "each test lot is separately sampled by taking said plurality of portions thereof." Analytical units are composited into a single sample. *Id.* Thus, the analytical units disclosed in BAM correspond to the claimed "plurality of portions" that are collected from "each of a plurality of test lots." The sampled lots in BAM are lots of food product, which can be a collection of finished products or the collection of factory samples of raw materials in identifiable lots of processed units and/or finished products. See p. 4. The food products that make up the lots in BAM are thus "an assemblage of one or more specimens" of food. **Davies et al.** At least at p. 1017, Davies discloses collecting pig pen faeces samples consisting of approximately 15 pinch-sized samples (plurality of portions) from the pen (test lot) containing faeces (specimens). Thus, each sample in Davies is an assemblage of approximately 15 portions of the particular pen's faecal material. The reference describes testing a plurality of separate composites ("set of test lot samples") from a plurality of individual product batches from which the samples making up the composites were derived ("test lots"). **Jarvis** In Section 8.4.2.1 in method (1) Jarvis teaches compositing samples at the pre-enrichment stage.

STEP c)

Claim	Teachings of the References
c) incubating the set of separate test lot samples under conditions suitable to allow levels of target microbial agent or organism that is present in one or more of the separate test lot samples to reach detectable levels and become uniform, or substantially uniform, throughout the respective one or more separate test lot samples, to provide a set of separate test lot samples enriched for the target microbial agent or organism;	FSIS Protocol Section 35.243 of the Compendium describes enrichment of a 35 g composite samples of ground beef with 300 mls of mEC with novobiocin, the addition of more media, incubation at 35°C for 18-24 hours. The target microbe (*Salmonella*) is multiplied to detectable levels, because the medium is subsequently subjected to detection assay. Admitted State of the Art At col. 2, lines 46-58, the Background section of the '584 patent specification describes a "typical" method for enriching a target microbe in a composite sample "to provide more material which can be detected" by incubating in enrichment media. Compendium Chapter 37 In Sections 37.123 and 37.124 (page 360) the Compendium describes procedures for pre-enrichment and enrichment of composite samples of food products involving incubation with appropriate media. The function of the pre-enrichment and enrichment steps is to multiply the microorganism (*Salmonella*) to levels that can be detected by the subsequent steps. Silliker et al. Silliker et al. describe at p. 476 the placement of 100 g and 500 g composited subsamples into pre-enrichment broths followed by incubation. After incubation, 1 ml. aliquots from each pre-enrichment culture is added to each of two enrichment media. The microorganism is subsequently detected. Gabis et al. At page 664, Gabis et al. describe two approaches to enrichment for *Salmonella*. The first was to place the composited samples in pre-enrichment broths, incubate and then transfer aliquots of the pre-enrichment cultures to selective enrichment broths. The second was to enrich directly in enrichment broths. Subsequent detection steps showed that both procedures produced detectable levels of the microorganism, although the form was more sensitive. BAM BAM discloses that the composite samples (separate test lot samples) should be combined with a pre-enrichment medium and pre-enriched at a 1:9 sample-to-broth ratio. See pp. 3 and 4. Thus, the samples prepared according to BAM are ready for incubation (claim step c)), compositing (claim step d)), and testing (claim step e)) according to the methods of either Jarvis or Price, et al.. Davies Davies teaches this step at least at p. 1018, which discloses incubating the pooled samples (separate test lot samples) for 16-20 hours. In Davies, the samples are incubated under conditions suitable to allow levels of any *Salmonella* (target microbial agent or organism) that is present in one or more of the pooled faeces samples (separate test lot samples) to reach detectible levels and become substantially uniform

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	because, after incubation, the samples are ready for plating and testing. *Id.* This teaching is admitted by the Patentee in at least the February 19, 209 Amendment at p. 14, which admits that Davies' teaching "in terms of [the Patentee's novel scheme… amounts to preparation and enrichment of a 'test lot sample'" (emphasis added).

STEP d)

Claim	Teachings of the References
d) removing portions of each enriched separate test lot sample, and combining the removed portions to provide a modular composite sample; and *The term "modular composite sample" is defined in the specification as a sample formed by removing, preferably aseptically, equal portions of each of a plurality of enriched single-unit production lot samples, and combining the removed portions.*	Jarvis Method (2), in section 8.4.2.1 of Jarvis, discloses compositing equal 1 ml volumes of each of the 10 pre-enrichment cultures in an enrichment broth (modular composite sample) after incubation/enrichment of the pre-enrichment broths and prior to testing. See section 8.4.2.1. Because the composite enrichment broth in Jarvis includes equal portions of the already enriched pre-enrichment cultures, it corresponds to the claimed "modular composite sample." Price et al. Price et al. discloses separately pooling (i.e., compositing) equal 1 ml portions to 2 ml portions of each incubated pre-enrichment broth culture in two different enrichment broths (each corresponding to a modular composite sample). See pp. 679 and 682, FIG. 1.

STEP e)

Claim	Teaching of the References
e) testing of the composite sample, using a suitable detection assay, for the target microbial agent or organism, wherein when such testing is negative all of said separate single-unit production lot samples are validated, and wherein when such testing is positive, individual separate single-unit production lots are validated by further testing of a portion of the respective enriched separate single-unit production lot sample using the same or a more sensitive protocol and obtaining test result for each single-unit production lot.	Jarvis Jarvis discloses testing the composite enrichment broth (modular composite sample) for *Salmonella* (target microbial agent or organism) by streaking onto diagnostic media, further incubation, selection of colonies, and typing of selected colonies (a suitable detection assay). See section 8.4.2. Jarvis teaches that, when the test is positive, the tests can be repeated (further testing) on stored portions of the pre-enrichment cultures (enriched separate single-unit production lot samples) to determine which pre-enrichment cultures (enriched separate single-unit production lot samples) were contaminated. See section 8.4.2.1. No individual testing is performed when the test of the composite enrichment broth (modular composite sample) is negative. In Jarvis, the claimed "further testing" would at least be done with the same test, which amounts to testing using "using the same or a different suitable" test. Price et al. Price discloses testing the pooled enrichment broth (modular composite sample) for *Salmonella* (target microbial agent or organism) by selective plating, biochemical testing, and serological testing (a suitable detection assay). FIG. 1, and pp. 679 and 681. When the test is positive, saved portions of each of the pre-enrichment broth cultures (enriched separate single-unit production lot samples) are individually tested (further testing) to determine which sample or samples caused the positive test.

	See abstract, FIG. 1, and pp. 679 and 681. All samples are validated when the test of the enrichment broth (modular composite sample) is negative. See FIG. 1. In Price, the claimed "further testing" would at least be done with the same test, which amounts to testing using "using the same or a different suitable" test.

B. Claim 2

Claim	Teachings of the References
2. The method of claim 1, wherein the test lot is a single-unit production lot, comprised of operationally-linked product specimens. *"single-unit production lot" is defined in the specification as "a single unit of production (e.g. for beef trim a "combo," or for almonds a "bin") rather than, as in the prior art, to a composite comprised of multiple, non-operationally linked single production units (production sublots)."* *Examples of an individual single-unit production lot include "all of the product produced by a particular production line (or produced by a particular production line in a particular period of time), a volume of product such as a pallet of packed boxes produced on a particular production line, or a production area in the plant." Col. 12, lines 49-55.*	Compendium Chapter 2 Chapter 2 (describing sampling) in Section 2.511 defines "Lot" as the number of sample units produced in one batch or in same specified period of time such that the units will be about the same quality. Each lot or batch shall consist of units of product of a single type, grade, class, size and composition. The lot should be manufactured under the same conditions and at essentially the same time. That chapter also discusses the importance of "Sampling Plans" for sampling "lots" of product and the importance of obtaining representative samples. Admitted State of the Prior Art At col. 2, lines 13-16, the Background Section of the '584 patent it is stated that, "[w]ith respect to *E.coli* 0157 testing, for example, a typical plan calls for taking 60 samples (e.g. sample pieces) from a production lot to form a single composite sample." BAM Some of the specific examples of the sampled lots (test lots) in BAM are "a consumer-sized container of product" such as a 10 lb wheel of cheese or an 8 oz bag of almonds. See p. 4. The specification states that a "single-unit production lot" can be all of the product "produced by a particular production line in a particular period of time." The consumer-sized containers disclosed in BAM are "single-unit production lots" because they are all of the product produced by a particular production line in a particular period of time, the period of time being the time necessary to fill a single container. The 584 Patent specification also states that a "single-unit production lot" can be "a volume of product…produced on a particular production line." The consumer-sized container disclosed in BAM are also a volume of product produced on a particular production line, and thus correspond to the claimed "single-unit production lot." As discussed above, the food items in the consumer-sized containers are operationally linked.

C. Claim 3

Claim	Teachings of the References
3. The method of claim 1, further comprising incubating the modular composite sample of d), prior to testing in e).	As discussed above in connection with step c) of claim 1, each of the cited references discloses incubation in pre-enrichment and/or enrichment media prior to testing for the target microorganism.

D. Claim 4

Claim	Teachings of the References
4. The method of claim 1, wherein incubating each separate test lot sample in c) comprises incubating each separate test lot sample with enrichment medium suitable to enrich for the target microbial agent or organism, and wherein removing in d) comprises removing a portion of the enrichment medium from each enriched separate test lot sample and combining the removed portions to provide a modular composite sample.	Jarvis With respect to claim 1, Jarvis teaches placing samples in separate pre-enrichment media (separate test lot samples). See section 8.4.2. Then each pre-enrichment medium is incubated to make a pre-enrichment broth culture (enriched separate test lot sample). See sections 8.4.2 and 8.4.2.1. This incubation causes the *Salmonella* (target microbial agent or organism) to become enriched. See section 8.4.2. Thus, the pre-enrichment media must be suitable to enrich for *Salmonella* (target microbial agent or organism). After this enrichment caused by incubation, equal 1 ml portions of each pre-enrichment culture (enriched separate test lot sample) are added to the composite enrichment broth (modular composite sample). See section 8.4.2.1 Price et al. As discussed above with respect to claim 1, Price teaches placing samples in separate pre-enrichment broths (separate test lot samples). See p. 679 and FIG. 1. Price teaches incubating the separate pre-enrichment broths to make pre-enrichment broth cultures (enriched separate test lot samples). See p. 682. This incubation causes any *Salmonella* (target microbial agent or organism) to become enriched. Thus, the pre-enrichment broth must be suitable to enrich for *Salmonella* (target microbial agent or organism). After this enrichment caused by incubation, separate 1 ml or 2 ml portions of each pre-enrichment broth culture are added to two enrichment broths (each corresponding to a modular composite sample). See p. 682, p. 679 and FIG. 1.

E. Claim 5

Claim	Teachings of the References
5. The method of claim 1, wherein testing of the modular composite sample, using a suitable detection assay further comprises a concentration step to concentrate the microbial agent or organism. *The '584 patent specification refers to the use of antibody-coated paramagnetic beads as one example for concentration of of the target organism. Col. 8, lines 11-25.*	Compendium Chapter 10 Compendium Chapter 10 (Section 10.27 and Fig. 3) describes the use of antibody-coated magnetic beads to concentrate microbial cells from an enrichment culture prior to detection by a method such as Enzyme Immunoassay, plating, etc.

F. Claim 6

Claim	Teachings of the References
6. The method of claim 1, wherein testing in e) of the modular composite sample is positive, and wherein the individual separate test lot samples are further tested, such further testing comprises the more sensitive protocol. *Claim 6 recites "the individual separate test lot samples," which does not have antecedent basis in claim 1. For the purpose for this analysis it is assumed that "the individual separate test lot samples," refers to the "enriched separate test lot samples" that correspond to the "individual separate test lots."*	Price et al. As discussed above, Price et al. teach further testing (individual testing) of the stored portions of the incubated pre-enrichment broth cultures (enriched separate test lot samples) when the pooled enrichment (modular composite sample) tests positive. Price et al. further disclose that direct selective enrichment or further selective enrichment may be used before performing the individual testing (further testing). See p. 682. As discussed above, selective enrichment causes further growth of *Salmonella* (target microbial agent or organism), thereby concentrating it. Performing the same test with a more concentrated target microbial agent or organism would result in a more sensitive protocol (see claim 30).

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G. Claim 7

Claim	Teachings of the References
7. The method of claim 1, further comprising, forming an additional modular composite sample from the set of enriched separate test lot samples of c) and testing the additional modular composite sample, using the same or a different suitable assay, to confirm the testing result.	Price et al. Price teaches that two pooled enrichment broths (modular composite samples) are prepared. Specifically, one selenite broth and one tetrathionate broth are prepared, each including equal portions of each pre-enrichment broth culture (enriched separate test lot sample). See p. 679 and FIG. 1. These two enrichment broths are separately plated and tested. FIG. 1. Thus, one broth constitutes a pooled composite and the other broth constitutes an additional pooled composite. Because both enrichment broths (modular composite samples) include equal portions of each of the same pre-enrichment broth cultures (enriched separate test lot samples), testing each would have to be for the purpose of confirming the testing result. This testing step simply amounts to testing using a suitable test because "using the same or a different suitable" assay fails to limit the type of testing. All of the above-cited references disclose using a suitable test.

H. Claim 8

Claim	Teachings of the References
8. The method of claim 1, further comprising, forming an additional modular composite sample from an additional enriched separate test lot sample along with any enriched separate test lot samples of c) that test negative in e), and testing the additional modular composite sample, using the same or a different suitable assay.	Price et al. and Jarvis Price et al. and Jarvis describes re-testing of retained enrichment cultures in the event of a positive result for a wet-composited sample. See the above chart for claim 1, step e). Re-testing by re-combining negative-tested composites was a matter of obvious choice. Adding an additional separate test lot sample to the composite so as to determine whether that test lot sample was positive was also an obvious design choice, because, assuming as is likely, the additional test lot is also negative, then the confirmatory testing on previously tested samples and the new testing on an additional sample could be accomplished with a single test.

I. Claim 9

Claim	Teachings of the References
9. The method of claim 1, further comprising, where testing of the modular composite sample in e) is negative, forming an additional modular composite sample from the set of enriched separate test lot samples of c), and testing the additional modular composite sample, using a different suitable assay, to confirm the negative testing status.	Price et al. Price teaches that two pooled enrichment broths (modular composite samples) are prepared. Specifically, one selenite broth and one tetrathionate broth, are prepared, each including equal portions of each pre-enrichment broth culture (enriched separate test lot sample). See p. 679 and FIG. 1. These two enrichment broths are separately plated and tested. FIG. 1. Thus one broth constitutes a pooled composite and the other broth constitutes an additional pooled composite. Because both enrichment broths (modular composite samples) include equal portions of each of the same pre-enrichment broth cultures (enriched separate test lot samples), testing each would have to be for the purpose of confirming the testing result. Price teaches using a different assay because one selenite broth and one tetrathionate broth (both modular composite samples) are prepared. That is, because selenite broth and tetrathionate broth are different enrichment broths, they will enrich the *Salmonella* differently. Thus, the selenite broth and the tetrathionate broth will have different concentrations of *Salmonella* from one another. The broth having the higher concentration will result in a more sensitive assay than the broth having the lower concentration. Because one assay will be more sensitive than the other the assays will be different. Price always performs this dual testing, and thus it is performed every time one or both of the pooled enrichments (modular composite samples) tests negative. The dual testing in Price is not specifically based on whether the original test of the composite sample is negative or positive; however, claim 9 does not recite "only when the testing of the modular composite sample in e) is negative," and thus covers the situation in which the dual testing is always performed.

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J. Claim 10

Claim	Teachings of the References
10. The method of claim 1, wherein the test lot is selected from the lot group consisting of a single combo, single bin, single pallet, and a production assemblage. *The '584 patent specification identifies "combo" and "bin" as examples of "single production unit" or "single-unit production lot." Col. 5, lines 33-38.*	Compendium Chapter 2 Section 2.511 defines "Lot" as The number of sample units produced in one batch or in some specified period of time such that the units will be about the same quality. Each lot or batch should consist of units of product of a single type, grade, class, size and composition. The lot should be manufactured under the same conditions and at essentially the same time. As product is manufactured, individual pieces (e.g., parts of meat or pieces of produce or eggs) will be combined as a production unit into an "assemblage."

K. Claim 11

Claim	Teachings of the References
11. The method of claim 1, wherein the number of separate test lots is from 3 to 10.	Jarvis Jarvis teaches compositing ten pre-enrichment cultures. See method (2) of section 8.4.2.1. According to the language of claim 1 and the combination of references discussed above regarding claim 1, the ten pre-enrichment cultures would have each been drawn from a corresponding test lot. Thus, according to the combination of references the number of test lots is ten, which is within the claimed range. Price et al. Price et al. teach compositing five or nine pre-enrichment broth cultures. See p. 679. According to the language of claim 1 and the combination of references discussed above regarding claim 1, the five or nine pre-enrichment broth cultures are each drawn from a corresponding test lot. Thus, according to the combination of references, the number of test lots is either five or nine, which is within the claimed range.

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L. Claim 12

Claim	Teachings of the References
12. The method of claim 1, further comprising where testing of modular composite sample is positive, determining which individual separate test lots are positive, application of remedial measures to said separate positive test lots, and validating by further testing of a portion of the respective remediated separate test lots and obtaining a negative test result. *The specification does not define or provide examples of remedial measures but refers to "cooking, disposal, or other acceptably safe end point" as ways of handling positive test lots. Col. 5, lines 10-11; col. 8, lines 31-33.* *The specification does not disclose what types of testing are contemplated by the recitation of "further testing" of the remediated separate test lots. In fact, the specification fails to provide any disclosure of or support for the step of further testing remediated separate test lots, which was added to the claims in the April 25, 2008 Amendment.*	Mauer Mauer teaches cooking methods that substantially eliminate (i.e. remediate) bacterial contamination from contaminated food. See abstract, column 2, lines 57-63; column 3, lines 35-43; column 4, lines 3-5 and 40-43; column 7, lines 46-48; column 8, lines 54-60, column 9, lines 56-58; and column 10, lines 16-22. In addition to remediating bacterial contamination, Mauer's cooking method produces cooked food but retains a fresh, moist taste and appearance, and that can be readily and easily prepared by the end consumer. See, e.g, column 2, lines 57-63. It would have been obvious to the skilled artisan to cook the food according to the method of Mauer to avoid waste, substantially eliminate the contamination, and produce cooked food that retains a fresh, moist taste and appearance, and that can be rapidly and easily prepared by the end consumer. BAM BAM teaches *validating by further testing of a portion of the respective remediated separate test lots and obtaining a negative test result.* In BAM, the FDA recommends preparing samples of foods for testing that "will not be subject to a process that will be lethal to *Salmonella* between the time of sampling and consumption," e.g., food that has been cooked before distribution to the consumer. See, e.g., p. 6. In view of BAM's recommendation to sample such foods for testing, the skilled artisan would have had reason to prepare and test samples of the food cooked according to Mauer to ensure that the bacteria had been eliminated by the cooking, thereby obtaining a negative test result.

M. Claim 13

Claim	Teachings of the References
13. The method of claim 1, wherein, in a), separately collecting said plurality of portions from each of said plurality of separate test lots comprises separately collecting from each separate test lot a number of portions from 5 to 100.	Each of the references discussed above in the chart for claim 1, steps a) and b), describes compositing from 5-100 portions, with the exception of Price et al. which describes a sample from a particulate product made up of numerous particulates.

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N. Claim 14

Claim	Teachings of the References
14. The method of claim 1, wherein, in a), separately collecting said plurality of portions from each of said plurality of separate test lots comprises separately collecting from each separate test lot 30 to 60 portions.	BAM As discussed above, BAM discloses taking 60 or 30 analytical units (portions) for Food Category I and II, respectively, each of which is within the claimed range. See p. 3. Silliker et al. At p. 478 Silliker et al. discuss the analysis of a single 1500 g subsample. Each subsample was made by compositing 25 g samples; therefore the 1500 g subsample was prepared by compositing sixty 25 gram samples. Admitted State of the Prior Art At col. 2, lines 13-16, in reference to *E.coli* O157 testing, the patentee describes as a "typical plan" taking "60 samples (e.g., sample pieces) from a production lot to form a single composite sample.

O. Claim 15

Claim	Teachings of the References
15. The method of claim 1, wherein, in a), separately collecting said plurality of portions from each of said plurality of separate test lots comprises separately collecting 30 portions from each separate test lot.	BAM Selecting 30 samples from the ranges described in the prior art described in connection with claim 14 was a matter of obvious choice. As discussed above, BAM discloses taking 30 analytical units (portions) for Food Category II. See p. 3. .

P. Claim 16

Claim	Teachings of the References
16. The method of claim 1, wherein, in a), separately collecting said plurality of portions from each of said plurality of separate test lots comprises separately collecting from each separate test lot about 60 portions.	See discussion of Silliker et al. and Admitted State of the Prior Art in connection with claim 14.

Q. Claim 17

Claim	Teachings of the References
17. A method of sampling, testing and validating test lots for microbial contamination, comprising: a) collecting a plurality of portions from each of a plurality of single-unit production lots, the single-unit production lots each comprising an assemblage of one or more production specimens, wherein each single-unit production lot is separately sampled by taking said plurality of portions thereof; b) combining the collected plurality of product portions corresponding to each of the separate single-unit production lots to provide a corresponding set of separate single-unit production lot samples, wherein each separate single-unit production lot sample is attributed to a particular corresponding separate single-unit production lot; c) incubating the set of separate single-unit production lot samples under conditions suitable to allow levels of a target microbial agent or organism that is present in one or more of the separate single-unit production lot samples to reach detectable levels and become uniform, or substantially uniform, throughout the respective one or more separate single-unit production lot samples enriched for the target microbial agent or organism; d) removing portions of each enriched separate single-unit production lot sample, and combining the removed potions to provide a modular composite sample; and e) testing of the composite	The only significant difference between claim 17 and claim 1 is that it is directed to the sampling and testing of "single-unit production lots" rather than "test lots." The '584 patent specification states that a "single-unit production lot" is a form of "test lot," col. 5, lines 33-38. The analyses provided above in the charts for claims 1 and 2 (which is essentially of the same scope as claim 17) are directed to the sampling and testing of "single production units" or "single-unit production lots" and are equally applicable to claim 17.

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sample, using a suitable detection assay, for the target microbial agent or organism, wherein when such testing is negative all of said separate single-unit production lot samples are validated, and wherein when such testing is positive, individual separate single-unit production lots are validated by further testing of a portion of the respective enriched separate single-unit production lot sample using the same or a more sensitive protocol and obtaining test results for each single-unit production lot.	

R. Claim 18

Claim	Teachings of the References
18. The method of claim 1, wherein removing portions in step d) is removing equal portions, aseptically, so as to preclude contamination of the enriched separate test lot samples.	Compendium Chapter 2 Section 2.4 of Compendium Chapter 2 contains an extensive discussion of precautions that "shall be taken to prevent microbial contamination of samples from external sources, including the person taking the samples, air, sample containers, sampling devices, and the shipping vehicle." Jarvis Method (2) in section 8.4.2.1 of Jarvis, discloses compositing equal 1 ml volumes of each of the 10 pre-enrichment cultures (enriched separate test lot samples). See section 8.4.2.1. Price et al. Price et al. disclose separately pooling (i.e., compositing) equal 1 ml portions or 2 ml portions of each incubated pre-enrichment broth culture (enriched separate test lot sample) in two different enrichment broths (each corresponding to a modular composite sample). See pp. 679 and 682, and FIG. 1.

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S. Claim 19

Claim	Teachings of the References
19. The method of claim 1, wherein the target microbial agent or organism comprises at least one selected from the group consisting of *Listeria, Salmonella* and *Escherichia coli*.	FSIS Protocol The FSIS Protocol discusses *E.coli* 0157:H7 testing Admitted State of the Prior Art The Admitted State of the Prior Art provided in the Background section of the '584 patent discusses *E.coli* 0157, *Salmonella* and *Listeria monocytogenes* testing. Jarvis Jarvis teaches that the target microbial agent or organism is *Salmonella* and thus teaches that *the target microbial agent or organism comprises at least one selected from the group consisting of Listeria, Salmonella and Escherichia coli.* Price et al. Price teaches that the target microbial agent or organism is *Salmonella* and thus teaches that *the target microbial agent or organism comprises at least one selected from the group consisting of Listeria, Salmonella and Escherichia coli.* Davies et al. Davies et al. teach that the target microbial agent or organism is *Salmonella* and thus teaches that *the target microbial agent or organism comprises at least one selected from the group consisting of Listeria, Salmonella and Escherichia coli.* BAM BAM teaches that the target microbial agent or organism is *Salmonella* and thus teaches that *the target microbial agent or organism comprises at least one selected from the group consisting of Listeria, Salmonella and Escherichia coli.*

T. Claim 20

Claim	Teachings of the References
20. The method of claim 1, wherein the target microbial agent or organism comprises at least one selected from the group consisting of *Listeria spp., Listeria monocytogenes, Salmonella spp., Escherichia coli* O157:H7, coliforms and fecal coliforms.	Admitted State of the Prior Art The Admitted State of the Prior Art provided in the Background section of the '584 patent discusses *E.coli* 0157, *Salmonella* and *Listeria moncytogenes* testing. .Jarvis Jarvis teaches that the target microbial agent or organism is *Salmonella*, without identifying a particular species. Thus, Jarvis teaches that the target microbial agent includes plural species (abbreviated "spp.") of *Salmonella*. Price et al. Price et al. teach that the target microbial agent or organism is *Salmonella* without identifying a particular species. Thus, Price teaches that the target microbial agent includes plural species (abbreviated "spp.") of *Salmonella*. Davies Davies et al. identify testing for specific target species including, *S. typhimurium, S. enteritidis, and S. newport*, as well as testing for all *Salmonella* species. Thus Davies et al. teach that the target microbial agent includes plural species (abbreviated "spp.") of *Salmonella.* BAM BAM teaches preparing samples to test for "*Salmonella* species," without identifying a particular species. See, e.g., p. 2. Thus, BAM teaches that the target microbial agent includes plural species (abbreviated "spp.") of *Salmonella.*

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U. Claim 21

Claim	Teachings of the References
21. The method of claim 1, wherein the target microbial agent or organism comprises a spoilage organism.	Compendium Chapter 13 Compendium Chapter 13 describes psychotrophic micoorganisms and their role in food spoilage. That chapter describes various methods for testing for the microorganisms, and it would have been obvious to combine the sampling, validation and retesting procedures of the references discussed in connection with claim 1 with the psychotrophic microorganisms testing procedures of Chapter 13.

V. Claim 22

Claim	Teachings of the References
22. The method of claim 1, wherein removing portions of each enriched separate test lot sample comprises removing equal volume portions of each enriched separate test lot sample.	Jarvis As discussed above, Jarvis teaches compositing equal 1 ml volumes of the pre-enrichment cultures (enriched separate test lot samples). See Method (2) of Section 8.4.2.1. Price et al. As discussed above, Price et al. teach compositing equal 1 ml volumes or alternatively equal 2 ml volumes of the pre-enrichment broth cultures (enriched separate test lot samples). See p. 682.

W. Claim 23

Claim	Teachings of the References
23. The method of claim 1, wherein testing of the modular composite sample, using a suitable detection assay comprises use of at least one of a DNA-based method, an immunochemistry-based method, and a biosensor-based method.	Price et al. Price et al. disclose testing the pooled enrichments (each corresponding to a modular composite sample) for *Salmonella* using "biochemical testing" and "serological testing." FIG. 1. Serological testing is an "immunochemistry-based method." Thus, Price teaches testing the modular composite sample using an immunochemistry-based method. Compendium Chapter 10 Compendium Chapter 10 describes numerous so-called "Rapid" methods for microbiological testing. It would have been obvious to combine these testing procedures with the sampling, validation and re-testing procedures described by Jarvis and Price et al.

X. Claim 24

Claim	Teachings of the References
24. The method of claim 1, wherein the separate test lots are production lots of a meat or poultry product, comprising an assemblage of one or more meat or poultry specimens, respectively.	Jarvis Jarvis discloses that the sample could be an "initial food homogenate (or culture)." See p. 117. BAM discloses many different types of food homogenate samples, including meat and poultry samples, that would be representative of a designated lot of food product. Thus, in August 2004, the skilled artisan would have looked to the cited disclosure of BAM to collect and prepare an "initial food homogenate."

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	Price et al. Price et al. disclose screening multiple types of food samples. Price expressly mentions BAM as disclosing the method by which the samples in Price were prepared. Thus, based on the express teaching of Price, in August 2004, the skilled artisan would have looked to the cited disclosure of BAM to collect and prepare the samples disclosed in Price. Gabis et al. Gabis et al. describe sampling, compositing and testing of meat, poultry and egg food products. The samples of these products are combinations of individual pieces of meat, poultry or egg specimens. BAM BAM teaches that the separate test lots (sampled lots) are production lots of a meat or poultry product, comprising an assemblage of one or more meat or poultry specimens, respectively. Specifically, BAM discloses that Food Category II includes "meat and meat products, poultry and poultry products." See p. 6. As discussed above the sampled lots in BAM can include the foods listed in Food Category II, and thus the lots would include specimens of those foods.

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Y. Claim 25

Claim	Teachings of the References
The method of claim 1, wherein the separate test lots are separate production lots of a fish or a seafood product, comprising an assemblage of one or more fish or seafood specimens, respectively.	Silliker et al. Silliker et al. describe the testing of fish meal, which is a "fish or seafood product." *See* Table 1 at p. 477.

Z. Claim 26

Claim	Teachings of the References
The method of claim 1, wherein the separate test lots are separate production lots of a ready-to-eat product.	Compendium Chapter 2 Compendium Chapter 2 in Section 2.521 describes the sampling of "finished products." It refers to the sampling of consumer packages of food for testing for microbiological contamination. Such consumer packages of foods would include ready-to-eat foods. Silliker et al. Silliker et al. describe the testing of chocolate almond bars, milk chocolate, and black pepper, each of which is a ready-to-eat food. *See* Table 1, p. 477.

AA. Claim 27

Claim	Teachings of the References
27. The method of claim 2, wherein product specimens are synonymous with product portions. .	Compendium Chapter 2 In Section 2.512, Compendium Chapter 2 defines "sample unit" as [t]he smallest defineable part of a lot, also called a unit. For example, a singleton or a package is a sample unit. When lots are bulk packaged in bins, barrels, bags, etc., then the sample unit is arbitrary and may depend on the sampling device. The use of the word in this context should be differentiated from the analytical sample unit specified by the analytical method. A specimen or portion taken from a lot as a sample is a sample unit, i.e., the unit removed from the lot for compositing with other samples.

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BB. Claim 28

Claim	Teachings of the References
28. The method of claim 4, wherein the medium comprises a selective agent that will inhibit a competing non-target microbial agent or organism.	Compendium Chapter 37 Compendium Chapter 37, in Sections 37.124 and 37.125 describe selective enrichment media and selective plating media for *Salmonella*. Gabis et al. Gabis et al. describe direct selective enrichment of *Salmonella* in samples introduced into tetrathionate broth containing brilliant green dye and selenite cystine broth. P. 664. Price et al. Price et al. teach that direct selective enrichment broths (selective agent) may be used when forming the individual samples (separate test lot samples) instead of pre-enrichment broths when numerous non-*Salmonella* (competing non-target microbial agent or organism) colonies exist on selective agar plates. See p. 682.

CC. Claim 29

Claim	Teachings of the References
29. The method of claim 5 wherein the concentration step comprises at least one of immunomagnetic bead separation, and affinity chromatography.	Compendium Chapter 10 Compendium Chapter 10 describes the concentration of target microorganisms from an enrichment medium using antibody-coated magnetic beads. See claim chart above for claim 5.

DD. Claim 30

Claim	Teachings of the References
30. The method of claim 6, wherein the more sensitive protocol further comprises a concentration step to concentrate the microbial agent or organism, in combination with the same test protocol that is used to test the modular composite sample.	Compendium Chapter 10 Compendium Chapter 10 describes concentration steps, utilizing affinity chromatography, antibody-coated magnetic beads, and the like. Compendium Chapter 10 also describes so-called "Rapid" test methods for analyzing for microorganisms with a high degree of specificity and sensitivity.

EE. Claim 31

Claim	Teachings of the References
31. The method of claim 17, wherein removing portions in step d) is removing equal portions, aseptically, so as to preclude contamination of the enriched separate single-unit production lot samples.	See the claim chart for claim 18 discussing prior art describing the removal of equal portions of enrichment broths. Also see the claim chart for claim 18 discussing prior art teaching the use of aseptic conditions.

FF. Claim 32

Claim	Teachings of the References
32. The method of claim 24, wherein the meat or poultry specimens are meat trim pieces or poultry trim pieces, respectively.	BAM BAM does not specifically disclose that the meat or poultry specimens are trim pieces. However, BAM discloses that ICMSF discloses more detailed sampling and sample plans. ICMSF discloses that trimmings may be used when sampling raw meat. See p. 135. In August 2004 and 2005, the skilled artisan would have looked to ICMSF because BAM expressly identifies ICMSF as a source of more detailed sampling and sample plans. Gabis et al. Gabis et al. describes sampling skeletal meat samples obtained from human meat processors and organ meat and organ-skeletal meat mixtures obtained from pet food processors. *See* p. 664. Table 1 (p. 666) describes, *inter alia*, test results for beef trimmings.

GG. Claim 33

Claim	Teachings of the References
33. The method of claim 24, wherein the meat is that of beef, pork, sheep or bison.	FSIS Protocol FSIS Protocol describes sampling and testing of raw ground beef. Gabis et al. Gabis et al. (Table 1, p. 666) describes results for testing of various beef and pork parts.

Conclusion

In view of the above substantial new grounds of unpatentability, *inter partes* reexamination is respectfully requested of claims 1-33 (all claims) of the '584 patent. Rejection and cancellation of all claims is believed appropriate and is requested.

Date: 4-5-2010

Respectfully submitted,

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Reexamination of the Patent of

Mansour SAMADPOUR

U.S. Patent No. 7,534,584

Issued: May 19, 2009 Docket No.: 2781-129

For: MODULAR COMPOSITING-MULTIPLE LOT SCREENING PROTOCOLS FOR DETECTION OF PATHOGENS, MICROBIAL CONTAMINANTS AND/OR CONSTITUENTS

DECLARATION UNDER 37 C.F.R. §1.132

I, Dr. J. Stan Bailey, a citizen of the United States of America, hereby declare and state:

1a I have over thirty-five years of work and research experience in the area of testing for microorganisms in foods.

2a. I have a Bachelor of Science in Environmental Health Science, which was conferred upon me by the University of Georgia in Athens, Georgia, in 1974.

2b. I have a Master of Science in Food Science, which was conferred upon me by the University of Georgia in Athens, Georgia, in 1978.

2c. I have a Ph.D. in Poultry Science, which was conferred upon me by the University of Georgia in Athens, Georgia, in 1989.

3a. I have been employed by bioMérieux, Inc., the real party in interest under 37 C.F.R. §1.915(b)(8) in the *Inter Partes* Reexamination of the above-identified patent (hereinafter "the real party in interest"), since January 2008 as the Director of Scientific Affairs.

3b. Prior to my employment with bioMérieux, Inc., I spent thirty-four years as a research microbiologist employed by the United States Department of Agriculture ("USDA") within the Agricultural Research Service ("ARS") during which time I received seventeen USDA Certificates of Merit and was named "Outstanding Senior Research Scientist of the Year" in 2002.

3c. I have taught as an Adjunct Professor in the Poultry Science Department at the University of Georgia and at the Department of Food Science at Kansas State University.

3d. I have been a Faculty Member at the "Rapid Methods and Automation in Microbiology Workshop" taught at Kansas State University where over one thousand scientists from fifty countries have received training in the area of microbiological testing.

4a. I have authored or coauthored over five-hundred scientific publications in the area of food microbiology.

4b. I am on the editorial boards of *Poultry Science*, *Journal of Rapid Methods and Automation in Microbiology*, and the *Journal of Applied Poultry Research.*

5. I have received numerous honors in the area of food microbiology that include the following awards and appointments:

a) Chairman of the Food Microbiology Division of the American Society for Microbiology (1992);

b) Secretary of the Microbiological Methods Committee of the Association of Official Analytical Chemists ("AOAC") (1990-95);

c) Food and Agriculture Organization of the United Nations Expert Consultant on Animal Feeding and Food Safety;

d) Fellow of the American Academy of Microbiology (1994);

e) Technical Advisor to the National Advisory Committee on Microbiological Criteria in Foods for poultry production (1995 and 2006);

f) Scientific Advisor to the International Life Sciences Institute, Food Microbiology Committee (1997 – 2008);

g) Federal Laboratory Consortium Award for Technology Transfer;

h) Laboratorian of the Year by International Association for Food Protection ("IAFP"), (2003);

i) Fellow of the International Association for Food Protection (2005); and

j) President of the International Association for Food Protection (2009).

6. I am a member of the following Professional Societies: Southern Poultry Science Society, Worlds Poultry Science, American Society for Microbiology, American Academy of

Microbiology, Poultry Science Society, International Association for Food Protection, Georgia Association for Food Protection, AOAC.7. I have a professional relationship with the real party in interest. In the course of that professional relationship, I receive compensation directly from the real party in interest for my work relating to food microbiology. I am not being separately compensated for my work in connection with this Declaration and my compensation is not dependent on the outcome of these proceedings.

8a. I have read U.S. Patent 7,534,584 which issued to Mansour Samadpour on May 19, 2009 (referred to herein as the "584 patent"). Based on my experience and knowledge of the relevant literature, it is my opinion that the method of sampling, testing and validating test lots (or single-unit production lots) for microbial contamination claimed in the '584 patent is an aggregation of sample-compositing, enrichment, wet-compositing, testing, validation and optional re-testing steps that were known in the art prior to August 2004. It is my opinion that each of the steps comprising the claimed method performs its art-recognized function and that the combination of steps, as defined by the claims, yields predictable results. It is also my opinion that it would have been obvious to a person or ordinary skill in August 2004 to have combined the steps, as set forth in the claims, to improve efficiencies and reduce costs.

8b. The scientific field relevant to '584 patent is the field of microbiology as it relates to the microbiological analysis of food products and industrial food safety. A person of ordinary skill in that field in August 2004 would have been involving in developing methodology for sampling, testing and validating food products for microbial contamination. Such a person would have possessed either an advanced scientific degree in microbiology, environmental health and safety, or food science or would have possessed a Bachelor's degree and had several years of experience in developing methodology for the sampling and analysis of food products. The person of ordinary skill would have been familiar with the scientific literature relevant to the microbiological analysis of food also would have been required to possess a working knowledge of rules, regulations, guidelines and directives relating to sample preparation and testing methodology to evaluate food for the presence of absence of pathogenic microorganisms.

9a. I have read at least sections 8.4.2 and 8.4.2.1 of B. Jarvis, *Statistical Aspects of the Microbiological Analysis of Foods*, 21 PROGRESS IN INDUSTRIAL MICROBIOLOGY 138-142 (1989) (hereinafter "Jarvis") and provide the following explanation of how Jarvis would have been

understood in August of 2004 by one of ordinary skill in the art. By August 2004, a person of ordinary skill involved with the development of methods for the sampling, testing, and validation of food products for microbial contamination would have been aware of the importance of ensuring the statistical validity of such methods, and therefore would have consulted a reference like the Jarvis publication, which addresses the statistical aspects of such methods.

9b. Section 8.4.2 describes the effect of subculture volume and incubation times in the conventional testing of samples for the presence or absence of microbes. See p. 138. As was the usual practice, the testing procedure involves both "pre-enrichment" and "selective enrichment stages." *Id.*

9c. Regarding how the samples themselves are collected and prepared, in the introduction to the chapter, Jarvis simply discloses that the sample could be an "initial food homogenate (or culture)." See p. 117.

9d. During the pre-enrichment stage, an initial sample is dispersed in a pre-enrichment medium and then it is incubated, resulting in a "pre-enrichment culture." See Example 8.6, p. 139. The incubation of the sample in the pre-enrichment medium causes at least the target microorganism to grow. *Id.* Due to the incubation, the pre-enrichment culture has been enriched in the target microorganism, which in Example 8.6 discussed in section 8.4.2 is *Salmonellae*. In August of 2004, it was well known in the art that this type of enrichment would both resuscitate the target microorganism and cause it to grow to reach detectable levels and become substantially uniform within the liquid pre-enrichment culture. Microorganisms in food products often are debilitated because of the prior handling and processing of the products, but are able to resuscitate and proliferate under favorable conditions. Pre-enrichment utilizes nutrients and conditions to effect such resuscitation and growth so that the pre-enrichment culture can be even further diluted at the selective enrichment stage. Specifically, according to Jarvis, only 1 ml of each pre-enrichment broth will be added to 100 ml of the enrichment broth to form the composite. The table in Example 8.5, on page 141 of Jarvis, shows that it is necessary to incubate the pre-enrichment medium at least 12 hours to ensure a 99% probability that any 1 ml of the pre-enrichment culture that is transferred to the composite includes more than one viable *Salmonella* organism. This means that each 1 ml of the pre-enrichment culture includes viable *Salmonella* organisms, i.e., the viable *Salmonella* organisms are detectable and uniformly

distributed within the pre-enrichment culture. Thus, at the pre-enrichment stage in Jarvis, the sample is dispersed in a pre-enrichment medium and then incubated to form a pre-enrichment culture, and the pre-enrichment culture has been incubated under conditions suitable to allow the target microorganism to reach detectible levels and is substantially uniform throughout the pre-enrichment culture. This procedure described by Jarvis is typical of known methods for the pre-enrichment and selective enrichment of salmonella.

9e. At the selective enrichment stage, a 1 ml portion of the pre-enrichment culture (which has already been incubated) is transferred to a selective enrichment medium (in this example two separate selective enrichment media). See p. 139. Each selective enrichment medium is intended to foster further growth of the target microorganism. Then, loopfuls of the selective enrichment media are streaked on selective diagnostic media, incubated again, and then tested. *Id.* The incubation after streaking on selective diagnostic media causes the target microorganism to grow on the selective diagnostic media.

9f. Section 8.4.2.1 describes a modification of the procedure discussed in section 8.4.1 by pooling (i.e., compositing) a plurality of samples at various stages. See p. 141. Method (2) in section 8.4.2.1 discusses wet-compositing samples after incubation. *Id.* Specifically, according to method (2), multiple pre-enrichment series (one for each of a plurality of samples) are prepared, and then after incubation, 1 ml portions of each of the resulting pre-enrichment cultures are composited into a 100 ml enrichment broth. *Id.* Thus, according to method (2), a plurality of samples that have first been incubated to form pre-enrichment cultures (i.e., enriched in the target microorganism) are composited. Jarvis discloses that compositing pre-enrichment cultures after incubation (1) reduces workload and, (2) if a positive test result is obtained, permits tests to be repeated on stored pre-enrichment cultures to determine which of the pre-enrichment cultures resulted in the positive test. See pp. 141 and 142. A person of ordinary skill in August 2004 also would have understood from Jarvis that a negative test result for the composited culture would validate all of the samples making up the composite as negative for the tareget microorganism. By using the term "repeated," Jarvis at least implies that the tests done on the stored pre-enrichment cultures are done using the same type of test that is used to test the enrichment broth.

10a. I have read W.R. Price et al., *Salmonella Testing of Pooled Pre-Enrichment Broth Cultures for Screening Multiple Food Samples*, 23(4) APPLIED MICROBIOLOGY 679-682 (1972)

(hereinafter "Price") and provide the following explanation of how Price would have been understood in August of 2004 and 2005 by one of ordinary skill in the art.

10b. Price describes a method of pooling pre-enrichment broth cultures into a single enrichment broth prior to plating and testing. See abstract, FIG. 1, and pp. 679-682. According to the method, samples are added to pre-enrichment broths. See p. 679 and FIG. 1. Figure 1 and the accompanying text indicate that the food products being tested by Price were dried products of a particulate or powdery nature. Thus, Figure 1 shows that Price began with single samples of each food product test lot. By August 2004, a person or ordinary skill would have understood that such particulate or powdery products could be mixed or blended until homogeneous, and thus a single sample would be representative for microbiological testing. As discussed in Section 2.52 of the "Compendium of Methods for the Microbiological Examination of Foods," 4th Ed., Eds. Frances Pouch Downes and Keith Ito, American Public Health Association, 2001 (referred to herein as the "Compendium". , for products, such as liquids, the product is mixed until homogenous before drawing a sample. However, for samples that cannot be adequately mixed or bulk solids or semi-solids, the Compendium teaches that multiple samples of aliquots should be taken from several areas of the product to ensure that a representative sample is obtained. Thus, in my opinion, if the Price procedure were to be used to assay lots of solid or semi-solid food products (e.g., beef trim or ground beef), a person of ordinary skill would have recognized that multiple portions of the test lot would be sampled and composited to obtain a representative sample. As discussed below, the pre-enrichment broths described by Price. are individually enriched by incubation, resulting in pre-enrichment broth cultures. See pp. 679-682, and FIG. 1. At the enrichment stage, equal portions of each pre-enrichment broth culture are pooled (i.e., composited) into a single selenite enrichment broth, thereby forming a first composite of the pre-enrichment broth cultures, and composited into a single tetrathionate enrichment broth, thereby forming a second composite of the pre-enrichment broth cultures. See FIG. 1 and p. 679. Following the enrichment stage, each enrichment broth is streaked onto plates and then identified colonies are biochemically tested. See FIG. 1 and p. 681. When the test is positive, the saved portions of each pre-enrichment culture are individually tested to determine which culture or cultures contributed *Salmonella* to the composite(s). See abstract, FIG. 1, and pp. 679 and 681. The individual tests could be done using the same type of test that is used to test the enrichment

broth. A person or ordinary skill in August 2004 also would have understood that negative test results for the composited enrichment cultures described by Price would validate each of the samples making up the composite as negative for the target microorganism.

10c. Price states that "*Salmonella* analyses were carried out as described in the Bacterial Analytical Manual (BAM) except for the pooling of pre-enrichment broths in the following paragraph." Thus, in Price, the samples that are included in the pre-enrichment broths are first prepared according to BAM (see paragraph 11 below for a discussion of BAM).

10d. One of ordinary skill in the art in August 2004 and 2005 would have understood Price to require incubation of the pre-enrichment broths for at least the following three reasons. First, on page 682, Price refers to "the incubation time of the pre-enrichment cultures," thereby indicating that the pre-enrichment cultures have been incubated. Second, Price refers to "pooled pre-enrichment broth cultures." See title, abstract, and pp. 680-682. The use of the term "cultures" implies that the pre-enrichment broths were incubated. This is consistent with how the term "culture" was used in the art as evidenced by Jarvis, discussed above. Third, in August 2004, it was common to use two separate enrichment steps: (1) a "pre-enrichment" enrichment step in which a pre-enrichment broth is incubated to cause organism growth resulting in a pre-enrichment broth "culture," and (2) a second enrichment step that causes further organism growth.

10e. In August 2004, it was well known that the incubation of the pre-enrichment broth cultures disclosed in Price would cause the microorganism to reach detectable levels and become substantially uniform within each pre-enrichment broth culture at least because a portion of each pre-enrichment broth culture will be further diluted at the selective enrichment stage. That is, because as little as 1 ml of each pre-enrichment broth culture would be transferred to each of the enrichment broths (see p. 182), each 1 ml of each contaminated pre-enrichment broth culture would have to have a detectable amount of *Salmonella*. For every 1 ml of each contaminated pre-enrichment broth to have a detectable amount of *Salmonella*, each pre-enrichment broth culture would have had to have been incubated long enough to allow any *Salmonella* therein to reach detectable levels and become substantially uniform. Otherwise, if the incubation period was not sufficient to allow *Salmonella* to reach detectable levels and become substantially uniform, it is possible that a 1 ml portion of a contaminated pre-enrichment broth culture might

not contain a viable Salmonella organism. Furthermore, Price discloses that the saved portions of each pre-enrichment culture are individually tested to determine which culture or cultures contributed *Salmonella* to the composite(s). For the saved portions to be individually tested, any *Salmonella* therein must reach detectable levels and become substantially uniform.

10f. In August 2004 and 2005, it was well known in the art that enrichment broths (which could be selective enrichment broths) would be incubated to foster organism growth and that plates would also be incubated to foster organism growth so that colonies of the microorganism could be identified for testing.

10g. In Price, two different enrichment broths (selenite and tetrathionate) are used (1) because one may be more effective than the other at fostering *Salmonella* growth in a particular sample, (2) because one may be more effective at inhibiting competing organism growth in a particular sample, and/or (3) for confirming the test results. Because the different enrichment broths are more/less effective at fostering *Salmonella* growth and inhibiting competing organism growth, when inoculated with the same material, the two broths will have different concentrations of *Salmonella* following incubation.

10h. Price discloses that the pooling of pre-enrichment broth cultures "offers a simple, yet effective way to increase sample capacity in the *Salmonella* testing of foods," and that a portion of each pre-enrichment culture can be retained for later reference so that, if the test of the pooled pre-enrichment broths is positive, individual tests can be performed on the retained pre-enrichment cultures to determine which culture or cultures contributed *Salmonella* to the pool. See abstract, FIG. 1, and pp. 679 and 681.

10i. Thus, Price at least teaches that a plurality of pre-enrichment broth cultures (each corresponding to a sample), which have been incubated under conditions suitable to allow any target microorganism to reach detectible levels and become substantially uniform, are composited prior to testing, and a portion of each pre-enrichment broth culture is saved and is individually tested, if the test of the composite is positive.

11. "Food Sampling and Preparation of Sample Homogenate," BACTERIAL ANALYTICAL MANUAL (U.S.D.A. 2003), http://www.fda.gov/Food/ScienceResearch/LaboratoryMethods/BacteriologicalAnalyticalManualBAM/ucm063335.htm (hereinafter "BAM") was a well-known FDA publication that describes a method of preparing samples (and

in particular food homogenates) for microorganism testing.

12. In August 2004, in view of Price's disclosure that "*Salmonella* analyses were carried out as described in the Bacterial Analytical Manual (BAM)," the skilled artisan would have looked to the most recent version of BAM available at that time, which was the 2003 version of BAM.

13. In August 2004 and 2005, serological testing would have been considered an "immunochemistry-based" testing method. See J. Coombs, DICTIONARY OF BIOTECHNOLOGY 310 (2nd ed. 1992).

14. In August 2004 and 2005, it was well known that a "selective enrichment" broth fostered the growth of a particular target organism (e.g., *Salmonella*) while inhibiting the growth of competing organisms.

15. In August 2004 and 2005, it was well known that "selective plating" fostered the growth of a particular target organism (e.g., *Salmonella*) while inhibiting the growth of competing organisms.

16. By August 2004, the Compendium was a standard reference textbook for food microbiologists. Chapter 2 of the Compendium describes general concepts and procedures for sampling food products for microbiological testing. I am familiar with '584 patent claims 1, 2 and 17 (and claims dependent on them) which specify that the claimed method be applied to a plurality of "test lots" or "single-unit production lots." I also am aware that the term "test lot" is defined in the '584 patent as

> An assemblage of one or more specimens of a medium or process (e.g., assemblage of specimens of air, water, solids, or of products of a production process, etc.), where such assemblage can be samplied by taking portions of the one or more specimens thereof, and where the one or more specimens of the assemblage are operationally linked in a manner (e.g., proximity, time, process step, etc.) whereby information derived about sampled portions is operationally applicable to all specimens of the assemblage, and thus to the test lot. In particular instances, portions are synonymous with specimens.

'584 patent, col. 5, lines 21-32. I am also aware that the terms "single production unit" or "single-unit production lot" are described in the '584 patent as a form of test lot, and "refers to a single unit of production (e.g., for beef trim a 'combo' or for almonds a 'bin') rather then as in the prior art, to a composite comprised of multiple, non-operationally linked single production units (production sublots)." '584 patent, col. 5, lines 33-38. By August 2004, it was common practice for microbiologists to sample operationally linked production lots for microbiological

testing. The statement in the above quotation from the '584 patent implying that the prior art employed a "composite comprised of multiple, non-operationally linked single production units (production sublots)" is an overstatement. Regardless of whether some processors combined production lots before sampling for microbiological testing, it is also clear that the use of single production units or lots for sampling was also commonplace. This is evidenced by Chapter 2 of the Compendium. In that chapter, the authors discuss the importance of developing a "sampling plan" and of obtaining "representative samples" for microbiological testing. In Section 2.511, "Sampling Plan" is defined as "[a] design that indicates the number of units to be collected from each lot and the criteria to be applied in accepting or rejecting the lot." "Lot" is defined as,

> [t]he number of sample units produced in one batch or in some specified period of time such that the units will be about the same quality. Each lot or batch should consist of units of product of a single type, grade, class, size, and composition. The lot should be manufactured under the same conditions and at essentially the same time.

Thus, Chapter 2 of the Compendium makes clear that, prior to August 2004, microbiologists utilized sampling plans that involved sampling a "number of units to be collected from each lot" and that a "lot" was understood to be a production batch consisting of operationally linked units. Accordingly, a person of ordinary skill in the art was aware that a "test lot" or "single-unit production lot" consisted of an assemblage of units or specimens operationally linked by "type, grade, class, size and composition" and "manufactured under the same conditions and at essentially the same time." Based on the teachings of Compendium Chapter 2 and my general experience, it is my opinion that the sampling of "test lots" or "single-unit production lots" by taking a plurality of portions and combining (compositing) them, as specified in steps a) and b) of claims 1, 2 and 17 (and claims dependent upon them) was known and obvious to persons of ordinary skill in the art at the time.

17. I am familiar with the USDA FSIS Microbiology Guidebook Protocol for the sampling and analysis of raw ground beef for *E.coli* contamination, as reproduced as Section 35.243 of the Compendium ("the FSIS Protocol"). In my opinion, by August 2004, a person of ordinary skill in the art would have understood that the method described in the FSIS Protocol would be applied to a "test lot" or "single unit production lot" of ground beef, as those terms are defined in the '584 patent.

18. The FSIS Protocol refers to blending composite samples of ground beef with an enrichment medium defined as "mEC with novobiocin." In August 2004, a person of ordinary skill in the art would have understood that mEC broth was a modified form of EC broth, a well-known culture medium for the detection of *E.coli* and that "mEC broth with novobiocin" was a selective enrichment medium for *E.coli*.

19. The FSIS Protocol describes a procedure for analyzing a batch or test lot of raw ground beef. By August 2004, persons skilled in the art would have understood that the FSIS Protocol would be applied to multiple separate production lots or test lots of raw ground beef to produce a set of separate test lot samples, particularly in large operations producing multiple production lots on a regular basis. The FSIS Protocol describes separately sampling, enriching and analyzing each lot of product being tested. In other words, there is no suggestion in the FSIS Protocol that non-operationally linked production lots should be combined before sampling.

20. I am familiar with two articles published by J.H. Silliker and D.A. Gabis in the early 1970s.: Silliker, J.H. et al., 1973. ICMF Method Studies. I. Comparison of Analytical Schemes for Detection of *Salmonella* in Dried Foods. *Can. J. Microbiol.*, *19*: 475 and Gabis, D.A. et al, 1974. ICMF Method Studies. II. Comparison of Analytical Schemes for Detection of *Salmonella* in High-Moisture Foods. *Can. J. Microbiol.*, *20*:663-669. The Silliker et al. and Gabis et al. publications describe methods for analyzing dried food products and high-moisture food products (such as meat, poultry and eggs) respectively for contamination with *Salmonella*. Each of these publications described taking multiple samples from the lot of food product being tested, compositing those samples in pre-enrichment media, incubating those media, transferring aliquots to a selective enrichment media and testing for the presence of *Salmonella*. In my opinion, each of these publications described the sample-compositing and incubation steps a), b) and c) of the claims of the '584 patent. As discussed above in connection with Jarvis and Price, the pre-enrichment procedures used by Silliker et al. and Gabis et al. were effective in growing the target microorganism to detectable levels. In each instance, 1 ml aliquots of the pre-enrichment media were transferred to selective enrichment broths for further enrichment and detection by conventional plating techniques. It is thus apparent that each 1 ml aliquot had to contain a detectable amount of the microorganism in positive samples. A person of ordinary skill by August 2004 would have understood that the Silliker et al. and Gabis et al. procedures would

be applied to test lots" or "single-unit production lots" of food products and that such "test lots" or "single-unit production lots" would consist of combinations or assemblages of separate pieces or specimens of the food product. A person or ordinary skill also would have understood that the Silliker et al. and Gabis et al. procedures would be applied to a plurality of separate "test lots" or "single-unit production lots," especially in large facilities producing a number of production lots on a regular basis.

21. Silliker et al. and Gabis et al. describe testing for *Salmonella* using conventional plating technology. By August 2004, so-called "Rapid" methods for the detection of microorganisms had been developed and were being widely used. These Rapid methods were based on immunochemical or nucleic acid-based technology (such as PCR and nucleic acid probes). These methods were faster and often more sensitive then the conventional microbiological techniques utilized in the preceding decades. By August 2004, it would have been obvious to a skilled person to utilize these Rapid methods in combination with the sample compositing and wet-compositing procedures described, for example, by Jarvis, Price, Silliker et al. and Gabis et al. A person of ordinary skill in the art would have understood that pre-enrichment and enrichment procedures described in those publications could be steamlined because of the greater sensitivity of the Rapid methods. A number of Rapid methods are described in Chapter 10 of the Compendium.

22. I have read U.S. Patent No. 7,534,584 (584 Patent). The term "production assemblage" is not defined in the specification of the 584 Patent. There is no special industry definition of this term that would have applied in August 2004 and 2005. Thus, to construe the term production assemblage, the skilled artisan would have employed the common definition of "assemblage," which is "a collection of things." AMERICAN HERITAGE COLLEGE DICTIONARY 82 (3rd ed. 1998) (*Exhibit B*). This common definition is consistent with the use of the term "production assemblage" in the specification.

* * *

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are

punishable by fine and/or imprisonment under Section 1001 of Title 18 of the United States Code.

Date: 1/13/2010

J. Stan Bailey, Ph.D.

PTO/SB/08a (01-10)
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(Not for submission under 37 CFR 1.99)

Application Number	95001294
Filing Date	2009-05-19
First Named Inventor	Samadpour
Art Unit	
Examiner Name	
Attorney Docket Number	2781-129

U.S.PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6080437		2000-06-27	Mauer et al.	

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	1	DAVIES et al., "Evaluation of the use of pooled serum, pooled muscle tissue fluid (meat juice) and pooled faeces for monitoring pig herds for Salmonella," J. Appl. Microbiol., 95: 1016-25 (2003)	☐
	2	Chapter 2 entitled "Sampling Plans, Sample Collection, Shipment and Preparation for Analysis" of Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., Eds. FRANCES POUCH DOWNES and KEITH ITO, American Public Health Association (2001)	☐
	3	Chapter 35 entitled "Pathogenic Escherichia Coli" of Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., Eds. FRANCES POUCH DOWNES and KEITH ITO, American Public Health Association (2001)	☐
	4	Chapter 37 entitled "Salmonella" of Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., Eds. FRANCES POUCH DOWNES and KEITH ITO, American Public Health Association (2001)	☐
	5	US Dept of Agriculture, FSIS Directive, "Microbial Testing Program and Other Verification Activities for Echerichia coli 0157:H7 In Raw Ground Beef Products and Raw Ground Beef Components and Beef Patty Components," 10.010.1, Revision 1, (3/13/2004)	☐
	6	SILLIKER, J.H. and GABIS, D.A., "ICMSF Methods Studies. I. Comparison of analytical schemes for detection of Salmonella in dried foods," Can. J. Microbiol. 19:475 (1973)	☐
	7	PRICE, W.R. et al.. "Salmonella testing of pooled pre-enrichment broth cultures for screening multiple food samples," Appl. Microbiol. 23:679 (1972)	☐
	8	GABIS, D.A., and SILLIKER, J.H., "ICMSF Methods Studies. II. Comparison of analytical schemes for detection of Salmonella in high-moisture foods," Can. J. Microbiol. 20:663-669 (1974)	☐
	9	The International Committee on Microbiological Specifications for Foods ("ICMSF"), 1 Their Significance and Methods of Enumeration, Second Edition, University of Toronto Press (1978)	☐
	10	US FDA, Chapter 1 entitled "Food Sampling/Preparation of Sample Homogenate," Bacteriological Analytical Manual ("BAM"). (April 2003)	☐
	11	Chapter 5 entitled "Cultural Methods for the Enrichment and Isolation of Microorganisms" of Compendium of Methods for the Microbiological Examination of Foods," 4th Ed., Eds. FRANCES POUCH DOWNES and KEITH ITO, American Public Health Association (2001)	☐

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	Examiner Name	
	Attorney Docket Number	2781-129

	12	JARVIS, B., Chapter 8 entitled "Errors Associated with Dilution Count and Presence/Absence Methods," Statistical Aspects of the Microbiological Analysis of Foods. Progress in Industrial Microbiology, Vol. 21, Elsevier. (1989)	☐
	13	Chapter 10 entitled "Rapid Methods for Detection, Identificatin, and Enumeration, of Compendium of Methods for the Microbiological Examination of Foods," 4th Ed., Eds. FRANCES POUCH DOWNES and KEITH ITO, American Public Health Association (2001)	☐
	14	Chapter 13 entitled "Psychotrophic Microorganisms," of Compendium of Methods for the Microbiological Examination of Foods," 4th Ed., Eds. FRANCES POUCH DOWNES and KEITH ITO, American Public Health Association (2001)	☐

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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	95001294
	Filing Date	2009-05-19
	First Named Inventor	Samadpour
	Art Unit	
	Examiner Name	
	Attorney Docket Number	2781-129

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

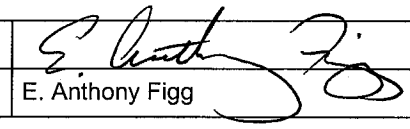
☐ See attached certification statement.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ None

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature		Date (YYYY-MM-DD)	4-5-2010
Name/Print	E. Anthony Figg	Registration Number	27195

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
95/001,294	04/05/2010	7534584	2781-128	1914

22504 7590 05/26/2010

DAVIS WRIGHT TREMAINE, LLP/Seattle
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SEATTLE, WA 98101-3045

EXAMINER	
BRUMBACK, BRENDA G	
ART UNIT	**PAPER NUMBER**
3991	
MAIL DATE	**DELIVERY MODE**
05/26/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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1425 K STREET, N.W.
SUITE 800
WASHINGTON, DC 20005

Date:

MAILED

MAY 26 2010

CENTRAL REEXAMINATION UNIT

Transmittal of Communication to Third Party Requester
Inter Partes Reexamination

REEXAMINATION CONTROL NO. : 95001294
PATENT NO. : 7534584
TECHNOLOGY CENTER : 3999
ART UNIT : 3991

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified Reexamination proceeding. 37 CFR 1.903.

Prior to the filing of a Notice of Appeal, each time the patent owner responds to this communication, the third party requester of the inter partes reexamination may once file written comments within a period of 30 days from the date of service of the patent owner's response. This 30-day time period is statutory (35 U.S.C. 314(b)(2)), and, as such, it cannot be extended. See also 37 CFR 1.947.

If an ex parte reexamination has been merged with the inter partes reexamination, no responsive submission by any ex parte third party requester is permitted.

All correspondence relating to this inter partes reexamination proceeding should be directed to the Central Reexamination Unit at the mail, FAX, or hand-carry addresses given at the end of the communication enclosed with this transmittal.

PTOL-2070(Rev.07-04)

Transmittal of Communication to Third Party Requester Inter Partes Reexamination	Control No.	Patent Under Reexamination	
	95/001,294	7534584	
	Examiner	Art Unit	
	BRENDA BRUMBACK	3991	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address. --

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above-identified reexamination proceeding. 37 CFR 1.903.

Prior to the filing of a Notice of Appeal, each time the patent owner responds to this communication, the third party requester of the *inter partes* reexamination may once file written comments within a period of 30 days from the date of service of the patent owner's response. This 30-day time period is statutory (35 U.S.C. 314(b)(2)), and, as such, it cannot be extended. See also 37 CFR 1.947.

If an *ex parte* reexamination has been merged with the *inter partes* reexamination, no responsive submission by any *ex parte* third party requester is permitted.

All correspondence relating to this inter partes reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of the communication enclosed with this transmittal.

ORDER GRANTING/DENYING REQUEST FOR* INTER PARTES *REEXAMINATION	**Control No.**	**Patent Under Reexamination**	
	95/001,294	7534584	
	Examiner	**Art Unit**	
	BRENDA BRUMBACK	3991	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address. --

The request for *inter partes* reexamination has been considered. Identification of the claims, the references relied on, and the rationale supporting the determination are attached.

Attachment(s): ☐ PTO-892 ☒ PTO/SB/08 ☐ Other: _____

1. ☒ The request for *inter partes* reexamination is GRANTED.

   ☒ An Office action is attached with this order.

   ☐ An Office action will follow in due course.

2. ☐ The request for *inter partes* reexamination is DENIED.

This decision is not appealable. 35 U.S.C. 312(c). Requester may seek review of a denial by petition to the Director of the USPTO within ONE MONTH from the mailing date hereof. 37 CFR 1.927. EXTENSIONS OF TIME ONLY UNDER 37 CFR 1.183. In due course, a refund under 37 CFR 1.26(c) will be made to requester.

All correspondence relating to this *inter partes* reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of this Order.

Inter Partes Reexamination

Procedural Posture

The Third Party request, filed on 04/05/10, for *inter partes* reexamination of claims 1-33 of United States Patent Number 7,534,584 is acknowledged. The reexamination of U.S. Patent No. 7,534,584 is assigned control number 95/001,294.

Decision on Reexamination Request

A substantial new question of patentability affecting claims 1-33 of United States Patent Number 7,534,584 (the '584 patent) is raised by the present request for *inter partes* reexamination.

Status of Claims

Claims 1-33 are present in the 7,534,584 patent.

Claims 1-33 are currently subject to reexamination proceedings.

Information Disclosure Statement

The Information disclosure statement (PTO/SB/08a) filed on 04/05/10 has been considered. A signed copy is attached hereto.

The '584 Patent Claims

The 7,534,584 patent consists of claims 1-33, drawn to methods of sampling, testing and validating test lots for microbial contamination.

Claims 1 and 17 are representative.

1. A method of sampling, testing and validating test lots for microbial contamination, comprising:
a) collecting a plurality of portions from each of a plurality of test lots, the test lots each comprising an assemblage of one or more specimens, wherein each test lot is separately sampled by taking said plurality of portions thereof;
b) combining the collected plurality of portions corresponding to each of the separate test lots to provide a corresponding set of separate test lot samples, wherein each separate test lot sample is attributed to a particular corresponding separate test lot;
c) incubating the set of separate test lot samples under conditions suitable to allow levels of a target microbial agent or organism that is present in one or more of the separate test lot samples to reach detectable levels and become uniform, or substantially uniform, throughout the respective one or more separate test lot samples, to provide a set of separate test lot samples enriched for the target microbial agent or organism;
d) removing portions of each enriched separate test lot sample, and combining the removed portions to provide a modular composite sample; and e) testing of the composite sample, using a suitable detection assay, for the target microbial agent or organism, wherein when such testing is negative all of said separate test lot samples are validated, and wherein when such testing is positive, individual separate test lots are validated by further testing of a portion of the respective enriched separate test lot sample using the same or a more sensitive protocol and obtaining test result for each test lot.

17. A method of sampling, testing and validating test lots for microbial contamination, comprising:
a) collecting a plurality of portions from each of a plurality of single-unit production lots, the single-unit production lots each comprising an assemblage of one or more production specimens, wherein each single-unit production lot is separately sampled by taking said plurality of portions thereof;
b) combining the collected plurality of product portions corresponding to each of the separate single-unit production lots to provide a corresponding set of separate single-unit production lot samples, wherein each separate single-unit production lot sample is attributed to a particular corresponding separate single-unit production lot;
c) incubating the set of separate single-unit production lot samples under conditions suitable to allow levels of a target microbial agent or organism that is present in one or more of the separate single-unit production lot samples to reach detectable levels and become uniform, or substantially uniform, throughout the respective one or more separate single-unit production lot samples, to provide a set of separate single-unit production lot samples enriched for the target microbial agent or organism;
d) removing portions of each enriched separate single-unit production lot sample, and combining the removed portions to provide a modular composite sample; and
e) testing of the composite sample, using a suitable detection assay, for the target microbial agent or organism, wherein when such testing is negative all of said separate single-unit production lot samples are validated, and wherein when such testing is positive, individual separate single-unit production lots are validated by further testing of a portion of the respective enriched separate single-unit production lot sample using the same or a more sensitive protocol and obtaining test result for each single-unit production lot.

Documents Cited in the Request as Raising an SNQ

1. DAVIES *et al., Evaluation of the use of pooled serum, pooled muscle tissue fluid (meat juice) and pooled faeces for monitoring pig herds for Salmonella*, J. Appl. Microbiol., 95:1016-25 (2003) (Exhibit 2, hereinafter, "**Davies**").

2, MIDURA, *et al., Sampling Plans, Sample Collection, Shipment and Preparation for Analysis,* Chapter 2, pp.13-23, in Compendium of Methods for the Microbiological Examination

of Foods, 4th Ed., *Eds.* Downes and Ito, American Public Health Association (2001) (Exhibit 3, referenced in the Request as "Compendium Chapter 2" and hereinafter as "**Midura**").

3. MENG, *et al.*, *Pathogenic Escherichia coli*, Chapter 35, pp.331-341, in Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., *Eds.* Downes and Ito, American Public Health Association (2001) (Exhibit 4, referenced in the Request as "Compendium Chapter 35" and hereinafter as "**Meng**").

4. ANDREWS, *et al.*, *Salmonella*, Chapter 37, pp. 357-380, in Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., *Eds.* Downes and Ito, American Public Health Association (2001) (Exhibit 5, referenced in the Request as "Compendium Chapter 37 and hereinafter as "**Andrews**").

5. US Dept of Agriculture, FSIS Directive, *Microbial Testing Program and Other Verification Activities for Echerichia coli0157:H7 In Raw Ground Beef Products and Raw Ground Beef Components and Beef Patty Components*, 10.010.1, Revision 1, (3/13/2004), pp. 1-28 (Exhibit 6, hereinafter, "**FSIS**").

6. SILLIKER, *et al.*, "ICMSF Methods Studies. I. Comparison of analytical schemes for detection ofSalmonella in dried foods," Can. J. Microbiol. 19:475-479 (1973) (Exhibit 7, hereinafter, "**Silliker**").

7. PRICE, *et al.*, *Salmonella Testing of Pooled Pre-Enrichment Broth Cultures for Screening Multiple Food Samples*, Appl. Microbiol. 23:679 (1972) (Exhibit 8, hereinafter, "**Price**").

8. GABIS, *et al.*, *ICMSF Methods Studies. II. Comparison of analytical schemes for detection ofSalmonella in high-moisture foods*," Can. J. Microbiol. 20:663-669 (1974) (Exhibit 9, hereinafter "**Gabis**").

9. ICMSF (The International Committee on Microbiological Specifications for Foods), *Indicator microorganisms* , pp. 1-11; *Important considerations for the analyst*, pp. 91-102; *Preparation and dilution of the food homogenate*, pp. 107-111; *Enumeration of mesophilic aerobes: the agar plate methods*, pp. 113-123; *Coliform bacteria*, pp. 125-139; *Enterobacteriaceae*, pp. 141-143; *The enterococci*, pp. 144-147; *Hemolytic streptococci,* pp. 149-155; *The enumeration of yeasts and molds*, pp. 157-159; and *Salmonellae*, pp. 160-172, in Microorganisms in Foods, Their Significance and Methods of Enumeration, Second Edition, University of Toronto Press (1978) (Exhibit 10, hereinafter "**ICMSF**").

10. BAM (Bacteriological Analytical Manual), *Food Sampling/Preparation of Sample Homogenate*, Chapter 1, pp. 1-11, US FDA, (April 2003) (Exhibit 11, hereinafter, "**BAM**").

11. JARVIS, B., *Errors Associated with Dilution Count and Presence/Absence Methods*, Chapter 8, pp. 117-142, in Statistical Aspects of the Microbiological Analysis of Foods. Progress in Industrial Microbiology, Vol. 21, Elsevier (1989) (Exhibit 13, hereinafter, "**Jarvis**").

12. ENTIS, *et al.*, *Rapid Methods for Detection, Identification, and Enumeration*, Chapter 10, pp. 89-126 in Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., *Eds.* Downes and Ito, American Public Health Association (2001) (Exhibit 15, referenced in the Request as "Compendium, Chapter 10" and hereinafter as "**Entis**").

13. COUSIN, *et al.*, *Psychrotrophic Microorganisms*, , Chapter 13, pp. 159-166, in Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., *Eds.* Downes and Ito, American Public Health Association (2001) (Exhibit 16, referenced in the Request as "Compendium Chapter 13", and hereinafter as "**Cousin**").

14. U.S. Patent 6,080,437, issued 06/27/2000 to Mauer (Exhibit 14, hereinafter, "**Mauer**").

Requester's Proposed Substantial New Questions of Patentability

SNQ 1. A substantial new question of patentability for claims 1 and 17 is raised by Jarvis in combination with FSIS and Midura (see the 04/05/10 Request at pages 28-34).

SNQ 2. A substantial new question of patentability for claims 1 and 17 is raised by FSIS in combination with Price (see the 04/05/10 Request at pages 34-36).

SNQ 3. A substantial new question of patentability for claims 1 and 17 is raised by Jarvis in combination with Patent owner's admissions regarding the prior art (see the 04/05/10 Request at pages 36-38).

SNQ 4. A substantial new question of patentability for claims 1 and 17 is raised by Patent owner's admissions regarding the prior art in combination with Price (see the 04/05/10 Request at pages 38-39).

SNQ 5. A substantial new question of patentability for claims 1 and 17 is raised by Andrews in combination with Price in view of Midura (see the 04/05/10 Request at pages 39-43).

SNQ 6. A substantial new question of patentability for claims 1 and 17 is raised by Silliker in combination with Price in view of Midura (see the 04/05/10 Request at pages 43-46).

SNQ 7. A substantial new question of patentability for claims 1 and 17 is raised by Gabis in combination with Price in view of Midura (see the 04/05/10 Request at pages 46-51).

SNQ 8. A substantial new question of patentability for claims 1 and 17 is raised by Jarvis in combination with BAM (see the 04/05/10 Request at pages 51-52).

SNQ 9. A substantial new question of patentability for claims 1 and 17 is raised by Price in combination with BAM and Davies (see the 04/05/10 Request at pages 52-53).

SNQ 10. A substantial new question of patentability for claim 2 is raised by Jarvis in combination with FSIS and Midura (see the 04/05/10 Request at pages 54-55).

SNQ 11. A substantial new question of patentability for claim 2 is raised by Jarvis in combination with FSIS, Midura and Patent owner's admissions regarding the prior art (see the 04/05/10 Request at page 55).

SNQ 12. A substantial new question of patentability for claim 2 is raised by Jarvis in combination with FSIS, Midura and BAM (see the 04/05/10 Request at page 56).

SNQ 13. A substantial new question of patentability for claim 2 is raised by FSIS in combination with Price and Midura (see the 04/05/10 Request at pages 56-57).

SNQ 14. A substantial new question of patentability for claim 2 is raised by FSIS in combination with Price, Midura, and Patent owner's admissions regarding the prior art (see the 04/05/10 Request at page 57).

SNQ 15. A substantial new question of patentability for claim 2 is raised by FSIS in combination with Price, Midura and BAM(see the 04/05/10 Request at page 57).

SNQ 16. A substantial new question of patentability for claim 3 is raised by Jarvis in combination with FSIS and Midura (see the 04/05/10 Request at pages 57-58).

SNQ 17. A substantial new question of patentability for claim 3 is raised by FSIS in combination with Price and Midura (see the 04/05/10 Request at page 58).

SNQ 18. A substantial new question of patentability for claim 4 is raised by Jarvis in combination with FSIS and Midura (see the 04/05/10 Request at page 59).

SNQ 19. A substantial new question of patentability for claim 4 is raised by FSIS in combination with Price and Midura (see the 04/05/10 Request at pages 59-60).

SNQ 20. A substantial new question of patentability for claim 5 is raised by Jarvis in combination with FSIS, Midura and Entis (see the 04/05/10 Request at pages 60-61).

SNQ 21. A substantial new question of patentability for claim 5 is raised by FSIS in combination with Price, Midura, and Entis (see the 04/05/10 Request at page 61).

SNQ 22. A substantial new question of patentability for claim 6 is raised by FSIS in combination with Price and Midura (see the 04/05/10 Request at pages 62-63).

SNQ 23. A substantial new question of patentability for claim 7 is raised by FSIS in combination with Price and Midura (see the 04/05/10 Request at pages 63-64).

SNQ 24. A substantial new question of patentability for claim 8 is raised by Jarvis in combination with FSIS and Midura (see the 04/05/10 Request at pages 64-65).

SNQ 25. A substantial new question of patentability for claim 8 is raised by FSIS in combination with Price and Midura (see the 04/05/10 Request at page 65).

SNQ 26. A substantial new question of patentability for claim 9 is raised by FSIS in combination with Price and Midura (see the 04/05/10 Request at pages 66-67).

SNQ 27. A substantial new question of patentability for claim 10 is raised by Jarvis in combination with FSIS and Midura (see the 04/05/10 Request at pages 67-69).

SNQ 28. A substantial new question of patentability for claim 10 is raised by FSIS in combination with Price and Midura (see the 04/05/10 Request at pages 69-70).

SNQ 29. A substantial new question of patentability for claim 11 is raised by Jarvis in combination with FSIS and Midura (see the 04/05/10 Request at pages 70-71).

SNQ 30. A substantial new question of patentability for claim 11 is raised by FSIS in combination with Price and Midura (see the 04/05/10 Request at page 71).

SNQ 31. A substantial new question of patentability for claim 12 is raised by Jarvis in combination with FSIS, Midura, and Mauer (see the 04/05/10 Request at pages 72-73).

SNQ 32. A substantial new question of patentability for claim 12 is raised by Jarvis in combination with FSIS, Midura, Mauer, and BAM (see the 04/05/10 Request at page 73).

SNQ 33. A substantial new question of patentability for claim 13 is raised by Jarvis in combination with FSIS an Midura (see the 04/05/10 Request at page 74).

SNQ 34. A substantial new question of patentability for claim 14 is raised by FSIS in combination with Price and Midura (see the 04/05/10 Request at pages 74-75).

SNQ 35. A substantial new question of patentability for claim 14 is raised by Jarvis in combination with FSIS, Midura, and BAM (see the 04/05/10 Request at page 75).

SNQ 36. A substantial new question of patentability for claim 14 is raised by Jarvis in combination with FSIS, Midura, and Silliker (see the 04/05/10 Request at pages 75-76).

SNQ 37. A substantial new question of patentability for claim 14 is raised by Jarvis in combination with FSIS, Midura, and Patent owner's admissions regarding the prior art (see the 04/05/10 Request at page 76).

SNQ 38. A substantial new question of patentability for claim 14 is raised by FSIS in combination with Price, Midura, and BAM (see the 04/05/10 Request at pages 76-77).

SNQ 39. A substantial new question of patentability for claim 14 is raised by FSIS in combination with Price, Midura, and Silliker (see the 04/05/10 Request at page 77).

SNQ 40. A substantial new question of patentability for claim 14 is raised by FSIS in combination with Price, Midura, and Patent owner's admissions regarding the prior art (see the 04/05/10 Request at pages 77-78).

SNQ 41. A substantial new question of patentability for claim 15 is raised by Jarvis in combination with FSIS, Midura, and BAM (see the 04/05/10 Request at pages 78-79).

SNQ 42. A substantial new question of patentability for claim 15 is raised by FSIS in combination with Price, Midura, and BAM (see the 04/05/10 Request at page 79).

SNQ 43. A substantial new question of patentability for claim 16 is raised by Jarvis in combination with FSIS, Midura, and Silliker (see the 04/05/10 Request at pages 79-80).

SNQ 44. A substantial new question of patentability for claim 16 is raised by Jarvis in combination with FSIS, Midura, and Patent owner's admissions regarding the prior art (see the 04/05/10 Request at page 80).

SNQ 45. A substantial new question of patentability for claim 16 is raised by FSIS in combination with Price, Midura, and Silliker (see the 04/05/10 Request at pages 80-81).

SNQ 46. A substantial new question of patentability for claim 16 is raised by FSIS in combination with Price, Midura, and Patent owner's admissions regarding the prior art (see the 04/05/10 Request at page 81).

SNQ 47. A substantial new question of patentability for claim 18 is raised by Jarvis in combination with FSIS and Midura (see the 04/05/10 Request at page 82).

SNQ 48. A substantial new question of patentability for claim 18 is raised by FSIS in combination with Price and Midura (see the 04/05/10 Request at pages 82-83).

SNQ 49. A substantial new question of patentability for claim 19 is raised by Jarvis in combination with FSIS and Midura (see the 04/05/10 Request at page 83).

SNQ 50. A substantial new question of patentability for claim 19 is raised by Jarvis in combination with FSIS, Midura, and Patent owner's admissions regarding the prior art (see the 04/05/10 Request at pages 83-84).

SNQ 51. A substantial new question of patentability for claim 19 is raised by FSIS in combination with Price, Midura, Jarvis, and BAM (see the 04/05/10 Request at page 84).

SNQ 52. A substantial new question of patentability for claim 20 is raised by Jarvis in combination with FSIS, Midura, and Patent owner's admissions (see the 04/05/10 Request at page 85).

SNQ 53. A substantial new question of patentability for claim 20 is raised by FSIS in combination with Price, Midura, Jarvis, and BAM (see the 04/05/10 Request at pages 85-86).

SNQ 54. A substantial new question of patentability for claim 21 is raised by Jarvis in combination with FSIS, Midura, and Cousin (see the 04/05/10 Request at page 86).

SNQ 55. A substantial new question of patentability for claim 21 is raised by FSIS in combination with Price, Midura, and Cousin (see the 04/05/10 Request at page 87).

SNQ 56. A substantial new question of patentability for claim 22 is raised by Jarvis in combination with FSIS and Midura (see the 04/05/10 Request at pages 87-88).

SNQ 57. A substantial new question of patentability for claim 22 is raised by FSIS in combination with Price and Midura (see the 04/05/10 Request at page 88).

SNQ 58. A substantial new question of patentability for claim 23 is raised by Jarvis in combination with FSIS, Midura, and Price (see the 04/05/10 Request at page 89.

SNQ 59. A substantial new question of patentability for claim 23 is raised by Jarvis in combination with FSIS, Midura, and Entis (see the 04/05/10 Request at pages 89-90).

SNQ 60. A substantial new question of patentability for claim 23 is raised by FSIS in combination with Price, Midura, and Entis (see the 04/05/10 Request at page 90).

SNQ 61. A substantial new question of patentability for claim 24 is raised by Jarvis in combination with FSIS and Midura (see the 04/05/10 Request at pages xxx).

SNQ 62. A substantial new question of patentability for claim 24 is raised by FSIS in combination with Price, Midura, and BAM (see the 04/05/10 Request at pages 91-92).

SNQ 63. A substantial new question of patentability for claim 24 is raised by FSIS in combination with Price, Midura, and Gabis (see the 04/05/10 Request at page 93).

SNQ 64. A substantial new question of patentability for claim 25 is raised by Jarvis in combination with FSIS, Midura, and Silliker (see the 04/05/10 Request at pages 93-94).

SNQ 65. A substantial new question of patentability for claim 25 is raised by FSIS in combination with Price, Midura, and Silliker (see the 04/05/10 Request at page 94).

SNQ 66. A substantial new question of patentability for claim 26 is raised by Jarvis in combination with FSIS and Midura (see the 04/05/10 Request at pages 94-95).

SNQ 67. A substantial new question of patentability for claim 26 is raised by FSIS is combination with Price, Midura, and Silliker (see the 04/05/10 Request at page 95).

SNQ 68. A substantial new question of patentability for claim 27 is raised by Jarvis in combination with FSIS and Midura (see the 04/05/10 Request at page 96).

SNQ 69. A substantial new question of patentability for claim 28 is raised by Jarvis in combination with FSIS, Midura, and Andrews (see the 04/05/10 Request at pages 96-97).

SNQ 70. A substantial new question of patentability for claim 28 is raised by FSIS in combination with Price, Midura, and Gabis (see the 04/05/10 Request at pages 97-98).

SNQ 71. A substantial new question of patentability for claim 29 is raised by Jarvis in combination with FSIS, Midura, and Entis (see the 04/05/10 Request at page 98).

SNQ 72. A substantial new question of patentability for claim 29 is raised by FSIS in combination with Price, Midura, and Entis (see the 04/05/10 Request at pages 98-99).

SNQ 73. A substantial new question of patentability for claim 30 is raised by Jarvis in combination with FSIS, Midura, and Entis (see the 04/05/10 Request at pages 99-100).

SNQ 74. A substantial new question of patentability for claim 30 is raised by FSIS in combination with Price, Midura, and Entis (see the 04/05/10 Request at page 100).

SNQ 75. A substantial new question of patentability for claim 31 is raised by Jarvis in combination with FSIS and Midura (see the 04/05/10 Request at page 101).

SNQ 76. A substantial new question of patentability for claim 31 is raised by FSIS in combination with Price and Midura (see the 04/05/10 Request at pages 101-102.

SNQ 77. A substantial new question of patentability for claim 32 is raised by Jarvis in combination with FSIS, Midura, BAM, and ICMSF (see the 04/05/10 Request at pages 102-103).

SNQ 78. A substantial new question of patentability for claim 32 is raised by FSIS in combination with Price, Midura, and Gabis (see the 04/05/10 Request at pages 103-104).

SNQ 79. A substantial new question of patentability for claim 33 is raised by Jarvis in combination with FSIS, Midura, and Gabis (see the 04/05/10 Request at page 104).

SNQ 80. A substantial new question of patentability for claim 33 is raised by FSIS in combination with Price, Midura, and Gabis (see the 04/05/10 Request at pages 104-105).

Substantial New Question of Patentability

For "a substantial new question of patentability" to be present, it is only necessary that:

A. The prior art patents and/or printed publications raise a substantial question of patentability regarding at least one claim, *i.e.* the prior art teaching is such that there is a substantial likelihood that a reasonable examiner would consider the teaching to be important in deciding whether or not the claim is patentable and;

B. The same question of patentability as to the claim has not been decided by the Office in a previous examination or pending reexamination of the patent or in a final holding of invalidity by the Federal Courts in a decision on the merits involving the claim.

It is not necessary that the prior art establish a *prima facie* case of unpatentability in order for a substantial new question of patentability to be present as to the claim. See MPEP 2642.

For a reexamination that was ordered on or after November 2, 2002 (the date of enactment of Public Law 107-273; see Section 13105, of the Patent and Trademark Office Authorization Act of 2002), reliance solely on old art (as the basis for a rejection) does not necessarily preclude the existence of a substantial new question of patentability (SNQ) that is based exclusively on that old art. Determinations on whether a SNQ exists in such an instance shall be based upon a fact-specific inquiry done on a case-by-case basis. For example, an SNQ may be based solely on old art where the old art is being presented/viewed in a new light, or in a

different way, as compared with its use in the earlier concluded examination(s), in view of a material new argument or interpretation presented in the request. MPEP 2642 and 2658.

1. Davies

The Third Party Requester asserts that Davies, in combination with Price and BAM, raises a substantial new question of patentability for claims 1 and 17 of the '584 Patent.

Davies was used in rejections under 35 U.S.C. 102(a) and 103(a) in the application which issued as the `584 patent. As was set forth above, an SNQ may be based on old art where the old art is being presented/viewed in a new light, or in a different way, as compared with its use in the earlier concluded examination. MPEP 2642 and 2658. In the present proceeding, Davies is considered in combination with new references that were not considered during the prosecution of the application which issued as the '584 patent; therefore Davies is being presented/viewed herein in a new light.

Davies discloses methods of sampling and testing pooled samples (test lots) taken from pig herds for *Salmonella* contamination (See the abstract and page 1017 in its entirety). After sample collection and pooling, composite pooled specimens were incubated in enrichment broth (buffered peptone water) and subsequently plated onto agar plates for detection of *Salmonella* contamination. Davies teaches pooled samples for bacteriological testing as pinch-sized fecal samples (for a plurality of assembled portions) (see page 1017, right column, first full paragraph).

Davies, in combination with Price and BAM, raises an SNQ, since there is substantial likelihood that a reasonable examiner would consider the Davies teachings to be important in

deciding if one or more claims of the '584 patent are patentable. Accordingly, Davies raises a substantial new question of patentability for claims 1 and 17, which question has not been decided in a previous examination of the `584 patent.

2. Midura

The Third Party Requester asserts that Midura, in combination with one or more of Meng, Jarvis, FSIS, Price, Andrews, Silliker, Gabis, Entis, Mauer, BAM, ICMSF, Cousin, and Patent owner's admissions as stated in the current patent specification in the Background Section regarding the prior art, raises a substantial new question of patentability for claims 1-33 of the `584 Patent.

Midura was neither cited nor used in a rejection in the application which issued as the `584 patent. The Midura teachings are not considered cumulative to the references that were considered during prosecution of the `584 patent.

Midura discloses methods for collecting a plurality of samples from food (with fish, meats, and shell fish exemplified), pooling the samples to obtain a pooled or composite sample, testing the composite sample for the presence of microbial contaminants, with coliforms and *Salmonella* exemplified, and subsequent testing of a second sample depending on the results of the first sample (paragraph bridging pages 16-17, page 17, first two full paragraphs, and page 18, first full paragraph and Fig. 3).

Midura, in combination with one or more of Meng, Jarvis, FSIS, Price, Andrews, Silliker, Gabis, Entis, Mauer, BAM, and ICMSF, raises an SNQ since there is substantial likelihood that a reasonable examiner would consider the Midura teaching to be important in deciding if one or

more claims of the `584 patent are patentable. Accordingly, Midura raises a substantial new question of patentability for claims 1-33, which question has not been decided in a previous examination of the `584 patent.

3. Meng

The Third Party Requester asserts that Meng, in combination with Jarvis and Midura, raises a substantial new question of patentability for claims 1-4, 8, 10, 11, 13, 14, 17-19, 22, 24, 27, and 31 of the `584 Patent.

Meng was neither cited nor used in a rejection in the application which issued as the `584 patent. The Meng teachings are not considered cumulative to the references that were considered during prosecution of the `584 patent.

Meng discloses a method of testing ground beef for *E. coli* O157:H7 by pooling 5 samples to form a composite sample, inoculating the composite sample into an enrichment broth, and incubating the enrichment broth to allow for selective growth of the target organism. Meng teaches screening the enriched sample for the presence of the *E. coli* and subsequent confirmatory testing of positive composite samples (see section 35.243 beginning on page 334, column 2).

Meng, in combination with Jarvis and Midura, raises an SNQ, since there is substantial likelihood that a reasonable examiner would consider Meng's teachings to be important in deciding if one or more claims of the `584 patent are patentable. Accordingly, Meng raises a substantial new question of patentability for claims 1-4, 8, 10, 11, 13, 14, 17, 18, 19, 22, 24, 27, 31, which question has not been decided in a previous examination of the `584 patent.

4. Andrews

The Third Party Requester asserts that Andrews, in combination with Price, Midura, Jarvis, and/or FSIS, raises a substantial new question of patentability of claims 1, 17, and 28 of the `584 Patent.

Andrews was neither cited nor used in a rejection in the application which issued as the '584 patent. Andrews' teachings are not considered cumulative to the references that were considered during prosecution of the `584 patent.

Andrews discloses a method for sampling foods for *Salmonella*, wherein an analytical unit (or test lot) is made up of random sample units taken from a larger sample unit, the balance being set aside in case of the need for further testing, and the analytical unit or test lot is inoculated into a preselective enrichment broth, incubated to allow for levels of *Salmonella* to increase, and again incubated in a selective enrichment broth. Andrews teaches subsequent isolation and identification of any *Salmonella o*rganisms present in the enriched composite test lot (see page 357, column 2, first full paragraph; page 358, column 2; pages 360-362, sections 37.123, 37.124, 37.125, 37.126 and 37.133).

Andrews, in combination with two or more of Price, Midura, Jarvis, and FSIS, raises an SNQ since there is substantial likelihood that a reasonable examiner would consider the Andrews teachings to be important in deciding if one or more claims of the `584 patent are patentable. Accordingly, Andrews raises a substantial new question of patentability for claims 1, 17, and 28, which question has not been decided in a previous examination of the `584 patent.

5. FSIS

The Third Party Requester asserts that FSIS, in combination with Price, Midura, Jarvis, BAM, Entis, Mauer, Silliker, Cousin, Gabis, Andrews, ICMSF, and/or Patent Owner's admissions regarding the prior art, raises a substantial new question of patentability of claims 1-26 and 28-33 of the `584 Patent.

FSIS was neither cited nor used in a rejection in the application which issued as the `584 patent. The FSIS teachings are not considered cumulative to the references that were considered during prosecution of the `584 patent.

FSIS discloses methods of sampling ground beef for *E. coli* O157:H7 contamination, comprising collecting a plurality of pieces and combining the pieces for a representative sample of a production lot (see pages 4 and 27-28 in their entirety), followed by follow-up sampling upon identification of contaminated lots and corrective or remedial measures (see the paragraph bridging pages 8-9).

FSIS, in combination with two or more of Price, Midura, Jarvis, BAM, Entis, Mauer, Silliker, Cousin, Gabis, Andrews, ICMSF, and Patent Owner's admissions regarding the prior art raises an SNQ since there is substantial likelihood that a reasonable examiner would consider the FSIS teachings to be important in deciding if one or more claims of the `584 patent are patentable. Accordingly, FSIS raises a substantial new question of patentability for claims 1-26 and 28-33, which question has not been decided in a previous examination of the `584 patent.

6. Silliker

The Third Party Requester asserts that Silliker, in combination with Price, Jarvis, FSIS and/or Midura, raises a substantial new question of patentability of claims 1, 14, 16, 17, 25, and 26 of the `584 Patent.

Silliker was cited in an IDS in the application which issued as the `584 patent; however, it was not used therein in a rejection. The Silliker teachings are not considered cumulative to the references that were considered during prosecution of the `584 patent.

Silliker discloses a method for sampling dried foods for *Salmonella* contamination comprising collecting a plurality of 25g or 100 g subsamples, incubating these subsamples in individual cultures of pre-enrichment broth, and wet compositing the pre-enrichment cultures in groups of five (for 25 g subsamples) or three (for 100 g subsamples) (see page 475, abstract and last full paragraph of the page, and page 176, column 1, second full paragraph, and column 2, last full paragraph). Silliker teaches that pooling sixty 25g or fifteen 100g pre-enrichment cultures into groups of 5 (wet compositing) followed by selective enrichment of the composites is as sensitive a detection method as analysis of individual samples (page 478, last full paragraph of the page) and is economically more feasible (page 179, first full paragraph). Silliker teaches that the method is also suitable for meats and poultry (page 479, last paragraph).

Silliker, in combination with two or more of Price, Jarvis, FSIS and Midura, raises an SNQ, since there is substantial likelihood that a reasonable examiner would consider the Silliker teachings to be important in deciding if one or more claims of the `584 patent are patentable. Accordingly, Silliker raises a substantial new question of patentability as to claims 1, 14, 16, 17, 25, and 26, which question has not been decided in a previous examination of the `584 patent.

7. Price

The Third Party Requester asserts that Price, in combination with one or more of FSIS, Midura, Andrews, Silliker, Midura, Gabis, BAM, Davies, Entis, Jarvis, Cousin, and Patent owner's admissions regarding the prior art, raises a substantial new question of patentability of claims 1-11, 13-18, 20-26, and 28-33 of the `584 Patent.

Price was cited in an IDS in the application which issued as the `584 patent; however, it was not used therein in a rejection. The Price teachings are not considered cumulative to the references that were considered during prosecution of the `584 patent.

Price discloses a method of sampling and testing food samples for *Salmonella* comprising collecting a plurality of samples from the food, inoculating the samples individually into pre-enrichment broth cultures, incubating the cultures to allow for growth of the *Salmonella*, pooling the pre-enrichment broth cultures into wet composite test lots, incubating the pooled test lots into a single enrichment broth culture, and subsequent identification of any *Salmonella* organisms present in the culture. Price teaches that the procedure offers a simple, effective way to increase sample capacity in the *Salmonella* testing of foods and also permits the pre-enrichment broth cultures to be retained for subsequent individual analysis if a positive result is obtained from the pooled culture (see page 679, abstract; page 680, Fig. 1; page 681, column 1, second full paragraph and column 2, first full paragraph).

Price, in combination with one or more of FSIS, Midura, Andrews, Silliker, Midura, Gabis, BAM, Davies, Entis, Jarvis, Cousin, and Patent owner's admissions regarding the prior art, raises an SNQ since there is substantial likelihood that a reasonable examiner would consider

the Price teachings to be important in deciding if one or more claims of the `584 patent are patentable. Accordingly, Price raises a substantial new question of patentability as to claims 1-11, 13-18, and 20-33, which question has not been decided in a previous examination of the `584 patent.

8. Gabis

The Third Party Requester asserts that Gabis, in combination with FSIS, Price, Jarvis and/or Midura, raises a substantial new question of patentability of claims 1, 17, 24, 28, 32 and 33 of the `584 Patent.

Gabis was neither cited nor used in a rejection in the application which issued as the `584 patent. The Gabis teachings are not considered cumulative to the references that were considered during prosecution of the `584 patent.

Gabis discloses methods for sampling and testing high moisture foods, with meat and poultry exemplified, by collecting thirteen 25g specimens, inoculating each of the specimens individually into preenrichment broth cultures, incubating the preenrichment cultures to allow for levels of the organism to increase, pooling portions of each of the preenrichment cultures into a composite or pooled sample in a single enrichment broth culture, incubating the enrichment broth culture, and subsequently recovering and identifying the salmonellae. Gabis teaches that analysis of a single composite sample is as sensitive as analysis of each of the individual subsamples (see page 663, abstract and first paragraph of the page; page 664, the paragraph bridging columns 1 and 2 and column 2, first two full paragraphs; and page 668, first full paragraph).

Gabis, in combination with two or more of FSIS, Price, Jarvis and Midura, raises an SNQ, since there is substantial likelihood that a reasonable examiner would consider the Gabis teachings to be important in deciding if one or more claims of the `584 patent are patentable. Accordingly, Gabis raises a substantial new question of patentability for claims 1, 17, 24, 28, 32 and 33, which question has not been decided in a previous examination of the `584 patent.

9. ICMSF

The Third Party Requester asserts that ICMSF in combination with Jarvis, FSIS, Midura, and BAM, raises a substantial new question of patentability for claim 32 of the `584 Patent.

ICMSF was neither cited nor used in a rejection in the application which issued as the `584 patent. The ICMSF teachings are not considered cumulative to the references that were considered during prosecution of the `584 patent.

ICMSF discloses a method of sampling and testing food samples for *Salmonella* contamination wherein multiple analytical units are combined or lumped to provide larger units for testing purposes. ICMSF specifically contemplates combining sixty or thirty samples (or "portions") (see page 163, last paragraph of the page). ICMSF also teaches testing for coliform bacteria and fecal coliforms (see pages 125-139).

ICMSF, in combination with Jarvis, FSIS, Midura, and BAM, raises an SNQ since there is substantial likelihood that a reasonable examiner would consider the ICMSF teachings to be important in deciding if one or more claims of the `584 patent are patentable. Accordingly, ICMSF raises a substantial new question of patentability for claim 32, which question has not been decided in a previous examination of the `584 patent.

10. BAM

The Third Party Requester asserts that BAM in combination with one or more of Jarvis, Davies, Price, Midura, FSIS, Mauer, Sillika and ICMSF, raises a substantial new question of patentability of claims 1, 2, 12, 14-17, 20, 24, 25, and 32 of the `584 Patent.

BAM was neither cited nor used in a rejection in the application which issued as the `584 patent. The BAM teachings are not considered cumulative to the references that were considered during prosecution of the `584 patent.

BAM discloses methods of sampling analytical units from foods for *Salmonella* contamination comprising collecting a plurality of samples or analytical units and compositing the analytical units for testing. BAM teaches the number of samples to be collected as 60 or 30, depending on the category of food that is tested. BAM teaches that a sample unit is usually a consumer-size container of product (see page 3 in its entirety and the paragraph bridging pages 4 and 5, and page 5, first full pararaph).

BAM, in combination with one or more of Jarvis, Davies, Price, Midura, FSIS, Mauer, Sillika and ICMSF, raises an SNQ since there is substantial likelihood that a reasonable examiner would consider the BAM teachings to be important in deciding if one or more claims of the `584 patent are patentable. Accordingly, BAM raises a substantial new question of patentability for claims 1, 2, 12, 14-17, 20, 24, 25, and 32, which question has not been decided in a previous examination of the `584 patent.

11. Jarvis

The Third Party Requester asserts that Jarvis, in combination with one or more of Meng, Midura, BAM, FSIS, Entis, Mauer, Silliker, Cousin, Price, Andrews, ICMSF, Gabis, and Patent owner's admissions regarding the prior art, raises a substantial new question of patentability of claims 1-5, 8, 10-25, and 27-33 of the `584 Patent.

Jarvis was neither cited nor used in a rejection in the application which issued as the `584 patent. The Jarvis teachings are not considered cumulative to the references that were considered during prosecution of the `584 patent.

Jarvis discloses methods of sampling and testing foods by collecting a plurality (10) of samples or portions of 25g size, inoculating the samples into one each of a pre-enrichment medium or broth, incubating the pre-enrichment broth cultures to allow for growth of the organisms, then compositing aliquots of the pre-enrichment cultures for inoculation of a pooled enrichment culture, followed by testing of the composite culture. Jarvis teaches that the method provides the same degree of statistical confidence as would be attained by separately testing each of the 10 samples (see page 141 in its entirety). Jarvis teaches that the method has the advantage of allowing for verification of positive samples by retesting of the stored pre-enrichment cultures and provides an indication of the proportion of contaminated samples (see the paragraph bridging pages 141 and 142).

Jarvis, in combination with one or more of Meng, Midura, BAM, FSIS, Entis, Mauer, Silliker, Cousin, Price, Andrews, ICMSF, Gabis, and Patent owner's admissions regarding the prior art, raises an SNQ since there is substantial likelihood that a reasonable examiner would consider the Jarvis teachings to be important in deciding if one or more claims of the `584 patent

are patentable. Accordingly, Jarvis raises a substantial new question of patentability for claims 1-5, 8, 10-25, and 27-33, which question has not been decided in a previous examination of the `584 patent.

12. Entis

The Third Party Requester asserts that Entis in combination with Jarvis, FSIS, and/or Midura raises a substantial new question of patentability of claims 5, 23, 29, and 30 of the `584 Patent.

Entis was neither cited nor used in a rejection in the application which issued as the `584 patent. The Entis teachings are not considered cumulative to the references that were considered during prosecution of the `584 patent.

Entis discloses concentrating and separating microbial cells from an enrichment culture by immunoaffinity chromatography and immunomagnetic separation (see page 91). Entis teaches identification of microbial cells by antibody-based methods, such as immunofluorescence, enzyme immunoassay (immunochemistry-based methods), nucleic acid based methods (DNA hybridization and PCR) and bioluminescence and limulus amebocyte lysate assay (biosensor based methods) (see pages 89, 90, 93, 94, and 99).

Entis, in combination with two of Jarvis, FSIS, and Midura raises an SNQ since there is substantial likelihood that a reasonable examiner would consider the Entis teachings to be important in deciding if one or more claims of the `584 patent are patentable. Accordingly, Entis raises a substantial new question of patentability for claims 5, 23, 29, and 30, which question has not been decided in a previous examination of the `584 patent.

13. Cousin

The Third Party Requester asserts that Cousin, in combination with Jarvis, FSIS, Midura, and/or Price, raises a substantial new question of patentability for claim 21 of the `584 Patent.

Cousin was neither cited nor used in a rejection in the application which issued as the `584 patent. The Cousin teachings are not considered cumulative to the references that were considered during prosecution of the `584 patent.

Cousin discloses that certain bacteria (psychrotrophs) are responsible for food spoilage. Cousin teaches that such organisms are found in meats, poultry, fish, and seafood and include *Listeria* spp., among others (see page 169, column 2, last paragraph).

Cousin, in combination with three of Jarvis, FSIS, Midura, and Price, raises an SNQ since there is substantial likelihood that a reasonable examiner would consider the Cousin teachings to be important in deciding if one or more claims of the `584 patent are patentable. Accordingly, Cousin raises a substantial new question of patentability for claim 21, which question has not been decided in a previous examination of the `584 patent.

14. Mauer

The Third Party Requester asserts that Mauer, in combination with BAM, Jarvis, FSIS and/or Midura, raises a substantial new question of patentability of claim 12 of the `584 Patent.

Mauer was neither cited nor used in a rejection in the application which issued as the `584 patent. The Mauer teachings are not considered cumulative to the references that were considered during prosecution of the `584 patent.

Mauer discloses methods of pasteurizing meat to virtually eliminate bacterial contamination (see column 1, lines 9-18).

Mauer in combination with three or four of BAM, Jarvis, FSIS and Midura, raises an SNQ since there is substantial likelihood that a reasonable examiner would consider the Mauer teachings to be important in deciding if one or more claims of the `584 patent are patentable. Accordingly, Mauer raises a substantial new question of patentability for claim 12, which question has not been decided in a previous examination of the `584 patent.

Patent Owner's Admissions Regarding the State of the Art

The Third Party Requester asserts that Patent owner's admissions regarding the state of the art (in the '584 patent specification at columns 1-3, entitled *BACKGROUND*), in combination with one or more of Jarvis, FSIS, Midura, and Price, raises a substantial new question of patentability for claims 1, 2, and 17 of the `584 Patent.

The consideration under 35 U.S.C. 303 of a request for reexamination is limited to prior art patents and printed publications. See *Ex parte McGaughey*, 6 USPQ2d 1334, 1337 (Bd. Pat. App. & Inter. 1988). Thus an admission, *per se*, may not be the primary basis for establishing a substantial new question of patentability. While admissions in conjunction with prior art patents or publications may be considered in a reexamination proceeding, any rejection must be based on prior art patents or publications, as explained by the admissions. Accordingly, admissions are utilized to interpret or modify the patent or printed publication which is the basis for the SNQ; they are not themselves used as the basis for establishing an SNQ. Therefore, Admissions by the Patent Owner regarding the state of the art do not raise an SNQ; however, those Admissions, to

the extent that they are used to modify the teachings of Jarvis, FSIS, and/or Price will be used in combination with Jarvis, FSIS, and/or Price to reject the claims. Patent owner's admissions, as modified by Price, however, will not be used to reject the claims because Admissions cannot be used as the primary basis for establishing an SNQ.

Additional Documents Cited in the Request

1. SPERBER, *et al.*, *Cultural Methods for the Enrichment and Isolation of Microorganisms*, Chapter 5, pp. 45-51, in Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., *Eds.* Downes and Ito, American Public Health Association (2001) (Exhibit 12, cited in the cited in the Request at page 18 as "Chapter 5 of the Compendium"; see the first paragraph of the page, and hereinafter as "Sperber").

Sperber was referenced as part of Requester's discussion of the Scope and Content of the Prior Art (see pages 8-23 of the Request). However, Requester neither cited Sperber as raising an SNQ over any of the claims of the '584 patent nor used Sperber in any proposed grounds of rejection. Accordingly, Sperber will not be considered further during the present reexamination proceeding.

2. Declaration of J. Stan Bailey, Ph.D. under 37 C.F.R. § 132 (hereinafter the **"Bailey Declaration"**).

The Bailey Declaration accompanied the Request and is discussed in the Request as part of Requester's discussion of the '584 Patent Prosecution and the Scope and Content of the Prior Art (see pages 3-23 of the Request) insofar as it is used to corroborate statements made by Requester regarding the state of the art of microbiological testing of food products at the time of the invention. The Bailey Declaration was neither cited as raising an SNQ nor used as an

evidentiary reference in any of the proposed grounds of rejection. Taken alone, the Bailey Declaration would not raise an SNQ because it is neither a printed publication nor a prior art patent. Therefore, the Bailey Declaration will be considered only to the extent affidavits or declarations which explain the contents or pertinent dates of prior art patents or printed publications in more detail may be considered in reexamination. See MPEP §2258 and MPEP 2616.

Conclusion

In view of the above, the request for reexamination of claims 1-33 of U.S. Patent 7,534,584 is **GRANTED.**

A substantial new question of patentability affecting claim 1-33 of United States Patent Number 7,534,584 is raised by the present request for *inter partes* reexamination.

Duty to Disclose

The patent owner is reminded of the continuing responsibility under 37 CFR 1.985 to apprise the Office of any litigation activity, or other prior or concurrent proceeding, involving Patent No. 7,534,584 throughout the course of this reexamination proceeding. The third party requester is also reminded of the ability to similarly apprise the Office of any such activity or proceeding throughout the course of this reexamination proceeding.

Correspondence

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Doc description: Information Disclosure Statement (IDS) Filed

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	95001294
Filing Date	2009-05-19
First Named Inventor	Samadpour
Art Unit	
Examiner Name	
Attorney Docket Number	2781-129

U.S.PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
/B.B./	1	6080437		2000-06-27	Mauer et al.	

If you wish to add additional U.S. Patent citation information please click the Add button.

U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

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FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							☐

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NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	95001294
	Filing Date	2009-05-19
	First Named Inventor	Samadpour
	Art Unit	
	Examiner Name	
	Attorney Docket Number	2781-129

/B.B./	1	DAVIES et al., "Evaluation of the use of pooled serum, pooled muscle tissue fluid (meat juice) and pooled faeces for monitoring pig herds for Salmonella," J. Appl. Microbiol., 95: 1016-25 (2003)	☐
	2	Midura, et al. Chapter 2 entitled "Sampling Plans, Sample Collection, Shipment and Preparation for Analysis" of Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., Eds. FRANCES POUCH DOWNES and KEITH ITO, American Public Health Association (2001) , 13-23.	☐
	3	Meng, et al. Chapter 35 entitled "Pathogenic Escherichia Coli" of Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., Eds. FRANCES POUCH DOWNES and KEITH ITO, American Public Health Association (2001) , 331-341.	☐
	4	Andrews, et al., Chapter 37 entitled "Salmonella" of Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., Eds. FRANCES POUCH DOWNES and KEITH ITO, American Public Health Association (2001) , 357-380.	☐
	5	US Dept of Agriculture, FSIS Directive, "Microbial Testing Program and Other Verification Activities for Echerichia coli 0157:H7 In Raw Ground Beef Products and Raw Ground Beef Components and Beef Patty Components," 10.010.1, Revision 1, (3/13/2004) 1-28.	☐
	6	SILLIKER, J.H. and GABIS, D.A., "ICMSF Methods Studies. I. Comparison of analytical schemes for detection of Salmonella in dried foods," Can. J. Microbiol. 19:475-(1973) -479	☐
	7	PRICE, W.R. et al.. "Salmonella testing of pooled pre-enrichment broth cultures for screening multiple food samples," Appl. Microbiol. 23:679-(1972) 682	☐
	8	GABIS, D.A., and SILLIKER, J.H., "ICMSF Methods Studies. II. Comparison of analytical schemes for detection of Salmonella in high-moisture foods," Can. J. Microbiol. 20:663-669 (1974)	☐
	9	Microorganisms in Foods The International Committee on Microbiological Specifications for Foods ("ICMSF")/1 Their Significance and Methods of Enumeration, Second Edition, University of Toronto Press (1978) 1-172.	☐
	10	US FDA, Chapter 1 entitled "Food Sampling/Preparation of Sample Homogenate," Bacteriological Analytical Manual ("BAM"). (April 2003) 1-11.	☐
/B.B./	11	Sperber, et al. Chapter 5 entitled "Cultural Methods for the Enrichment and Isolation of Microorganisms" of Compendium of Methods for the Microbiological Examination of Foods," 4th Ed., Eds. FRANCES POUCH DOWNES and KEITH ITO, American Public Health Association (2001) 45-51.	☐

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	95001294
	Filing Date	2009-05-19
	First Named Inventor	Samadpour
	Art Unit	
	Examiner Name	
	Attorney Docket Number	2781-129

/B.B./	12	JARVIS, B., Chapter 8 entitled "Errors Associated with Dilution Count and Presence/Absence Methods," Statistical Aspects of the Microbiological Analysis of Foods. Progress in Industrial Microbiology, Vol. 21, Elsevier. (1989) , 117-142.	☐
/B.B./	13	Entis, et al. Chapter 10 entitled "Rapid Methods for Detection, Identificatin, and Enumeration, of Compendium of Methods for the Microbiological Examination of Foods," 4th Ed., Eds. FRANCES POUCH DOWNES and KEITH ITO, American Public Health Association (2001)	☐
/B.B./	14	Cousin, et al., Chapter 13 entitled "Psychotrophic Microorganisms," of Compendium of Methods for the Microbiological Examination of Foods," 4th Ed., Eds. FRANCES POUCH DOWNES and KEITH ITO, American Public Health Association (2001) , 159-166.	☐

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	/Brenda Brumback/	Date Considered	05/05/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
95/001,294	04/05/2010	7534584	2781-128	1914

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EXAMINER	
BRUMBACK, BRENDA G	

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3991	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

OFFICE ACTION IN INTER PARTES REEXAMINATION	**Control No.** 95/001,294	**Patent Under Reexamination** 7534584	
	Examiner BRENDA BRUMBACK	**Art Unit** 3991	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address. --

Responsive to the communication(s) filed by:
Patent Owner on _____
Third Party(ies) on 5 April 2010

RESPONSE TIMES ARE SET TO EXPIRE AS FOLLOWS:

For Patent Owner's Response:
2 MONTH(S) from the mailing date of this action. 37 CFR 1.945. EXTENSIONS OF TIME ARE GOVERNED BY 37 CFR 1.956.
For Third Party Requester's Comments on the Patent Owner Response:
30 DAYS from the date of service of any patent owner's response. 37 CFR 1.947. NO EXTENSIONS OF TIME ARE PERMITTED. 35 U.S.C. 314(b)(2).

All correspondence relating to this inter partes reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of this Office action.

This action is not an Action Closing Prosecution under 37 CFR 1.949, nor is it a Right of Appeal Notice under 37 CFR 1.953.

PART I. THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☐ Notice of References Cited by Examiner, PTO-892
2. ☐ Information Disclosure Citation, PTO/SB/08
3. ☐ _____

PART II. SUMMARY OF ACTION:

1a. ☒ Claims 1-33 are subject to reexamination.
1b. ☐ Claims _____ are not subject to reexamination.
2. ☐ Claims _____ have been canceled.
3. ☐ Claims _____ are confirmed. [Unamended patent claims]
4. ☐ Claims _____ are patentable. [Amended or new claims]
5. ☒ Claims 1-33 are rejected.
6. ☐ Claims _____ are objected to.
7. ☐ The drawings filed on _____ ☐ are acceptable ☐ are not acceptable.
8. ☐ The drawing correction request filed on _____ is: ☐ approved. ☐ disapproved.
9. ☐ Acknowledgment is made of the claim for priority under 35 U.S.C. 119 (a)-(d). The certified copy has: ☐ been received. ☐ not been received. ☐ been filed in Application/Control No 11/199,871.
10. ☐ Other _____

INTER PARTES REEXAMINATION

Detailed Action

The Third Party Request (corrected) filed on 04/05/10 for *inter partes* reexamination of claims 1-33 of United States Patent Number 7,534,584 (to Samadpour) is **GRANTED**. This first Office action on the merits is being mailed together with the Order. 37 CFR 1.935.

Status of Claims

Claims 1-33 are present in the `656 patent. Claims 1-33 are currently under reexamination.

Documents Cited

1. DAVIES *et al.*, *Evaluation of the use of pooled serum, pooled muscle tissue fluid (meat juice) and pooled faeces for monitoring pig herds for Salmonella*, J. Appl. Microbiol., 95:1016-25 (2003) (Exhibit 2, hereinafter, "**Davies**").

2, MIDURA, *et al.*, *Sampling Plans, Sample Collection, Shipment and Preparation for Analysis,* Chapter 2, pp.13-23, in Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., *Eds.* Downes and Ito, American Public Health Association (2001) (Exhibit 3, referenced in the Request as "Compendium Chapter 2" and hereinafter as "**Midura**").

3. MENG, *et al.*, *Pathogenic Escherichia coli*, Chapter 35, pp.331-341, in Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., *Eds.* Downes and Ito, American Public Health Association (2001) (Exhibit 4, referenced in the Request as "Compendium Chapter 35" and hereinafter as "**Meng**").

4. ANDREWS, *et al.*, *Salmonella*, Chapter 37, pp. 357-380, in Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., *Eds.* Downes and Ito, American Public Health Association (2001) (Exhibit 5, referenced in the Request as "Compendium Chapter 37" and hereinafter as "**Andrews**").

5. US Dept of Agriculture, FSIS Directive, *Microbial Testing Program and Other Verification Activities for Echerichia coli0157:H7 In Raw Ground Beef Products and Raw Ground Beef Components and Beef Patty Components*, 10.010.1, Revision 1, (3/13/2004), pp. 1-28 (Exhibit 6, hereinafter, "**FSIS**").

6. SILLIKER, *et al.*, "ICMSF Methods Studies. I. Comparison of analytical schemes for detection ofSalmonella in dried foods," Can. J. Microbiol. 19:475-479 (1973) (Exhibit 7, hereinafter, "**Silliker**").

7. PRICE, *et al., Salmonella Testing of Pooled Pre-Enrichment Broth Cultures for Screening Multiple Food Samples,* Appl. Microbiol. 23:679 (1972) (Exhibit 8, hereinafter, "**Price**").

8. GABIS, *et al., ICMSF Methods Studies. II. Comparison of analytical schemes for detection ofSalmonella in high-moisture foods,*" Can. J. Microbiol. 20:663-669 (1974) (Exhibit 9, hereinafter "**Gabis**").

9. ICMSF (The International Committee on Microbiological Specifications for Foods), *Indicator microorganisms* , pp. 1-11; *Important considerations for the analyst*, pp. 91-102; *Preparation and dilution of the food homogenate*, pp. 107-111; *Enumeration of mesophilic aerobes: the agar plate methods*, pp. 113-123; *Coliform bacteria*, pp. 125-139; *Enterobacteriaceae*, pp. 141-143*; The enterococci*, pp. 144-147*; Hemolytic streptococci,* pp. 149-155; *The enumeration of yeasts and molds*, pp. 157-159; and *Salmonellae*, pp. 160-172, in Microorganisms in Foods, Their Significance and Methods of Enumeration, Second Edition, University of Toronto Press (1978) (Exhibit 10, hereinafter "**ICMSF**").

10. BAM (Bacteriological Analytical Manual), *Food Sampling/Preparation of Sample Homogenate*, Chapter 1, pp. 1-11, US FDA, (April 2003) (Exhibit 11, hereinafter, "**BAM**").

11. JARVIS, B., *Errors Associated with Dilution Count and Presence/Absence Methods*, Chapter 8, pp. 117-142, in Statistical Aspects of the Microbiological Analysis of Foods. Progress in Industrial Microbiology, Vol. 21, Elsevier (1989) (Exhibit 13, hereinafter, "**Jarvis**").

12. ENTIS, *et al., Rapid Methods for Detection, Identification, and Enumeration*, Chapter 10, pp. 89-126 in Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., *Eds.* Downes and Ito, American Public Health Association (2001) (Exhibit 15, referenced in the Request as "Compendium, Chapter 10" and hereinafter as "**Entis**").

13. COUSIN, *et al., Psychrotrophic Microorganisms*, , Chapter 13, pp. 159-166, in Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., *Eds.* Downes and Ito, American Public Health Association (2001) (Exhibit 16, referenced in the Request as "Compendium Chapter 13", and hereinafter as "**Cousin**").

14. U.S. Patent 6,080,437, issued 06/27/2000 to Mauer (Exhibit 14, hereinafter, "**Mauer**").

Scope of claims

In reexamination, patent claims are construed broadly. In re Yamamoto, 740 F.2d 1569, 1571,222 USPQ 934, 936 (Fed. Cir. 1984) (claims given "their broadest reasonable interpretation consistent with the specification"). The 7,534,584 patent consists of claims 1-33, drawn to methods of sampling, testing and validating test lots for microbial contamination.

Claims 1 and 17 are representative.

1. A method of sampling, testing and validating test lots for microbial contamination, comprising:
a) collecting a plurality of portions from each of a plurality of test lots, the test lots each comprising an assemblage of one or more specimens, wherein each test lot is separately sampled by taking said plurality of portions thereof;
b) combining the collected plurality of portions corresponding to each of the separate test lots to provide a corresponding set of separate test lot samples, wherein each separate test lot sample is attributed to a particular corresponding separate test lot;
c) incubating the set of separate test lot samples under conditions suitable to allow levels of a target microbial agent or organism that is present in one or more of the separate test lot samples to reach detectable levels and become uniform, or substantially uniform, throughout the respective one or more separate test lot samples, to provide a set of separate test lot samples enriched for the target microbial agent or organism;
d) removing portions of each enriched separate test lot sample, and combining the removed portions to provide a modular composite sample; and
e) testing of the composite sample, using a suitable detection assay, for the target microbial agent or organism, wherein when such testing is negative all of said separate test lot samples are validated, and wherein when such testing is positive, individual separate test lots are validated by further testing of a portion of the respective enriched separate test lot sample using the same or a more sensitive protocol and obtaining test result for each test lot.

17. A method of sampling, testing and validating test lots for microbial contamination, comprising:
a) collecting a plurality of portions from each of a plurality of single-unit production lots, the single-unit production lots each comprising an assemblage of one or more production specimens, wherein each single-unit production lot is separately sampled by taking said plurality of portions thereof;
b) combining the collected plurality of product portions corresponding to each of the separate single-unit production lots to provide a corresponding set of separate single-unit production lot samples, wherein each separate single-unit production lot sample is attributed to a particular corresponding separate single-unit production lot;
c) incubating the set of separate single-unit production lot samples under conditions suitable to allow levels of a target microbial agent or organism that is present in one or more of the separate single-unit production lot samples to reach detectable levels and become uniform, or substantially uniform, throughout the respective one or more separate single-unit production lot samples, to provide a set of separate single-unit production lot samples enriched for the target microbial agent or organism;
d) removing portions of each enriched separate single-unit production lot sample, and combining the removed portions to provide a modular composite sample; and
e) testing of the composite sample, using a suitable detection assay, for the target microbial agent or organism, wherein when such testing is negative all of said separate single-unit production lot samples are validated, and wherein when such testing is positive, individual separate single-unit production lots are validated by further testing of a portion of the respective enriched separate single-unit production lot sample using the same or a more sensitive protocol and obtaining test result for each single-unit production lot.

The following selected claim terms are defined as follows in the '584 patent disclosure:

Test lot or reportable lot: an assemblage of one or more specimens of an operationally linked medium or process (column 5, lines 21-32).

Product portion: piece, aliquot or weight of a product (column 5, lines 38-49).

Test lot sample (or single-unit production lot sample or single production unit lot sample): a sample formed by combining multiple product portions from a test lot (column 5, line 57, through column 6, line 6).

Enrichment: incubating a test lot sample under conditions suitable to allow levels of a target agent or organism to reach detectable levels (see column 6, lines 7-16).

Enrichment medium: mixture which contains nutrients and which has properties (*e.g.*, pH and/or oxygen content) which favor the growth of the target agent/organism (column 6, lines 17-35).

Modular composite sample: a larger sample formed from combining equal portions of a plurality of enriched single-unit production lot samples (column 6, lines 57-61).

Validation: determining that a particular sample tests negative using a detection assay (column 7, lines 1-10). When a modular composite sample tests negative, all single unit production lot samples are validated.

Proposed Claim Rejections

35 U.S.C §103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Ground #1:

Claims 1-4, 8, 10, 11, 13, 17-19, 22, 24, 26, 27, and 31 are unpatentable as obvious over Jarvis in view of FSIS and Midura (see SNQ #s 1, 10, 16, 18, 24, 27, 29, 33, 47, 49, 56, 61, 66, 68, and 75 at pages 28-34, 54-55, 57-59, 64-65, 67-69, 70-71, 74, 82, 83, 87-88, 91, 94-95, and 100 respectively of the Request).

This rejection was proposed by the third party requester and **is adopted** for the reasons stated in the request and for those reasons set forth below. The proposed rejections at pages 28-34, 54-55, 57-59, 64-65, 67-69, 70-71, 74, 82, 83, 87-88, 91, 94-95, and 100 of the request and the claim charts at pages 106-114, 117, 119-121, 123, 125, and 126 are herein incorporated by reference. In addition, claims 12, 14, 15, 16, 20, 25, and 32 are added to the proposed ground of rejection as unpatentable over Jarvis in view of FSIS and Midura for the reasons outlined below. The rejection is as follows.

Claims 1-4, 8, 10-20, 22, 24-27, 31, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jarvis in view of FSIS and Midura.

Regarding ***claims 1 and 17***, Jarvis discloses methods of sampling and testing foods for low numbers of pathogenic organisms using composite samples for testing (page 135, section 8.4, first paragraph). Jarvis teaches that testing composite samples reduces the workload on the laboratory (page 141, section 8.4.2.1). The methods described by Jarvis (methods 2 and 3) comprise collecting a plurality (10) of product samples or portions (25g size); either inoculating the samples separately into one each of a pre-enrichment medium or broth to give test lot samples, each comprising a single specimen (method 2), or alternatively, pooling a plurality (about 5) of specimens and inoculating the pooled specimens into a pre-enrichment culture medium or broth (method 3); incubating the pre-enrichment broth cultures to allow for growth of the target organisms; compositing aliquots of the pre-enrichment cultures and inoculating the

composite into a second enrichment culture, incubating the composite enrichment culture, and subsequently testing for the pathogenic organism. Jarvis teaches that methods 1 and 2 both provide the same degree of statistical confidence as would be attained by separately testing each of the 10 samples (see page 141 in its entirety). Jarvis teaches that composite testing method 2 has the advantage of allowing for verification of positive samples by retesting of the stored individual pre-enrichment cultures to provide an indication of the proportion of contaminated samples (see the paragraph bridging pages 141 and 142). Regarding ***claim 2***, since Jarvis teaches analysis of foods for low numbers of pathogenic organisms by collecting samples from the food, the test lot would necessarily be composed of operationally-linked product specimens (page 135, section 8.4, first paragraph). With respect to ***claim 3***, Jarvis teaches incubating a modular composite sample in enrichment broth prior to testing for pathogenic organisms, *e.g.*, salmonellae (page 135, section 8.4, first paragraph, and pages 141-142, section 8.4.2.1). For ***claim 4***, Jarvis teaches incubating the test lots separately in pre-enrichment medium followed by incubation in enrichment medium of a composite sample. In reference to ***claims 11 and 13***, Jarvis teaches test lots of 10 samples, which falls within the claimed range of 3 to 10. Regarding ***claim 19***, Jarvis teaches testing for *Salmonella* (page 135, section 8.4, first paragraph). With respect to ***claims 18, 22 and 31***, Jarvis teaches aseptically removing and combining equal portions of each of the pre-enriched separate test lot cultures (10 x 1 ml, see page 141, section 8.4.2.1, method 2). As for ***claim 27***, the food samples described by Jarvis would be understood by one of skill in the art to be synonymous with product portions.

The method described by Jarvis differs from the claimed method in that Jarvis defines the medium used for incubation of the individual test lot samples as a "pre-enrichment" medium,

while the patented claims recite incubating the test lot samples in "enrichment medium". However, as has previously been set forth herein, the '584 patent specification defines "enrichment medium" as a "mixture which contains nutrients and which has properties (*e.g.*, pH and/or oxygen content) which favor the growth of the target agent/organism" (column 6, lines 17-35). Absent evidence to the contrary, the pre-enrichment medium disclosed by Jarvis to favor the growth of the target organism meets the limitations of the patented claims. Jarvis does not teach repeat testing of negative samples, as in patented ***claim 8***; does not specify that the test lot samples are collected from a single combo, bin, pallet or production assemblage, as in patented ***claim 10***; does not specify testing for *E. coli* 0157:H7 or *Salmonella* (among others), as in ***claims 19 and 20***, and does not specify the food to be tested, as in patented ***claims 24- 26***.

Regarding ***claim 20***, FSIS discloses methods of sampling ground beef or poultry for *E. coli* O157:H7 contamination, comprising aseptically collecting a plurality of pieces or samples and combining the pieces for a representative sample of a production lot from the current day's production (a production assemblage, see pages 4 and 27-28 in their entirety), thus meeting the limitations of patented ***claims 10, 19, 20, 24, and 26***. Regarding ***claims 8 and 12***, FSIS teaches follow-up sampling upon identification of contaminated lots and corrective or remedial measures (see the paragraph bridging pages 8-9). With respect to ***claim 32***, FSIS teaches that manufacturing trimmings (e.g., pieces of meat remaining after steaks, roasts, and other intact cuts are removed) may be processed for a food product (page 2, second paragraph).

Midura discloses methods for sampling and testing foods for microbial contamination. Midura teaches collecting a plurality of samples from a food lot produced in one batch or in some specified period of time, as in patented ***claim 10*** (with fish, meats, and shell fish

exemplified, as in patented ***claims 24 and 25***); pooling the samples to obtain a pooled or composite sample; and testing the composite sample for the presence of microbial contaminants, with coliforms and *Salmonella* exemplified. Regarding ***claim 8***, Midura teaches subsequent testing of a second sample depending on the results of the first sample as multiple sampling attribute plans (two or three class) (see pages 17-20). Midura also teaches that when products with a low incidence of the target pathogen are tested, additional samples need to be collected and tested to ensure a high probability of detecting the pathogen if present (see page 19, the paragraph bridging columns 1 and 2). With respect to ***claims 14-16***, Midura exemplifies collecting 30 or 60 samples or portions (see page 16, Fig. 1, page 17, column 1, first full paragraph; page 19, column 2, last full paragraph; and page 20, column 1, first full paragraph).

It would have been *prima facie* obvious for one of ordinary skill in the art at the time of the invention to have sampled, tested, and validated food lots by collecting portions or samples from a particular food lot, to have combined one or more portions into a test lot for enrichment, to have incubated the test lots separately, and to then have combined the enriched test lots for testing because Jarvis teaches that testing composite samples has the same degree of sensitivity as individual sample testing, while reducing workload, and also teaches that initial incubation of the food portions or samples in separate broth cultures allows for follow-up testing of individual test lots if the composite enriched sample tests positive for the target pathogen. The person of ordinary skill in the art at the time of the invention would also have found it *prima facie* obvious to have taken the samples from a test lot operationally linked, *e.g.*, by time of production, as is taught by FSIS, in order to pinpoint the contamination to a particular lot of food. Lastly, the person of ordinary skill in the art at the time of the invention would have found it *prima facie*

obvious to have subsequently followed up with additional testing when composites test negative because both FSIS and Midura contemplate additional testing of test lots depending on the initial testing results and Midura teaches that testing production lots of product with low numbers of the target pathogen requires collecting and testing additional samples.

Ground #2:

Claims 1-4, 6-11, 13, 17-18, 22, and 31 are unpatentable as obvious over FSIS in view of Price and Midura (see SNQ #s 2, 13, 15, 17, 19, 22, 23, 25, 26, 28, 30, 34, 48, 57, and 76 at pages 34-36, 58, 59-60, 62-64, 66-67, 69-70, 71, 74-75, 82-83, 88, and 101-102 respectively of the Request).

This rejection was proposed by the third party requester and **is adopted** for the reasons stated in the request and for those reasons set forth below. The proposed rejections at pages 34-36, 58, 59-60, 62-64, 66-67, 69-70, 71, 74-75, 82-83, 88, and 101-102 of the request and the claim charts at pages 106-116, 118-120, 123, 125, and 126 are herein incorporated by reference. Claims 12, 14-16, 20, and 24-26 are also included in the rejection for the reasons set forth below. The rejection is as follows.

Claims 1-4, 6-18, 20, 22, 24-26, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over FSIS in view of Price and Midura.

Regarding ***claims 1, 17 18, 20, and 24***, FSIS discloses methods of sampling ground beef for *E. coli* O157:H7 contamination, comprising collecting a plurality of pieces or samples per lot and combining the pieces for a representative sample of a production lot (see pages 4 and 27-28 in their entirety). Regarding ***claims 2 and 10***, FSIS teaches that the samples are to be aseptically collected from the "current day's production", at specific times, or by specific boxes or combo bins, which is equivalent to a teaching of a test lot consisting of a single combo, single bin, or

production assemblage (page 4, last paragraph, and page 27 in its entirety). With respect to ***claims 8 and 12,*** FSIS teaches collecting additional samples (follow-up verification) after remedial or corrective action following a positive test result (paragraph bridging pages 8-9 and page 23, last paragraph).

FSIS differs from the claimed invention in that it is silent as to the testing method to be used for detection of microbial contamination and does not specify testing of foods other than ground beef products.

Regarding ***claims 1 and 17***, Price teaches a method for testing multiple food samples for *Salmonella* comprising collecting a plurality of samples (or portions) from the food, inoculating the samples individually into pre-enrichment broth cultures, incubating the cultures to allow for growth of the *Salmonella*, pooling the pre-enrichment broth cultures into wet composite test lots, incubating the pooled test lots into a single enrichment broth (the "modular composite sample" of the patented claims), incubating the composite enrichment broth, and subsequently identifying any *Salmonella* organisms present in the culture. Price teaches that the procedure offers a simple, effective way to increase sample capacity in the *Salmonella* testing of foods and also permits the pre-enrichment broth cultures to be retained for subsequent individual analysis if a positive result is obtained from the pooled enrichment culture (see page 679, abstract; page 680, Fig. 1; page 681, column 1, second full paragraph and column 2, first full paragraph). Regarding ***claim 3,*** Price teaches incubating the composite enrichment broth culture *(i.e.*, the modular composite sample) prior to testing. With respect to ***claim 4***, the pre-enrichment medium disclosed by Price (0.5% lactose broth; see page 679, column 2, first full paragraph) would be equivalent to the enrichment medium of the patented claims as follows. As has been set forth

previously herein, the '584 patent specification defines an enrichment medium as "medium which contains nutrients and which has properties (*e.g.*, pH and/or oxygen content) which favor the growth of the target agent/organism." (See the '584 patent specification at column 6, lines 17-35.) Price teaches that the pre-enrichment lactose broth enables the actively growing salmonellae to compete more favorably with organisms introduced from the other samples when pooled at the enrichment stage (see page 681, column 1, second full paragraph). Therefore, absent evidence to the contrary, the pre-enrichment broth disclosed by Price meets the definition of enrichment medium in patented ***claim 4***. Regarding ***claim 6***, Price teaches testing individual pre-enrichment broth cultures if the composite enrichment broth tests positive (see the abstract and page 681, column 2, first full paragraph). Price teaches testing via both biochemical and serological tests, in order to increase the chances of detecting *Salmonella*. With respect to ***claims 22 and 31***, Price teaches aseptically transferring 1 ml each of the pre-enrichment broth cultures to the enrichment broth, which is a teaching of equal volume portions (see page 682, first column, last full paragraph).

Midura discloses methods for sampling and testing foods for microbial contamination. Regarding ***claims 7 and 9***, Midura teaches that when products with a low incidence of the pathogen are tested, additional samples need to be collected and tested to ensure a high probability of detecting the pathogen (see page 19, the paragraph bridging columns 1 and 2). Regarding ***claim 8***, Midura teaches subsequent testing of a second sample depending on the results of the first sample in the form of multiple sampling (two or three class) attribute plans (see pages 17-20). Midura teaches collecting a plurality of samples from a food lot produced in one batch or in some specified period of time, as in patented ***claim 10*** (with fish, meats, shell

fish, and canned ready-to-eat food products exemplified, as in patented ***claims 24-26***; see page 18, column 1, last full sentence); pooling the samples to obtain a pooled or composite sample; and testing the composite sample for the presence of microbial contaminants, with coliforms and *Salmonella* exemplified. Midura provides recommendations for the number of samples or portions necessary to detect a positive pathogenic organism at varying confidence levels (see section 2.516 beginning on page 19 and Table 1). Midura exemplifies taking 4, 5, 6, 8, 10, 30, 34, 38, 43, 50, and 60 samples, which read on the claimed ranges of 3 to 10 and 30 to 60 in patented ***claims 11 and 14*** respectively and which meets the limitations of ***claims 15 and 16***.

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to have applied the testing method disclosed by Price as the testing means for the FSIS Directive because Price teaches that the method is as sensitive as individual sample analysis and provides an important saving in the analytical effort required for quality control (see page 679, abstract and first paragraph). The person of ordinary skill in the art at the time of the invention would also have found it *prima facie* obvious to have collected multiple samples, and/or to have performed multiple sampling runs, as recommended by Midura, in order to be able to detect highly pathogenic organisms present in foods at low levels.

Ground #3:

Claims 1 and 17 are unpatentable as obvious over Jarvis in view of Patent owner's admissions regarding the state of the prior art (see SNQ # 3 at pages 36-38 of the Request).

This rejection was proposed by the third party requester and **is adopted** for the reasons stated in the request and for those reasons set forth below. The discussion of the state of the prior art at pages 3-23 and the proposed rejection at pages 36-38 of the request and the claim

charts at pages 106-111 and 119-120 are herein incorporated by reference. The rejection is as follows.

Claims 1 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jarvis in view of Patent owner's admissions regarding the state of the prior art.

As was set forth *supra* (Ground 1), with respect to ***claims 1 and 17***, Jarvis discloses methods of sampling and testing foods for low numbers of pathogenic organisms using composite samples for testing (page 135, section 8.4, first paragraph). Jarvis teaches that testing composite samples reduces the workload on the laboratory (page 141, section 8.4.2.1). The methods described by Jarvis (methods 2 and 3) comprise collecting a plurality (10) of product samples or portions (25g size); either inoculating the samples separately into one each of a pre-enrichment medium or broth to give test lot samples, each comprising a single specimen (method 2), or alternatively, pooling a plurality (about 5) of specimens and inoculating the pooled specimens into a pre-enrichment culture medium or broth (method 3); incubating the pre-enrichment broth cultures to allow for growth of the target organisms; compositing aliquots of the pre-enrichment cultures and inoculating the composite into a second enrichment culture, incubating the composite enrichment culture, and subsequently testing for the pathogenic organism. Jarvis teaches that methods 1 and 2 both provide the same degree of statistical confidence as would be attained by separately testing each of the 10 samples (see page 141 in its entirety). Jarvis teaches that composite testing method 2 has the advantage of allowing for verification of positive samples by retesting of the stored individual pre-enrichment cultures to provide an indication of the proportion of contaminated samples (see the paragraph bridging pages 141 and 142).

The method described by Jarvis differs from the claimed method in that Jarvis defines incubation of the individual test lot samples as "pre-enrichment", while the patented claims recite incubating the test lot samples in medium favorable for "enrichment" of the target microbial agent or organism (see step "c" of patented ***claims 1 and 17***) However, as has previously been set forth herein, the '584 patent specification defines "enrichment" as "incubating a test lot sample under conditions suitable to allow levels of a target agent or organism to reach detectable levels..." (see column 6, lines 7-16). Absent evidence to the contrary, incubation in the pre-enrichment medium disclosed by Jarvis meets the limitation of step c) in patented ***claims 1 and 17***.

While Jarvis teaches collecting multiple samples (10) and either incubating them individually in pre-enrichment broth cultures or pooling a portion (about 5) of the samples for incubation in the pre-enrichment broth cultures, Jarvis does not specify collecting plural portions from each of a plurality of test lots, each test lot comprising one or more specimens, and combining the portions to provide a corresponding set of separate test lot samples for testing. However, Patent owner admits in the Background section of the '584 patent specification that in the testing of foods, pharmaceuticals, neutraceuticals, water and the environment, collecting plural portions from each of a plurality of test lots, each test lot comprising one or more specimens, and combining the portions for subsequent testing was well known in the art (see column 1, line 37, through column 2, line 26).

One of ordinary skill in the art at the time of the invention would have found it *prima facie* obvious to have applied the testing method disclosed by Jarvis to a collection of a plurality of portions of a food, pharmaceutical, neutraceutical, water, or environmental samples

designated a test lot, as was known in the prior art. The person of ordinary skill in the art at the time of the invention would have been motivated to test by the Jarvis method because Jarvis teaches that enrichment of samples in separate pre-enrichment broth cultures allows for subsequent identification of individual positive samples if the composite sample tests positive for a target agent or organism.

Ground # 4:

Claims 1 and 17 are unpatentable under 35 USC § 103(a) as obvious over Patent owner's admissions regarding the state of the art in view of Price.

This rejection was proposed by the third party requester (see pages 38-39 of the request) and is **not adopted** for the reasons set forth below.

The consideration under 35 U.S.C. 303 of a request for reexamination is limited to prior art patents and printed publications. See *Ex parte McGaughey*, 6 USPQ2d 1334, 1337 (Bd. Pat. App. & Inter. 1988). Thus an admission, *per se*, may not be the primary basis for establishing a substantial new question of patentability or for rejecting the claims. While admissions in conjunction with prior art patents or publications may be considered in a reexamination proceeding, any rejection must be based on prior art patents or publications, as explained by the admissions. Accordingly, admissions are utilized to interpret or modify the patent or printed publication which is the basis for the SNQ and which is used as the primary reference in a ground of rejection; they are not themselves used as the primary basis for rejecting the claims. Therefore, the proposed rejection of claims 1 and 17 as unpatentable over Patent owner's admissions regarding the state of the art in view of Price is **not adopted**.

Ground # 5:

Claims 1 and 17 are unpatentable over Andrews in view of Price and Midura (see SNQ # 5 at pages 39-43 of the Request).

This rejection was proposed by the third party requester and **is adopted** for the reasons stated in the request and for those reasons set forth below. The proposed rejection at pages 39-43 of the request and the claim charts at pages 106-111 and 119-120 are herein incorporated by reference. The rejection is as follows.

Claims 1 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews in view of Price and Midura.

Regarding ***claims 1 and 17***, Andrews teaches methods of testing foods for the presence of *Salmonella* comprising collecting at random a plurality of portions (analytical units) from the food to be analyzed to comprise a larger sample unit, which is then used to determine the acceptability of the entire lot of food (see page 358, column 2, full paragraph). Andrews teaches that because *Salmonella* organisms in foods are often present in low numbers and in a debilitated condition due to processing the food, samples should be inoculated into pre-enrichment broth cultures (with lactose broth exemplified) and incubated to allow the organisms to reach a desired number and condition prior to inoculation into and then incubated again in a second enrichment medium, which is selective for the target organism (see page 360, sections 37.123 and 37.124).

The method described by Andrews differs from the claimed method in that Andrews defines incubation of the analytical samples as "pre-enrichment", while the patented claims recite incubating the test lot samples in medium favorable for "enrichment" of the target microbial agent or organism (see step "c" of patented ***claims 1 and 17***) However, as has previously been set forth herein, the '584 patent specification defines "enrichment" as

"incubating a test lot sample under conditions suitable to allow levels of a target agent or organism to reach detectable levels..." (see column 6, lines 7-16). Absent evidence to the contrary, incubation in the pre-enrichment medium disclosed by Andrews meets the limitation of step c) in patented ***claims 1 and 17***. Andrews also does not teach incubating the sample units or test lots separately, as in the patented claims.

As was set forth previously in Ground 2, Price teaches a method for testing multiple food samples for *Salmonella* comprising collecting a plurality of samples (or portions) from the food, inoculating the samples individually into pre-enrichment broth cultures (with lactose broth exemplified, as was exemplified in Andrews; see Price at page 679, column 2, first full paragraph), incubating the cultures to allow for growth of the *Salmonella*, pooling the pre-enrichment broth cultures into wet composite test lots, incubating the pooled test lots into a single enrichment broth (the "modular composite sample" of the patented claims), incubating the composite enrichment broth, and subsequently identifying any *Salmonella* organisms present in the culture. Price teaches that the procedure offers a simple, effective way to increase sample capacity in the *Salmonella* testing of foods and also permits the pre-enrichment broth cultures to be retained for subsequent individual analysis if a positive result is obtained from the pooled enrichment culture (see page 679, abstract; page 680, Fig. 1; page 681, column 1, second full paragraph and column 2, first full paragraph). Price teaches that the pre-enrichment lactose broth enables the actively growing salmonellae to compete more favorably with organisms introduced from the other samples when pooled at the enrichment stage (see page 681, column 1, second full paragraph).

Midura discloses methods for sampling and testing foods for microbial contamination. Midura teaches that when products with a low incidence of the pathogen are tested, additional samples need to be collected and tested to ensure a high probability of detecting the pathogen (see page 19, the paragraph bridging columns 1 and 2). Midura teaches collecting a plurality of samples from a food lot produced in one batch or in some specified period of time, pooling the samples to obtain a pooled or composite sample, and testing the composite sample for the presence of microbial contaminants, with coliforms and *Salmonella* exemplified.

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to have incubated the pre-enrichment broth cultures taught by Andrews separately, as suggested by Price, in order to be able to specifically identify the contaminated food. The person of ordinary skill in the art at the time of the invention would also have found it *prima facie* obvious to have collected a plurality of samples, and/or to have performed multiple sampling runs, as recommended by Midura, in order to be able to detect highly pathogenic organisms present in foods at low levels.

Ground #6:

Claims 1 and 17 are unpatentable over Silliker in view of Price and Midura (see SNQ # 6 at pages 43-46 of the Request).

This rejection was proposed by the third party requester and **is adopted** for the reasons stated in the request and for those reasons set forth below. The proposed rejection at pages 43-46 of the request and the claim charts at pages 106-111 and 119-120 are herein incorporated by reference. The rejection is as follows.

Claims 1 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silliker in view of Price and Midura.

Silliker discloses a method for sampling dried foods for *Salmonella* contamination comprising collecting a plurality of 25g or 100 g subsamples, incubating these subsamples in individual cultures of pre-enrichment broth, and wet compositing the pre-enrichment cultures in groups of five (for 25 g subsamples) or three (for 100 g subsamples) (see page 475, abstract and last full paragraph of the page, and page 176, column 1, second full paragraph, and column 2, last full paragraph). Silliker teaches that pooling sixty 25g or fifteen 100g pre-enrichment cultures into groups of 5 (wet compositing) followed by selective enrichment of the composites is as sensitive a detection method as analysis of individual samples (page 478, last full paragraph of the page) and is economically more feasible (page 179, first full paragraph).

The method described by Silliker differs from the claimed method in that Silliker defines the incubation step of individual cultures as "pre-enrichment", while the patented claims recite separately incubating the test lot samples in medium favorable for "enrichment" of the target microbial agent or organism (see step "c" of patented ***claims 1 and 17***) However, as has previously been set forth herein, the '584 patent specification defines "enrichment" as "incubating a test lot sample under conditions suitable to allow levels of a target agent or organism to reach detectable levels..." (see column 6, lines 7-16). Absent evidence to the contrary, incubation of the pre-enrichment cultures disclosed by Silliker meets the limitation of step c) in patented ***claims 1 and 17***. Silliker does not teach testing individual subsamples separately upon obtaining a positive result from the composite sample.

As was set forth previously in Ground 2, Price teaches a method for testing multiple food samples for *Salmonella* comprising collecting a plurality of samples (or portions) from the food, inoculating the samples individually into pre-enrichment broth cultures (with lactose broth exemplified, as was exemplified in Andrews; see Price at page 679, column 2, first full paragraph), incubating the cultures to allow for growth of the *Salmonella*, pooling the pre-enrichment broth cultures into wet composite test lots, incubating the pooled test lots into a single enrichment broth (the "modular composite sample" of the patented claims), incubating the composite enrichment broth, and subsequently identifying any *Salmonella* organisms present in the culture. Price teaches that the procedure offers a simple, effective way to increase sample capacity in the *Salmonella* testing of foods and also permits the pre-enrichment broth cultures to be retained for subsequent individual analysis if a positive result is obtained from the pooled enrichment culture (see page 679, abstract; page 680, Fig. 1; page 681, column 1, second full paragraph and column 2, first full paragraph).

Midura discloses methods for sampling and testing foods for microbial contamination. Midura teaches that when products with a low incidence of the pathogen are tested, additional samples need to be collected and tested to ensure a high probability of detecting the pathogen (see page 19, the paragraph bridging columns 1 and 2). Midura teaches collecting a plurality of samples from a food lot produced in one batch or in some specified period of time, pooling the samples to obtain a pooled or composite sample, and testing the composite sample for the presence of microbial contaminants, with coliforms and *Salmonella* exemplified.

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to have followed the composite testing disclosed by Silliker with individual tests of

the subsample pre-enrichments cultures upon obtaining a positive result for the composite subsample, as suggested by Price. The person of ordinary skill in the art at the time of the invention would have been motivated to do so to track the contamination to a particular subsample and thus specifically identify the contaminated food. The person of ordinary skill in the art at the time of the invention would also have found it *prima facie* obvious to have collected a plurality of samples, and/or to have performed multiple sampling runs, as recommended by Midura, in order to be able to detect highly pathogenic organisms present in foods at low levels.

Ground # 7:

Claims 1 and 17 are unpatentable over Gabis in view of Price and Midura (see SNQ # 7 at pages 46-51 of the Request).

This rejection was proposed by the third party requester and **is adopted** for the reasons stated in the request and for those reasons set forth below. The proposed rejection at pages 43-46 of the request and the claim charts at pages 106-111 and 119-120 are herein incorporated by reference. The rejection is as follows.

Claims 1 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gabis in view of Price and Midura.

Gabis discloses methods for sampling and testing high moisture foods, with meat and poultry exemplified, by collecting thirteen 25g specimens, inoculating each of the specimens individually into pre-enrichment broth cultures, incubating the pre-enrichment cultures to allow for levels of the organism to increase, pooling portions of each of the pre-enrichment cultures into a composite or pooled sample in a single enrichment broth culture, incubating the enrichment broth culture, and subsequently recovering and identifying the salmonellae. Gabis

teaches that analysis of a single composite sample is as sensitive as analysis of each of the individual subsamples (see page 663, abstract and first paragraph of the page; page 664, the paragraph bridging columns 1 and 2 and column 2, first two full paragraphs; and page 668, first full paragraph).

The method described by Gabis differs from the claimed method in that Gabis defines the incubation step in individual cultures as "pre-enrichment", while the patented claims recite separately incubating the test lot samples in medium favorable for "enrichment" of the target microbial agent or organism (see step "c" of patented ***claims 1 and 17***) However, as has previously been set forth herein, the '584 patent specification defines "enrichment" as "incubating a test lot sample under conditions suitable to allow levels of a target agent or organism to reach detectable levels..." (see column 6, lines 7-16). Absent evidence to the contrary, incubation of the pre-enrichment cultures disclosed by Gabis meets the limitation of step c) in patented ***claims 1 and 17***. Gabis does not teach testing individual subsamples separately upon obtaining a positive result from the composite sample.

As was set forth previously in Ground 2, Price teaches a method for testing multiple food samples for *Salmonella* comprising collecting a plurality of samples (or portions) from the food, inoculating the samples individually into pre-enrichment broth cultures (with lactose broth exemplified, as was exemplified in Andrews; see Price at page 679, column 2, first full paragraph), incubating the cultures to allow for growth of the *Salmonella*, pooling the pre-enrichment broth cultures into wet composite test lots, incubating the pooled test lots into a single enrichment broth (the "modular composite sample" of the patented claims), incubating the composite enrichment broth, and subsequently identifying any *Salmonella* organisms present in

the culture. Price teaches that the procedure offers a simple, effective way to increase sample capacity in the *Salmonella* testing of foods and also permits the pre-enrichment broth cultures to be retained for subsequent individual analysis if a positive result is obtained from the pooled enrichment culture (see page 679, abstract; page 680, Fig. 1; page 681, column 1, second full paragraph and column 2, first full paragraph).

Midura discloses methods for sampling and testing foods for microbial contamination. Midura teaches that when products with a low incidence of the pathogen are tested, additional samples need to be collected and tested to ensure a high probability of detecting the pathogen (see page 19, the paragraph bridging columns 1 and 2). Midura teaches collecting a plurality of samples from a food lot produced in one batch or in some specified period of time, pooling the samples to obtain a pooled or composite sample, and testing the composite sample for the presence of microbial contaminants, with coliforms and *Salmonella* exemplified.

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to have followed the composite testing disclosed by Gabis with individual tests of the pre-enrichment cultures upon obtaining a positive result for the composite subsample, as suggested by Price. The person of ordinary skill in the art at the time of the invention would have been motivated to do so to track the contamination to a particular subsample so as to specifically identify the contaminated food. The person of ordinary skill in the art at the time of the invention would also have found it *prima facie* obvious to have collected a plurality of samples, as recommended by Midura, in order to be able to detect highly pathogenic organisms present in foods at low levels.

Ground # 8:

Claims 1 and 17 are unpatentable as obvious over Jarvis in view of BAM (see SNQ # 8 at pages 51-52 of the Request).

This rejection was proposed by the third party requester and **is adopted** for the reasons stated in the request and for those reasons set forth below. The proposed rejection at pages 51-52 of the request and the claim charts at pages 106-111 and 119-120 are herein incorporated by reference. The rejection is as follows.

Claims 1 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jarvis in view of BAM.

As was set forth *supra* (Ground 1), Jarvis discloses methods of sampling and testing foods for low numbers of pathogenic organisms using composite samples for testing (page 135, section 8.4, first paragraph). Jarvis teaches that testing composite samples reduces the workload on the laboratory (page 141, section 8.4.2.1). The methods described by Jarvis (methods 2 and 3) comprise collecting a plurality (10) of product samples or portions (25g size); either inoculating the samples separately into one each of a pre-enrichment medium or broth to give test lot samples, each comprising a single specimen (method 2), or alternatively, pooling a plurality (about 5) of specimens and inoculating the pooled specimens into a pre-enrichment culture medium or broth (method 3); incubating the pre-enrichment broth cultures to allow for growth of the target organisms; compositing aliquots of the pre-enrichment cultures and inoculating the composite into a second enrichment culture, incubating the composite enrichment culture, and subsequently testing for the pathogenic organism. Jarvis teaches that methods 1 and 2 both provide the same degree of statistical confidence as would be attained by separately testing each of the 10 samples (see page 141 in its entirety). Jarvis teaches that composite testing

method 2 has the advantage of allowing for verification of positive samples by retesting of the stored individual pre-enrichment cultures to provide an indication of the proportion of contaminated samples (see the paragraph bridging pages 141 and 142).

The method described by Jarvis differs from the claimed method in that Jarvis defines incubation of the individual test lot samples as "pre-enrichment", while the patented claims recite incubating the test lot samples in medium favorable for "enrichment" of the target microbial agent or organism (see step "c" of patented ***claims 1 and 17***) However, as has previously been set forth herein, the '584 patent specification defines "enrichment" as "incubating a test lot sample under conditions suitable to allow levels of a target agent or organism to reach detectable levels..." (see column 6, lines 7-16). Absent evidence to the contrary, incubation in the pre-enrichment medium disclosed by Jarvis meets the limitation of step c) in patented ***claims 1 and 17***. While Jarvis teaches collecting multiple samples (10) and either incubating them individually in pre-enrichment broth cultures or pooling a portion (about 5) of the samples for incubation in the pre-enrichment broth cultures, Jarvis does not specify collecting plural portions from each of a plurality of test lots, each test lot comprising one or more specimens, and combining the portions to provide a corresponding set of separate test lot samples for testing.

BAM teaches that multiple analytical samples must be collected from food for detection of *Salmonella,* with the number of samples collected depending on the category of the food. BAM teaches collecting a plurality of analytical units at random from a food lot (equivalent to portions of a test lot), combining the collected samples or portions into a composite test lot sample, inoculating the composite test lot sample into pre-enrichment medium, incubating the pre-enrichment mediium, and subsequently testing for the presence of *Salmonella*. BAM teaches

that when the composite unit tests negative, all of the sample lot are considered acceptable (or validated) and when the composite sample tests positive, the food lot is rejected (see pages 3 and 5 in their entirety).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to have collected a plurality of food samples, as outlined by BAM, for testing by the method of Jarvis. The person of ordinary skill in the art at the time of the invention would have been motivated to test by the Jarvis method because Jarvis teaches that enrichment of samples in separate pre-enrichment broth cultures allows for subsequent identification of individual positive samples if the composite sample tests positive for a target agent or organism, thereby negating the necessity for rejecting the entire food lot.

Ground # 9:

Claims 1 and 17 are unpatentable as obvious over Price in view of BAM and Davies (see SNQ #9 at pages 52-53 of the Request).

This rejection was proposed by the third party requester and **is adopted** for the reasons stated in the request and for those reasons set forth below. The proposed rejection at pages 52-53 of the request and the claim charts at pages 106-111 and 119-120 are herein incorporated by reference. The rejection is as follows.

Claims 1 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Price in view of BAM and Davies.

Price teaches a method for testing multiple food samples for *Salmonella* comprising collecting a plurality of samples (or portions) from the food, inoculating the samples individually into pre-enrichment broth cultures, incubating the cultures to allow for growth of the *Salmonella*,

pooling the pre-enrichment broth cultures into wet composite test lots, incubating the pooled test lots into a single enrichment broth (the "modular composite sample" of the patented claims), incubating the composite enrichment broth, and subsequently identifying any *Salmonella* organisms present in the culture. Price teaches that the procedure offers a simple, effective way to increase sample capacity in the *Salmonella* testing of foods and also permits the pre-enrichment broth cultures to be retained for subsequent individual analysis if a positive result is obtained from the pooled enrichment culture (see page 679, abstract; page 680, Fig. 1; page 681, column 1, second full paragraph and column 2, first full paragraph).

Price differs from the claimed invention in that it specifies incubation of individual samples in a pre-enrichment broth; however, as has been set forth previously herein, the '584 patent specification defines "enrichment" as "incubating a test lot sample under conditions suitable to allow levels of a target agent or organism to reach detectable levels..." (see column 6, lines 7-16). Absent evidence to the contrary, incubation in the pre-enrichment medium disclosed by Price meets the limitation of step c) in patented ***claims 1 and 17***. Also, while Price teaches collecting multiple samples and incubating them individually in pre-enrichment broth cultures which are then pooled, Price does not specify collecting plural portions from each of a plurality of test lots, each test lot comprising one or more specimens, and combining the portions to provide a corresponding set of separate test lot samples for testing.

BAM teaches that multiple analytical samples must be collected from food for detection of *Salmonella,* with the number of samples collected depending on the category of the food. BAM teaches collecting a plurality of analytical units at random from a food lot (equivalent to portions of a test lot), combining the collected samples or portions into a composite test lot

sample, inoculating the composite test lot sample into preenrichment medium, incubating the preenrichment medium, and subsequently testing for the presence of *Salmonella*. BAM teaches that when the composite unit tests negative, all of the sample lot are considered acceptable (or validated) and when the composite sample tests positive, the food lot is rejected (see pages 3 and 5).

Davies discloses methods of sampling and testing pooled samples (test lots) taken from pig herds for *Salmonella* contamination (See the abstract and page 1017 in its entirety). After sample collection and pooling, composite pooled specimens were incubated in enrichment broth (buffered peptone water) and subsequently plated onto agar plates for detection of *Salmonella* contamination. Davies teaches pooled samples for bacteriological testing as pinch-sized fecal samples, carcase swabs, and muscle swabs, among others (for a plurality of assembled portions) (see page 1017, right column, first full paragraph). Davies teaches that testing pooled samples compares well with testing individual samples (page 1023, column 2, second full paragraph).

It would have been *prima facie* obvious for one of ordinary skill in the art at the time of the invention to have collected a plurality of portions of food, as taught by either of BAM or Davies, and to have combined the portions to provide a corresponding set of composite test lot samples for testing, as taught by Price. The person of ordinary skill in the art at the time of the invention would have also found it *prima facie* obvious to have inoculated each of the test lot samples into separate enrichment broth cultures, to have incubated them to allow the target agent or organism to reach detectable levels, and then to have pooled aliquots for testing because all of Price, BAM and Davies teach that composite testing is as sensitive as individual cultures, and

Price teaches that separately enriching the samples allows for individual testing upon obtaining a positive test result from the composite sample.

Ground # 10:

Claims 2, 14, 16, 19, and 20 are unpatentable as obvious over Jarvis in combination with FSIS, Midura, and Patent owner's admissions regarding the state of the art.

This rejection was proposed by the third party requester (see SNQ #s 11, 37, 44, 50, and 52 at pages 55, 76-80, and 84-85 of the Request) but is **not adopted** for the reasons set forth below.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Requester's proposed rejection of claim 2, 14, and 19 as unpatentable over Jarvis in view of FSIS and Midura has been adopted herein. See Ground 1. Claim 20 was added to the Ground 1 rejection for the reasons set forth therein. As was discussed in Ground 1, Jarvis in view of FSIS and Midura meet all the limitations of claims 2, 14, 19, and 20. Therefore, the proposed rejection of the same claims (2, 14, 19, and 20) under 103(a) over the same combination of references taken with Patent owner's admissions regarding the state of the art is improper. In a rejection based on 35 U.S.C. 103, the teachings of the references must somehow be modified by the additional reference in order to meet the limitations of the claims. Because Jarvis in view of

FSIS and Midura meet all of the claim limitations and renders claims 1, 14, 19, and 20 obvious, there are no differences between the patented claims and the combination of Jarvis, FSIS, and Midura which would require further modification by Patent owner's admissions regarding the state of the art in order to meet the limitations of the claims (see #2 of the factual inquiries set forth in *Graham v. John Deere Co.* and listed above). Requester has not pointed out any such differences in the request between the claimed invention and the combination of Jarvis, FSIS and Midura, which would require modification by Patent owner's admissions regarding the state of the art in the proposed obviousness rejection.

Ground # 11:

Claims 2, 14, and 15 are unpatentable as obvious over Jarvis in combination with FSIS, Midura, and BAM.

This rejection was proposed by the third party requester (see SNQ #s 12, 35, and 41 at pages 56-57 and 78-79 of the Request) but is **not adopted** for the same reasons as those set forth above in Ground 10.

Requester's proposed rejection of claims 2 and 14 as unpatentable over Jarvis, in view of FSIS and Midura, has been adopted herein (see Ground 1). Additionally, claim 15 was rejected in Ground 1 as obvious over Jarvis in view of FSIS and Midura. Therefore, the proposed rejection of the same claims 2, 14, and 15 over Jarvis, in view of FSIS and Midura and further in view of BAM, is improper because Requester has failed to point to any deficiency in the combination of Jarvis, FSIS, and Midura which would require modification by BAM in order to meet the limitations of the claims.

Ground # 12:

Claims 2, 14, and 16 are unpatentable as obvious over FSIS in combination with Price, Midura, and Patent owner's admissions regarding the state of the art.

This rejection was proposed by the third party requester (see SNQ #s 14, 40, and 46 at pages 57, 77-78, and 81 of the Request) but is **not adopted** for the same reasons as those set forth above in Ground 10.

Requester's proposed rejection of claims 2 and 14 as unpatentable over FSIS, in view of Price and Midura, has been adopted herein (see Ground 2). Additionally, claim 15 was rejected in Ground 2 as obvious over FSIS in view of Price and Midura. Therefore, the proposed rejection of the same claims 2, 14, and 15 over Jarvis, in view of FSIS and Midura and further in view of BAM, is improper because Requester has failed to point to any deficiency in the combination of FSIS, Price, and Midura which would require modification by BAM in order to meet the limitations of the claims.

Ground # 13:

Claims 2, 14, 15, and 24 are unpatentable as obvious over FSIS in combination with Price, Midura, and BAM.

This rejection was proposed by the third party requester (see SNQ #s 15, 38, 42, and 62 at pages 57, 76-77, 79, and 91-92 of the Request) but is **not adopted** for the same reasons as those set forth above in Ground 10.

Requester's proposed rejection of claim 2 as unpatentable over FSIS, in view of Price and Midura, has been adopted herein (see Ground 2). Additionally, claims 14, 15 and 24 were rejected in Ground 2 as obvious over FSIS in view of Price and Midura. Therefore, the proposed

rejection of the same claims 2, 14, 15, and 24 over FSIS, in view of Price and Midura and further in view of BAM, is improper because Requester has failed to point to any deficiency in the combination of FSIS, Price, and Midura which would require modification by BAM in order to meet the limitations of the claims.

Ground # 14:

Claims 5, 23, 29, and 30 are unpatentable as obvious over Jarvis in combination with FSIS, Midura, and Entis (see SNQ #s 20, 59, 71, and 73 at pages 60-61, 89-90, 98, and 99-100 respectively of the Request).

This rejection was proposed by the third party requester and **is adopted** for the reasons stated in the request and for those reasons set forth below. The proposed rejection at pages 60-61, 89-90, 98, and 99-100 and the claim charts at pages 113, 123 and 126 of the request are herein incorporated by reference. Additionally, claim 6 is added to the rejection because claim 30 depends from claim 6. The rejection is as follows.

Claims 5, 6, 23, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jarvis in view of FSIS and Midura, as applied to claim 1 above, and further in view of Entis.

As was set forth supra in Ground 1, which is incorporated herein by reference in its entirety, Jarvis in view of FSIS and Midura teaches a method of sampling and testing food test lots for microbial contamination comprising collecting a plurality of portions from each of a plurality of test lots, combining the portions to provide a corresponding set of test lot samples, separately incubating the test lot samples to enrich for the target microbial agent or organism, removing portions of the test lot sample cultures, combining them into a modular composite

sample and testing the composite sample for the presence of the target agent or organism. None of Jarvis, FSIS, or Midura teach concentrating the microbial agent from the modular composite sample by immunomagnetic bead separation or affinity chromatography and none teach testing the modular composite samples by a DNA based method, an immunochemistry based method or a biosensor based method.

Entis teaches rapid procedures for the detection, identification, and enumeration of microorganisms in foods (see page 89, third paragraph). Regarding ***claims 5 and 30***, Entis teaches that since food is a complex matrix which causes interference with analytical methods, some degree of separation or concentration of the microorganism of interest is required (see page 89, first paragraph). With respect to ***claim 29***, Entis teaches concentrating and separating the microorganism of interest from an enrichment culture by immunoaffinity chromatography and immunomagnetic separation (see page 91). Regarding ***claim 23***, the rapid methods disclosed by Entis comprise antibody-based methods, such as immunofluorescence, enzyme immunoassay (an immunochemistry-based method), nucleic acid based methods (DNA hybridization and PCR) and bioluminescence and limulus amebocyte lysate assay (biosensor based methods) (see pages 89, 90, 93, 94, and 99). Entis teaches that the rapid methods offer savings in both time and labor (page 89, second paragraph) and can be more sensitive than conventional culture methods (see page 89. last full sentence, page 93, second full paragraph, page 94, column, and page 95, column 1).

One of ordinary skill in the art at the time of the invention would have found it *prima facie* obvious to have concentrated the target agent from the cultures disclosed by Jarvis in view of FSIS and Midura, as taught by Entis, in order to increase testing sensitivity and negate the

interference from the food sample, as is taught by Entis. Further, the person of ordinary skill in the art at the time of the invention would have found it *prima facie* obvious to have used one of more of the methods described by Entis to identify the target agent in an enrichment culture because Entis teaches that the rapid methods can be more sensitive than traditional methods and can offer significant savings in both time and labor.

Ground # 15:

Claims 5, 23, 29, and 30 are unpatentable as obvious over FSIS in combination with Price, Midura, and Entis (see SNQ #s 21, 60, 72, and 74 at pages 61, 90-91, 98-99, and 100 respectively of the Request).

This rejection was proposed by the third party requester and **is adopted** for the reasons stated in the request and for those reasons set forth below. The proposed rejection at pages 61, 90-91, 98-99, and 100 and the claim charts at pages 113, 123 and 126 of the request are herein incorporated by reference. Claim 6 is added to the present rejection because claim 30 depends from claim 6. The rejection is as follows.

Claims 5, 6, 23, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over FSIS in view of Price and Midura, as applied to claim 1 above, and further in view of Entis.

As was set forth supra in Ground 1, which is incorporated herein by reference in its entirety, FSIS in view of Price and Midura teaches a method of sampling and testing food test lots for microbial contamination comprising collecting a plurality of portions from each of a plurality of test lots, combining the portions to provide a corresponding set of test lot samples, separately incubating the test lot samples to enrich for the target microbial agent or organism, removing portions of the test lot sample cultures, combining them into a modular composite

sample and testing the composite sample for the presence of the target agent or organism. None of FSIS, Price, or Midura teaches concentrating the microbial agent from the modular composite sample by immunomagnetic bead separation or affinity chromatography and none teach testing the modular composite samples by a DNA based method, an immunochemistry based method or a biosensor based method.

Entis teaches rapid procedures for the detection, identification, and enumeration of microorganisms in foods (see page 89, third paragraph). Regarding ***claims 5 and 30***, Entis teaches that since food is a complex matrix which causes interference with analytical methods, some degree of separation or concentration of the microorganism of interest is required (see page 89, first paragraph). With respect to ***claim 29***, Entis teaches concentrating and separating the microorganism of interest from an enrichment culture by immunoaffinity chromatography and immunomagnetic separation (see page 91). Regarding ***claim 23***, the rapid methods disclosed by Entis comprise antibody-based methods, such as immunofluorescence, enzyme immunoassay (an immunochemistry-based method), nucleic acid based methods (DNA hybridization and PCR) and bioluminescence and limulus amebocyte lysate assay (biosensor based methods) (see pages 89, 90, 93, 94, and 99). Entis teaches that the rapid methods offer savings in both time and labor (page 89, second paragraph) and can be more sensitive than conventional culture methods (see page 89, last full sentence, page 93, second full paragraph, page 94, column, and page 95, column 1).

One of ordinary skill in the art at the time of the invention would have found it *prima facie* obvious to have concentrated the target agent from the cultures disclosed by FSIS in view of Price and Midura, as taught by Entis, in order to increase testing sensitivity and negate the

interference from the food sample, as is taught by Entis. Further, the person of ordinary skill in the art at the time of the invention would have found it *prima facie* obvious to have used one of more of the methods described by Entis to identify the target agent in an enrichment culture because Entis teaches that the rapid methods can be more sensitive than traditional methods and can offer significant savings in both time and labor.

Ground # 16:

Claim 12 is unpatentable as obvious over Jarvis in combination with FSIS, Midura, and Mauer.

This rejection was proposed by the third party requester (see SNQ # 31 at pages 71-73 of the Request) but is **not adopted** for the following reasons.

Claim 12 was rejected in Ground 1 as obvious over Jarvis in view of FSIS and Midura for the reasons set forth therein. Therefore, the proposed rejection of the same claim 12 over Jarvis in view of FSIS and Midura and further in view of Mauer, is improper. At pages 72-73, Requester alleges that the deficiency in the combination of Jarvis, FSIS and Midura regarding patented claim 12 lies in the fact that

> "The specification does not define or provide examples of remedial measures, but refers to 'cooking, disposal, or other acceptably safe endpoint' as ways of handling lots that test positive. Col. 5, lines 10-11; col. 8, lines 31-33. The specification does not disclose what types of testing are contemplated by the recitation of "further testing" of the remediated separate test lots."

The lack of examples in the specification, however, does not represent a deficiency under the factual inquiries which are set forth under the *Graham v. John Deere Co* obviousness analysis

that would necessitate the addition of Mauer. The factual inquiries require ascertaining the differences between the prior art and the **claims** at issue (emphasis added, see the discussion of the *Graham v. John Deere Co* analysis set forth in Ground 10 *supra).* Claim 12 generally recites application of remedial measures to positive test lots. FSIS teaches such remedial measures. The specific teaching of an exemplary remedial measure that is set forth in Mauer is not required to meet the limitations of claim 12. Therefore, the proposed rejection of claim 12 as unpatentable over Jarvis in view of FSIS and Midura, and further in view of Mauer is **not adopted**.

Ground # 17:

Claim 12 is unpatentable as obvious over Jarvis in combination with FSIS, Midura, Mauer and BAM.

This rejection was proposed by the third party requester (see SNQ # 32 at page 73 of the Request) but is **not adopted** for the same reasons as those set forth *supra* in Ground 10.

Claim 12 has been rejected herein as unpatentable over Jarvis in view of FSIS and Midura for the reasons set forth supra (Ground 1). Therefore, rejection of the same claim 12 as obvious over FSIS, Midura, Mauer, and BAM is improper. Requester has not pointed to any deficiency in the combination of Jarvis, FSIS, and Midura which would necessitate the addition of Mauer and BAM in order to meet the imitations of the claim.

Ground # 18:

Claims 14, 16, and 25 are unpatentable as obvious over Jarvis in combination with FSIS, Midura, and Silliker.

This rejection was proposed by the third party requester (see SNQ #s 36, 43, and 64 at pages 75-76, 79-80, and 93-94 of the Request) but is **not adopted** for the same reasons as those set forth above in Ground 10.

Requester's proposed rejection of claim 14 as unpatentable over Jarvis, in view of FSIS and Midura, has been adopted herein (see Ground 1). Additionally, claims 16 and 25 were rejected in Ground 1 as obvious over Jarvis in view of FSIS and Midura for the reasons set forth therein. Therefore, the proposed rejection of the same claims 14, 16, and 25 over Jarvis, in view of FSIS and Midura and further in view of Silliker, is improper because Requester has failed to point to any deficiency in the combination of Jarvis, FSIS, and Midura which would require modification by Silliker in order to meet the limitations of the claims.

Ground # 19:

Claims 14, 16, 25 and 26 are unpatentable as obvious over FSIS in combination with Price, Midura, and Silliker.

This rejection was proposed by the third party requester (see SNQ #s 39, 45, 65 and 67 at pages 77, 80-81, 94 and 95 of the Request) but is **not adopted** for the same reasons as those set forth above in Ground 10.

Requester's proposed rejection of claim 14 as unpatentable over FSIS, in view of Price and Midura, has been adopted herein (see Ground 2). Additionally, claims 16, 25 and 26 were rejected in Ground 2 as obvious over FSIS in view of Price and Midura for the reasons set forth therein. Therefore, the proposed rejection of the same claims 14, 16, 25, and 26 over FSIS, in view of Price and Midura and further in view of Silliker, is improper because Requester has

failed to point to any deficiency in the combination of FSIS, Price and Midura which would require modification by Silliker in order to meet the limitations of the claims.

Ground # 20:

Claim is unpatentable as obvious over FSIS in combination with Price, Midura, Jarvis, and Silliker.

This rejection was proposed by the third party requester (see SNQ #53 at pages 85-86 of the Request) but is **not adopted** for the same reasons as those set forth above in Ground 10.

Claim 20 was rejected in Ground 2 as obvious over FSIS in view of Price and Midura for the reasons set forth therein. Therefore, the proposed rejection of the same claim 20 over FSIS, in view of Price and Midura and further in view of Jarvis and BAM, is improper because Requester has failed to point to any deficiency in the combination of FSIS, Price and Midura which would require modification by Jarvis and Silliker in order to meet the limitations of the claims.

Ground # 21:

Claim 21 is unpatentable as obvious over Jarvis in combination with FSIS, Midura, and Cousin (see SNQ #54 at page 86 of the Request).

This rejection was proposed by the third party requester and **is adopted** for the reasons stated in the request and for those reasons set forth below. The proposed rejection at page 86 and the claim chart at page 123 of the request are herein incorporated by reference. The rejection is as follows.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jarvis in view of FSIS and Midura, as applied to claim 1 above, and further in view of Cousin.

As was set forth *supra* in Ground 1, which is incorporated herein by reference in its entirety, Jarvis in view of FSIS and Midura teaches a method of sampling and testing food test lots for microbial contamination comprising collecting a plurality of portions from each of a plurality of test lots, combining the portions to provide a corresponding set of test lot samples, separately incubating the test lot samples to enrich for the target microbial agent or organism, removing portions of the test lot sample cultures, combining them into a modular composite sample and testing the composite sample for the presence of the target agent or organism. None of Jarvis, FSIS, or Midura teaches that the target organism is a spoilage organism.

Cousin discloses that certain bacteria (psychrotrophs) are able to grow in foods at low temperatures and are thus the primary organisms responsible for spoilage of refrigerated foods. Cousin teaches that such organisms are found in meats, poultry, fish, and seafood and include *Listeria* spp., among others (see page 169, column 2, last paragraph). Cousin teaches that such organisms can be detected by culture and microscopic methods (see section 13.21 beginning on page 160).

It would have been *prima facie* obvious to one of skill in the art at the time of the invention to have used the method disclosed by Jarvis in view of FSIS and Midura to test for a spoilage organism, such as a psychrotroph, because Cousin teaches that such organisms are responsible for spoilage of refrigerated foods and can be detected by culture.

Ground # 22:

Claim 21 is unpatentable as obvious over FSIS in combination with Price, Midura, and Cousin (see SNQ #55 at page 87 of the Request).

This rejection was proposed by the third party requester and **is adopted** for the reasons stated in the request and for those reasons set forth below. The proposed rejection at page 87 and the claim chart at page 123 of the request are herein incorporated by reference. The rejection is as follows.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over FSIS in view of Price and Midura, as applied to claim 1 above, and further in view of Cousin.

As was set forth *supra* in Ground 2, which is incorporated herein by reference in its entirety, FSIS in view of Price and Midura teaches a method of sampling and testing food test lots for microbial contamination comprising collecting a plurality of portions from each of a plurality of test lots, combining the portions to provide a corresponding set of test lot samples, separately incubating the test lot samples to enrich for the target microbial agent or organism, removing portions of the test lot sample cultures, combining them into a modular composite sample and testing the composite sample for the presence of the target agent or organism. None of FSIS, Price, or Midura teaches that the target organism is a spoilage organism.

Cousin discloses that certain bacteria (psychrotrophs) are able to grow in foods at low temperatures and are thus the primary organisms responsible for spoilage of refrigerated foods. Cousin teaches that such organisms are found in meats, poultry, fish, and seafood and include *Listeria* spp., among others (see page 169, column 2, last paragraph). Cousin teaches that such organisms can be detected by culture and microscopic methods (see section 13.21 beginning on page 160).

It would have been *prima facie* obvious to one of skill in the art at the time of the invention to have used the method disclosed by FSIS in view of Price and Midura to test for a spoilage organism, such as a psychrotroph, because Cousin teaches that such organisms are responsible for spoilage of refrigerated foods and can be detected by culture.

Ground # 23:

Claim 23 is unpatentable as obvious over Jarvis in combination with FSIS, Midura, and Price (see SNQ #58 at pages 88-89 of the Request).

This rejection was proposed by the third party requester and **is adopted** for the reasons stated in the request and for those reasons set forth below. The proposed rejection at pages 88-89 and the claim chart at page 123 of the request are herein incorporated by reference. The rejection is as follows.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jarvis in view of FSIS and Midura, as applied to claim 1 above, and further in view of Price.

As was set forth *supra* in Ground 1, which is incorporated herein by reference in its entirety, Jarvis in view of FSIS and Midura teaches a method of sampling and testing food test lots for microbial contamination comprising collecting a plurality of portions from each of a plurality of test lots, combining the portions to provide a corresponding set of test lot samples, separately incubating the test lot samples to enrich for the target microbial agent or organism, removing portions of the test lot sample cultures, combining them into a modular composite sample and testing the composite sample for the presence of the target agent or organism. None of Jarvis, FSIS, or Midura teaches testing the composite modular sample by a DNA-based method, an immunochemistry-based method, or a biosensor-based method.

Price teaches identification of *Salmonella* from composite enrichment broth cultures using the standard methods of biochemical and serological testing, which is an immunochemistry based method.

One of ordinary skill in the art at the time of the invention would have found it *prima facie* obvious to have identified the target agent or organism from the composite sample in the method of Jarvis in view of FSIS and Midura using serological testing, which is an immunochemistry based method, as described by Price. One of ordinary skill in the art at the time of the invention would have been motivated to identify the agent by serological testing because Price teaches that this was a standard method of identification of target agents or organisms at the time of the invention.

Ground # 24:

Claims 24, 28, 32, 33 are unpatentable as obvious over FSIS in combination with Price, Midura, and Gabis (see SNQ #s 63, 70, 78, and 80 at pages 93, 97-98, and 103-105 of the Request).

This rejection was proposed by the third party requester and **is adopted** for the reasons stated in the request and for those reasons set forth below. The proposed rejection at pages 93, 97-98, and 103-105 and the claim chart at page 123-127 of the request are herein incorporated by reference. The rejection is as follows.

Claims 24, 28, 32, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over FSIS in view of Price and Midura, as applied to claims 1 and 4 above, and further in view of Gabis.

As was set forth *supra* in Ground 2, which is incorporated herein by reference in its entirety, FSIS in view of Price and Midura teaches a method of sampling and testing food test lots for microbial contamination comprising collecting a plurality of portions from each of a plurality of test lots, combining the portions to provide a corresponding set of test lot samples, separately incubating the test lot samples to enrich for the target microbial agent or organism, removing portions of the test lot sample cultures, combining them into a modular composite sample and testing the composite sample for the presence of the target agent or organism. FSIS teaches that the food to be tested is beef and Midura teaches that the food to be tested is fish, vegatables, dried foods, frozen foods, milk, meats, and/or shellfish (page 18, column 1, last complete sentence). None of FSIS, Price, or Midura teaches that the food to be tested is poultry, pork, sheep or bison. Additionally, although Price teaches a pooled enrichment broth for *Salmonella* (comprising a selective agent for *Salmonella* which inhibits competing organisms); none of FSIS, Price or Midura teaches that the individual test lot sample broths comprise a selective agent for the target organism.

Gabis teaches a method of sampling, testing, and validating high moisture foods for microbial contamination comprising collecting a plurality of specimens, incubating each of the specimens individually into broth cultures, incubating the broth cultures to allow for levels of the target organism to increase, and pooling the broth cultures together to test for *Salmonella* (see page 663, abstract and first paragraph of the page; page 664, the paragraph bridging columns 1 and 2 and column 2, first two full paragraphs; and page 668, first full paragraph). Gabis teaches two alternative broth cultures for the individual samples, "preenrichment" broths not containing a selective agent and "direct selective enrichment" broth cultures containing an agent selective

for *Salmonella* and inhibitory for competing bacteria (see page 664, *Enrichment Procedures* and **Results**). Gabis teaches exemplary high moisture foods suitable for testing as pork and chicken (poultry) among others (page 665, Table1).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to have inoculated the test lot samples disclosed by FSIS in view of Price and Midura into individual broths containing a selective agent for *Salmonella* because Gabis teaches that the individual enrichment broth culture may or may not contain a selective agent for the target organism. Further, it would have been *prima facie* obvious to have tested pork and /or poultry because Gabis teaches that the method is suitable for such high moisture foods.

Ground # 25:

Claim 28 is unpatentable as obvious over Jarvis in combination with FSIS, Midura, and Andrews (see SNQ #69 at pages 96-97 of the Request).

This rejection was proposed by the third party requester and **is adopted** for the reasons stated in the request and for those reasons set forth below. The proposed rejection at pages 96-97 and the claim chart at page 126 of the request are herein incorporated by reference. The rejection is as follows.

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jarvis in view of FSIS and Midura, as applied to claims 1 and 4 above, and further in view of Andrews.

As was set forth *supra* in Ground 1, which is incorporated herein by reference in its entirety, Jarvis in view of FSIS and Midura teaches a method of sampling and testing food test lots for microbial contamination comprising collecting a plurality of portions from each of a

plurality of test lots, combining the portions to provide a corresponding set of test lot samples, separately incubating the test lot samples to enrich for the target microbial agent or organism, removing portions of the test lot sample cultures, combining them into a modular composite sample and testing the composite sample for the presence of the target agent or organism. None of Jarvis, FSIS, or Midura teaches the enrichment medium in the individual broth cultures as comprising a selective agent for the target organism which inhibits the growth of competing bacteria.

Andrews teaches selective enrichment for *Salmonella*, wherein the enrichment medium contains an agent which is selective for the target organism and inhibitory for competing bacteria. Andrews teaches that the use of two or more selective media provides greater method sensitivity than a single enrichment medium (see page 360, column 2, lection 37.124).

One of ordinary skill in the art at the time of the invention would have found it *prima facie* obvious to have included a selective agent in the pre-enrichment both cultures of Jarvis in view of FSIS and Midura because Andrews teaches that the use of two or more selective media improves method sensitivity.

Ground # 26:

Claim 32 is unpatentable as obvious over Jarvis in combination with FSIS, Midura, and BAM and ICMSF.

This rejection was proposed by the third party requester (see SNQ #77 at pages 102-103, of the Request) but is **not adopted** for the following reasons.

Claim 32 was included in Ground 1 as unpatentable over Jarvis, in view of FSIS and Midura, because FSIS teaches the claimed limitation of meat trim pieces (see Ground 1). Therefore, the proposed rejection of the same claim 32 over Jarvis, in view of FSIS, Midura BAM and ICMSF, is improper because the combination of Jarvis, FSIS, and Midura does not have a deficiency which would require modification by BAM and ICMSF in order to meet the limitations of the claim. Furthermore, Requester points to page 135 of ICMSF as providing the teaching of meat trim pieces which Requester alleges is absent from the combination of Jarvis in view of FSIS and Midura (see page 103 of the request). However, this teaching does not appear to be present at page 135 of ICMSF. Therefore, for these reasons, the proposed rejection **is not adopted**.

Conclusion

Claims 1-33 are rejected.

In order to ensure full consideration of any amendments, affidavits or declarations, or other documents as evidence of patentability, such documents must be submitted in response to this Office action. Submissions after the next Office action, which is intended to be an Action Closing Prosecution (ACP), will be governed by 3 7 CFR 1.116(b) and (d), which will be strictly enforced.

Duty to Disclose

The patent owner is reminded of the continuing responsibility under 37 CFR 1.985 to apprise the Office of any litigation activity, or other prior or concurrent proceeding, involving Patent No. 7,534,584 throughout the course of this reexamination proceeding. The third party

requester is also reminded of the ability to similarly apprise the Office of any such activity or proceeding throughout the course of this reexamination proceeding.

Correspondence

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	95001294
Filing Date	2009-05-19
First Named Inventor	Samadpour
Art Unit	
Examiner Name	
Attorney Docket Number	2781-129

U.S.PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
/B.B./	1	6080437		2000-06-27	Mauer et al.	

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U.S.PATENT APPLICATION PUBLICATIONS

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	95001294
	Filing Date	2009-05-19
	First Named Inventor	Samadpour
	Art Unit	
	Examiner Name	
	Attorney Docket Number	2781-129

/B.B./	1	DAVIES et al., "Evaluation of the use of pooled serum, pooled muscle tissue fluid (meat juice) and pooled faeces for monitoring pig herds for Salmonella," J. Appl. Microbiol., 95: 1016-25 (2003)	☐
	2	Midura, et al. Chapter 2 entitled "Sampling Plans, Sample Collection, Shipment and Preparation for Analysis" of Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., Eds. FRANCES POUCH DOWNES and KEITH ITO, American Public Health Association (2001) , 13-23.	☐
	3	Meng, et al. Chapter 35 entitled "Pathogenic Escherichia Coli" of Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., Eds. FRANCES POUCH DOWNES and KEITH ITO, American Public Health Association (2001) , 331-341.	☐
	4	Andrews, et al., Chapter 37 entitled "Salmonella" of Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., Eds. FRANCES POUCH DOWNES and KEITH ITO, American Public Health Association (2001) , 357-380.	☐
	5	US Dept of Agriculture, FSIS Directive, "Microbial Testing Program and Other Verification Activities for Echerichia coli 0157:H7 In Raw Ground Beef Products and Raw Ground Beef Components and Beef Patty Components," 10.010.1, Revision 1, (3/13/2004) 1-28.	☐
	6	SILLIKER, J.H. and GABIS, D.A., "ICMSF Methods Studies. I. Comparison of analytical schemes for detection of Salmonella in dried foods," Can. J. Microbiol. 19:475-(1973) -479	☐
	7	PRICE, W.R. et al.. "Salmonella testing of pooled pre-enrichment broth cultures for screening multiple food samples," Appl. Microbiol. 23:679-(1972) 682	☐
	8	GABIS, D.A., and SILLIKER, J.H., "ICMSF Methods Studies. II. Comparison of analytical schemes for detection of Salmonella in high-moisture foods," Can. J. Microbiol. 20:663-669 (1974)	☐
	9	Microorganisms in Foods The International Committee on Microbiological Specifications for Foods ("ICMSF")/1 Their Significance and Methods of Enumeration, Second Edition, University of Toronto Press (1978) 1-172.	☐
	10	US FDA, Chapter 1 entitled "Food Sampling/Preparation of Sample Homogenate," Bacteriological Analytical Manual ("BAM"). (April 2003) 1-11.	☐
/B.B./	11	Sperber, et al. Chapter 5 entitled "Cultural Methods for the Enrichment and Isolation of Microorganisms" of Compendium of Methods for the Microbiological Examination of Foods," 4th Ed., Eds. FRANCES POUCH DOWNES and KEITH ITO, American Public Health Association (2001) 45-51.	☐

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	First Named Inventor	Samadpour
	Art Unit	
	Examiner Name	
	Attorney Docket Number	2781-129

/B.B./	12	JARVIS, B., Chapter 8 entitled "Errors Associated with Dilution Count and Presence/Absence Methods," Statistical Aspects of the Microbiological Analysis of Foods. Progress in Industrial Microbiology, Vol. 21, Elsevier. (1989) , 117-142.	☐
/B.B./	13	Entis, et al. Chapter 10 entitled "Rapid Methods for Detection, Identificatin, and Enumeration, of Compendium of Methods for the Microbiological Examination of Foods," 4th Ed., Eds. FRANCES POUCH DOWNES and KEITH ITO, American Public Health Association (2001)	☐
/B.B./	14	Cousin, et al., Chapter 13 entitled "Psychotrophic Microorganisms," of Compendium of Methods for the Microbiological Examination of Foods," 4th Ed., Eds. FRANCES POUCH DOWNES and KEITH ITO, American Public Health Association (2001) , 159-166.	☐

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[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Mansour Samadpour
Serial No.:	95/001,294
Filed:	05 April 2010
For:	MODULAR COMPOSITING-MULTIPLE LOT SCREENING PROTOCOLS FOR DETECTION OF PATHOGENS, MICROBIAL CONTAMINANTS AND/OR CONSTITUENTS
Examiner:	Brenda G. Brumback
Art Unit:	3991
Docket No.:	66090-008US2
Date:	26 July 2010

Attn: Mail Stop "*Inter Partes* Reexam"
Central Reexamination Unit
Commissioner for Patents
P. 0. Box 1450
Alexandria VA 22313-1450

RESPONSE AND AMENDMENT UNDER 37 C.F.R. § 1.111

Sir:

This is a RESPONSE AND AMENDMENT in reply to an Office Action dated 26 May 2010 in the above identified application. No fees are deemed necessary.

Kindly amend the above-identified patent application as follows:

IN THE CLAIMS:

Applicant, pursuant to 37 C.F.R. § 1.121, submits the following amendments to the claims:

1. (Currently amended) A method of sampling, testing and validating test lots for microbial contamination, comprising:

a) collecting a plurality of portions from each of a plurality of test lots, the test lots each comprising an assemblage of one or more specimens, wherein each test lot is separately sampled, according to a statistical sampling plan for a particular microbial agent or organism, by taking said plurality of portions thereof;

b) combining the collected plurality of portions corresponding to each of the separate test lots to provide a corresponding set of separate test lot samples, wherein each separate test lot sample is attributed to a particular corresponding separate test lot;

c) incubating the set of separate test lot samples under conditions suitable to allow levels of a target microbial agent or organism that is present in one or more of the separate test lot samples to reach detectable levels and become uniform, or substantially uniform, throughout the respective one or more separate test lot samples, to provide a set of separate test lot samples enriched for the target microbial agent or organism;

d) removing portions of each enriched separate test lot sample, and combining the removed portions to provide a modular inter-lot composite sample; and

e) testing of the modular inter-lot composite sample, using a suitable detection assay, for the target microbial agent or organism, wherein when such testing is negative all of said separate test lot samples are validated, and wherein when such testing is positive, individual separate test lots may nonetheless yet be validated, according to the statistical sampling plan, by further testing

of a portion of the respective enriched separate test lot sample using the same or a more sensitive protocol and obtaining a negative test result.

2. (Original) The method of claim 1, wherein the test lot is a single-unit production lot, comprised of operationally-linked product specimens.

3. (Original) The method of claim 1, further comprising incubating the modular composite sample of d), prior to testing in e).

4. (Original) The method of claim 1, wherein incubating each separate test lot sample in c) comprises incubating each separate test lot sample with enrichment medium suitable to enrich for the target microbial agent or organism, and wherein removing in d) comprises removing a portion of the enrichment medium from each enriched separate test lot sample and combining the removed portions to provide a modular composite sample.

5. (Original) The method of claim 1, wherein testing of the modular composite sample, using a suitable detection assay further comprises a concentration step to concentrate the microbial agent or organism.

6. (Original) The method of claim 1, wherein testing in e) of the modular composite sample is positive, and wherein the individual separate test lot samples are further tested, such further testing comprises the more sensitive protocol.

7. (Original) The method of claim 1, further comprising, forming an additional modular composite sample from the set of enriched separate test lot samples of c) and testing the additional modular composite sample, using the same or a different suitable assay, to confirm the testing result.

8. (Original) The method of claim 1, further comprising, forming an additional modular composite sample from an additional enriched separate test lot sample along with any

enriched separate test lot samples of c) that test negative in e), and testing the additional modular composite sample, using the same or a different suitable assay.

9. (Original) The method of claim 1, further comprising, where testing of the modular composite sample in e) is negative, forming an additional modular composite sample from the set of enriched separate test lot samples of c), and testing the additional modular composite sample, using a different suitable assay, to confirm the negative testing status.

10. (Original) The method of claim 1, wherein the test lot is selected from the lot group consisting of a single combo, single bin, single pallet, and a production assemblage.

11. (Original) The method of claim 1, wherein the number of separate test lots is from 3 to 10.

12. (Original) The method of claim 1, further comprising, where testing of the modular composite sample is positive, determining which individual separate test lots are positive, application of remedial measures to said separate positive test lots, and validating by further testing of a portion of the respective remediated separate test lots and obtaining a negative test result.

13. (Original) The method of claim 1, wherein, in a), separately collecting said plurality of portions from each of said plurality of separate test lots comprises separately collecting from each separate test lot a number of portions from 5 to 100.

14. (Original) The method of claim 1, wherein, in a), separately collecting said plurality of portions from each of said plurality of separate test lots comprises separately collecting from each separate test lot 30 to 60 portions.

15. (Original) The method of claim 1, wherein, in a), separately collecting said plurality of portions from each of said plurality of separate test lots comprises separately collecting 30 portions from each separate test lot.

16. (Original) The method of claim 1, wherein, in a), separately collecting said plurality of portions from each of said plurality of separate test lots comprises separately collecting from each separate test lot about 60 portions.

17. (Currently amended) A method of sampling, testing and validating test lots for microbial contamination, comprising:

a) collecting a plurality of portions from each of a plurality of single-unit production lots, the single-unit production lots each comprising an assemblage of one or more product specimens, wherein each single-unit production lot is separately sampled, according to a statistical sampling plan for a particular microbial agent or organism, by taking said plurality of portions thereof;

b) combining the collected plurality of product portions corresponding to each of the separate single-unit production lots to provide a corresponding set of separate single-unit production lot samples, wherein each separate single-unit production lot sample is attributed to a particular corresponding separate single-unit production lot;

c) incubating the set of separate single-unit production lot samples under conditions suitable to allow levels of a target microbial agent or organism that is present in one or more of the separate single-unit production lot samples to reach detectable levels and become uniform, or substantially uniform, throughout the respective one or more separate single-unit production lot samples, to provide a set of separate single-unit production lot samples enriched for the target microbial agent or organism;

d) removing portions of each enriched separate single-unit production lot sample, and combining the removed portions to provide a modular inter-lot composite sample; and

e) testing of the modular inter-lot composite sample, using a suitable detection assay, for the target microbial agent or organism, wherein when such testing is negative all of said separate single-unit production lot samples are validated, and wherein when such testing is positive,

individual separate single-unit production lots may nonetheless yet be validated, according to the statistical sampling plan, by further testing of a portion of the respective enriched separate single-unit production lot sample using the same or a more sensitive protocol and obtaining a negative test result.

18. (Original) The method of claim 1, wherein removing portions in step d) is removing equal portions, aseptically, so as to preclude contamination of the enriched separate test lot samples.

19. (Original) The method of claim 1, wherein the target microbial agent or organism comprises at least one selected from the group consisting of *Listeria*, *Salmonella* and *Escherichia coli*.

20. (Original) The method of claim 1, wherein the target microbial agent or organism comprises at least one selected from the group consisting of *Listeria* spp., *Listeria monocytogenes*, *Salmonella* spp., *Escherichia coli* O157:H7, coliforms and fecal coliforms.

21. (Original) The method of claim 1, wherein the target microbial agent or organism comprises a spoilage organism.

22. (Original) The method of claim 1, wherein removing portions of each enriched separate test lot sample comprises removing equal volume portions of each enriched separate test lot sample.

23. (Original) The method of claim 1, wherein testing of the modular composite sample, using a suitable detection assay comprises use of at least one of a DNA-based method, an immunochemistry-based method, and a biosensor-based method.

24. (Original) The method of claim 1, wherein the separate test lots are production lots of a meat or poultry product, comprising an assemblage of one or more meat or poultry specimens, respectively.

25. (Original) The method of claim 1, wherein the separate test lots are separate production lots of a fish or seafood product, comprising an assemblage of one or more fish or seafood specimens, respectively.

26. (Original) The method of claim 1, wherein the separate test lots are separate production lots of a ready-to-eat product.

27. (Original) The method of claim 2, wherein product specimens are synonymous with product portions.

28. (Original) The method of claim 4, wherein the medium comprises a selective agent that will inhibit a competing non-target microbial agent or organism.

29. (Original) The method of claim 6 wherein the concentration step comprises at least one of immunomagnetic bead separation, and affinity chromatography.

30. (Original) The method of claim 6, wherein the more sensitive protocol further comprises a concentration step to concentrate the microbial agent or organism, in combination with the same test protocol used to test the modular composite sample.

31. (Original) The method of claim 17, wherein removing portions in step d) is removing equal portions, aseptically, so as to preclude contamination of the enriched separate single-unit production lot samples.

32. (Original) The method of claim 24, wherein the meat or poultry specimens are meat trim pieces or poultry trim pieces, respectively.

33. (Original) The method of claim 24, wherein the meat is that of beef, pork, sheep or bison.

34. (New) A method of sampling, testing and validating test lots for microbial contamination, comprising:

a) collecting a plurality of portions from each of a plurality of test lots, the test lots each comprising an assemblage of one or more specimens, wherein each test lot is separately sampled, according to a statistical sampling plan for a particular microbial agent or organism, by taking said plurality of portions thereof;

b) combining the collected plurality of portions corresponding to each of the separate test lots to provide a corresponding set of separate test lot samples, wherein each separate test lot sample is attributed to a particular corresponding separate test lot;

c) incubating the set of separate test lot samples under conditions suitable to allow levels of a target microbial agent or organism that is present in one or more of the separate test lot samples to increase in the respective one or more separate test lot samples, to provide a set of separate incubated test lot samples;

d) removing portions of each incubated separate test lot sample, and combining the removed portions to provide a modular inter-lot composite sample; and

e) testing of the modular inter-lot composite sample, using a suitable detection assay, for the target microbial agent or organism, wherein when such testing is negative all of said separate test lot samples are validated, and wherein when such testing is positive, individual separate test lots may nonetheless yet be validated, according to the statistical sampling plan, by further testing of a portion of the respective incubated separate test lot sample using the same or a more sensitive protocol and obtaining a negative test result.

35. (New) A method of pathogen testing at a food processing facility that validates, according to a statistical sampling plan for a particular pathogen, production lots of food for shipment into commerce, comprising:

a) collecting a plurality of portions from each of a plurality of test lots, the test lots each comprising an assemblage of one or more specimens, wherein each test lot is separately sampled,

according to a statistical sampling plan for a particular microbial agent or organism, by taking said plurality of portions thereof;

b) combining the collected plurality of portions corresponding to each of the separate test lots to provide a corresponding set of separate test lot samples, wherein each separate test lot sample is attributed to a particular corresponding separate test lot;

c) incubating the set of separate test lot samples under conditions suitable to allow levels of a target microbial agent or organism that is present in one or more of the separate test lot samples to increase in the respective one or more separate test lot samples, to provide a set of separate incubated test lot samples;

d) removing portions of each incubated separate test lot sample, and combining the removed portions to provide a modular inter-lot composite sample; and

e) testing of the modular inter-lot composite sample, using a suitable detection assay, for the target microbial agent or organism, wherein when such testing is negative all of said separate test lot samples are validated, wherein when such testing is positive, individual separate test lots may nonetheless yet be validated, according to the statistical sampling plan, by further testing of a portion of the respective incubated separate test lot sample using the same or a more sensitive protocol and obtaining a negative test result, and wherein a method of pathogen testing at a meat processing facility that validates, according to a statistical sampling plan for a particular pathogen, production lots of food for shipment into commerce is provided.

36. (New) The method of claim 1, wherein the test lot is selected from the group consisting of an environmental lot comprising one or more operationally-linked environmental specimens, pharmaceutical lot comprising one or more operationally-linked pharmaceutical specimens, single-unit product lot comprising one or more operationally-linked product specimens, and combinations thereof.

REMARKS

Claims 1-33, present in U.S. 7,534,584, are pending and stand rejected.

Claims 1 and 17 have been amended herein.

New claims 34, 35 and 36 have been added.

No new matter has been added.

Rejections under 35 U.S.C. § 103

Ground #1. The Examiner rejected claims 1-4, 8,10-20, 22, 24-27, 31 and 32, under 35 U.S.C. 103(a), as being unpatentable over Jarvis in view of FSIS and Midura.

The Examiner states, with respect to claims 1 and 17, that Jarvis discloses methods of sampling and testing foods for low numbers of pathogenic organisms using composite samples for testing (citing page 135, section 8.4, first paragraph), and teaches that testing *composite* samples reduces the workload on the laboratory (citing page 141, section 8.4.2.1). The Examiner states that method 2 comprises collecting a plurality (10) of product samples or portions (25g size) and inoculating the samples separately into one each of a pre-enrichment medium or broth to give test lot samples, each comprising a single specimen. The Examiner states that method 3 comprises pooling (actually "compositing" or lumping) a plurality (about 5) of specimens and inoculating the pooled specimens into a pre-enrichment culture medium or broth, incubating the pre-enrichment broth cultures to allow for growth of the target organisms, compositing aliquots of the pre-enrichment cultures and inoculating the composite into a second enrichment culture, incubating the composite enrichment culture, and subsequently testing for the pathogenic organism. The Examiner states that Jarvis teaches that methods 1 and 2 both provide the "same degree of *statistical confidence*" as would be attained by separately testing each of the 10 samples (citing page 141 in its entirety) (emphasis added). The Examiner states that Jarvis teaches that composite testing method 2 has the advantage of allowing for *verification of positive* samples by retesting of the stored individual pre-enrichment cultures to provide an indication of the proportion of contaminated samples (citing the paragraph bridging pages 141 and 142) (emphasis added). The Examiner additionally states that Jarvis teaches particular limitations of claims 3, 4, 11, 13, 18, 19,

22, 27 and 31.

The Examiner further states that the method described by Jarvis differs from the claimed method in that Jarvis defines the medium used for incubation of the individual test lot samples as a "pre-enrichment" medium, while the patented claims recite incubating the test lot samples in "enrichment medium," and that the '584 patent specification defines enrichment medium as a mixture which contains nutrients and which has properties *(e.g.,* pH and/or oxygen content) which favor the growth of the target agent/organism (citing column 6, lines 17-35), and that "absent evidence to the contrary, the pre-enrichment medium disclosed by Jarvis to favor the growth of the target organism meets the limitations of the patented claims."

The Examiner states that "Jarvis does not teach repeat testing of negative samples, as in patented *claim 8;* does not specify that the test lot samples are collected from a single combo, bin, pallet or production assemblage, as in patented *claim 10;* does not specify testing for *E. coli* 0157:H7 or *Salmonella* (among others), as in *claims 19 and 20,* and does not specify the food to be tested, as in patented *claims 24 26.* The Examiner states that these limitation are taught by FSIS (reference 5, Exhibit 6), and Midura (reference 2, Exhibit 3) for reasons stated in the Office Action.

Applicant's traversal. Applicant respectfully traverses the rejection.

APPLICABLE LAW:

In *KSR International Co. v. Teleflex, Inc.* 127 S.Ct. 1727, 2007 (herein referred to as "*KSR*"), the Supreme Court stated that the Graham factors ((1) scope and content of the prior art, (2) difference between claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations; Graham v. John Deere Co., 383 U.S. 1 (1966)) continue to define the inquiry that controls the obviousness analysis. Additionally, under KSR, the TSM test is valid provided that such application does not require an overly rigid or explicit application of the asserted prior art. In keeping with KSR, to establish a *prima facie* case of obviousness there must be: (i) a suggestion or motivation, either in the references themselves or

in the knowledge generally available to one of ordinary skill in the art (POSITA), to modify the reference or to combine reference teachings; (ii) a reasonable expectation of success; and (iii) the prior art reference(s) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and knowledge generally available to POSITA, and not based on Applicant's disclosure (*In re Vaeck,* 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); and see MPEP §§ 2143-2143.03).

Therefore, to support a conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references. Moreover, there can be no reasonable expectation of success where the art, alone or in combination, *teaches away* from the invention.

A. **Jarvis does <u>not</u> disclose "pre-enrichment medium" as a medium that favors the growth of the target organisms in a way/extent that "meets the limitations of the patented claims," does <u>not</u> teach post-enrichment pooling, and further does <u>not</u> provide for lot validation by re-assay of pre-enrichment cultures inoculated by lumped samples**.

As an initial matter, Applicants respectfully point out that Jarvis has been misconstrued in several material respects. ***First,*** contrary to the Examiner's statement, Jarvis does <u>not</u> disclose "pre-enrichment medium" as a medium that favors the growth of the target organism <u>in a way that "meets the limitations of the patented claims</u>." Jarvis adheres to, and does not *blur* the long-standing, art-recognized functional/operative distinction between "pre-enrichment" broth/medium and "enrichment" broth/medium, where functionally/operationally, testing for a target organism may meaningfully occur after enrichment in an enrichment broth/medium, and not in the absence thereof after a pre-enrichment incubation. As widely appreciated in the relevant art, including that

of the presently cited Jarvis, incubation in "pre-enrichment" broth/medium is a *resuscitative* culture/stage that is not subjected to organism testing absent subsequent enrichment because, while there may be some limited target organism growth during pre-enrichment, the number of target organisms achieved is not functionally/operationally sufficient for assay/testing, whereas incubation in enrichment broth/medium during an enrichment stage is recognized in the art as providing a level of target organism growth functionally/operationally sufficient for assay/testing. Jarvis refers to and uses "pre-enrichment" and "enrichment" medium/incubation consistent with the art-recognized meanings, and nowhere, does Jarvis teach or suggest testing (absent subsequent enrichment) for the organism after mere "pre-enrichment," thereby providing the "evidence to the contrary" requested by the Examiner. Assays (1) through (3) described by Jarvis explicitly draw the art recognized functional/operative distinction between "pre-enrichment" and "enrichment" medium. In fact, Jarvis 1989, page141, first paragraph teaches that the function of the pre-enrichment media is to allow for multiplication of the target organism to a level that will ensure the transfer of at least one viable cell to the enrichment media. Jarvis 1989 clearly states that if the pre-enrichment only resuscitates, then the entire pre-enrichment is to be transferred to the enrichment step—eliminating the possibility of later testing of the pre-enrichment sample (*Id*, "In methods which permit only resuscitation, not growth, during pre-enrichment, it is essential to use the entire pre-enrichment culture to inoculate double-strength enrichment medium (Hall, 1975), although selectivity may then be affected by the food constituents") (see also Jarvis, "On the compositing of samples for qualitative microbiological testing," Letters in Applied Microbiology, 2007, pp. 592-598, Volume 45; attached hereto).

In other words, growth in the pre-enrichment media of Jarvis is not to detection level, and rather is either for resuscitation in which case the entire pre-enrichment is to be transferred to enrichment, or allows for limited growth to ensure that there is at least one viable organism in the portion which is transferred to the enrichment step. Moreover, the disclosure of Jarvis regarding pooling are limited to only one method, and organism (Salmonella).

Applicant's meaning and use of an "enrichment" incubation and medium is also consistent with the art-recognized meaning because, as in Applicants step c) of claims 1 and 17, enrichment

incubation is under conditions suitable to expand target organisms to "reach detectable levels" and organism testing is, in fact, conducted thereafter (no requirement for a subsequent incubation in an enrichment medium). This is not the case for the "pre-enrichment" medium of Jarvis or of the prior art generally, which does not, therefore, satisfy the functional limitations of Applicant's claims.

Second, and consistent with the above distinction, Jarvis does not, as urged by the Examiner, teach inoculating the composite into a "second enrichment medium", and rather explicitly teaches initial inoculation of "pre-enrichment" broth, and subsequently "inoculating *the* enrichment broth" (emphasis added). Consequently, while Jarvis may teach compositing aliquots of the pre-enrichment cultures and inoculating the composite into the enrichment broth/medium, Jarvis does not teach or suggest compositing aliquots of enriched cultures as claimed by Applicant. This is an important, fundamental distinction, as the present Applicant is the first to conceive of and use post-enrichment pooling as presently claimed.

Third, it follows that even if Jarvis is construed to teach that composite testing method (2) has the advantage of permitting "the tests to be repeated on stored pre-enrichment cultures, so that some indication of the proportion of contaminated samples can be obtained" (see Jarvis at last sentence of page 142 carrying over to page 143), this: **(i)** would necessarily involve delay because of the need for inoculation of the stored individual pre-enrichment cultures (not sufficiently enriched for testing) individually into separate enrichment broth cultures, followed by enrichment incubation prior to assay/testing for a target organism; and **(ii)** while arguably allowing for *verification of positive* samples by retesting of the stored individual pre-enrichment cultures, would not provide for the fundamentally different statistical "**validation**" (i.e., validation of no contamination or lack of presence of target organism) of individual pre-enrichment cultures in the context of prior art assays, such as Jarvis assay (3), comprising lumping into pre-enrichment cultures, followed by pooling thereof prior to enrichment. This is because prior art statistical sampling/testing methods (including those described by Jarvis) involve sampling of a single lot and subsequent *intra*-lot sample pooling, where the total number of samples taken from the single test lot, and collectively represented upon pooling of the pre-enrichment cultures, is a collective

number chosen to statistically satisfy the statistical sampling plan of the single lot (e.g., 10 samples in the case of the Jarvis examples), but where the number of samples lumped in each pre-enrichment culture (e.g., 5, as in Jarvis method (3)) is insufficient to validate/certify the lot for release even if such were possible. Significantly, however, in the Jarvis method (3), for example, the samples are taken from a single lot, and even though the samples are grouped, for example, in two groups of five, any positive from the composite pre-enrichment pool must, by regulation, invalidate the lot, and accordingly there is no value, aside from curiosity to test the pre-enrichment cultures, to go back and verify a positive, and this is irrespective of whether you are lumping and pooling or not lumping and pooling. Even if this was not the case, however, in prior art assays where a single Lost is sampled by forming a plurality of lumped samples, the number of samples lumped in each pre-enrichment culture is *insufficient* to provide for statistical ***validation*** of the lot (validation of no contamination) by assay of lumped pre-enrichment culture according to the statistical sampling plan, and thus no validation (i.e., validation of no contamination) of the pre-enrichment samples of Jarvis method (3) could be obtained upon repeated testing of stored pre-enrichment cultures. This is in fundamental contrast to Applicant's claimed invention comprising multiple lots and inter-lot pooling, wherein, as recited in step (e) of claims 1 and 17, "when such testing is positive, individual separate test lots may nonetheless yet be **validated** by further testing of a portion of the respective enriched separate test lot sample… and obtaining a negative test result." As discussed in more detail below, this is because Applicant's method comprises *inter*-lot pooling of enriched cultures each inoculated with a statistically sufficient number of samples to satisfy lot validation criteria, whereas prior art methods, including that of Jarvis, comprise *intra*-lot pooling of pre-enrichment samples—each inoculated with a statistically insufficient number of samples to satisfy lot validation criteria.

Fourth, the Examiner appears to be implying that the statement in Jarvis—that "methods (1) and (2) and (3) provide the same degree of statistical confidence as would be attained by testing the 10 samples separately, in so far as a negative result indicates no sample contamination…"—indicates that one of skill in the art would consider that pooling of lumped samples (as in Jarvis assay (3)) and pooling of non-lumped samples (as in Jarvis assay (2))would

be equally reliable, and thus would be motivated to lump samples, with subsequent pooling of pre-enrichment broths. Applicant contends that such is not the case.

As in initial matter, the asserted Jarvis (first edition, 1989) reference contains no enabling experimental results or actual real-world assay data, and must be properly construed as the pure mathematical/statistical treatment that it is, which does not take into account the art-recognized factors of assay sensitivity, sample dilution and introduction of competitive organisms in the presented formulae and conclusion drawn thereon. For example, Jarvis (first edition) at page 117 states the premise/assumption that "[i]f each propagule is assumed to be capable of producing a growth response…," from which it would be immediately obvious to one of ordinary skill in the art that such assumption excludes such non-random variable such as assay sensitivity limits, sample dilution effects and competition from non-target organisms. Moreover, "Statistical confidence", as used by Jarvis, is a term of art describing the chance, upon repeating of a test, of getting the same result—assuming random variables. As would be immediately obvious to one of ordinary skill in the art, the art-recognized, non-statistical factors of assay sensitivity, sample dilution and introduction of/competition by competitive organisms are not random variables that can be ignored, and therefore one of ordinary skill in the art would not interpret the statement of Jarvis to mean that the methods (1) and (2) and (3) provide the same degree of real-world reliability of *negative* results—particularly where the threshold for freedom from salmonellae of "<11 organisms/kg" (at P = 0.95) (an exemplary threshold from the data in Table 8.9 of Jarvis at carryover paragraph between pages 137 and 138, where 10 samples are taken) recited in Jarvis is substantially above the real-world, art-recognized Lot validation threshold of <1 organisms/kg in the food industry (e.g., for salmonella). Applicant's conclusions in this regard are in fact supported by Jarvis himself.

Specifically, Jarvis (second edition; JARVIS, "Errors Associated With Quantal Response Methods," STATISTICAL ASPECTS OF THE MICROBIOLOGICAL EXAMINATION OF FOODS, Chapter 8, pp. 143-176, 2008, Academic Press, Amsterdam, London, and San Diego; attached hereto), teaches and clarifies, as was already recognized and practiced in the art, that when variables such as assay sensitivity, sample dilution and introduction of competitive

organisms are considered, wet compositing of previously lumped pre-enrichment samples into enrichment medium (e.g., as in assay (3) of Jarvis (first addition)) does not provide an acceptable degree of statistical confidence and reliability. Specifically, Jarvis (second edition) teaches that with respect to pure lumping methods (i.e., lumping all 10 samples at pre-enrichment stage, followed by inoculation of pre-enrichment broth into enrichment broth prior to assaying), sensitivity of the test method is a key issue, and that adequate control of competitive organisms must be exercised (see Jarvis second edition at page 170), and additionally teaches, with respect to wet compositing, that **"the only fully acceptable method of compositing is to inoculate 10 pre-enrichment cultures (i.e., one for each 25g sample) and, after incubation, to inoculate equal volumes of each pre-enrichment culture (i.e., 10 X 1 ml) into 100 ml enrichment broth"** and that "by retaining the original pre-enrichment samples, it is possible also to re-culture from these if the composite enrichment broth gives a positive result, so that the prevalence of positive samples can be determined" (*Id*). Moreover, verification of positive samples is fundamentally different that validation of negative samples.

Jarvis (first edition) would not, therefore, be reasonably construed by one of ordinary skill in the art as teaching that pooling of lumped samples (as in Jarvis assay (3)) and pooling of non-lumped samples (as in Jarvis assay (2))would be equally reliable, and thus would not be motivated to practice assays comprising lumped samples, with subsequent pooling of pre-enrichment broths, and in no case would have been motivated to practice assays comprising lump samples, with subsequent pooling of enrichment broths.

Consistent with the teachings of Jarvis, the prior art, including the asserted prior art, generally *teaches away* from combining both lumping and pooling in a sampling and testing scheme. Specifically, Price et al (*Applied Microbiology* 23:679-682, 1972; reference "7" Exhibit 8) at page 681, left column, teaches that "Silliker (4) reported a loss in sensitivity when several samples were pooled in a large container of pre-enrichment broth as is not surprising since, to be detected, the desiccated and debilitated Salmonella cells in a dried food sample must grow out in pre-enrichment broth in competition with other bacteria in the sample. If many food samples are pooled at the pre-enrichment stage, the salmonella face competition from the flora of all the

samples in the pool. If, on the other hand, the samples are individually pre-enriched, the actively growing salmonella might be expected to compete more favorably with organisms introduced from other samples when pooled at the enrichment stage." Additionally, at page 681, left column carry over paragraph, Price et al teach (with respect to the data of Table 2) that "[t]he results show that a higher number of positives were recovered by pooling pre-enrichments [individual pre-enrichments] rather than by pooling samples: and that "[i]n addition, pre-enrichment pooling yielded positives at lower levels of inoculation." On this point, therefore, Price contradicts the Examiner's use of the 'statistical equivalence statement of Jarvis.

Likewise, Silliker & Gabis (*Can. J. Microbiol.* 19:475-479, 1973; reference 6; Exhibit 7) show in their data of Table 1 of page 477(compare the second and fifth column of data for 100 gm samples) that lumping combined with pooling results in false negatives, and, for example, state that "[i]n test 18, three of the fifteen 100-g subsamples were positive, but all of the wet composites were negative" and that "a minimum of one and a maximum of three positives would have been expected" (Id page 477 second column). Additionally Silliker & Gabis discuss that "Silliker (Appendix D of reference 2) reported that of 106 wet composites derived from 1060 individual sample, 39 were positive for Salmonella and 66 were negative. In seven instances negative results were obtained despite the fact that one or more of the 10 individual samples comprising the wet composite did contain salmonella. Thus, these seven were false negative results."

In summary of this aspect, therefore, the prior art, including that asserted by the Examiner, and including Jarvis (first and second editions) when properly construed, does not teach or suggest post-enrichment pooling, and even in the case of pre-enrichment pooling generally *teaches away* from combining both lumping and pooling in a sampling and testing scheme.

Applicants contend that the teachings of Jarvis **do not in fact raise any substantial new questions of patentability** beyond the teachings of alleged prior art (e.g., Price et al., and Silliker et al.,) already of record in the underlying issued patent prosecution history.

Furthermore, as discussed above (and below), one of skill in the art would recognize that prior art assays such as Jarvis (3) do not provide for statistical validation of pre-enrichment samples that tested negative.

B. **Applicant's method comprises inter-lot pooling of enriched cultures each inoculated with a number of samples to provide for validation of lots testing negative, whereas prior art methods, including that of Jarvis (which is a reiteration of Silliker, Gabis, and Price), Silliker, Gabis and Price, comprise intra-lot pooling of pre-enrichment samples each inoculated with a statistically insufficient number of samples such that no validation of lots testing negative is provided**.

Applicant's claimed methods comprise inter-lot pooling of enriched cultures each inoculated with a number of samples sufficient to provide for statistical validation according to the demands of a Lot validation plan. By contrast, prior art methods, including the hypothetical proposed statistical scheme of Jarvis, comprise intra-lot pooling of pre-enrichment samples each inoculated with a statistically insufficient number of samples.

Specifically, Applicant's claims 1 and 17 recite: (step a)) "collecting a plurality of portions from each of a plurality of test lots, the test lots each comprising an assemblage of one or more specimens, wherein each test lot is separately sampled by taking said plurality of portions thereof"; (step b)) combining the collected plurality of portions corresponding to each of the separate test lots to provide a corresponding set of separate test lot samples, wherein each separate test lot sample is attributed to a particular corresponding separate test lot; (step c)) incubating the set of separate test lot samples…to provide a set of separate test lot samples enriched for the target microbial agent or organism; (step d)) "removing portions of each enriched separate test lot sample, and combining the removed portions to provide a modular composite sample"; and further recites (step e)) "wherein when such testing is positive, individual separate test lots may nonetheless yet be **validated** by further testing of a portion of the respective enriched separate test lot sample… and obtaining a negative test result"

As would be immediately evident to one of skill in the art from Applicant's teachings and claims, validation in step e) of a negative test lot sample (incubated sample of step c)) requires that the number of portions/samples lumped in step a), must be large enough to statistically provide for Lot validation according to step e). Such is not the case with prior art pooling regimes that

comprise intra-lot pooling.

Applicant, to further emphasize this distinction (which is already implicit in the claims), has nonetheless amended steps a), d) and e) of claims 1 and 17 to recite "wherein each test lot is separately sampled, according to a statistical sampling plan for a particular microbial agent or organism," and "modular inter-lot composite sample" in place of modular composite sample. Support for recitation of "wherein each test lot is separately sampled, according to a statistical sampling plan for a particular microbial agent or organism" is found in the '584 patent, for example, at column 5, ll. 53-55, ll. 64-66, and see also at column 6, ll. 3-6 (stating that "the number of independent product portions is selected so as to yield a sample size that is equal to or greater than that required by the subsequent analysis to be applied"—including the subsequent validation of negative lots for acceptance).

The deficiencies of Jarvis with respect to post-enrichment pooling and inter-lot pooling and absence of validation are not cured by combination of Jarvis with FSIS (reference 5, Exhibit 6), and Midura (reference 2, Exhibit 3). Even if both FSIS and Midura are construed, as urged by the Examiner, to contemplate additional testing of test lots depending the initial test results, neither references teaches, suggests, motivates or otherwise provides for inter-lot pooling of any cultures, much less lumped enriched test lot cultures, or validation as presently claimed.

Applicants contend that the teachings of Jarvis in combination with either or both of FSIS and Midura **do not in fact raise any substantial new questions of patentability** beyond the teachings of art (e.g., Price et al., and Silliker et al.) already of record in the underlying issued patent prosecution history. The art, including that cited by the Examiner, does not teach, suggest or motivate pooling of post-enrichment cultures, inter-lot pooling, or validation of negative test lot samples and presently claimed.

Various rebuttal points above may be illustrated in the context of following beef combo testing example. Under Jarvis, a carload of beef trim consisting of 5 "combo" boxes of 2000 pounds of beef trim each, would be sampled as a whole, with a statistically valid number of samples being drawn from the overall contents of the box. Thus, 60 samples might be taken from the carload, with perhaps 12 samples taken from each combo, or perhaps more or less from each

combo—Jarvis does not define or require any particular method of sampling different parts of the overall carload to be sampled.

Because Jarvis does not define how sub-domains of the overall testing space must optimally be sampled to afford the possibility for later vindication of these sub-domains by later testing, the later testing of Jarvis of retained samples is not for the purpose of allowing portions of the carload to be cleared for release, but rather merely allows for additional tests "...so that some indication of the proportion of contaminated samples can be obtained." But obtaining an "indication of the proportion of contaminated samples" from additional testing does nothing to achieve a benefit of the present invention, which provides a way for some combo boxes from the carload of beef to be immediately validated and released to commerce, by means of an additional test upon a saved pool sample that contained ONLY samples from that particular combo.

Suppose that the method proposed by Jarvis were to be used after it was found that some beef in a carload was found to be contaminated. Since, under Jarvis, there was no teaching that samples from each combo of the 5-combo carload should have been kept segregated into their own, individual enrichment containers, there would be no way to trace back the contamination from the overall pool tested back to an individual combo. But even if such tracing could be accomplished, the combo could still not be validated for release to commerce for a simple reason: nothing in Jarvis, or any other asserted art, teaches the value of sampling each combo unit by taking a number of samples sufficient to validate that combo standing on its own. For beef testing, for example, this means taking about 60 samples from each combo, since anything less will not provide the level of statistical confidence for regulatory compliance.

The present invention teaches that each combo must be sampled such that it is validated with a number of samples that is statistically adequate, for that combo standing alone, if need be. By starting out with this number of samples for each combo, a surprisingly useful result is achieved in the event that the larger pool comes up positive. The surprising result is that a single simple test, applied to the enrichment vessel that was dedicated exclusively to that combo, can then validate or not validate that combo for release to commerce. In other words, the re-testing suggested by Jarvis, if done, merely provides a bit of information about "the proportion of positive

samples," which is of no economic value at all. On the other hand, individual enrichment broth testing in the present invention yields a profound result—boxes of beef vindicated and clear for release into commerce, and the savings of thousands of dollars.

By contrast, since Jarvis does not teach statistically significant sampling of each combo before pooling, if the teachings of only Jarvis are used, it would be necessary to go in and do additional sampling on each combo after the positive was found. For example, according to the typical rule, any lot of beef, of whatever size, must have at least 60 samples taken for validation. So, if the original Jarvis sampling plan only did 60 samples for the overall carload of 5 combo boxes, then it would be necessary to now re-sample by taking 60 samples from each combo, then enriching each separately, and testing. This means sampling would essentially start from scratch, and no immediate release from testing of an already-processed enrichment broth container would be possible. Additionally, the user of only the Jarvis approach would be confronted with a more serious issue: Current government guidelines do not allow beef, once sampled, to be re-sampled, and rather, a positive sample having been found, all of the beef would be designated for disposal.

In overall summary, Applicant's invention is more than a predictable use of prior art elements according to their established functions. Jarvis, alone or in combination with FSIS and Midura, does not disclose "pre-enrichment medium" as a medium that favors the growth of the target organisms in a way/extent that "meets the limitations of the patented claims," does not teach post-enrichment pooling, does not provide for real world validation of pre-enrichment cultures inoculated by lumped samples, and further does not teach inter-lot pooling of enriched cultures each inoculated with a number of samples to provide for validation of lots testing negative. Rather, such prior art methods that do comprise pooling, comprise intra-lot pooling of pre-enrichment samples each inoculated with a statistically insufficient number of samples such that no validation of lots testing negative is afforded.

Applicant, therefore, respectfully requests withdrawal of the Examiner's rejection of claims 1-4, 8,10-20, 22, 24-27, 31 and 32, under 35 U.S.C. 103(a) over Jarvis in view of FSIS and Midura.

Ground #2. The Examiner rejected claims 1-4, 6-18, 20, 22, 24-26, and 31, under 35 U.S.C. 103(a), as being unpatentable over FSIS in view of Price and Midura.

The Examiner states that FSIS discloses: methods of sampling ground beef for *E. coli* 0157:H7 contamination, comprising collecting a plurality of pieces or samples per lot and combining the pieces for a representative sample of a production lot (citing pages 4 and 27-28 in their entirety): the limitation of claims 2 and 10; collecting additional samples (follow-up verification) after remedial or corrective action following a positive test result (paragraph bridging pages 8-9 and page 23, last paragraph).

The Examiner states that FSIS differs from the claimed invention in that it is silent as to the testing method to be used for detection of microbial contamination and does not specify testing of foods other than ground beef products.

The Examiner states that Price teaches a method for testing multiple food samples for *Salmonella* comprising collecting a plurality of samples (or portions) from the food, inoculating the samples individually into pre-enrichment broth cultures, incubating the cultures to allow for growth of the *Salmonella, pooling the pre-enrichment broth cultures* into wet composite test lots, *incubating the pooled test lots into a single enrichment broth (the "modular composite sample" of the patented claims*), incubating the composite enrichment broth, and subsequently identifying any *Salmonella* organisms present in the culture. Price teaches that the procedure offers a simple, effective way to increase sample capacity in the *Salmonella* testing of foods and also permits the pre-enrichment broth cultures to be retained for subsequent individual analysis if a positive result is obtained from the pooled enrichment culture (see page 679, abstract; page 680, Fig. 1; page 681, column 1, second full paragraph and column 2, first full paragraph). The Examiner states that "absent evidence to the contrary, the pre-enrichment broth disclosed by Price meets the definition of enrichment medium."

The Examiner states that Midura "discloses methods for sampling and testing foods for microbial contamination. Regarding *claims 7 and 9*, Midura teaches that when products with a low incidence of the pathogen are tested, additional samples need to be collected and tested to ensure a

high probability of detecting the pathogen (see page 19, the paragraph bridging columns 1 and 2). Regarding *claim 8*, Midura teaches subsequent testing of a second sample depending on the results of the first sample in the form of multiple sampling (two or three class) attribute plans (see pages 17-20). Midura teaches collecting a plurality of samples from a food lot produced in one batch or in some specified period of time, as in patented *claim 10* (with fish, meats, shellfish, and canned ready-to-eat food products exemplified, as in patented *claims 24, 26*; see page 18, column 1, last full sentence); pooling the samples to obtain a pooled or composite sample; and testing the composite sample for the presence of microbial contaminants, with coliforms and *Salmonella* exemplified. Midura provides recommendations for the number of samples or portions necessary to detect a positive pathogenic organism at varying confidence levels (see section 2.516 beginning on page 19 and Table 1). Midura exemplifies taking 4, 5, 6, 8, 10, 30, 34, 38, 43, 50, and 60 samples, which read on the claimed ranges of 3 to 10 and 30 to 60 in patented ***claims 11 and 14*** respectively and which meets the limitations of ***claims 15 and 16.***

Applicant's Traversal. Applicants respectfully traverse the Examiner's rejection, based on the limited teachings of FSIS, Price and Midura as follows.

FSIS Directive (Exhibit 6). The FSIS directive provide instructions for sampling raw beef as part of validation testing for *E. coli* O157:H7. At page 4, cited by the Examiner, paragraph 4. states that personnel collect samples from the current day's production. At pages 27-28, cited by the Examiner, FSIS describes selection of representative samples by sampling at (1) random times during the day or (2) randomly selected boxes, according to the square root of the number of boxes rounded up to the next whole number (e.g., 6, but in no case more than 10) (FSIS page 27). FSIS additionally describes collecting small pieces using a spoon, scoop, tongs, hook, or knife and hook, depending on the size of the pieces (FSIS page 27, carry-over paragraph to page 28).

Applicant notes that the FSIS directive discusses sample for a single lot (the days production), and teaches nothing about post-enrichment pooling as presently claimed, nothing about post-enrichment inter-lot pooling as presently claimed, and nothing about validation of negative lots where a post-enrichment inter-lot pool is found to be positive, as presently claimed.

Price. Applicants respectfully contend that Price has been fundamentally misconstrued in relation to the Applicant's claimed invention, actually ***teaches awa***y from Applicant's invention in at least two fundamental ways. To facilitate the following discussion of Price, Applicant draws the Examiner's attention to Applicant's Exhibit A, Figures 1 and 2 (attached hereto).

Figure 1 (Exhibit A) illustrates the practiced industry art, as described in Applicant's issued '584 patent under "Background," for an exemplary embodiment involving testing of beef trim test lots. The test lot comprises 5 'combo' bins each containing a plurality of trim portions. In **step (1)**, 12 pieces are collected from each combo bin and placed together into enrichment medium to form one composite test lot sample of 60 pieces. In **step (2)**, the composite test lot sample is incubated/enriched until the target organism exceeds the detection level. In **step (3)**, the enriched composite test lot sample is tested. Where negative, the test lot (5 combo bins) is validated/accepted, and where positive the entire test lot (5 combo bins) is rejected.

Figure 2 (Exhibit B) illustrates an embodiment of the invention recited in the claims, and described in detail in the application as filed. Five test lots, now each comprising one 'combo' bin containing a plurality of trim portions, are tested simultaneously. In **step (1)**, 60 pieces are separately collected from each test lot (combo bin) and placed together into enrichment medium to form five separate individual composite test lot samples of 60 pieces each, wherein each test lot sample comprises a number of pieces <u>according to the lot sampling protocol</u>. In **step (2)**, the separate composite test lot samples are incubated/enriched until the target organism exceeds the detection level (e.g., N *x* the limit of detection). In **step (3)**, a wet <u>inter-lot</u> composite sample/pool (modular <u>inter-lot</u> composite sample) is prepared by combining (N-1) equal size aliquots taken from the separate enriched composite test lot samples, with retention of the remainders of the separate enriched composite test lot samples. In **step (4)**, the enriched wet <u>inter-lot</u> composite sample (modular <u>inter-lot</u> composite sample) is tested *immediately* (no further enrichment is needed because even one positive separate enriched composite test lot sample can be detected in the wet <u>inter-lot</u> composite pool because N/N-1 > 1 x the detection limit). In **step (5)**, where the wet <u>inter-lot</u> composite sample tests negative, the five original test lots (combi bins) are validated/accepted. A positive wet composite sample, however, indicates that one or more of the

separate enriched composite test lot samples is positive, and the retained separate enriched composite test lot samples can be separately retested *immediately* (no further enrichment required) to determine which one(s) contributed to the positive result and should thus be rejected, and which one(s) are negative and can yet be validated according to the lot validation plan, and thus accepted.

Figure 3 (Exhibit C) illustrates the method of Price (see also Figure 1 of Price). *First*, as described on page 681 (column 1) of Price, and as appreciated in the art, *Salmonella* in a food sample must grow out in a pre-enrichment broth in competition with other organisms. Consequently, as illustrated in **steps (1) and (2)** of Figure 3 and contrary to the urging of the Examiner and Requester in this case, Price teaches that individual samples (and not composited samples) from a single lot are pre-enriched, (and not enriched to detection). Price teaches that if many food samples are pooled at the pre-enrichment stage, the target organism (e.g., *Salmonella*) face competition from the flora of all the samples in the pool (see page 681, 1st column, 2nd full paragraph). Therefore, Price is fundamentally distinguished from the present invention because Price does not teach a composited initial test lot sample, but rather explicitly *teaches away* from the use of such composited test lot samples in its methods. Applicant's method (see attached Figure 2), by contrast, comprises initial formation of composited test lot samples that are enriched to above the detection limit prior to aliquot pooling to make the modular inter-lot composite sample (wet inter-lot composite sample). Price, on page 681 at column 1, discusses an earlier work by Silliker et al., "Laboratory Methods," FOOD-BORNE INFECTIONS AND INTOXICANTS," Chapter XI, pp. 455-474, 1969, Academic Press, New York and London, Edited by Hans Riemann; attached hereto) in which sensitivity was lost when several initial samples were pooled into pre-enrichment broth and then enriched and tested, instead of pre-enriching each sample individually, followed by wet composite pooling of pre-enriched broths as taught by Price. Price then goes on to compare detection in pooled samples (the method of Silliker 1969, with the method according to Price, and, as shown in Table 2, a higher number of positives was recovered by pooling pre-enrichments rather than by compositing/pooling the initial samples followed by pre-enrichment. Thus, Price, in premise, teaching and results, *teaches away* from the use of composited initial samples in its testing regime, Price teaches away from

combining lumping and pooling in a sampling/testing scheme, and in any event teaches only pooling of samples (lumped or non-lumped) at the pre-enrichment stage.

Second, while Price describes intra-lot pooling of pre-enrichment samples (see step (3) of attached Figure 3), it does *not* describe or teach inter-lot pooling of enriched samples (to "detectable levels"), as presently claimed. Significantly, the pre-enrichment samples of Price are fundamentally distinguished from the enriched samples according to the current invention because the pre-enrichment samples of Price are not enriched to the point of detection of the target organism (even with respect to detecting individual pre-enrichment samples), whereas the enriched samples according to the current invention are enriched to the point of detection of the target organism (both in individual enriched test sample, as well as with respect to the subsequent initial wet inter-lot composite sample). Consequently, in forming the wet composited sample of Price (see step (3) of attached Figure 3) an aliquot of the pools of Price must be subsequently incubated in a different enrichment medium (***secondary enrichment***) and incubated to increase the levels of target organisms to above the detection limit (see step (4) of attached Figure 3). Moreover, as shown in steps (6)-(8) of attached Figure 3, where the secondary enrichment culture of Price is positive (or negative), the individual pre-enrichment samples (with target organism levels below the detection level) must be individually subjected to secondary enrichment with substantial time delay, with concomitant increased risk of contamination of the pre-enrichment samples. Finally, even if one were to expand the individual pre-enrichment cultures of Price, while verification of positive testing or negative testing may be afforded, no ***validation*** of the original single lot is afforded by verification of a negatively testing individual pre-enrichment cultures. This is because the scheme and sampling of Price involves sampling of a single lot and subsequent *intra*-lot sample pooling, where the total number of samples taken from the single test lot, and collectively represented upon pooling of the pre-enrichment cultures, is a collective number chosen to statistically satisfy the statistical sampling plan of the single lot, but where the number of samples lumped in each pre-enrichment culture, as operationally applied in Price, is *insufficient* to provide for ***validation*** of the non-lumped (or lumped if such was the case) pre-enrichment culture according to the statistical sampling plan, and thus no validation (i.e.,

validation of no contamination) of the pre-enrichment samples of Jarvis method (3) is obtained or obtainable upon repeated testing of stored pre-enrichment cultures. This is in fundamental contrast to Applicant's claimed invention as described in detail herein above.

In summary for Price, in contrast to Applicant's claimed methods, Price does not teach: (i) initial formation of composited test lot samples; that (ii) are enriched to above the detection limit *prior* to aliquot pooling; to make (iii) an enriched modular inter-lot composite sample (wet composite sample) that can be tested immediately, and where (iv) the individual enriched composited test lot samples can be also be tested immediately, wherein "when such testing is positive, individual separate test lots may nonetheless yet be validated, by further testing of a portion of the respective enriched separate test lot sample…and obtaining a negative test result." Price teaches nothing about post-enrichment pooling as presently claimed, nothing about post-enrichment inter-lot pooling as presently claimed, and nothing about validation of negative lots where a post-enrichment inter-lot pool is found to be positive, as presently claimed.

Finally, with respect to the Examiner's statement that "absent evidence to the contrary, the pre-enrichment broth disclosed by Price meets the definition of enrichment medium," Applicant has provided evidence to the contrary as already discussed above herein.

Midura. Midura discusses sampling plans, collection, shipment and preparation for analysis, with the aim of providing representative samples of a food lot. A "lot" is defined at page 15 as "[t]he number of sample units produced in one batch or in some specified period of time such that the units will be about the same quality." At page 19, cited by the Examiner, Midura discusses sampling production lots having a low incidence/number of pathogen, and lists in Table 1, the number of sample units (n) needed to detect a positive result at a given level of fraction positive analytical units in a lot. Applicant notes, however, that the teachings of Midura in this respect, amount to nothing more than recommendations for the number of pieces to be taken from the initial lot given a particular suspected contamination level, and confidence/probability target.

With respect to pages 17-20, cited by the Examiner for two-class and three class attribute plans comprising multiple samplings, Applicant points out that these plans comprise re-sampling from the original lot, which is fundamentally different from Applicants claimed subject matter,

including that of Applicant's claim 8 (forming an additional modular sample from the enriched lot samples does not involve re-sampling the original respective lot).

Applicant does not see where Midura discusses lumping of samples (pooling of initial samples from the sampled lot), but even if Midura is construed as teaching as teaching lumping or pooling of the initial samples from the sampled lot, the teachings of Midura are limited to recommendation for sampling a single lot (the days production) and handling those lot samples, and teaches nothing about post-enrichment pooling as presently claimed, nothing about post-enrichment inter-lot pooling as presently claimed, and nothing about validation of negative lots where a post-enrichment inter-lot pool is found to be positive, as presently claimed.

In overall summary, Applicant's invention is more than a predictable use of prior art elements according to their established functions. FSIS in view of Price and Midura, does not disclose "pre-enrichment medium" as a medium that favors the growth of the target organisms in a way/extent that "meets the limitations of the patented claims," does not teach post-enrichment pooling, does not provide for real world validation of pre-enrichment cultures inoculated by lumped samples, and further does not teach inter-lot pooling of enriched cultures each inoculated with a number of samples to provide for validation of lots testing negative. Rather, such prior art methods that do comprise pooling, comprise intra-lot pooling of pre-enrichment samples each inoculated with a statistically insufficient number of samples such that no validation of lots testing negative is afforded. FSIS in view of Price and Midura does not teach, describe, suggest, or otherwise motivate Applicant's claimed invention. Applicant's invention solves a long-standing technical problem in the art, namely how to provide for a more statistically robust sample protocol for test lots, without sacrificing speed and economy so that the scheme will actually be used in commerce to save human lives. The time savings, relative to the prior art methods, have profound consequences in the art in which these procedures are practiced because pre-validated food products must be stored or 'held-up' at substantial cost under preserving conditions, with shipping only after the test lots are cleared/validated. With Applicant's faster and more accurate testing procedure, test lots can be tested and cleared/validated in less time and with greater accuracy which results in substantial savings to food processors and safety to consumers.

Technically, because sampling and testing procedures are *per se* expensive, there is a strong incentive using prior art methods to use limited or minimal sampling protocols (limited number of samples) from relatively *large* test lots—resulting in non-statistically robust sampling protocols. However, with Applicant's faster and more accurate testing procedure, and that fact "wherein when such testing is positive, individual separate test lots may nonetheless yet be validated, by further testing of a portion of the respective enriched separate test lot sample…and obtaining a negative test result"—food processors accept the increase the in initial sample numbers, and attendant additional expense, taken during compositing from relatively *smaller* lots, providing for a technical advantage in that the initial sampling is more statistically *robust* . Applicant's method, therefore, satisfies a long-standing need in the art by providing for speed, economy, and a more statistically robust test lot sample protocol to save human lives.

Applicants respectfully contend that the above asserted teachings **do not in fact raise any substantial new questions of patentability** beyond those already of record in the underlying issued patent prosecution history.

Applicant, therefore, respectfully requests withdrawal of the Examiner's rejection of claims 1-4, 6-18, 20, 22, 24-26, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over FSIS in view of Price and Midura.

Ground #3. The Examiner rejected claims 1 and 17, under 35 U.S.C. 103(a), as allegedly being unpatentable over Jarvis in view of Patent owner's admissions regarding the state of the prior art.

The Examiner re-states the teachings of Jarvis, "[a]s was set forth *supra* (Ground 1), with respect to *claims 1 and 17*, which are not repeated here.

The Examiner states that the method described by Jarvis differs from the claimed method in that Jarvis defines incubation of the individual test lot samples as "pre-enrichment," while the patented claims recite incubating the test lot samples in medium favorable for "enrichment" of the target microbial agent or organism (see step "c" of patented *claims 1 and* 17). However, as

has previously been set forth herein, the '584 patent specification defines "enrichment" as "incubating a test lot sample under conditions suitable to allow levels of a target agent or organism to reach detectable levels..." (see column 6, lines 7-16). Absent evidence to the contrary, incubation in the pre-enrichment medium disclosed by Jarvis meets the limitation of step c) in patented claims 1 and 17.

Applicant has provided evidence to the contrary as already discussed above herein in relation to Applicant's rebuttal of Ground 1. Jarvis does not disclose "pre-enrichment medium" as a medium that favors the growth of the target organism in a way that "meets the limitations of the patented claims," because Jarvis uses pre-enrichment medium in the classical sense and does not provide for microbial contamination "to reach detectable levels." As widely appreciated in the relevant art, including that of the presently cited Jarvis, incubation in "pre-enrichment" broth/medium is a *resuscitative* culture/stage that is not subjected to organism testing absent subsequent enrichment because, while there may be some limited target organism growth during pre-enrichment, the number of target organisms achieved is not functionally/operationally sufficient for meaningful assay/testing, whereas incubation in enrichment broth/medium during an enrichment stage is recognized in the art as providing a level of target organism growth functionally/operationally sufficient for meaningful assay/testing. Jarvis refers to and uses "pre-enrichment" and "enrichment" medium/incubation consistent with the art-recognized meanings, and nowhere, does Jarvis teach or suggest testing (absent subsequent enrichment) for the organism after mere "pre-enrichment," thereby providing the "evidence to the contrary" requested by the Examiner. For example, at page 135 (cited by the Examiner) Jarvis states that in the analysis of foods for low numbers of pathogenic organisms, "it is normal to inoculate one or more samples into a suitable selective or enrichment medium prior to streaking on to a diagnostic medium to determine whether or not the specific organism sought is present." Moreover, assays (1) through (3) described by Jarvis explicitly draw the art recognized functional/operative distinction between "pre-enrichment" and "enrichment" medium. In fact, Jarvis 1989, page141, first paragraph, teaches that the function of the pre-enrichment media is to allow for multiplication of the target organism to a level that will ensure the transfer of at least one viable cell to the enrichment media.

Jarvis clearly states that if the pre-enrichment only resuscitates, then the entire pre-enrichment is to be transferred to the enrichment step—in which case retaining a portion for later validation testing would be impossible (*Id*, "In methods which permit only resuscitation, not growth, during pre-enrichment, it is essential to use the entire pre-enrichment culture to inoculate double-strength enrichment medium (Hall, 1975), although selectivity may then be affected by the food constituents") (see also Jarvis, "On the compositing of samples for qualitative microbiological testing," Letters in Applied Microbiology, 2007, pp. 592-598, Volume 45; attached hereto).

In other words, growth in the pre-enrichment media of Jarvis is not to detection level, and rather is either for resuscitation in which case the entire pre-enrichment is to be transferred to enrichment, or allows for limited growth to ensure that there is at least one viable organism in the portion which is transferred to the enrichment step. Moreover, the disclosure of Jarvis regarding pooling is limited to only one organism (Salmonella).

The Examiner additionally states that "[w]hile Jarvis teaches collecting multiple samples (10) and either incubating them individually in pre-enrichment broth cultures or pooling a portion (about 5) of the samples for incubation in the pre-enrichment broth cultures, Jarvis does not specify collecting plural portions from each of a plurality of test lots, each test lot comprising one or more specimens, and combining the portions to provide a corresponding set of separate test lot samples for testing. However, Patent owner admits in the Background section of the '584 patent specification that in the testing of foods, pharmaceuticals, neutraceuticals, water and the environment, collecting plural portions from each of a plurality of test lots, each test lot comprising one or more specimens, and combining the portions for subsequent testing was well known in the art (see column 1, line 37, through column 2, line 26).

Applicant points out that Applicants patent, as cited by the Examiner, teaches that "The operative art with respect to such product "hold and release" monitoring efforts comprises various different sampling plans, typically pursuant to International Commission on Microbial Specifications for Food (ICMSF) guidelines for testing food products, FDA and USDA or EPA guidelines, or intuitive sampling plans. The common feature of these sampling plans is that several samples representing production lots, or a number of environmental samples, are combined

into a combined production lot prior to sampling. For example, a typical plan for microbial pathogen detection calls for taking more than one sample, for instance ten (10) to sixty (60) sample pieces from a given sample lot (combined production lot), to form a *composite sample* for testing." Specifically, this statement merely describes the art-recognized practice of sample lumping; that is, combining the samples taken from a lot to be tested.

The limitations and deficiencies of Jarvis, as discussed in detail above, are in no way cured by any statement that sample lumping was already known in the art, and Applicant respectfully contends that the Examiner's position in this regard is unsupportable. Any alleged motivation to test by the Jarvis method would, as described above, be a contrary motivation (i.e., teaching away) from Applicant's claimed invention. Applicants contend that the teachings of Jarvis (with or without the discussion in Applicant's "Background" section of Applicant's patent) **do not in fact raise any substantial new questions of patentability** beyond the teachings of alleged prior art (e.g, Price et al., and Silliker et al.,) already of record in the underlying issued patent prosecution history.

Applicant, therefore, respectfully requests withdrawal of the Examiner's rejection of claims 1 and 17 as obvious over Jarvis in view of Patent owner's admissions regarding the state of the prior art.

Ground #4. The Examiner did not adopt Ground #4 for the reasons stated in the Office Action. Applicant, for the record, traverses Ground #4 even if it had been adopted, based on the arguments discussed herein.

Ground #5. The Examiner rejected claims 1 and 17, under 35 U.S.C. 103(a), as allegedly being unpatentable over Andrews in view of Price and Midura.

Jarvis and Midura have been discussed above in detail.

The Examiner states, with respect to claims 1 and 17, that "Andrews (reference 4.;

Exhibit 5) teaches methods of testing foods for the presence of *Salmonella* comprising collecting at random a plurality of portions (analytical units) from the food to be analyzed to comprise a larger sample unit, which is then used to determine the acceptability of the entire lot of food (see page 358, column 2, full paragraph). Andrews teaches that because *Salmonella* organisms in foods are often present in low numbers and in a debilitated condition due to processing the food, samples should be inoculated into pre-enrichment broth cultures (with lactose broth exemplified) and incubated to allow the organisms to reach a desired number and condition prior to inoculation into and then incubated again in a second enrichment medium, which is selective for the target organism (see page 360, sections 37.123 and 37.124)."

The Examiner states that "the method described by Andrews differs from the claimed method in that Andrews defines incubation of the analytical samples as "pre-enrichment," while the patented claims recite incubating the test lot samples in medium favorable for "enrichment" of the target microbial agent or organism (see step "c" of patented *claims 1 and 17*). However, as has previously been set forth herein, the '584 patent specification defines "enrichment" as" incubating a test lot sample under conditions suitable to allow levels of a target agent or organism to reach detectable levels..." (see column 6, lines 7-16). The Examiner states that "[a]bsent evidence to the contrary, incubation in the pre-enrichment medium disclosed by Andrews meets the limitation of step c) in patented *claims 1 and 17.*

The Examiner states that "Andrews also does not teach incubating the sample units or test lots separately, as in the patented claims."

Price and Midura have been discussed above.

The Examiner concludes that "[i]t would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to have incubated the pre-enrichment broth cultures taught by Andrews separately, as suggested by Price, in order to be able to specifically identify the contaminated food. The person of ordinary skill in the art at the time of the invention would also have found it *prima facie* obvious to have collected a plurality of samples, and/or to have performed multiple sampling runs, as recommended by Midura, in

order to be able to detect highly pathogenic organisms present in foods at low levels."

Applicant respectfully traverses this rejection.

The deficiencies and limitations of Price and Midura, in view of Applicant's claimed invention have been discussed above in detail, said discussions respectfully deemed not to be required here to avoid unnecessary redundancy.

Additionally, Andrews, Price, Jarvis or Midura, alone or in combination, do not disclose "pre-enrichment medium" as a medium that favors the growth of the target organism in a way that "meets the limitations of the patented claims," for reasons that have been discussed above in detail.

Andrews, alone or in combination with Price and Midura, does not disclose "pre-enrichment medium" as a medium that favors the growth of the target organisms in a way/extent that "meets the limitations of the patented claims," does not teach post-enrichment pooling, does not provide for real world validation of pre-enrichment cultures inoculated by lumped samples, and further does not teach inter-lot pooling of enriched cultures each inoculated with a number of samples to provide for validation of lots testing negative. Rather, such prior art methods that do comprise pooling, comprise intra-lot pooling of pre-enrichment samples each inoculated with a statistically insufficient number of samples such that no validation of lots testing negative is afforded.

Applicants respectfully contend that the above asserted teachings **do not in fact raise any substantial new questions of patentability** beyond those already of record in the underlying issued patent prosecution history.

Applicant, therefore, respectfully requests withdrawal of the Examiner's rejection of claims 1 and 17, under 35 U.S.C. 103(a), as allegedly being unpatentable over Andrews in view of Price and Midura.

Ground #6. The Examiner rejected claims 1 and 17, under 35 U.S.C. 103(a), as allegedly being unpatentable over Silliker in view of Price and Midura.

The Examiner states that "Silliker discloses a method for sampling dried foods for *Salmonella* contamination comprising collecting a plurality of 25g or 100 g subsamples, incubating these subsamples in individual cultures of pre-enrichment broth, and wet compositing the pre-enrichment cultures in groups of five (for 25 g subsamples) or three (for 100 g subsamples) (see page 475, abstract and last full paragraph of the page, and page 176, column 1, second full paragraph, and column 2, last full paragraph). Silliker teaches that pooling sixty 25g or fifteen 100g pre-enrichment cultures into groups of 5 (wet compositing) followed by selective enrichment of the composites is as sensitive a detection method as analysis of individual samples (page 478, last full paragraph of the page) and is economically more feasible (page 179, first full paragraph)."

The Examiner states that the "method described by Silliker differs from the claimed method in that Silliker defines the incubation step of individual cultures as "pre-enrichment," while the patented claims recite separately incubating the test lot samples in medium favorable for "enrichment" of the target microbial agent or organism (see step "c" of patented *claims 1 and 17*). However, as has previously been set forth herein, the '584 patent specification defines "enrichment" as "incubating a test lot sample under conditions suitable to allow levels of a target agent or organism to reach detectable levels..." (see column 6, lines 7-16). Absent evidence to the contrary, incubation of the pre-enrichment cultures disclosed by Silliker meets the limitation of step c) in patented *claims 1 and 17.* Silliker does not teach testing individual subsamples separately upon obtaining a positive result from the composite sample.

Price and Midura have already been discussed above.

The Examiner states that it "would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to have followed the composite testing disclosed by Gabis with individual tests of the pre-enrichment cultures upon obtaining a positive result for the composite subsample, as suggested by Price. The person of ordinary skill in the art at the time of the invention would have been motivated to do so to track the contamination to a particular subsample so as to specifically identify the contaminated food. The person of ordinary skill in the art at the time of the invention would also have found it

prima facie obvious to have collected a plurality of samples, as recommended by Midura, in order to be able to detect highly pathogenic organisms present in foods at low levels.

Applicant respectfully traverses this rejection.

The deficiencies and limitations of Price and Midura, in view of Applicant's claimed invention have been discussed above in detail, said discussions respectfully deemed not to be required here to avoid unnecessary redundancy.

As initial matters, Applicant has provided evidence to the contrary as already discussed above herein in relation to Applicant's rebuttal of Ground 1. Silliker (nor Jarvis nor Price) does not disclose "pre-enrichment medium" as a medium that favors the growth of the target organism in a way that "meets the limitations of the patented claims."

Additionally, Applicants contend that one of ordinary skill in the art would not have construed Silliker (despite the statement at page 478, last full paragraph of the page) as an indication that pre-enrichment pooling of lumped samples was as reliable as pre-enrichment non-lumped samples as urged by the Examiner ("Silliker teaches that pooling sixty 25g or fifteen 100g pre-enrichment cultures into groups of 5 (wet compositing) followed by selective enrichment of the composites is as sensitive a detection method as analysis of individual samples (page 478, last full paragraph of the page))." Specifically, as discussed above in relation to Ground 1, Silliker show in their data of Table 1 of page 477(compare the second and fifth column of data for 100 gm samples) that lumping combined with pooling results false negatives, and, for example, state that "[i]n test 18, three of the fifteen 100-g subsamples were positive, but all of the wet composites were negative" and that "a minimum of one and a maximum of three positives would have been expected" (Id page 477 second column). Additionally Silliker discusses that "Silliker (Appendix D of reference 2) reported that of 106 we composites derived from 1060 individual sample, 39 were positive for Salmonella and 66 were negative. In seven instances negative results were obtained despite the fact that one or more of the 10 individual samples comprising the wet composite did contain salmonella. Thus, these seven were false negative results."

Silliker. Applicant respectfully points out that Silliker, alone or in combination with Price and Midura, in fact *teaches away* and is fundamentally distinguished from the current invention.

Applicant draws the Examiner's attention to Applicant's explanatory Figures 2 and 4, attached hereto (Exhibits B and D). Figure 2, as described in detail above, illustrates an embodiment of Applicant's invention as presently claimed. Figure 4 illustrates the method of Silliker.

As an initial matter, the aim of Silliker was to determine if, rather than testing sixty 25 g samples, a fewer number larger samples (e.g., 100g or 500g) could be used to reduce the laboratory work if such schemes were as efficient in detecting *Salmonella*. D2, at page 476 top of column 1, refer to Silliker's own earlier work where testing of 400 g samples resulted in loss of sensitivity relative to testing of 25 g samples. D2 also comment that over-dilution of wet compositing (106 wet composites from 1060 individual samples) can cause false negative problems, but that Price et al., had reported that 25 pre-enrichment broths could be composited. Given this background, the clear aim of Sillker was to compare different pre-enrichment sample sizes and respectively different wet compositing protocols. However, the teachings of Silliker et al are fundamentally distinguished from those of Applicant's presently claimed invention.

First, while Silliker may have referred to 'composited samples', the source of the samples (chocolate almond bars and milk chocolate) were made effectively homogeneous by first grinding in a meat grinder through 8 mm holes, and then reground through a plate with 3 mm holes. Alternatively foods were homogenized in a liquid-solids blender. Thus, because of the homogenous nature of the test lots, as in the case of Price, while Silliker used test lot samples of different sizes, Silliker did not actually make composited test lot samples (see step (1) of attached Figure 4). See, for example, Silliker at page 476 at columns 1 and 2 under "Sample Preparation" and "*Sampling*." With the homogenous samples of Silliker, combining, for example, four 25 g samples to make a 100 g sample is equivalent to taking a 100 g sample. Silliker does not, therefore, teach initially composited (i.e., lumped) samples in its methods.

Second, , as in the case of Price, while Silliker describes pooling of pre-enrichment samples (Silliker, page 476, 2nd column) , it does not describe or teach pooling of enriched samples as presently claimed. Significantly, the pre-enrichment samples of Silliker are fundamentally distinguished from Applicant's enriched samples because the pre-enrichment

samples of Silliker are not enriched to provide for detection of the target organism (see steps (2) and (3) of attached Figure 4, Exhibit B), whereas Applicant's enriched samples are enriched to provide for of detection of the target organism (see steps (1) and (2) of attached Figure 2, Exhibit B). Consequently, in forming the wet composited sample of Silliker an aliquot of the pools of Silliker must be subsequently transferred to a new enrichment medium (secondary enrichment) and incubated to increase the levels of target organisms to above the detection limit (see steps (3) and (4) of attached Figure 4, Exhibit D), and as described in the Method section of Silliker. Moreover, as in the case of Price, where the secondary enrichment culture of Silliker is positive, the individual pre-enrichment samples (with target organism levels below the detection level) must/would be subjected to secondary enrichment with substantial time delay, with concomitant increased risk of contamination of the pre-enrichment samples).

In conclusion, Silliker is fundamentally distinguished from the current set of claims. In contrast to Applicant's method (see, e.g., steps (2)-(5) of attached Figure 2, Exhibit B), Silliker does not teach: (i) initial formation of composited test lot samples from multiple test lots; that (ii) are enriched to above the detection limit *prior* to inter-lot aliquot pooling; to make (iii) the modular inter-lot composite sample (wet composite inter-lot sample) that can be tested immediately, and where (iv) the individual enriched composited test lot samples can be also be tested immediately; wherein "when such testing is positive, individual separate test lots may nonetheless yet be validated, by further testing of a portion of the respective enriched separate test lot sample…and obtaining a negative test result." Silliker teaches nothing about post-enrichment pooling as presently claimed, nothing about post-enrichment inter-lot pooling as presently claimed, and nothing about validation of negative lots where a post-enrichment inter-lot pool is found to be positive, as presently claimed.

In summary, Silliker, alone or in combination with Price and/or Midura, and/or the other asserted alleged prior art, *teaches away* from the present invention, and is fundamentally distinguished from claimed invention. Price and Midura do not cure the deficiencies of Silliker in view of Applicant's claimed invention. Applicants respectfully contend that the above asserted teachings **do not in fact raise any substantial new**

questions of patentability beyond those already of record in the underlying issued patent prosecution history.

Applicant, therefore, respectfully request withdrawal of the rejection of claims 1 and 17, under 35 U.S.C. 103(a), as allegedly being unpatentable over Silliker in view of Price and Midura.

Ground #7. The Examiner rejected claims 1 and 17, under 35 U.S.C. 103(a), as allegedly being unpatentable over Gabis in view of Price and Midura.

The Examiner states that "Gabis discloses methods for sampling and testing high moisture foods, with meat and poultry exemplified, by collecting thirteen 25 g specimens, inoculating each of the specimens individually into pre-enrichment broth cultures, incubating the pre-enrichment cultures to allow for levels of the organism to increase, pooling portions of each of the pre-enrichment cultures into a composite or pooled sample in a single enrichment broth culture, incubating the enrichment broth culture, and subsequently recovering and identifying the salmonellae. Gabis teaches that analysis of a single composite sample is as sensitive as analysis of each of the individual subsamples (see page 663, abstract and first paragraph of the page; page 664, the paragraph bridging columns 1 and 2 and column 2, first two full paragraphs; and page 668, first full paragraph)." Essentially, therefore, the Examiner is stating that Gabis teaches "inoculating each of the specimens" sampled from a lot into individual "pre-enrichment culture," followed by intra-lot pooling at the pre-enrichment samples into enrichment medium, followed by assay.

The Examiner further states that the "method described by Gabis differs from the claimed method in that Gabis defines the incubation step in individual cultures as "pre-enrichment," while the patented claims recite separately incubating the test lot samples in medium favorable for "enrichment" of the target microbial agent or organism (see step "c" of patented *claims 1 and 17*). However, as has previously been set forth herein, the '584 patent specification defines "enrichment" as "incubating a test lot sample under conditions suitable to allow levels of a target agent or organism to reach detectable levels..." (see column 6, lines 7-16).

Absent evidence to the contrary, incubation of the pre-enrichment cultures disclosed by Gabis meets the limitation of step c) in patented *claims 1 and 17.*

The Examiner states that Gabis does not teach testing individual subsamples separately upon obtaining a positive result from the composite sample.

Applicant respectfully traverses the rejection.

As an initial matter, Applicant has provided evidence to the contrary as already discussed above herein in relation to Applicant's rebuttal of Ground 1. Gabis (nor Jarvis, Price, Silliker or Midura) does not disclose "pre-enrichment medium" as a medium that favors the growth of the target organism in a way that "meets the limitations of the patented claims."

Gabis (reference 8; Exhibit 9). As acknowledged by the Examiner, the teachings of Gabis are limited "inoculating each of the specimens" sampled from a lot into individual "pre-enrichment culture," followed by intra-lot pooling at the pre-enrichment samples into enrichment medium, followed by assay. In this respect, Gabis does not differ from the teachings of Silliker and Gabis (Silliker) discussed above.

The deficiencies and limitations of Price and Midura, in view of Applicant's claimed invention have been discussed above in detail, said discussions respectfully deemed not to be required here to avoid unnecessary redundancy.

In summary, Gabis is fundamentally distinguished from the current set of claims. In contrast to Applicant's method (see, e.g., steps (2)-(5) of attached Figure 2, Exhibit B), Gabis, alone or in combination with Price and Midura, does not teach: (i) initial formation of composited test lot samples from multiple test lots; that (ii) are enriched to above the detection limit *prior* to inter-lot aliquot pooling; to make (iii) the modular inter-lot composite sample (wet composite inter-lot sample) that can be tested immediately, and where (iv) the individual enriched composited test lot samples can be also be tested immediately; wherein "when such testing is positive, individual separate test lots may nonetheless yet be validated, by further testing of a portion of the respective enriched separate test lot sample…and obtaining a negative test result." Gabis, alone or in combination with Price and Midura, teaches nothing about post-enrichment pooling as presently claimed, nothing about post-enrichment inter-lot pooling as presently

claimed, and nothing about validation of negative lots where a post-enrichment inter-lot pool is found to be positive, as presently claimed.

Applicants respectfully contend that the above asserted teachings **do not in fact raise any substantial new questions of patentability** beyond those already of record in the underlying issued patent prosecution history.

Applicant, therefore, respectfully requests withdrawal of the rejection of claims 1 and 17, under 35 U.S.C. 103(a), as allegedly being unpatentable over Gabis in view of Price and Midura.

Ground #8. The Examiner rejected claims 1 and 17, under 35 U.S.C. 103(a), as allegedly being unpatentable over Jarvis in view of BAM.

The Examiner discusses Jarvis as per Ground 1.

The Examiner states that the "method described by Jarvis differs from the claimed method in that Jarvis defines incubation of the individual test lot samples as "pre-enrichment," while the patented claims recite incubating the test lot samples in medium favorable for "enrichment" of the target microbial agent or organism (see step "c" of patented *claims 1 and 17*. However, as has previously been set forth herein, the '584 patent specification defines "enrichment" as "incubating a test lot sample under conditions suitable to allow levels of a target agent or organism to reach detectable levels..." (see column 6, lines 7-16). Absent evidence to the contrary, incubation in the pre-enrichment medium disclosed by Jarvis meets the limitation of step c) in patented *claims 1 and 17*.

The Examiner states that "[w]hile Jarvis teaches collecting multiple samples (10) and either incubating them individually in pre-enrichment broth cultures or pooling a portion (about 5) of the samples for incubation in the pre-enrichment broth cultures, Jarvis does not specify collecting plural portions from each of a plurality of test lots, each test lot comprising one or more specimens, and combining the portions to provide a corresponding set of separate test lot samples for testing.

The Examiner states that "BAM teaches that multiple analytical samples must be collected from food for detection of *Salmonella,* with the number of samples collected

depending on the category of the food. BAM teaches collecting a plurality of analytical units at random from a food lot (equivalent to portions of a test lot), combining the collected samples or portions into a composite test lot sample, inoculating the composite test lot sample into pre-enrichment medium, incubating the pre-enrichment medium, and subsequently testing for the presence of *Salmonella*. BAM teaches that when the composite unit tests negative, all of the sample lot are considered acceptable (or validated) and when the composite sample tests positive, the food lot is rejected (see pages 3 and 5 in their entirety).

The Examiner concludes that it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to have collected a plurality of food samples, as outlined by BAM, for testing by the method of Jarvis. The person of ordinary skill in the art at the time of the invention would have been motivated to test by the Jarvis method because Jarvis teaches that enrichment of samples in separate pre-enrichment broth cultures allows *for subsequent identification of individual positive samples* if the composite sample tests positive for a target agent or organism, thereby negating the necessity for rejecting the entire food lot" (emphasis added).

Applicant respectfully traverses the rejection.

BAM (reference 10, Exhibit 11). As acknowledged by the Examiner, the teachings of BAM do not extend beyond, the prior art methods discussed herein; namely, collecting a plurality of samples at random from a lot, and lumping (combining) the collected samples or portions into a composite test lot sample inoculated into pre-enrichment medium, prior to inoculation into enrichment and assay.

The various deficiencies and limitations of Jarvis, in view of Applicant's claimed invention have been discussed above in detail, said discussions respectfully deemed not to be required here to avoid unnecessary redundancy. The Examiner's attention is, however, again directed to the fact that *verification of positive* samples by retesting of the stored individual pre-enrichment cultures, according to prior art methods (including Jarvis and BAM) is fundamentally different from statistical "**validation**" (i.e., validation of no contamination by means of a number of samples sufficient for a required level of statistical confidence) of

individual pre-enrichment cultures. This is because prior art statistical testing methods (including those described by Jarvis) involve sampling of a single lot and subsequent *intra*-lot sample pooling, where the total number of samples taken from the single test lot, and collectively represented upon pooling of the pre-enrichment cultures, is a collective number chosen to statistically satisfy the statistical sampling plan of the single lot (e.g., 10 samples in the case of the Jarvis examples), but where the number of samples lumped in each pre-enrichment culture (e.g., 5, as in Jarvis method (3)), as operationally applied in the prior art, is *insufficient* to provide for ***validation*** of the lumped pre-enrichment culture according to the statistical sampling plan, and thus no validation (i.e., validation of no contamination) of the pre-enrichment samples of Jarvis method (3) is obtained or obtainable upon repeated testing of stored pre-enrichment cultures. This is in fundamental contrast to Applicant's claimed invention, wherein, as recited in step (e) of claims 1 and 17, "when such testing is positive, individual separate test lots may nonetheless yet be **validated** by further testing of a portion of the respective enriched separate test lot sample… and obtaining a negative test result." Applicants are thus testing liquid culture medium, whereas Jarvis must go back and get involved with more sampling if actual validation is sought—but this is not allowed under testing regulations. Applicant's method comprises *inter*-lot pooling of enriched cultures each inoculated with a statistically sufficient number of samples to satisfy lot validation criteria, whereas prior art methods, including that of Jarvis, comprise *intra*-lot pooling of pre-enrichment samples—each inoculated with a statistically insufficient number of samples to satisfy lot validation criteria.

In summary, Jarvis, alone or in combination with BAM, is fundamentally distinguished from the current set of claims. In contrast to Applicant's method (see, e.g., steps (2)-(5) of attached Figure 2, Exhibit B), Jarvis, alone or in combination with BAM, does not teach: (i) initial formation of composited test lot samples from multiple test lots; that (ii) are enriched to above the detection limit *prior* to inter-lot aliquot pooling; to make (iii) the modular inter-lot composite sample (wet composite inter-lot sample) that can be tested immediately, and where (iv) the individual enriched composited test lot samples can be also

be tested immediately; wherein "when such testing is positive, individual separate test lots may nonetheless yet be validated, by further testing of a portion of the respective enriched separate test lot sample…and obtaining a negative test result." Jarvis, alone or in combination with BAM, teaches nothing about post-enrichment pooling as presently claimed, nothing about post-enrichment inter-lot pooling as presently claimed, and nothing about validation of negative lots where a post-enrichment inter-lot pool is found to be positive, as presently claimed. Applicants respectfully contend that the above asserted teachings **do not in fact raise any substantial new questions of patentability** beyond those already of record in the underlying issued patent prosecution history.

Applicant, therefore, respectfully requests withdrawal of the rejection of claims 1 and 17, under 35 U.S.C. 103(a), as allegedly being unpatentable over Jarvis in view of BAM.

Ground #9. The Examiner rejected claims 1 and 17, under 35 U.S.C. 103(a), as allegedly being unpatentable over Price in view of BAM and Davies.

The Examiner discusses Price as already summarized herein above.

The Examiner states that "Price differs from the claimed invention in that it specifies incubation of individual samples in a pre-enrichment broth; however, as has been set forth previously herein, the '584 patent specification defines "enrichment" as "incubating a test lot sample under conditions suitable to allow levels of a target agent or organism to reach detectable levels..." (see column 6, lines 7-16). Absent evidence to the contrary, incubation in the pre-enrichment medium disclosed by Price meets the limitation of step c) in patented *claims 1 and 17.* Also, while Price teaches collecting multiple samples and incubating them individually in pre-enrichment broth cultures which are then pooled, Price does not specify collecting plural portions from each of a plurality of test lots, each test lot comprising one or more specimens, and combining the portions to provide a corresponding set of separate test lot samples for testing."

The Examiner states that "BAM teaches that multiple analytical samples must be collected from food for detection of *Salmonella,* with the number of samples collected depending on the category of the food. BAM teaches collecting a plurality of analytical units at random from a food

lot (equivalent to portions of a test lot), combining the collected samples or portions into a composite test lot sample, inoculating the composite test lot sample into pre-enrichment medium, incubating the pre-enrichment medium, and subsequently testing for the presence of *Salmonella.* BAM teaches that when the composite unit tests negative, all of the sample lot are considered acceptable (or validated) and when the composite sample tests positive, *the food lot is rejected* (see pages 3 and 5)" (emphasis added).

The Examiner states that Davies "discloses methods of sampling and testing pooled samples (test lots) taken from pig herds for *Salmonella* contamination (see the abstract and page 1017 in its entirety). After sample collection and pooling, composite pooled specimens were incubated in enrichment broth (buffered peptone water) and subsequently plated onto agar plates for detection of *Salmonella* contamination. Davies teaches pooled samples for bacteriological testing as pinch-sized fecal samples, carcass swabs, and muscle swabs, among others (for a plurality of assembled portions) (see page 1017, right column, first full paragraph). Davies teaches that testing pooled samples compares well with testing individual samples (page 1023, column 2, second full paragraph)."

The Examiner, based on this, concludes that it "would have been *prima facie* obvious for one of ordinary skill in the art at the time of the invention to have collected a plurality of portions of food, as taught by either of BAM or Davies, and to have combined the portions to provide a corresponding set of composite test lot samples for testing, as taught by Price. The person of ordinary skill in the art at the time of the invention would have also found it *prima facie* obvious to have inoculated each of the test lot samples into separate enrichment broth cultures, to have incubated them to allow the target agent or organism to reach detectable levels, and then to have pooled aliquots for testing because all of Price, BAM and Davies teach that composite testing is as sensitive as individual cultures, and Price teaches that separately enriching the samples allows for individual testing upon obtaining a positive test result from the composite sample."

Applicant respectfully traverses the rejection.

The deficiencies and limitations of Price and BAM have already been discussed in detail

herein above, and thus are not repeated here.

Davies et al. Davies et al., alone or in combination with Price and/or BAM, does not teach, suggest or otherwise motivate all the elements of the presently claimed subject matter, because while Davies et al. may teach classic sample pooling and enriching thereof, Davies et al. does teach or suggest enrichment of a "test lot sample", as recited in present claim 1 steps (b) and (c), **for use in** preparing a "modular inter-lot composite sample," as recited in present claim 1 (d). Rather, Davies et al. only teaches simple sample pooling (**in the absence of modular inter-lot composite sample as presently claimed**) to make a classical composite sample for enrichment and then assaying the enriched sample directly (see Figure 1 of attached Exhibit A), which, in terms of Applicant's novel scheme, only amounts to preparation and enrichment of a "test lot sample," but in Davies et al, there is a complete absence of preparing and assaying a modular composite sample as presently claimed, much less a modular inter-lot composite sample (see Figure 2 of attached Exhibit B) and which allows, in the case of a positive testing modular inter-lot composite sample, for returning to assay the retained individual enriched test lot samples determine which enriched test lot samples contributed to the positive result such that positive enriched test lots are rejected while negative test lots are validated per the lot validation plan and accepted.

Specifically, the teachings of Davies et al. are limited to the use of pooled samples to provide a cheaper *Salmonella* monitoring program to identify infected finishing pig herds (e.g., see Abstract of Davies et al.; page 1017, column 1, second full paragraph; Table 4; Figure 2, etc.). Specifically, Davies et al. sampled meat juice, serum, caecal contents, carcass swabs, and pooled faeces from pig pens from 20 commercial finishing farms. The aim was to determine whether pooled serum and meat juice could be used to identify finishing pig herds with a high prevalence of infection by *Salmonella*. Specifically, comparisons were made between assay results of: *Salmonella* culture, individual ELISA tests on serum and meat juice, and pooled samples of serum and meat juice. While *Salmonella* was isolated from the samples of 19 of the 20 commercial farms, the ELISA tests failed to show significant correlation with caecal carriage of *Salmonella* or contamination of carcasses. However, mean optical density (O.D.) from pools of sera (from 5, 10

or 20 sera) showed a significant correlation with the *Salmonella* status of farm pen faeces. The conclusion of Davies et al. is that while there is a generally poor correlation between serological and bacteriological results, pooled serum or meat juice samples can be used as a cheaper substitute for serological screening of farms for Salmonella than individual samples. Davies et al., therefore, teaches pooling of samples to provide cheaper monitoring, but nothing more.

Davies et al. teaches only simple sample pooling to make a classical composite (lumped) sample for enrichment and then assaying the enriched sample directly. For example, as explained on page 1017 and 1018 (under "Laboratory tests"), pooled pen faeces samples are added to media and incubated (enriched) prior to assay. Applicant has attached Figures 1 and 2 of Exhibits A and B, respectively, to facilitate the Examiner's review. Specifically, Davies et al. teaches only classical sample pooling to make a composite sample for enrichment and testing as shown in the Figure 1 diagram of Exhibit A. Significantly however, none of the pooled samples of Davies et al. were used after enrichment to prepare the equivalent of a "modular composite sample" much less "a modular inter-lot composite sample," as presently claimed by Applicant (see Figure 2 of Exhibit B, which diagrammatically reproduces an embodiment of the method according to Applicant's claims).

Specifically, the upper portion of Figure 2 of Exhibit B illustrates an exemplary preferred embodiment of Applicant's invention as applied to lot testing of food products such as beef trim, in which a plurality of portions (e.g., 60 independent portions) are collected from each test lot and are placed into a single bag (or other suitable test containers) to provide a respective set of test lot samples (corresponds to steps a) and b) of claim 1). Each test lot sample is then enriched individually (corresponds to step c) of claim 1). A portion (e.g., equal volume portions) of medium is removed from each of the enriched test lot samples and placed together into a single wet modular inter-lot composite sample (e.g., test tube) (corresponds to step d) of claim 1). The wet composite is then tested (corresponds to step e) of claim 1). Not shown in the diagram is an optional incubation/enrichment step between the Modular Inter-Lot Composite Sample and an Enriched Modular Inter-Lot Composite Sample. If a negative test result form microbial agents or organisms is obtained with respect to the modular inter-lot composite sample, all of the test lot

members of the composite are deemed to be negative for the pathogen of interest. On the other hand, if a positive result is obtained on the modular inter-lot composite sample, samples from each of the individual enriched test lot samples (retained) that were used to prepare to the wet modular inter-lot composite sample are individually tested (e.g., using the same test protocol or an alternate protocol with at least the same level of sensitivity).

Davies et al., alone or in combination with Price and BAM, do not teach, suggest, or motivate, for example steps 3 and 4 of the Figure 2, Exhibit B diagram, which correspond to exemplary preparation and testing of a modular composite sample as in Applicant's claim 1, steps d) and e). Likewise in Davies et al., pooled serum and meat juice samples were tested individually and as pools, but these were not enriched but rather assayed directly by ELISA.

Therefore, while the method of Davies et al., provides, as intended, merely a cheaper way of assaying by making classical pooled samples (composite lumped samples), Davies et al. do not make modular composite samples from enriched pooled samples, much less modular inter-lot composite samples. For example, in Davies et al., for the pens of each of 20 commercial pig finishing farms, one pooled sample was made for each specific farm pen, and the samples were separately submitted for analysis (see Davies et al., page 1017, column 2, first full paragraph). There was, however, no formation of a overall modular composite sample comprising aliquots of the 20 farm-specific pooled pen samples (or enriched farm-specific pooled pen samples). Thus, while Davies et al. practices assay of classic pooled/lumped pen samples for efficiency, Davies et al., alone or in combination with Price and BAM, do not practice, teach or otherwise motivate the presently claimed methods.

By way of further illustration of the distinctions of the presently claimed methods, application of the present methods to the problem of Davies et al., for example, might involve statistical sampling and enrichment of each of the 20 farm-specific pooled pen samples (and retention of the enrichments), followed by formation of an overall modular inter-lot composite sample comprising aliquots of the 20 enriched farm-specific pooled pen samples, and assay of the modular inter-lot composite sample (or assay of an optionally further enriched modular inter-lot composite sample)—resulting in a much greater efficiency than provided for by classical methods

of Davies et al.

In summary, Price, alone or in combination with BAM and/or Davies, is fundamentally distinguished from the current set of claims. In contrast to Applicant's method (see, e.g., steps (2)-(5) of attached Figure 2, Exhibit B), Price, alone or in combination with BAM and/or Davies, does not teach: (i) initial formation of composited test lot samples from multiple test lots; that (ii) are enriched to above the detection limit *prior* to inter-lot aliquot pooling; to make (iii) the modular inter-lot composite sample (wet composite inter-lot sample) that can be tested immediately, and where (iv) the individual enriched composited test lot samples can be also be tested immediately; wherein "when such testing is positive, individual separate test lots may nonetheless yet be validated, by further testing of a portion of the respective enriched separate test lot sample…and obtaining a negative test result." Price, alone or in combination with BAM and/or Davies, teaches nothing about post-enrichment pooling as presently claimed, nothing about post-enrichment inter-lot pooling as presently claimed, and nothing about validation of negative lots where a post-enrichment inter-lot pool is found to be positive, as presently claimed. Applicants respectfully contend that the above asserted teachings **do not in fact raise any substantial new questions of patentability** beyond those already of record in the underlying issued patent prosecution history.

Applicant, therefore, respectfully requests withdrawal of the rejection of claims 1 and 17, under 35 U.S.C. 103(a), as allegedly being unpatentable over Price in view of BAM and Davies.

Ground #10. The Examiner did not adopt Ground #10 for the reasons stated in the Office Action. Applicant, for the record, traverses Ground #10 even if it had been adopted, based on the arguments discussed herein.

Ground #11. The Examiner did not adopt Ground #11 for the reasons stated in the Office

Action. Applicant, for the record, traverses Ground #11 even if it had been adopted, based on the arguments discussed herein.

Ground #12. The Examiner did not adopt Ground #12 for the reasons stated in the Office Action. Applicant, for the record, traverses Ground #12 even if it had been adopted, based on the arguments discussed herein.

Ground #13. The Examiner did not adopt Ground #13 for the reasons stated in the Office Action. Applicant, for the record, traverses Ground #13 even if it had been adopted, based on the arguments discussed herein.

Ground #14. The Examiner rejected claims 5, 6, 23, 29, and 30, under 35 U.S.C. 103(a), as allegedly being unpatentable over Jarvis in view of FSIS and Midura, as applied to claim 1 above, and further in view of Entis.

The Examiner discusses Jarvis in view of FSIS and Midura as was set forth in Ground 1.

The Examiner states that "[n]one of Jarvis, FSIS, or Midura teach concentrating the microbial agent from the modular composite sample by immunomagnetic bead separation or affinity chromatography and none teach testing the modular composite samples by a DNA based method, an immunochemistry based method or a biosensor based method."

The Examiner states that "Entis teaches rapid procedures for the detection, identification, and enumeration of microorganisms in foods (see page 89, third paragraph). Regarding *claims 5 and 30*, Entis teaches that since food is a complex matrix which causes interference with analytical methods, some degree of separation or concentration of the microorganism of interest is required (see page 89, first paragraph). With respect to *claim 29*, Entis teaches concentrating and separating the microorganism of interest from an enrichment culture by immunoaffinity

chromatography and immunomagnetic separation (see page 91). Regarding *claim 23*, the rapid methods disclosed by Entis comprise antibody-based methods, such as immunofluorescence, enzyme immunoassay (an immunochemistry-based method), nucleic acid based methods (DNA hybridization and PCR) and bioluminescence and limulus amebocyte lysate assay (biosensor based methods) (see pages 89, 90, 93, 94, and 99). Entis teaches that the rapid methods offer savings in both time and labor (page 89, second paragraph) and can be more sensitive than conventional culture methods (see page 89. last full sentence, page 93, second full paragraph, page 94, column, and page 95, column 1)."

The Examiner states that "[o]ne of ordinary skill in the art at the time of the invention would have found it *prima facie* obvious to have concentrated the target agent from the cultures disclosed by Jarvis in view of FSIS and Midura, as taught by Entis, in order to increase testing sensitivity and negate the interference from the food sample, as is taught by Entis. Further, the person of ordinary skill in the art at the time of the invention would have found it *prima facie* obvious to have used one of more of the methods described by Entis to identify the target agent in an enrichment culture because Entis teaches that the rapid methods can be more sensitive than traditional methods and can offer significant savings in both time and labor."

Applicant respectfully traverses the rejection.

Applicant respectfully contends that with respect to independent claims 1 and 17, Jarvis in view of FSIS and Midura has been effectively rebutted by the arguments in response to the Examiner's Ground 1.

Entis, even as construed by the Examiner, does not cure this deficiency.

Applicants respectfully contend that the above asserted teachings **do not in fact raise any substantial new questions of patentability** beyond those already of record in the underlying issued patent prosecution history.

Claims 5, 6, 23, 29, and 30 depend, directly or indirectly from claim 1.

Applicant, therefore, respectfully requests withdrawal of the rejection of claims 5, 6, 23, 29, and 30, under 35 U.S.C. 103(a), as allegedly being unpatentable over Jarvis in view of FSIS and Midura, as applied to claim 1 above, and further in view of Entis.

Ground #15. The Examiner rejected claims 5, 23, 29, and 30, under 35 U.S.C. 103(a), as allegedly being unpatentable over FSIS in view of Price and Midura, as applied to claim 1 above, and further in view of Entis.

The Examiner, as set forth in the discussion of the Examiner's Ground 2 (Applicant notes that "Ground 1," referred to by the Examiner, discusses Jarvis in view of FSIS and Midura) states that "FSIS in view of Price and Midura teaches a method of sampling and testing food test lots for microbial contamination comprising collecting a plurality of portions from each of a plurality of test lots, combining the portions to provide a corresponding set of test lot samples, separately incubating the test lot samples to enrich for the target microbial agent or organism, removing portions of the test lot sample cultures, combining them into a modular composite sample and testing the composite sample for the presence of the target agent or organism. Applicants disagree as discussed herein above.

The Examiner states that "[n]one of FSIS, Price, or Midura teaches concentrating the microbial agent from the modular composite sample by immunomagnetic bead separation or affinity chromatography and none teach testing the modular composite samples by a DNA based method, an immunochemistry based method or a biosensor based method."

The Examiner states that "Entis teaches rapid procedures for the detection, identification, and enumeration of microorganisms in foods (see page 89, third paragraph). Regarding *claims 5 and 30*, Entis teaches that since food is a complex matrix which causes interference with analytical methods, some degree of separation or concentration of the microorganism of interest is required (see page 89, first paragraph). With respect to *claim 29*, Entis teaches concentrating and separating the microorganism of interest from an enrichment culture by immunoaffinity chromatography and immunomagnetic separation (see page 91). Regarding *claim 23*, the rapid methods disclosed by Entis comprise antibody-based methods, such as immunofluorescence, enzyme immunoassay (an immunochemistry-based method), nucleic acid based methods (DNA hybridization and PCR) and bioluminescence and limulus amebocyte lysate assay (biosensor

based methods) (see pages 89, 90, 93, 94, and 99). Entis teaches that the rapid methods offer savings in both time and labor (page 89, second paragraph) and can be more sensitive than conventional culture methods (see page 89, last full sentence, page 93, second full paragraph, page 94, column, and page 95, column 1)."

The Examiner states that "[o]ne of ordinary skill in the art at the time of the invention would have found it *prima facie* obvious to have concentrated the target agent from the cultures disclosed by FSIS in view of Price and Midura, as taught by Entis, in order to increase testing sensitivity and negate the interference from the food sample, as is taught by Entis. Further, the person of ordinary skill in the art at the time of the invention would have found it *prima facie* obvious to have used one of more of the methods described by Entis to identify the target agent in an enrichment culture because Entis teaches that the rapid methods can be more sensitive than traditional methods and can offer significant savings in both time and labor."

Applicant respectfully traverses the rejection.

Applicant respectfully contends that with respect to independent claims 1 and 17, FSIS in view of Price and Midura has been effectively rebutted by the arguments in response to the Examiner's Ground 2.

Entis, even as construed by the Examiner, does not cure this deficiency.

Applicants respectfully contend that the above asserted teachings **do not in fact raise any substantial new questions of patentability** beyond those already of record in the underlying issued patent prosecution history.

Claims 5, 23, 29, and 30 depend, directly or indirectly from claim 1.

Applicant, therefore, respectfully requests withdrawal of the rejection of claims 5, 23, 29, and 30, under 35 U.S.C. 103(a), as allegedly being unpatentable over FSIS in view of Price and Midura, as applied in Ground 2 above, and further in view of Entis.

Ground #16. The Examiner did not adopt Ground #16 for the reasons stated in the Office Action. Applicant, for the record, traverses Ground #16 even if it had been adopted, based on the

arguments discussed herein.

Ground #17. The Examiner did not adopt Ground #17 for the reasons stated in the Office Action. Applicant, for the record, traverses Ground #17 even if it had been adopted, based on the arguments discussed herein.

Ground #18. The Examiner did not adopt Ground #18 for the reasons stated in the Office Action. Applicant, for the record, traverses Ground #18 even if it had been adopted, based on the arguments discussed herein.

Ground #19. The Examiner did not adopt Ground #19 for the reasons stated in the Office Action. Applicant, for the record, traverses Ground #19 even if it had been adopted, based on the arguments discussed herein.

Ground #20. The Examiner did not adopt Ground #20 for the reasons stated in the Office Action. Applicant, for the record, traverses Ground #20 even if it had been adopted, based on the arguments discussed herein.

Ground #21. The Examiner rejected claim 21, under 35 U.S.C. 103(a), as allegedly being unpatentable over Jarvis in view of FSIS and Midura, as applied to claim 1 above, and further in view of Cousin.

The Examiner discusses Jarvis in view of FSIS and Midura as set forth in the Examiner's Ground 1.

The Examiner states that "Cousin discloses that certain bacteria (psychrotrophs) are able to grow in foods at low temperatures and are thus the primary organisms responsible for spoilage of refrigerated foods. Cousin teaches that such organisms are found in meats, poultry, fish, and seafood and include *Listeria* spp., among others (see page 169, column 2, last paragraph). Cousin teaches that such organisms can be detected by culture and microscopic methods (see section 13.21 beginning on page 160)."

The Examiner states that "[i]t would have been *prima facie* obvious to one of skill in the art at the time of the invention to have used the method disclosed by Jarvis in view of FSIS and Midura to test for a spoilage organism, such as a psychrotroph, because Cousin teaches that such organisms are responsible for spoilage of refrigerated foods and can be detected by culture."

Applicant respectfully traverses the rejection.

Applicant respectfully contends that with respect to independent claims 1 and 17, Jarvis in view of FSIS and Midura has been effectively rebutted by the arguments in response to the Examiner's Ground 1.

Cousin, even as construed by the Examiner, does not cure this deficiency.

Applicants respectfully contend that the above asserted teachings **do not in fact raise any substantial new questions of patentability** beyond those already of record in the underlying issued patent prosecution history.

Claim 21 depends directly from claim 1.

Applicant, therefore, respectfully requests withdrawal of the rejection of claim 21, under 35 U.S.C. 103(a), as allegedly being unpatentable over Jarvis in view of FSIS and Midura, as applied to claim 1 above, and further in view of Cousin.

Ground #22. The Examiner rejected claim 21, under 35 U.S.C. 103(a), as allegedly being unpatentable over FSIS in view of Price and Midura, as applied to claim 1 above, and further in view of Cousin.

The Examiner discusses FSIS in view of Price and Midura as set forth in the Examiner's Ground 2.

The Examiner states that "Cousin discloses that certain bacteria (psychrotrophs) are able to grow in foods at low temperatures and are thus the primary organisms responsible for spoilage of refrigerated foods. Cousin teaches that such organisms are found in meats, poultry, fish, and seafood and include *Listeria* spp., among others (see page 169, column 2, last paragraph). Cousin teaches that such organisms can be detected by culture and microscopic methods (see section 13.21 beginning on page 160)."

The Examiner states that "It would have been *prima facie* obvious to one of skill in the art at the time of the invention to have used the method disclosed by FSIS in view of Price and Midura to test for a spoilage organism, such as a psychrotroph, because Cousin teaches that such organisms are responsible for spoilage of refrigerated foods and can be detected by culture."

Applicant respectfully traverses the rejection.

Applicant respectfully contends that with respect to independent claims 1 and 17, FSIS in view of Price and Midura has been effectively rebutted by the arguments in response to the Examiner's Ground 2.

Cousin, even as construed by the Examiner, does not cure this deficiency.

Applicants respectfully contend that the above asserted teachings **do not in fact raise any substantial new questions of patentability** beyond those already of record in the underlying issued patent prosecution history.

Claim 21 depends directly from claim 1.

Applicant, therefore, respectfully requests withdrawal of the rejection of claim 21, under 35 U.S.C. 103(a), as allegedly being unpatentable over FSIS in view of Price and Midura, as applied to claim 1 above, and further in view of Cousin.

Ground #23. The Examiner rejected claim 23, under 35 U.S.C. 103(a), as allegedly being unpatentable over Jarvis in view of FSIS and Midura, as applied to claim 1 above, and further in

view of Price.

The Examiner discusses Jarvis in view of FSIS and Midura as set forth in the Examiner's Ground 1.

The Examiner states that "Price teaches identification of *Salmonella* from composite enrichment broth cultures using the standard methods of biochemical and serological testing, which is an immunochemistry based method."

The Examiner states that "One of ordinary skill in the art at the time of the invention would have found it *prima facie* obvious to have identified the target agent or organism from the composite sample in the method of Jarvis in view of FSIS and Midura using serological testing, which is an immunochemistry based method, as described by Price. One of ordinary skill in the art at the time of the invention would have been motivated to identify the agent by serological testing because Price teaches that this was a standard method of identification of target agents or organisms at the time of the invention."

Applicant respectfully traverses the rejection.

Applicant respectfully contends that with respect to independent claims 1 and 17, Jarvis in view of FSIS and Midura has been effectively rebutted by the arguments in response to the Examiner's Ground 1.

Price, also discussed in detail herein above, does not cure this deficiency.

Applicants respectfully contend that the above asserted teachings **do not in fact raise any substantial new questions of patentability** beyond those already of record in the underlying issued patent prosecution history.

Claim 23 depends directly from claim 1.

Applicant, therefore, respectfully requests withdrawal of the rejection of claim 23, under 35 U.S.C. 103(a), as allegedly being unpatentable over Jarvis in view of FSIS and Midura, as applied to claim 1 above, and further in view of Price.

Ground #24. The Examiner rejected claims 24, 28, 32 and 33, under 35 U.S.C. 103(a), as

allegedly being unpatentable over FSIS in combination with Price and Midura, as applied to claims 1 and 4 above, and further in view of Gabis.

The Examiner discusses FSIS in view of Price and Midura as set forth in the Examiner's Ground 2.

The Examiner states that "[n]one of FSIS, Price, or Midura teaches that the food to be tested is poultry, pork, sheep or bison. Additionally, although Price teaches a pooled enrichment broth for *Salmonella* (comprising a selective agent for *Salmonella* which inhibits competing organisms); none of FSIS, Price or Midura teaches that the individual test lot sample broths comprise a selective agent for the target organism."

The Examiner states that "Gabis teaches a method of sampling, testing, and validating high moisture foods for microbial contamination comprising collecting a plurality of specimens, incubating each of the specimens individually into broth cultures, incubating the broth cultures to allow for levels of the target organism to increase, and pooling the broth cultures together to test for *Salmonella* (see page 663, abstract and first paragraph of the page; page 664, the paragraph bridging columns 1 and 2 and column 2, first two full paragraphs; and page 668, first full paragraph). Gabis teaches two alternative broth cultures for the individual samples, "preenrichment" broths not containing a selective agent and "direct selective enrichment" broth cultures containing an agent selective for *Salmonella* and inhibitory for competing bacteria (see page 664, *Enrichment Procedures* and Results). Gabis teaches exemplary high moisture foods suitable for testing as pork and chicken (poultry) among others (page 665, Table l)."

The Examiner states that "[i]t would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to have inoculated the test lot samples disclosed by FSIS in view of Price and Midura into individual broths containing a selective agent for *Salmonella* because Gabis teaches that the individual enrichment broth culture may or may not contain a selective agent for the target organism. Further, it would have been *prima facie* obvious to have tested pork and for poultry because Gabis teaches that the method is suitable for such high moisture foods."

Applicant respectfully traverses the rejection.

Applicant respectfully contends that with respect to independent claims 1 and 17, FSIS in view of Price and Midura has been effectively rebutted by the arguments in response to the Examiner's Ground 2.

Gabis, also discussed in detail herein above, does not cure this deficiency.

Applicants respectfully contend that the above asserted teachings **do not in fact raise any substantial new questions of patentability** beyond those already of record in the underlying issued patent prosecution history.

Claims 24, 28, 32 and 33 depend, directly or indirectly, from claims 1 or 17.

Applicant, therefore, respectfully requests withdrawal of the rejection of claims 24, 28, 32 and 33, under 35 U.S.C. 103(a), as allegedly being unpatentable over FSIS in combination with Price and Midura, as applied to claims 1 and 4 above, and further in view of Gabis.

Ground #25. The Examiner rejected claim 28, under 35 U.S.C. 103(a), as allegedly being unpatentable over Jarvis in view of FSIS and MIdura, as applied to claims 1 and 4 above, and further in view of Andrews.

The Examiner discusses Jarvis in view of FSIS and Midura as set forth in the Examiner's Ground 1.

The Examiner states that "[n]one of Jarvis, FSIS, or Midura teaches the enrichment medium in the individual broth cultures as comprising a selective agent for the target organism which inhibits the growth of competing bacteria."

The Examiner states that "Andrews teaches selective enrichment for *Salmonella,* wherein the enrichment medium contains an agent which is selective for the target organism and inhibitory for competing bacteria. Andrews teaches that the use of two or more selective media provides greater method sensitivity than a single enrichment medium (see page 360, column 2, lection 37.124)."

The Examiner states that "[o]ne of ordinary skill in the art at the time of the invention would have found it *prima facie* obvious to have included a selective agent in the pre-enrichment

both cultures of Jarvis in view of FSIS and Midura because Andrews teaches that the use of two or more selective media improves method sensitivity."

Applicant respectfully traverses the rejection.

Applicant respectfully contends that with respect to independent claims 1 and 17, Jarvis in view of FSIS and Midura has been effectively rebutted by the arguments in response to the Examiner's Ground 1.

Andrews, also discussed in detail herein above, does not cure this deficiency.

Applicants respectfully contend that the above asserted teachings **do not in fact raise any substantial new questions of patentability** beyond those already of record in the underlying issued patent prosecution history.

Claim 28 depends indirectly, from claim 1.

Applicant, therefore, respectfully requests withdrawal of the rejection of claim 28, under 35 U.S.C. 103(a), as allegedly being unpatentable over Jarvis in view of FSIS and MIdura, as applied to claims 1 and 4 above, and further in view of Andrews.

Ground #26. The Examiner did not adopt Ground #26 for the reasons stated in the Office Action. Applicant, for the record, traverses Ground #26 even if it had been adopted, based on the arguments discussed herein.

New claims

New claims 34, 35 and 36, fully supported by the originally filed specification, have been added.

Relative to claims 1 and 17, new claims 34 and 35 recites:

"c) incubating the set of separate test lot samples under conditions suitable to allow levels of a target microbial agent or organism that is present in one or more of the separate test lot samples to increase in the respective one or more separate test lot samples, to provide a set of

separate incubated test lot samples" in place of

"c) incubating the set of separate test lot samples under conditions suitable to allow levels of a target microbial agent or organism that is present in one or more of the separate test lot samples to reach detectable levels and become uniform, or substantially uniform, throughout the respective one or more separate test lot samples, to provide a set of separate test lot samples enriched for the target microbial agent or organism."

Applicants contend that new claim 34 is allowable over the prior art, based on the above arguments herein relating to use of inter-lot pooling and sufficient sampling to provide for validation, in step e), of "…,wherein when such testing is positive, individual separate test lots may nonetheless yet be validated, according to the statistical sampling plan, by further testing of a portion of the respective incubated separate test lot sample using the same or a more sensitive protocol and obtaining a negative test result."

Claim 36, is a reintroduction of original claim 2, that was withdrawn during prosecution of the underlying parent application in response to a "species" election by the Examiner. Applicant reintroduces this claim, fully supported by the originally filed specification.

No new matter has been added.

Bailey Declaration

The Bailey Declaration cites to seven pieces of art (all of which are the same from the Office Action):

Jarvis;
Price;
Biological Analytical Manual (BAM; exhibit 11);
Compendium of Methods for the Microbiological Examination of Foods (referenced as "Compendium,
chapter 2" in the declaration and as "Midura" in the OA; exhibit 3);
FSIS (exhibit 6);
Silliker (exhibit 7); and
Gabis (exhibit 9)

Applicant respectfully contends that the opinions presented in the Bailey Declaration are unsupportable in view of the prior art discussed and asserted in the present Office Action.

Applicant's rebuttal comments herein, therefore, also serve to rebut the Bailey Declaration.

In fact, the current wide-spread adoption of Applicant's methods was surprising given that Applicant's method actually significantly increases the sampling by 500%, and the testing cost by about 30%,—in a cost-sensitive industry with narrow profit margins, where this would be a significant disincentive. Surprisingly, using post-enrichment pooling (which is contra-indicated in the prior art universally taught use of pre-enrichment pooling), and more specifically, inter-lot rather than intra-lot pooling, Applicants' method has surprisingly and rapidly been widely adopted. Prior to this invention, the industry practice was still fashioned on the methods of Price and Silliker, which are nearly 40 years old, and it was the present Applicant who solved a long-standing problem in the art as described herein. I respectfully contend that the opinions of Bailey are unacceptable hindsight.

Conclusion

In view of the foregoing amendments and remarks, Applicant respectfully requests entry of the present Response and Amendment and allowance of all claims as presented and amended herein. The Examiner is encouraged to phone Applicant's attorney, Barry L. Davison, to resolve any outstanding issues and expedite allowance of this application.

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Respectfully submitted,
Mansour Samadpour
Davis Wright Tremaine LLP

/Barry L. Davison, Ph.D., J.D./
Barry L. Davison, Ph.D., J.D.
Attorney for Applicant
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EXHIBIT A

Figure 1: PRESENT INDUSTRY ART

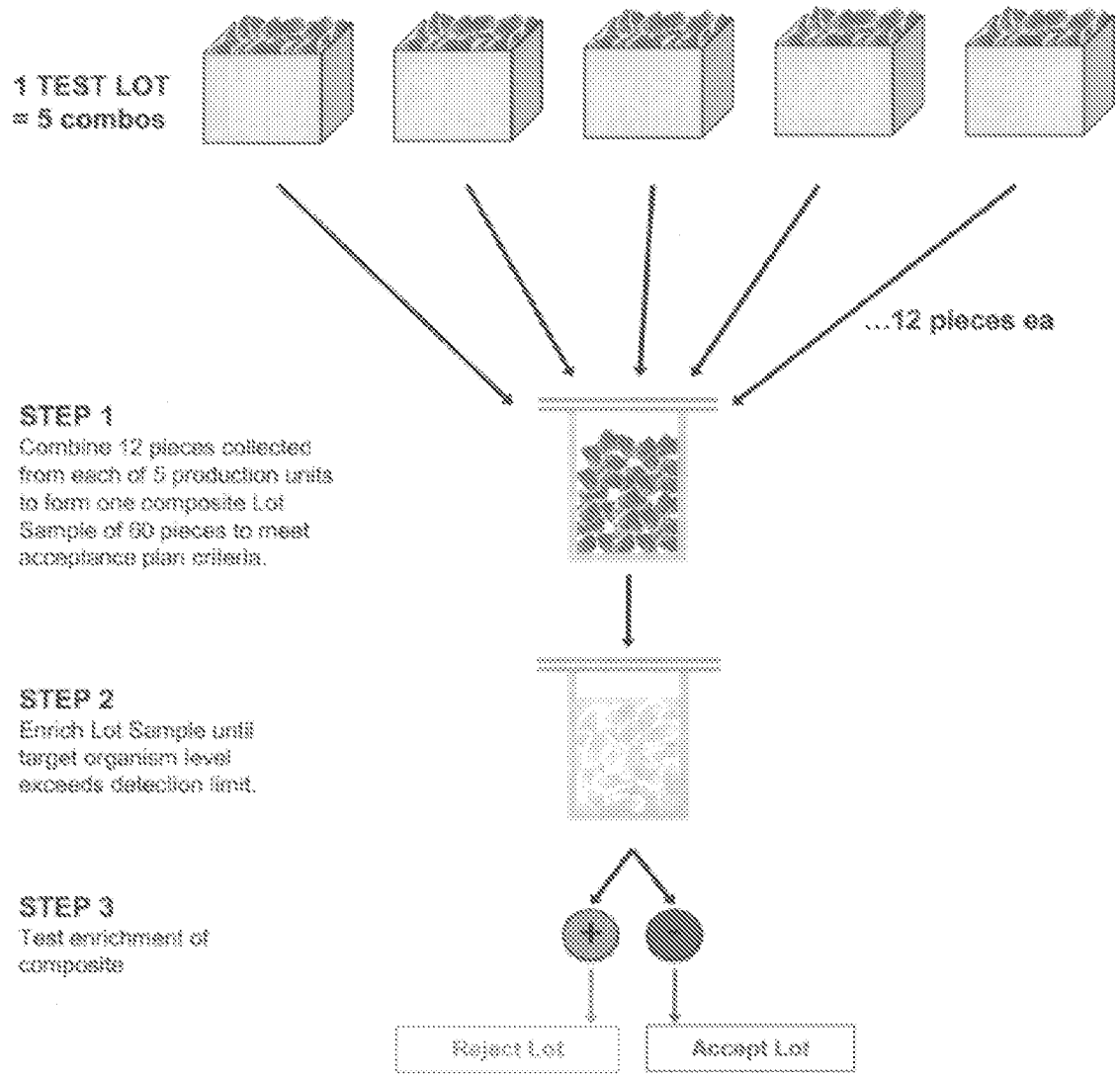


EXHIBIT B

Figure 2. CURRENT INVENTION

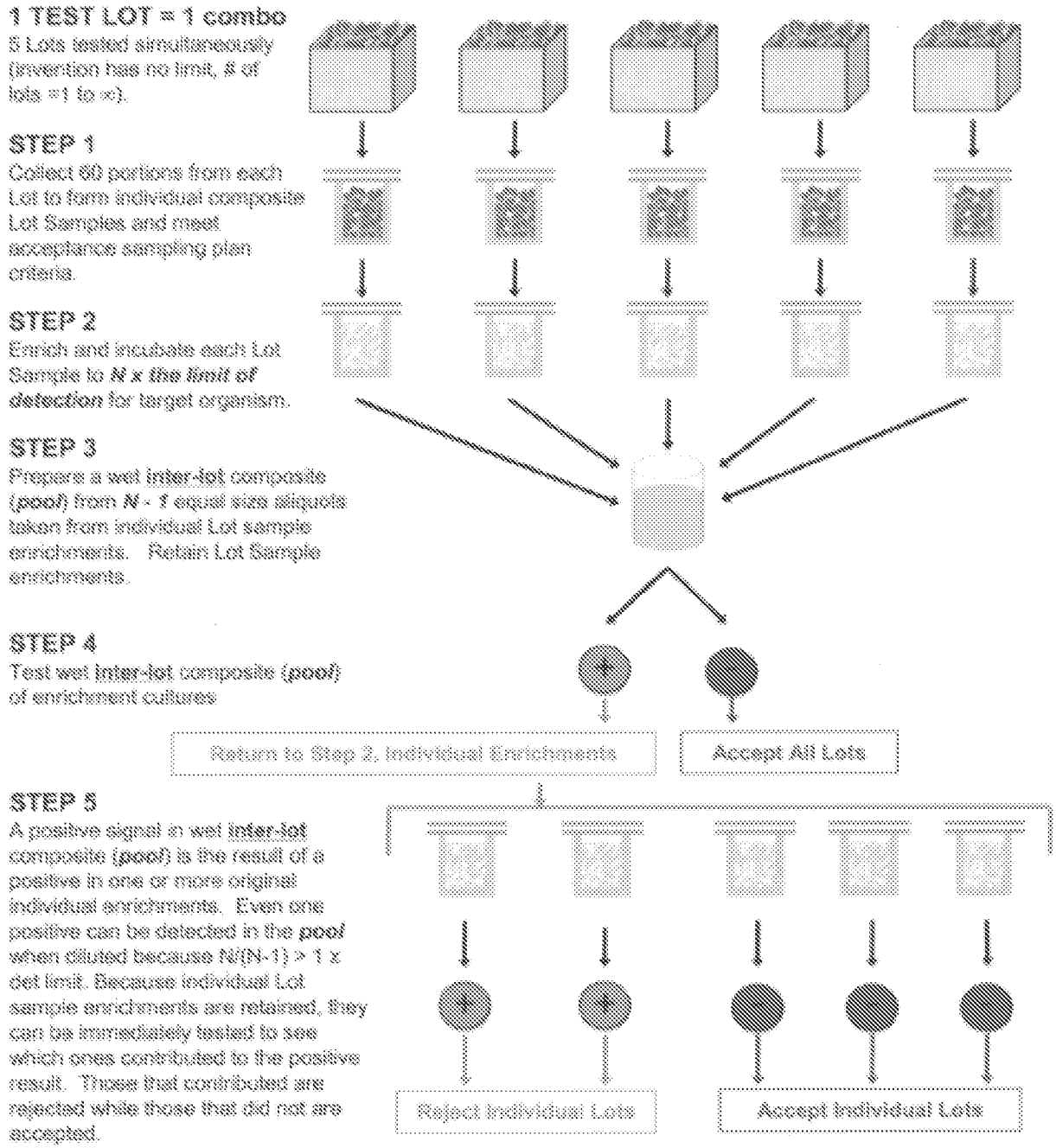


EXHIBIT C

Figure 3. CITED PRIOR ART (Price et al, 1972)

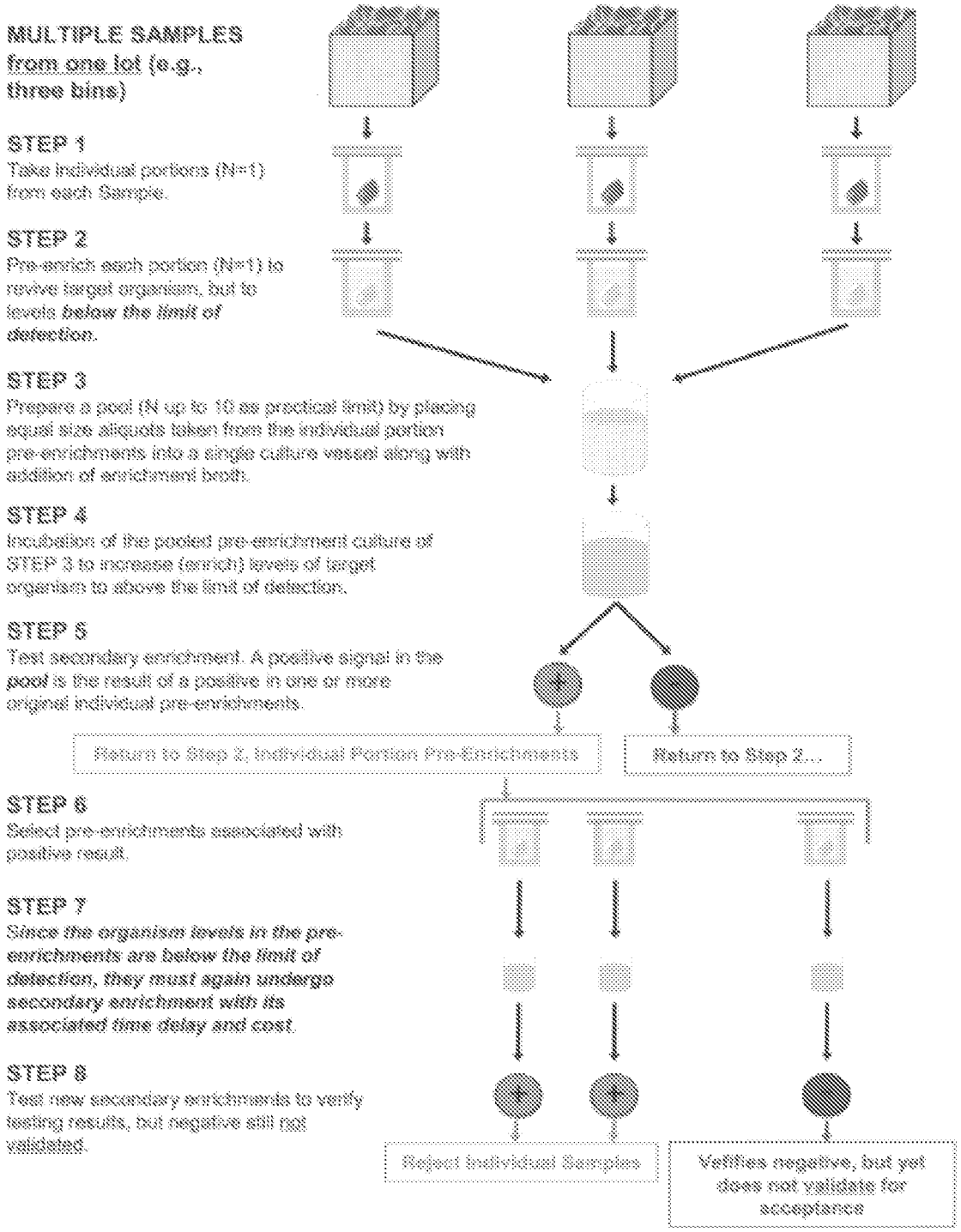
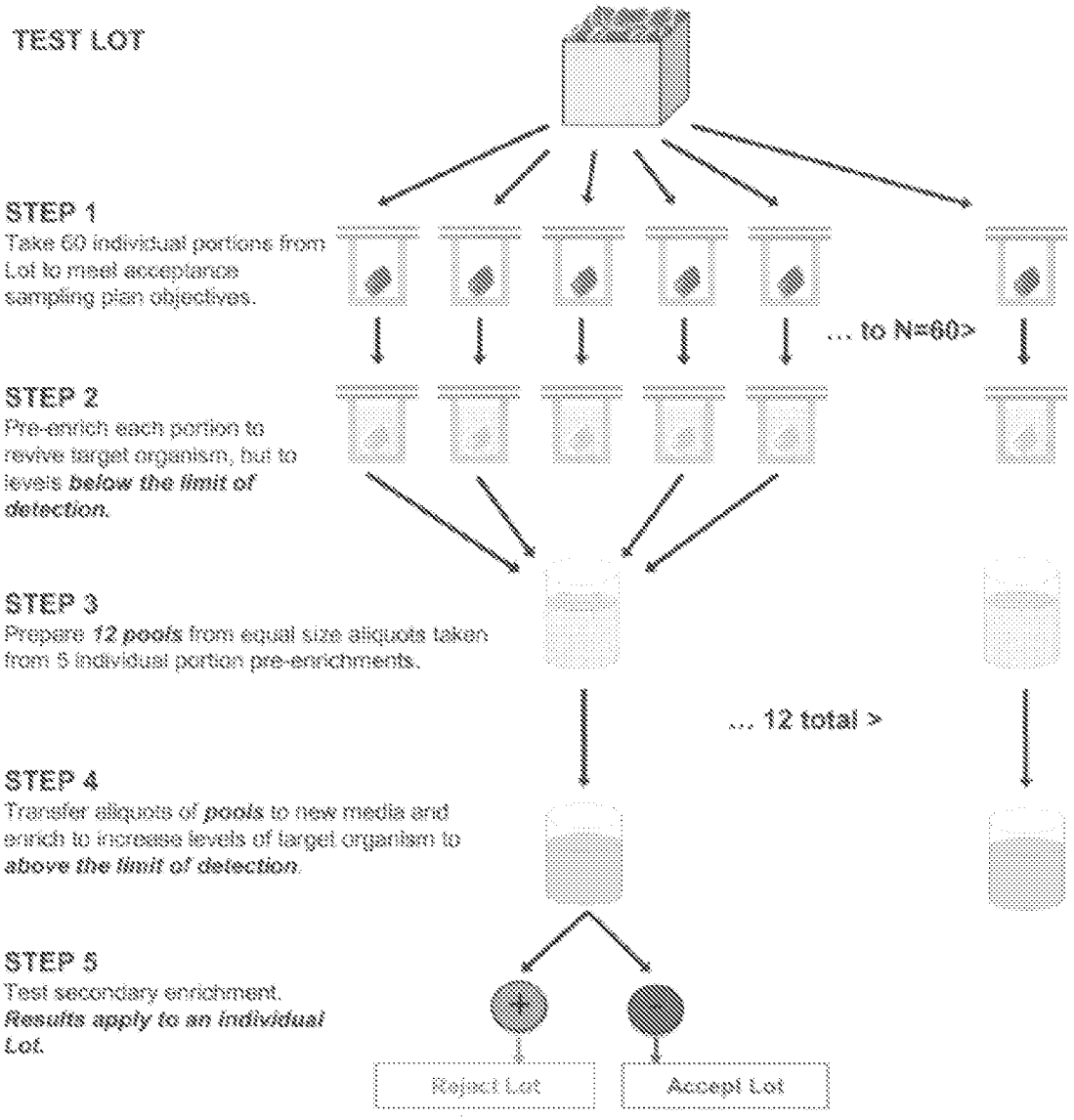


EXHIBIT D

Figure 4. CITED PRIOR ART (Silliker et al, 1972)



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Mansour Samadpour
Serial No.:	95/001,294
Filed:	05 April 2010
For:	MODULAR COMPOSITING-MULTIPLE LOT SCREENING PROTOCOLS FOR DETECTION OF PATHOGENS, MICROBIAL CONTAMINANTS AND/OR CONSTITUENTS
Examiner:	Brenda G. Brumback
Art Unit:	3991
Attorney Docket No.:	66090-008US2
Date:	26 July 2010

Attn: Mail Stop "Inter Partes Reexam"
Central Reexamination Unit
Commissioner for Patents
P. 0. Box 1450
Alexandria VA 22313-1450

DECLARATION OF MANSOUR SAMADPOUR UNDER 37 C.F.R. § 1.132
(IN SUPPORT OF RESPONSE UNDER 37 C.F.R. § 1.111)

Madam:

I, Dr. Mansour Samadpour, being duly sworn, say:

1. I am familiar with, and am the original inventor of the above-identified patent application, and am aware that it discloses and claims novel methods comprising sampling, testing, and validating test lots for microbial contamination. I am familiar that the detailed claimed method comprises: collecting a plurality of portions from each of a plurality of test lots, the test lots each comprising an assemblage of one or more specimens, wherein each test lot is separately sampled by taking said plurality of portions thereof; combining the collected plurality of portions corresponding to each of the separate test lots to provide a corresponding set of separate test lot samples, wherein each separate test lot sample is attributed to a particular

corresponding separate test lot; incubating the set of separate test lot samples under conditions suitable to allow levels of a target microbial agent or organism that is present in one or more of the separate test lot samples to reach detectable levels and become uniform, or substantially uniform, throughout the respective one or more separate test lot samples, to provide a set of separate test lot samples enriched for the target microbial agent or organism; removing portions of each enriched separate test lot sample, and combining the removed portions to provide a modular composite sample; and testing of the modular composite sample, using a suitable detection assay, for the target microbial agent or organism, wherein when such testing is negative all of said separate test lot samples are validated, and wherein when such testing is positive, individual separate test lots may nonetheless yet be validated by further testing of a portion of the respective enriched separate test lot sample using the same or a more sensitive protocol and obtaining a negative test result.

2. I am the CEO and founder of Institutes of Environmental Health, the Assignee of the subject patent application. My detailed curriculum vitae is attached hereto as APPENDIX A.

3. I am an author or co-author of at least 50 peer-reviewed research articles (representative articles are attached as part of APPENDIX A) in the field of food testing, analytical sampling, meat safety and quality and my research has been presented at national and international meetings. I am an inventor on several granted United States and foreign patents and various pending domestic and international patent applications. I am an internationally recognized expert in food sampling, pathogen testing and molecular epidemiology, with over 20 years academic and industry experience in this area.

4. In my capacity as CEO at Institutes of Environmental Health, I am well versed and intimately aware of all aspects of the company and as such I am the person most acquainted with all functions of the company, including implementation of the wet inter-lot composite pooling procedure disclosed and claimed in the current patent, marketing of this procedure to others, and the surprising, rapid, and wide-spread acceptance of the claimed methods despite the fact that implementation of the methods increases the sampling by 500%, and the testing cost by about 30%.

5. I am very familiar with the rejections asserted in the Office Action issued by

the USPTO dated 26 May 2010 in this case, and understand that one or more claims of the above-referenced patent application remain rejected under 35 U.S.C. § 103 on the alleged grounds that the claimed invention is obvious. Specifically, the Examiner appears to be alleging that several of the claims under 35 U.S.C. 103(a) are unpatentable over Jarvis in view of FSIS and Midura, amongst others as described in the action.

6. I am making this Declaration to support the Response to the Office Action dated 26 May 2010, and to Declare and corroborate the inventive and non-obvious nature of wet composite inter-lot pooling, as presently claimed, in the control of food-borne pathogens and the nexus between the claimed invention and the commercial success of the implemented procedures.

7. As an initial matter, the original specification, for which I signed an inventor Oath/Declaration, of the current patent contained a working Example 1 that demonstrated the nexus between the invention as claimed and the related benefits which, despite the substantial disincentive of increased sampling and assay costs as discussed below, have led to the current rapid and wide-spread acceptance of the claimed wet composite inter-lot pooling method (see Example 1 of the patent):

> Specifically, the individual single-unit production lot samples comprising the MWCS were analyzed separately following each *positive* MWCS result. As can be seen in TABLE I, only 391 individual single-unit production lot samples yielded a *positive* result out of the cumulative total of 1,085 individual single-unit production lot samples comprising the MWCS samples which yielded a *positive* result. If only the 391 individual single-unit production lots yielding a *positive* sample result were diverted to rendering or downgraded for cooking this would represent 782,000 lbs of product. The remaining 694 individual single-unit production lots, corresponding to 1,928,000 lbs of product, are, according to preferred aspects of the present invention, validated and releasable into the chain of commerce.
>
> The product, in this Example I, being produced by this U.S. beef producer was beef trim. The release of the validated 1,9280,000 lbs of beef trim into commerce using the present invention, instead of diverting or downgrading the product, trim, represents a cost savings to the producer of about $2,500,000, relative to prior art methods. Additionally, the testing of the single-unit production lots by augmented testing protocols (representing a 5- to 50-fold increase in sensitivity relative to the MWCS testing) provides *substantial* additional assurance of the safety of the food products.
>
> ...

TABLE 1: Results of modular wet composite sampling of 62,919 multiple lots and number of Individual Production Unit Lot (IPUL) which tested positive when MWCS tested positive

Location	Total # Analyses	# Positives	1 IPUL	2 IPULs	3 IPULs	4 IPULs	5 IPULs
Est. A, B, C.	62,919	271	180	39	18	11	7

U.S. Patent No. 7,534,584, at columns 11 and 12.

8. In response to the Bailey Declaration, dated 13 January 2010, filed in connection with the re-examination request, I contend that not only the current invention, but also the cited references have been misconstrued. First, Bailey's entire Declaration is based on the presumption/assumption that prior to the current invention a person of ordinary skill would have believed that an enrichment-only step could substitute for pre-enrichment/enrichment steps. This is, however, far from the truth as outlined in the Response to the present Office Action. In fact, prior to Applicant's invention, no person of ordinary skill would have reasonably relied upon the results from a test that utilized enrichment-only, due to effects related to dilution of the target organism and competition from non-target organisms. Additionally, the prior art, including that asserted by the Examiner, *teaches away* from combining lumping and pooling in a single scheme, as discussed in the Response, and moreover pooling as generally taught and understood in the prior art was limited to the pre-enrichment level—and even in this regard, is limited to but a single method and a single organism (Salmonella). Significantly, the entire prior art is limited to intra-lot pooling to reduce the cost of Salmonella testing for release of a single lot of product. By contrast, the present invention comprises inter-lot pooling and lot validation that is applicable to all manors of lot samples as taught in the originally filed specification.

9. The Bailey Declaration cites to seven pieces of art (all of which are the same from the Office Action): Jarvis; Price; Biological Analytical Manual (BAM; exhibit 11); Compendium of Methods for the Microbiological Examination of Foods (referenced as "Compendium, chapter 2" in the declaration and as "Midura" in the OA; exhibit 3); FSIS (exhibit 6); Silliker (exhibit 7); and Gabis (exhibit 9). The opinions presented in the Bailey Declaration are not supportable as discussed in detail in the Response to the present Office Action and in this Declaration.

10. In fact, the current wide-spread adoption of the wet composite inter-lot pooling inventive methods was surprising given the points stated above under paragraph "9.",

particularly given that these methods significantly increase the sampling by 500%, and the testing cost by about 30%, and particularly in a cost-sensitive industry with narrow profit margins, where increasing such cost was a strong and long-standing significant disincentive. Surprisingly, using post-enrichment pooling (which is contra-indicated in the prior art universally taught use of pre-enrichment pooling), and more specifically, inter-lot rather than intra-lot pooling, this method has surprisingly and rapidly been widely adopted. Prior to this invention, the industry practice was still fashioned on the methods of Price and Silliker, which are nearly 40 years old, and it was the present Applicant who solved a long-standing problem in the art as described herein. I respectfully contend that the opinions of Bailey are unacceptable hindsight.

11. In fact, IEH company sales figures for the last four years have increased at an average rate of 30% per year, based on client adoption of the methods claims in the present patent application comprising inter-lot pooling of enriched samples, and the ability to yet validate and release individual lots after obtaining a positive result for an inter-lot pool sample. Implementation of the claimed methods has given rise to an increase in number of tests that Institutes of Environmental Health is contracted to conduct, and a concomitant increase in customer satisfaction and public safety. IEH's market share has also steadily increased due to acceptance of and overt demand for the claimed method.

12. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code, and may jeopardize the validity of the application or any patent issuing thereon.



Mansour Samadpour, Ph.D.

26 July 2010

APPENDIX A
CURRICULUM VITAE

MANSOUR SAMADPOUR, PH.D.
Principal

SUMMARY

Dr. Samadpour is a food microbiologist with extensive experience in food safety, food production, and epidemiology of foodborne illnesses. He is currently President of Molecular Epidemiology and IEH Laboratories & Consulting Group (IEH), who together employ upwards of 300 personnel. IEH initially focused on providing services to the beef harvesting and grinding industries, and currently IEH conducts testing for about 1/3 of the U.S. market. Since the spinach outbreak of 2006 services have expanded into the produce sector and now IEH serves major clients in fresh cut produce (lettuce, tomatoes, and green onions), apples, sprouts, and tree nuts. In this capacity Dr. Samadpour has been intimately involved in defining and developing microbiological testing programs for food safety management of *E. coli* O157, *Salmonella*, EHEC, *Shigella* and *L. monocytogenes* testing plans as well as the evaluation of the efficacy of microbial interventions. Dr. Samadpour's expertise has been sought in most of the major foodborne illnesses that have occurred since the Jack In The Box *E. coli* O157 episode of 1993, and he as served as expert witness on numerous occasions.

Currently Dr. Samadpour has over 50 scientific publications, over 50 abstracts, 12 popular press and trade articles and more than 200 research reports. He is also the inventor on over 14 patent applications involving aspects of food testing and foodborne illness risk analysis.

EDUCATION

1990	**Ph.D.**, Food Science and Technology, minor in Molecular Biology; University of Washington, Seattle, WA
1987	**M.S.**, Microbiology University of Washington, Seattle, WA
1981	**B.S.**, Microbiology University of Washington, Seattle, WA

PROFESSIONAL POSITIONS

2001-Present	**Principal**, Molecular Epidemiology, also dba IEH Laboratories & Consulting Group, Seattle, WA
1993-2003	**Assistant Professor**, Department of Environmental Health, School of Public Health and Community Medicine, University of Washington,

Seattle, WA

1991-1993 **Research Associate**, Department of Environmental Health, School of Public Health and Community Medicine, University of Washington, Seattle, WA

1990-1991 **Post-Doctoral Research Associate**, Department of Environmental Health, School of Public Health and Community Medicine, University of Washington, Seattle, WA

1988-1990 **Pre-Doctoral Fellow**, School of Fisheries, University of Washington, Seattle, WA

1978-1980 **Graduate Research Assistant**, Department of Microbiology, University of Washington, Seattle, WA

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Via Electronic Submission
Attorney Docket No.:66090-008US2

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Mansour Samadpour
Serial No.:	95/001,294
Filed:	05 April 2010
For:	MODULAR COMPOSITING-MULTIPLE LOT SCREENING PROTOCOLS FOR DETECTION OF PATHOGENS, MICROBIAL CONTAMINANTS AND/OR CONSTITUENTS
Examiner:	Brenda G. Brumback
Art Unit:	3991
Attorney Docket No.:	66090-008US2
Date:	July 26, 2010

Attn: Mail Stop "Inter Partes Reexam"
Central Reexamination Unit
Commissioner for Patents
P. 0. Box 1450
Alexandria VA 22313-1450

DECLARATION OF MOHAMMAD KOOHMARAIE, Ph.D. UNDER 37 C.F.R. § 1.132
(IN SUPPORT OF RESPONSE UNDER 37 C.F.R. § 1.111)

Madam:

I, Dr. Mohammad Koohmaraie, being duly sworn, say:

1. I am familiar with the above-identified patent/patent application, and am aware that it discloses and claims novel methods comprising sampling, testing, and validating test lots for microbial contamination. I am familiar that the claimed method comprises: collecting a plurality of portions from each of a plurality of test lots, the test lots each comprising an assemblage of one or more specimens, wherein each test lot is separately sampled by taking said plurality of portions thereof; combining the collected plurality of portions corresponding to each of the separate test lots to provide a corresponding set of separate test lot samples, wherein each separate test lot sample is attributed to a particular corresponding separate test lot; incubating the

set of separate test lot samples under conditions suitable to allow levels of a target microbial agent or organism that is present in one or more of the separate test lot samples to reach detectable levels and become uniform, or substantially uniform, throughout the respective one or more separate test lot samples, to provide a set of separate test lot samples enriched for the target microbial agent or organism; removing portions of each enriched separate test lot sample, and combining the removed portions to provide a modular composite sample; and testing of the modular composite sample, using a suitable detection assay, for the target microbial agent or organism, wherein when such testing is negative all of said separate test lot samples are validated, and wherein when such testing is positive, individual separate test lots may nonetheless yet be validated by further testing of a portion of the respective enriched separate test lot sample using the same or a more sensitive protocol and obtaining a negative test result.

2. I am familiar with particular aspects of the Office Action from the USPTO dated 26 May 2010 in this case, and understand that one or more claims of the above-referenced patent application remain rejected under 35 U.S.C. § 103 on the alleged grounds that the claimed invention is obvious. Specifically, the Examiner appears to be alleging that several of the claims under 35 U.S.C. 103(a) are unpatentable over Jarvis in view of FSIS and Midura, amongst others.

3. I am the CEO of the Meat Division of Institutes of Environmental Health (IEH) Laboratories and Consulting Group and have been at that position since of April 15, 2008. My detailed curriculum vitae is attached hereto as APPENDIX A.

4. Prior to joining IEH, I was the Director of the U.S. Meat Animal Research Center (USMARC) of the USDA-ARS. Among other responsibilities, I had the responsibility of overseeing all pre-harvest and post-harvest food safety research.

5. From 1992 to 2005, I was the leader of all the post-harvest research conducted at USMARC.

6. For several years, I have been on the forefront of the research to assist the industry in their efforts to control *E. coli* O157, *Salmonella* and non-O157 Shiga toxin producing *E. coli*. In particular, in 1990s I conducted much of the work that enabled the USDA-FSIS to issue HACCP Rules. In my role at that USDA, I headed a team of USDA scientists that

collaborated with our Chinese counterpart.

7. I am an author or co-author of approximately 400 research articles (representative articles are attached as part of APPENDIX A) in the field of food testing, analytical sampling, meat safety and quality, and my research has been presented at more than 250 national and international meetings. In addition, I have organized several food safety sessions and meetings both nationally and internationally.

8. I am member of Board of Directors of the International Livestock Education Foundation as well as Board of Directors of the National Cattlemen Beef Association.

9. I am one of 10 members of the beef industry's Blue Ribbon Task Force on non-O157 shiga toxin producing *E. coli*.

10. I am a member of the American Meat Institute' Scientific Advisory Committee.

11. I have dedicated much of my research efforts since 1993 to the control of *E. coli* O157:H7 in our nation's red meat supply.

12. I am writing this letter to Declare and corroborate the significance of wet composite inter-lot pooling as presently claimed in the control of *E. coli* O157:H7 and other beef-borne pathogens and as such the only way to control beef-borne pathogens is an effective food safety system. Pathogen testing is an effective part of a robust food safety system.

13. For *E. coli* O157:H7 testing, prior to the present patent application, the industry common practice is to use 5 combo bins as a lot. While a smaller lot size (e.g., a single combo bin) might provide for a better chance of finding *E. coli* O157:H7 contamination, the cost of sampling and testing has strongly motivated industry retention of the 5 combo bin lot. Surprisingly, therefore, while the invention of post-enrichment inter-lot pooling, as disclosed and claimed in the current patent, requires increased sampling/testing expense (about 30% more than with the prior industry standard) it has been rapidly and widely adopted and solves a long standing problem in the art by providing for a more robust testing method with enhanced safety

for consumers.

14. At this point in time, and largely because of IEH's implementation of its modular inter-lot pooling methods, IEH provides laboratory testing for about 30% of the cattle processed in the United States and about 40% of the cattle processed in Canada. After implementation of the wet pooling, as disclosed and claimed in the current patent, all IEH clients, except for one new client, use single combo sampling and testing because we have demonstrated to their satisfaction that using single combo as the sampling unit, while more expensive for sampling and testing, provides a better opportunity of detecting and removing contaminated lots. The clients also appreciate, that the higher resolution of sampling a single combo prevents unadulterated products from being unnecessarily disposed—because of the ability, when an inter-lot composite sample tests positive, to yet validate individual enriched test lots for release into commerce. There is, therefore, a clear nexus between the benefits of the method as claimed in the patent, and industry acceptance in the context of IEH's business.

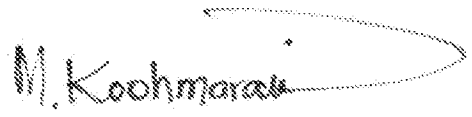
15. The data, shown in Table 1 and Figure 1 of this Declaration (Appendix A), is from an IEH conducted *E. coli* O157:H7 testing program in beef trim. This Table 1 data illustrates that due to this higher resolution associated with single combo testing (i.e., implementation of the wet inter-lot composite pooling method, as disclosed and claimed in the current patent), a representative client of the company was, in a single year, able to save 477 combo bins—each containing about 2000 lbs of beef trim.

16. The data shown in Table 1 of this Declaration (Appendix A) was used to calculate the numbers represented in Figure 1 of this Declaration (Appendix A). The results show that in the majority of instances, when a 5-combo bin lot is considered to be positive for *E. coli* O157:H7, only a single combo bin is positive. On average when a lot of 5-combo bins is rejected, only 1.65 of those 5 combos are positive, thus 3.65 combo bins are unnecessarily discarded.

17. The data presented here is the basis of the request of many customers that the trim producers conduct single combo sampling and testing by the IEH proprietary method as claimed. For example, in its latest requirement for the trim supplied for ground beef production, the National School Lunch Program is requiring single combo testing as well, according to the claimed method.

18. In conclusion, only an effective risk based beef production system can provide for the control of *E. coli* O157:H7 in raw ground beef. Testing for *E. coli* O157:H7 in trim and raw ground beef components is an integral part of such a food safety system. According to the claimed invention, and as represented by the rapid and wide-spread acceptance of the claimed methods, lot size and representative sampling of the lot are a critical part of the testing system. Industry acceptance of smaller the lot size, despite the increased costs, means a higher chance of detecting *E. coli* O157:H7 and removing the adulterated product from commerce, hence protecting public health. Wet composite inter-lot pooling, as disclosed and claimed in the current patent, is the technology that surprisingly makes single combo testing a viable option. Prior to the invention of the patent, such sampling was regarded as contra-indicated and not economically feasible.

19. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code, and may jeopardize the validity of the application or any patent issuing thereon.



Mohammad Koohmaraie, Ph.D.

26 July 2010

APPENDIX A

TABLE 1

Number of Combo Bins Diverted Due to a Positive Lot Finding

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Traditional Lotting	185	0	17	0	53	122	99	25	147	24	52	2	726	
Single Combo	58	0	6	0	23	39	34	9	51	12	16	1	249	
													477	Saved

FIGURE 1

# of Combo Bins	% of Times Positive
1 - combo	59.2
2 - combo	24.2
3 - combo	10.8
4 - combo	4.1
5 - combo	1.7

APPENDIX B

CURRICULUM VITAE
MOHAMMAD KOOHMARAIE

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Office Phone: 206-522-5432
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EDUCATION

1978	B.S., Pahlavi University, Shiraz, Iran Major: Animal Science
1980	M.S., Texas A&M at Kingsville Major: Meat Science Minors: Animal Nutrition and Statistics
1984	Ph.D., Oregon State University Majors: Meat Science and Muscle Biology Minors: Biochemistry, Microbiology, Food Science and Technology

ADDITIONAL TRAINING

1985	Short course on "Basic Cell and Tissue Culture," The Center for Advanced Training in Cell and Molecular Biology, The Catholic University of America, Washington, DC.
1990	Short course on "Recombinant DNA Methodology," The Center for Advanced Training in Cell and Molecular Biology, The Catholic University of America, Washington, DC.
1991	Seminar on "Science, Technology and Public Policy," U.S. Office of Personnel Management, at Western Executive Seminar Center, Denver, CO.
1992	Short course on "Polymerase Chain Reaction in Molecular Biology," The Center for Advanced Training in Cell and Molecular Biology, The Catholic University of America, Washington, DC.

2000	Executive Program "Leadership and Team Effectiveness," Yale School of Management, New Haven, CT.
2000	Congressional Briefing Seminar. The Government Affairs Institute at Georgetown University, Washington, DC.
2001	Seminar on "Essentials of Communicating with Diplomacy and Professionalism," SkillPath Seminars of Kansas City, MO.
2004	Seminar for executives on Legislative operations. The Government Affairs Institute - Georgetown University, Washington, DC. This course is designed for SES candidates and meets Executive Core Qualifications 1, 4, and 5.

EMPLOYMENT

1980 - 1984

Research Assistant
Clark Meat Science Laboratory, Department of Animal Science
Oregon State University, Corvallis, Oregon

1984 - 1986

Postdoctoral Research Fellow
USDA-ARS, Roman L. Hruska U.S. Meat Animal Research Center
Clay Center, Nebraska

1986 - 1987

Postdoctoral Research Fellow
Department of Food Science and Human Nutrition
Michigan State University
East Lansing, Michigan.

1987 - 1991

Research Physiologist
Meats Research Unit
U.S. Meat Animal Research Center
USDA-ARS
Clay Center, Nebraska

1991 - 2005

Supervisory Research Physiologist (Research Leader)
Meat Safety and Quality Research Unit
U.S. Meat Animal Research Center
USDA-ARS
Clay Center, Nebraska

2005 - 2008

Director
U.S. Meat Animal Research Center
USDA-ARS
Clay Center, Nebraska

2008 to present

CEO, Meat Division
IEH Laboratories and Consulting Group
Lake Forest Park, Washington

HONORS AND AWARDS

1989 Received a Certificate of Merit and cash award from USDA-ARS for "Outstanding Research on Control of Meat Tenderness"

1990 Received a Certificate of Merit and cash award from USDA-ARS for "Outstanding Research in your Field of Research for ARS"

1991 Received a Certificate of Merit and cash award from USDA-ARS for "Innovative Research and Project Leadership on Meat Tenderness"

1992 Selected as ARS's "Outstanding Early Career" Scientist of the Year

1993 Selected as Midwestern Section of the American Society of Animal Science "Outstanding Young Scientist-Research"

1993 Selected for American Meat Science Distinguished Research Award

1994 Selected for American Society of Animal Science Meat Research Award

1994 Received a Certificate of Merit and cash award from USDA-ARS for "Leadership of the Team That Developed the First Rapid Test for Bacteria on Meat and Poultry Carcasses"

1995 Secretary of Agriculture's Award for Personal and Professional Excellence

1995 Received the USDA Secretary of Agriculture's Award for Superior Service "For Development of the First Rapid Test for Generic Bacteria on Meat and Poultry Carcasses"

1997 ARS-FSIS Administrator's Certificate of Appreciation for "Excellence in the Joint FSIS/ARS Efforts to Determine the Sponge Method Parameters That Allowed the Pathogen Reduction/HACCP Rule to be Adopted Into Legislation"

1998 Received a Certificate of Appreciation and cash award from USDA-ARS for "The Transfer of Technology on Beef Tenderness to the Industry"

1999 Received a Certificate of Appreciation and cash award from USDA-ARS "In Recognition for an Outstanding Rating Based Upon an Official Performance Appraisal for the Rating Period September 1, 1998 Through October 31, 1999"

1999 Received a Certificate of Appreciation and cash award from USDA-ARS for "Demonstrating an Unusual Level of Commitment in Leading an Industry Cooperative Meat Safety Study to Support the FSIS and the Beef Industry and Playing a Key Role in Support of the USDA's Office of Inspector General"

2000 Selected as ARS "Outstanding Senior Scientist of the Year"

2001 Promoted to Super Grade Scientists in USDA-ARS (only 30 scientists from over 2000 scientists receive this recognition).

2000 Received a Certificate of Merit and cash award from USDA-ARS "In Recognition of an Outstanding Rating Based Upon an Official Performance Appraisal for the Rating Period November 1, 1999 through December 31, 2000"

2001 Received the USDA Secretary of Agriculture Award for Personal and Professional Excellence. Citation: "For Leading Team Research Resulting in Development of Technology Now Being Used by Producers and Processors to Improve the Safety and Quality of the United States Red Meat Supply"

2001 Received Area Director's Certificate of Appreciation for "Outstanding Contributions as Acting Center Director for the U.S. Meat Animal Research Center in Clay Center, Nebraska, July 2000- April 2001"

2002 Selected to chair ARS's Research Position Evaluation System Panels

2001 Received a Certificate of Merit and cash award from USDA-ARS "In Recognition of Your Exemplary Leadership by Working with the Livestock and Packing Plant Industries to Solve Food Safety and Carcass Classification Problems"

2002 Received a Certificate of Merit and cash award from USDA-ARS "In Recognition of Your Outstanding Performance in Leading Post-harvest Food Safety and Meat Quality Research and Working with the Livestock Industry to Implement New Technologies and Management Practices"

2003 Received a Certificate of Merit and cash award from USDA-ARS "For Exemplary Leadership in Identifying and Solving Food Safety Problems by Developing Hide and Trim Intervention Programs"

2004 Received a Certificate of Merit and cash award from USDA-ARS for "Outstanding Performance in Leading Post-Harvest Food Safety and Meat Quality Research and Transfer of New Technology to Industry"

2004 Selected as the recipient of an ARS Technology Transfer Award "For Exemplary Efforts to Ensure the Successful Implementation of the MARC Beef Carcass Image Analysis System by the U.S. Beef Industry"

2004 Selected for ARS Executive Professional Excellence and Knowledge (PEAK) Program

2004 Received a Certificate of Merit and cash award from USDA-ARS for "Outstanding Performance in Leading Post-Harvest Food Safety and Meat Quality Research and Transfer of new Technology to Industry"

2005 Received "2005 Professional of the Year" award presented by the National Meat Association "In Recognition of Your dedication and Valuable Service to the Meat and Poultry Industry" February 2005, Las Vegas, Nevada

2005 Received the 2005 Federal Laboratory Consortium Award for Excellence in Technology Transfer for "Beef Carcass Image Analysis Yield Classification System" March 2005, Orlando, Florida

2005 Received the American Meat Science Association "Signal Service Award' presented "In Recognition of Devoted Service and Lasting Contribution to the Meat Industry and the American Meat Science Association" August 2005, Baltimore, Maryland

2005 Received the International Meat Secretariat 2005 ICoMST (International Congress of Meat Science and Technology) Lecturer Award, Baltimore, Maryland

2005 Selected to be member of the United States' Senior Executive Service (SES) – less than 10,000 federal employees receive this level from over 2,000,000 federal employees.

2005 Member of International Meat Secretariat (IMS) Scientific and Technological Advisory Group/Committee

2006 Represented United States in U.S.-China Food Safety Research and Cooperation (ended in 2008 when Dr. Koohmaraie left federal service).

2005 to present Member of Board of Directors of the International Stockmen's Education Foundation

2007 Received the Agricultural Research Service Post-Harvest Food Safety Group Technology Transfer Award for Outstanding Effort, "For the Development and Implementation of Technology that Reduces Pathogen Contamination on Cattle Hides and Improves the Safety of the Red Meat Supply."

2008 Received the Texas A&M University at Kingsville School of Agriculture's Outstanding Alumni of the Year Award.

2008 Received "The Nebraska Cattlemen 2008 Industry Service Award" for ". . . your contributions to the Nebraska and the U.S. beef cattle industries . . . . "

INVITATIONS

Industry

1. Invited to present the paper "Relationship Between Phosphatidylinositol Metabolism and Skeletal Muscle Cell Proliferation" to the Discovery Group, American Cynamid Company, New Jersey, 1985.

2. Invited to present the paper "Tenderness and Aging: An Enzymatic Approach" to a workshop on "Sensory Aspects of Beef Quality" sponsored by USDA and National Live Stock and Meat Board, New Orleans, Louisiana, 1988.

3. Invited to make a presentation on "Factors Affecting Beef Tenderness" to the Carcass Quality Task Force of the National Cattlemen's Association, Denver, Colorado, 1992.

4. Invited to present a seminar on "Beef Tenderness and the Use of Calcium Injection to Increase Tenderness" at the Nebraska Seedstock Symposium sponsored by the Nebraska Cattlemen Purebred Council and the University of Nebraska, 1993.

5. Invited to present a seminar on "Beef Tenderness and the Use of Calcium Injection to Increase Tenderness" to the Dawson County Cattlemen, Cozad, Nebraska, 1994.

6. Invited to present a paper on "Beef Tenderness: Regulation and Prediction" at the 1994 Cattlemen's College at the 1994 National Cattlemen's Convention, Reno, Nevada.

7. Invited to chair the "Gene Markers/Calpastatin" session at the National Tenderness/Palatability Conference. Organized by the National Cattlemen's Association, Denver, Colorado, 1994.

8. Invited to speak at the 26th Annual Conference of the Beef Improvement Federation on "Advances in the Meat Processing Technology That Will Impact Beef Breeding," Des Moines, Iowa, 1994.

9. Invited to speak at the 1994 Texas A&M Beef Cattle Short Course on "Beef Tenderness: Regulation and Prediction," College Station, Texas, 1994.

10. Invited to speak on "Beef Tenderness: Regulation and Prediction" at the World South Devon Society Conference, Billings, Montana, 1994.

11. Invited to present a seminar on the "Role of Enzymes in Tenderness of Aged Beef" to the American-International Charolais Association, Louisville, Kentucky, 1994.

12. Invited to present a seminar on "The Development and Field Testing of the Microbial ATP for Detection of Generic Bacteria on Beef, Pork, and Poultry Carcasses" at the Cargill Lab Manager's Meeting, Plymouth, Minnesota, 1994.

13. Invited to present a seminar on "A Summary of Beef Quality and Meat Safety Research" at the annual meeting of the Nebraska Veterinary Medical Association, Hastings, Nebraska, 1995.

14. Invited to present a seminar on "Beef Tenderness: Regulation and Prediction" at the Muscle to Meat Symposium sponsored by the Montana Stockgrower's Association, Billings, Montana, 1996.

15. Invited to present a seminar on "Tenderness-Based Beef Classification" to the Nebraska Labelled Beef Program Fact Finding Committee of the Nebraska Cattlemen, Lincoln, Nebraska, 1996.

16. Invited to present a seminar on "Beef Tenderness: Past, Present and Future" at the Nebraska Seedstock Symposium sponsored by the Nebraska Cattlemen and the University of Nebraska, North Platte, Nebraska, 1996.

17. Invited to present a seminar on "Beef Tenderness: Past, Present and Future" at the Nebraska Cattlemen and Cattlewomen Annual Convention, Kearney, Nebraska, 1996.

18. Invited to present a talk "Tenderness-Based Beef Classification" at the National Cattlemen's Beef Association's Maximizing Retail Beef Palatability-Product Enhancement Symposium, Denver, Colorado, 1996.

19. Invited to present a seminar on "Tenderness-Based Beef Marketing" at the annual meeting of Double Muscle Inc., Denver, Colorado, 1996.

20. Invited to present a talk on the "Biological Factors Regulating Beef Tenderness" to the Nebraska Beef Task Force of the Nebraska Cattlemen, Lincoln, Nebraska, 1996.

21. Invited to present a seminar on "Beef Tenderness: Regulation and Prediction" to Cattle Capital Cattlemen, Alliance, Nebraska, 1997.

22. Invited to present a seminar titled "Beef Tenderness: Current Knowledge and Future Implications" to the Nebraska Beef Feedlot Roundtable, Grand Island, Nebraska, 1997.

23. Invited to present a talk on "Beef Tenderness: Regulation and Prediction" to Montana Stockgrowers Association, Billings, Montana, 1997.

24. Invited to present a seminar titled "Beef Tenderness: Regulation and Prediction" at the annual meeting of the Cactus Feeders, Amarillo, Texas, 1997.

25. Invited to present a seminar on "Biochemical Basis of Meat Tenderness" to the Symposium on Quality Attributes and Measurement of Muscle Foods sponsored by the American ChemicalSociety, Dallas, Texas, 1997.

26. Invited to present a seminar on "Beef Tenderness: Regulation and Prediction" to the Participants of a Beef Quality Short-Course for leaders of the Texas Beef Industry, College Station, Texas, 1997.

27. Invited to present a talk on "Beef Tenderness: Regulation and Prediction" at the Price Discovery Conference, Kansas City, Missouri, 1997.

28. Invited to present a talk on "Beef Tenderness Issues: Determination Predictability, and Marketing Opportunities" at the Industry Resource Management (IRM) Conference, Clay Center, Nebraska, 1997.

29. Invited to present a talk "Beef Tenderness" at the Range Beef Cow Symposium XV, Rapid City, South Dakota, 1997.

30. Invited to present a talk on recent advances made in tenderness research and any other pertinent carcass research information to the American-International Charolais Association Carcass and Commercial Committee, Kansas City, Missouri, 1997.

31. Invited to present a talk "Effect of Prerigor Freezing and Postrigor Calcium Chloride Injection on Tenderness of Callipyge Longissimus" at the American Sheep Industry Annual Convention, Reno, Nevada, 1998.

32. Invited to present talks "The Importance and Value of Tenderness" and the "MARC Tenderness Classification System" at the International Livestock Congress, Houston, Texas, 1998.

33. Invited to present an overview of the "Factors Influencing Beef Tenderness" and an invited presentation on "New Technologies to Improve Meat Quality" at the California Beef Cattle Improvement's Association's "Your Beef's at Stake" program, Davis, California. 1999.

34. Invited to present "Animal Genetics Update - Key Developments & Progress: Conclusions" at the Meat Industry Research Conference (MIRC), Chicago, Illinois, 1999.

35. Invited to discuss "Decontamination Methods for Small Beef Slaughter Plants" at a specialized food safety work conference on "Reducing Foodborne Illness: Advancing the Adoption of New Technologies" sponsored by the Riley Memorial Foundation, Washington, DC, 1999.

36. Invited to be a panel member to determine the research priorities of the National Cattlemen's Beef Association's for meat quality, 2001.

37. Invited to be a panel member to determine the research priorities of the National Cattlemen's Beef Association's for beef safety, 2001.

38. Invited to be a panel member to determine the research priorities of the National Pork Producers Council for pork quality, 2001.

39. Invited the Agriculture and Agri-Food Canada to be a member of the Meat Research Section Review Committee to assist in the development of future research and staffing plans, 2001.

40. Invited by the American Sheep Industry to present a seminar on "Sheep Research at the U.S. Meat Animal Research Center" to the Research & Education Policy Committee, 2001.

41. Invited to be a member of a 20-member panel of the National Cattlemen's Beef Association's BSE Blue Ribbon Task Force, 2001.

42. Invited to be a member of an 18-member committee organized by ASTM (American Society for Testing and Materials) to "Develop Standards for Carcass Evaluation Systems for Livestock," 2001.

43. Invited to be a member of a board (as the scientific advisor) that advises grocery retailers and meat suppliers (Wal-Mart, HEB, Sara Lee, Tyson, Excel, IBP, and others; these companies account for 40% of the food sold in the U.S.) on food safety matters, 2001

44. Invited by NCBA to join them in meeting with senior staff of McDonald's to communicate the industry's BSE research priorities to come up with a joint request for proposals, 2001.

45. Hosted the ConAgra's Food Safety Team to visit MARC to become better acquainted with MARC resources for future collaborations, 2001.

46. Hosted the Excel division of the Cargill Food Safety Team to visit MARC to become better acquainted with MARC resources for continued and future collaborations, 2001.

47. Represented CD and the Research Center in the NPS organized stakeholders meeting to identify biosecurity research needs, Beltsville, MD, 2001.

48. Invited by the Hawaii County Administrator to be part of a team of four to help the Island modernize its meat industry, 2001.

49. Invited by the National Pork Board to serve on a panel to evaluate the usefulness of funded and completed grants to their producers, St. Louis, MO, 2001.

50. Invited to present a lecture on "Interventions to Reduce/Eliminate Pathogens from the Red Meat Supply" to the 2002 Convention of the North American Meat Association Convention, Monterey, CA, 2002.

51. Invited to lecture on "*E. coli* O157:H7 and non-O157 Shiga Toxin *E. coli* (STECs) in Beef Processing Plants" sponsored by the Excel Corporation Food Safety and Technology Seminars for the retailer, food service, and manufacturing segment of the meat industry: Dallas, TX; Philadelphia, PA; Columbus, OH; Calgary, Alberta, Canada; Charlotte, NC; Toronto, Ontario, Canada; and Denver, CO, 2002.

52. Organized and chaired the Food Safety and Biosecurity portion of the 2002 Reciprocal Meat Conference (the annual meeting of the American Meat Science Association), East Lansing, MI, 2002.

53. Invited by the Hawaii County Administrator to be part of a team of four to help the island modernize its meat industry, 2002.

54. Invited to give a presentation on "Application of Proteomics to Meat Quality Research" to the 2002 Annual Reciprocal Meat Conference (the annual meeting of the members of the American Meat Science Association), East Lansing, MI, 2002.

55. Is a member of a committee appointed by NCBA to evaluate the feasibility and criteria for a reward system for the development of a method of tenderness-based beef classification, 2002.

56. Is a member of the NCBA *E. coli* Summit Task Force. The task force was established in the fall of 2002 by NCBA and in response to *E. coli* O157:H7 outbreaks and product recalls to develop an industry plan to regain control of the safety of beef and beef products, 2002.

57. Invited to be a member of an industry panel to develop a pathogen-testing program to replace the Salmonella-testing program, 2002.

58. Invited to give a talk on "Industry-wide Plans to Develop Hide-Interventions to Reduce Pathogens on Beef," National Cattlemen's Beef Association, Denver, CO, 2002.

59. Invited to give a talk on "Pathogens in Commercial Beef Processing Plants" to the Ground Beef Forum sponsored by Excel Corporation, Chicago, IL, 2002.

60. Invited by Elsevier Press to be the Editor for North America for Meat Science, 2002.

61. Invited to speak at the New Scientist Orientation for the Northern Plains Area on "What You Need to Know to be a Successful ARS Scientist," Fort Collins, CO, 2002.

62. Invited to present a summary of the report he prepared for FSIS on Beef Trim to the FSIS

Administrator and his staff, 2003.

63. Invited to speak on the status of the risk of *E. coli* O157:H7 in beef to the NCBA sponsored and by invitation-only *E. coli* Summit, San Antonio, TX, 2003.

64. Invited to meet with IBP/Tyson senior management to discuss the status of *E. coli* O157:H7 and potential new strategies to combat it, Dakota Dunes, SD, 2003.

65. Invited to meet with the senior staff of the American Meat Institute Foundation to update them on our recent findings and to discuss future projects, Washington, DC, 2003.

66. Brought five beef companies (IBP, Excel, Swift, National, and Harris Ranch) and two commodity groups (NCBA and AMI) together to agree to share the cost of a major project. Every company paid for the supplies in-kind, the two commodity groups covered travel costs, and ARS scientists collected and analyzed the data, 2003.

67. Invited to be a member of the National Pork Board's Quality Solutions Advisory Group to advise the organization on pork quality issues, 2003.

68. Invited to be a speaker at the Science & Technology Round Table entitled "Preventing *E. coli* O157:H7: What Works," National Meat Association MEATXPO'03. The 57th Annual Convention of the National Meat Association, Las Vegas, NV, 2003.

69. Invited to prepare an article on "Carcass Composition and Quality: Genetic Influence" for the first edition of the Encyclopedia of Animal Science (EAS), to be published by Marcel Dekker, Inc., 2003.

70. Invited to speak on "The Status and Efficacy of Post-Harvest Interventions for *E. coli* O157:H7" by the Plains Nutrition Research Council, San Antonio, TX, 2003.

71. Invited to give a presentation on "Application of Transgenic Approaches to Meat Quality Research" to the 2003 Annual Reciprocal Meat Conference (the annual meeting of the members of the American Meat Science Association), Columbia, MO, 2003.

72. Invited to give a presentation on "Sampling Protocol to Verify Beef Harvest Process and Recent Advances in Interventions to Reduce *E. coli* O157:H7 from Beef" to the 2003 Annual Reciprocal Meat Conference (the annual meeting of the members of the American Meat Science Association), Columbia, MO, 2003.

73. Invited to give two talks "Biological Basis of Beef Tenderness and Tenderization Methods" and "Recent Advances to Combat *E. coli* O157:H7 in Beef" at the Harris Ranch's "Partnership for Quality" conference, Coalinga, CA, 2003.

74. Invited by the Neogen Corporation to give a lecture on "Microbial Sampling to Verify Slaughter Process" to the Neogen Food Safety Advisory Committee, East Lansing, MI, September 2003.

75. Invited by Eli Lilly and Company to meet with their key staff and discuss the food safety challenges facing the U.S. beef and meat industry, Indianapolis, IN, December 2003.

76. Invited to meet with key Excel staff (Meat Division of Cargill) and vice president for meat and seafood of Safeway to advise them on providing tenderness guaranteed tender beef to Safeway (third largest U.S. grocer), Denver, CO, December 2003.

77. Invited to participate and give a talk on the significance of cattle hide in beef safety to "The State of New Technologies to Enhance Public Health Symposium" sponsored by the Food Safety and Inspection Service of the USDA, Omaha, NE, February 2004.

78. Invited to give a talk on "Recent Advances to Combat *E. coli* O157:H7" to the 2004 Annual Convention of the National Cattlemen's Beef Association, Phoenix, AZ, January 2004.

79. Invited to give a talk on "Effectiveness of *E. coli* O158:H7 Screening Tools," at the 58th Annual Convention of the National Meat Association and participate in the roundtable discussion "Reducing Pathogens in Raw Meat," San Antonio, TX, February 2004.

80. Invited to be one of 20 selected individuals to organize the "by invitation only" 2004 "BSE Summit" sponsored by the meat industry. I was asked to organize the section dealing with the diagnostics and surveillance section of the Summit, 2004.

81. Invited to be one of four individuals to advise Outback Steakhouse for meat quality and safety issues. Since February 2004.

82. Invited to speak on "Microbial Sampling to Verify Slaughter Process and Recent Development in Hide Interventions" to the audience at the American Meat Institute Foundation sponsored meeting on "Best Harvest Practices for the U.S. Beef Processing Plant," Kansas City, MO, April 2004.

83. Invited to meet with the Food Safety Advisory Team for the Smithfield Beef Group and give a talk on "Recent Advances in *E. coli* O157:H7 Research," Kalamazoo, MI, May 2004.

84. Invited to give a talk on "Value-based Beef Classification" to the 2004 Beef Improvement Federation Meeting, Rapid City, South Dakota, May 2004.

85. Invited to attend the Annual Convention of the Southwest Meat Association and give a talk on "The Latest Development in Pathogen Reduction Research," Albuquerque, NM, July 2004.

86. Invited to attend and make a presentation on "Postmortem Aging as Related to Tenderness and Flavor of Beef" to the Beef Food Safety Council Advisory Meeting sponsored by CTI Foods, Standard Meat Company, and Outback Steakhouse, Tampa, FL, July 2004.

87. Invited to present a talk "Recent Research Data on Status of *E. coli* O157:H7 in Beef and in Beef Processing Plants" at the National Meat Association (NMA) Summer Conference, Jackson, WY, August 2004.

88. Invited to present seminar "Biological Basis that Determines Beef Tenderness" to the decision

makers of the CTI Foods/Standard Meat Company, Fort Worth, TX, September 2004.
89. Invited to make a presentation "Post-harvest Interventions to Reduce/Eliminate *E. coli* O157:H7
in Beef" at the Meat Industry Research Conference (MIRC) of the 2004 Annual Convention of the American Meat Institute Foundation, Nashville, TN, September 2004.

90. Invited to participate in a panel discussion on "*E. coli* O157-Related Issues in Beef" at the National Meat Association's 59th Annual Convention, Las Vegas, NV, February 2005.
91. Invited to make presentation on "Food Safety Issues Related to Beef and Pork" at the Food Safety Council Advisory Meeting of CTI Foods/Standard Meat Co. /Outback Steakhouse, Las Vegas, NV, February 2005.
92. Invited to make a presentation on "Food Safety Research at MARC" at Neogen Corporation's Food Safety Advisory Committee Meeting, Lansing, MI. February 2005.
93. Invited to meet with executives of the American Food Groups and update them on our latest information of methods to predict beef tenderness. Also helped them determine the feasibility of implementing the "MARC beef classification system." Green Bay, WI. April 2005
94. Invited to meet with the Food Safety Advisory Team for the Smithfield Beef Group and advise
them on ways to control *E. coli* O157:H7 in and on beef. Fort Collins, CO. May 2005.
95. Invited to attend and make a presentation on "Postmortem Aging as Related to Tenderness and
Flavor of Beef" to the Beef Food Safety Council Advisory Meeting sponsored by CTI Foods, Standard Meat Company, and Outback Steakhouse, Tampa, FL, June 2005.
96. Invited to present "Safety Issues Related to Beef and Pork" for the Food Safety Council Advisory Meeting of officials of CTI Foods, Standard Meat Company, and Outback Steakhouse, Tampa, Florida, Febr. 2006.
97. Invited to present "Instrumentation for Beef Tenderness" in a Seminar for American Foods Group officials, Green Bay, Wisconsin, Febr. 2006.
98. Invited to present "Recent Research Data on Reducing *Escherichia coli* O157:H7 Load on Cattle" for the National Meat Association (NMA) 60th Annual Convention, San Francisco, California, Mar. 2006.
99. Invited to present "A Summary of the Results of Food Safety Projects Funded by the NCBA" at
the Beef Industry Safety Summit, Jacksonville, Florida, Apr. 2006.
100. Invited to meet with executives of Superior Farms to assist with food safety procedures, in Dixon, California, May 2006.
101. Invited to present "Instrument Grading" for the Quality Assurance Advisory Board and Quality
Assurance state coordinators of National Cattlemen's Beef Association, Kansas City, Missouri, June 2006.
102. Invited to present "Results from USMARC *E. coli* O157:H7 Research" for the Quality Assurance Advisory Board and Quality Assurance state coordinators of National Cattlemen's Beef Association, Kansas City, Missouri, June 2006.
103. Invited to speak on "Instrumentation for Beef Classification" to the Nebraska Cattlemen, June 9,
2006, Holdrege, Nebraska, June 2006.

104. Invited to make a presentation "Summary of the Last 12 Months of Food Safety Accomplishments at USMARC" for meeting of National Cattlemen's Beef Association, Reno, Nevada, July 2006.

105. Invited to participate in the Merial Igenity Roundtable, sponsored by Vance Publishing Co., Kansas City, Missouri, Aug. 2006.

106. Invited to lead group discussion on "The Research Priority of Food Safety and Quality Assurance" for the Meat Industry Research Convention, co-sponsored by AMIF and AMSA, Hollywood, Florida, Oct. 2006.

107. Invited to participate in the Foot and Mouth Disease Summit, National Cattlemen's Beef Association, Washington, DC, Oct. 2006.

108. At the request of the National Cattlemen's Beef Association (NCBA), I and four other individuals planned and organized the meeting on current and future research needs on the issue of TSEs, particularly BSE, sponsored by the National Cattlemen's Beef Association (NCBA), on behalf of the Beef Checkoff, Sonoma, California, Oct. 2006.

109. Invited to attend and chair breakout session on "Surveillance and Testing" at the invitation only
TSE Think Tank, Sonoma, California, Nov. 2006.

110. 111. Invited to present a seminar on "Sources of *E. coli* O157:H7" at the United States-Japan
Cooperative Program on Development & Utilization of Natural Resources (UJNR) 10th International Symposium on Toxic Microorganisms, FDA-CFSAN, College Park, Maryland, Nov. 2006.

112. Invited to participate in Full Proposal Review by members of AMIF Research Advisory Council,
Washington, DC, Nov. 2006.

113. Invited to present a talk on "Recent Developments in Control of *E. coli* O157:H7" for executives
of In-N-Out Burger, Baldwin Park, California, Jan. 2007.

114. Invited to meet with sheep processors to discuss data collected in sheep processing plants and
discuss future research plans, American Sheep Industry Convention, San Antonio, Texas, Jan. 2007.

115. Invited to present "Update on Food Safety Projects at USMARC" at NCBA 2007 Cattle Industry
Annual Convention, Nashville, Tennessee, Jan. 2007.

116. Invited to present "Update on Food Safety Research from the U.S. Meat Animal Research Center" at a Beef Food Safety Council Advisory Meeting organized by CTI Foods, Standard Meat Co., and Outback Steakhouse, Tampa, Florida, Febr. 2007.

117. Invited to participate in Specialty Meeting on "Kill Floor Interventions" at the National Meat
Association's Meat XPO'07, Las Vegas, Nevada, Febr. 2007.

118. Invited to participate in Round Table-Science and Technology on "Fresh Meat Pathogens" at the
National Meat Association's Meat XPO'07, Las Vegas, Nevada, Febr. 2007.

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Industry (cont'd)

119. Invited to participate in Reciprocation Session on "Transportation and Lairage Effects on Pathogen Prevalence on Beef Hides" at the NCBA Beef Safety Summit, Dallas, Texas, Febr. 2007.
120. Invited to present "Research Updates: Latest Research Data on Current Beef Safety Issues"
121. Invited to present an "Issues Update Forum: Multi Drug-Resistant *Salmonella* in the Beef Chain"
at the NCBA Beef Safety Summit, Dallas, Texas, Febr. 2007.
122. Invited to make a presentation on "Effective Controls to Reduce/Eliminate *E. coli* O157:H7 from
the Red Meat Supply" at a Symposium on Antimicrobial Interventions for Quality Control of Meat and Poultry Products, Canadian Meat Council, Toronto, Ontario, Canada, Sept. 2007.
123. Invited to speak on "How to Do Public Research for the Good of All" for the Industry Advisory
Board of the Institute for Food and Agricultural Sciences Value-Added Meat Program in Calgary, Alberta, Canada, Sept. 2007.
124. Invited to speak on "Sources of *E. coli* O157:H7 on Beef and Interventions to Control It" for
officials and scientists of GangaGen Life Sciences, Inc., Ottawa, Canada, Dec. 2007.
125. Invited to assist the Beef Industry Food Safety Council (BIFSCo) of National Cattlemen's Beef
Association in producing a video on proper sampling protocol, Thomasville, Florida, Dec. 2007.
126. Invited to make a presentation, "Update on the Latest Beef Safety Research that USMARC has
Conducted with Funds Provided by the Beef Council of NCBA" to the Joint Beef Safety Committee of NCBA, NCBA Cattle Industry Convention and Trade Show, Reno, Nevada, Febr. 2008.
127. Invited to make a presentation "Update on the Latest Beef Safety Research that USMARC has
Conducted with Funds Provided by the Beef Council of NCBA" to the Joint Product Enhancement Committee of NCBA, NCBA Cattle Industry Convention and Trade Show, Reno, Nevada, Febr. 2008.
128. Invited to moderate Round Table Session, "Whipping the *E. coli* Problem Again" at National
Meat Association's 62nd Annual Convention, Monterey, California, February 2008.
129. Invited to make a presentation on "Updates on the Latest Beef Safety Research and How the Data and Technologies Can Be Applied in Industry" to the Beef Industry Food Safety Council (BIFSCo) of the National Cattlemen's Beef Association, Dallas, Texas, March 2008.
130. Invited to make a presentation on "Best Practices: HACCP in Processing" to the Beef Industry
Food Safety Council (BIFSCo) of the National Cattlemen's Beef Association, Dallas, Texas, March 2008.
131. Invited to present a talk of the current and potential future status of the non-intact and to lead the
discussion on the regulatory status of E. coli O157. OSI Food Safety meeting, Tampa, Florida, June 2008.

132. Invited to present the baseline data on the surveillance of E. coli O157 in medium to small beef
processing plants and to lead a discussion with operators of small/medium plants to improve their dressing practices. South West Meat Association Annual Convention, Scottsdale, Arizona, July 2008.

15

Industry (cont'd)

133. Invited to make a presentation "Control of *E. coli*O157 in Beef" at the National Meat Association summer convention. Telluride, Colorado. August 2008.

134. Invited to attend the 17th World Meat Congress and make a presentation entitled "Using Research to Enhance Red Meat Sustainability by Meeting Consumer Expectations." September 2008; Cape Town South Africa.

135. Invited to attend 2nd Annul Meat Meeting Congress and present a lecture on "Beef Safety and
Quality" Moscow Russia, May 2009

135. Invited to present a talk on "Slaughter Harvest Mapping: A Process Control Systems Approach"
and to participate on an industry panel on "Food Chain Management and Pathogen Control – Success and Challenges" at The Third Governor's Conference on Ensuring Food Safety: *E. coli* O157:H7 – Progress and Challenges. Lincoln, Nebraska May 2009.

136. Invited to present a talk on "Beef Tenderness: Determination, Regulation and Prediction" at the
2009 Beef Improvement Federation Conference. Sacramento, CA May 2009.

137. Invited to make a presentation on "Testing of Raw Ground Beef Components for *E. coli* O157:H7, Testing of Finished Product" at the National Meat Association Food Safety and Inspection Forum. Napa, California August 2009.

138. Invited to make a presentation on "Making it Practical for In-Plant Implementation" at the Laboratory Test Kit Validation public meeting sponsored National Meat Association, South West Meat Association and USDA-FSIS. November 4, 2009; Washington D.C.

139.

International Meetings and Congresses

1. Invited to present a seminar and write a manuscript on "The Role of Ca^{2+}-Dependent Proteases (Calpains) in Postmortem Proteolysis and Meat Tenderness" at a workshop at the University of Nottingham, United Kingdom, sponsored by the Organization for Economic Co-operation and Development, 1991.

2. Invited to present a seminar on "The Role of Proteinases in Muscle Growth and Meat Quality" to
the National Institute of Animal Science, Tjele, Denmark, 1991.

3. Invited to make an oral presentation and write a paper on "Muscle Proteases and Meat Aging, Recent Development, Present Trends and Research Needs" to the 39th International Congress of Meat Science and Technology, Clermont-Ferrand, France, 1992.

4. Invited to make a presentation and write a book chapter on "A New Insight in Genetic Selection
Possibly Based on Calpastatin" to the Congress on "Expression, Regulation and Role of

Proteinases in Muscle Development and Meat Quality" sponsored by ECCEAMST (European Consortium for Continuing Education in Advanced Meat Science and Technology) and OECD (Organization for Economic Co-operation and Development), Clermont-Ferrand, France, 1993.

5. Invited to speak on "Factors Regulating Beef Quality" at the Beef 94 World Congress, Buenos Aires, Argentina, 1994.

6. Invited to present a keynote paper on "The Biological Basis of Meat Tenderness and Potential Genetic Approaches for Its Control and Prediction" at the 41st Annual International Congress of Meat Science and Technology (ICoMST) joint meeting with American Meat Science Association, San Antonio, Texas, 1995.

7. Invited to present two keynote lectures on "Beef Tenderness: Regulation and Prediction" at the CSIRO Meat 95 International Congress, Australia, 1995.

8. Invited to give a series of lectures and seminars over a 4-day period on "Enzymology of Muscle
Protein Degradation during Animal Growth and Postmortem Storage" at the Lincoln University, Christchurch, New Zealand, 1995.

9. Invited to present a seminar on "The Role of Endogenous Proteases in Muscle Growth and Meat
Tenderness" to AgResearch-Ruakura Agricultural Research Centre, Hamilton, New Zealand, 1995.

10. Invited to present plenary lecture "Biochemical Factors Regulating the Toughening and Tenderization Processes of Meat" at the 42nd International Congress of Meat Science and Technology (ICoMST), Lillehammer, Norway, 1996.

11. Invited to present a guest lecture "Biochemical Factors Regulating the Toughening and Tenderization Process of Meat" at The Royal Veterinary and Agricultural University, Copenhagen, Denmark, 1996.

12. Invited to be one of two main lecturers in teaching a graduate level course entitled "Advanced Meat Science and Muscle Metabolism" to European students at the Swedish University of Agricultural Science, Uppsala, Sweden, 1997.

International Meetings and Congresses (cont'd)

13. Invited to be a primary lecturer in a "Meat Tenderness-Mechanisms, Industry Problems and Practical Solution" course sponsored by MATFORSK (Norwegian Food Research Institute) at the Agricultural University of Norway, 1997.

14. Invited to make a presentation entitled "Effect of Prerigor Freezing and Postrigor Calcium Chloride Injection on Tenderness of Callipyge Longissimus" at the 26th Annual Meeting of the United States-Japan Natural Resources Protein Panel (UJNR), Tsukuba, Japan, 1997.

15. Invited to chair a session at an international symposium sponsored by the European Commission on "New Developments in Guaranteeing the Optimal Sensory Quality of Meat," Madrid, Spain, May 5-7, 1999.

16. Invited to attend AnGus Association meeting (Argentine Cattle Breeders Association) to make a technical presentation on "Beef Tenderness in 2000," Rosario City, Argentina, 2000.

17. Invited to present a seminar entitled "The U.S. Beef Industry: Current Practices and Challenges" at INRA, Theix - Clermont Ferrand, France, 2001.

18. Invited to present a seminar entitled "Calpastatin: Roles in Muscle Growth and Meat

Quality" at INRA, Theix - Clermont Ferrand, France, 2001.
19. Invited to be a lecturer at the Second Annual Beef Cattle Short Course: Improvement on Reproductive Technology, Feeding Efficiency and Marbling, organized by the Wagyu F1 Council and Japan Cattleman's Association. Subject: The Biological Basis of Meat Tenderness and Its Genetic Control. Obihiro, Hokkaido, Japan, 2001.
20. Invited to present a plenary lecture "Meat Tenderness and Muscle Growth: Is There Any Relationship" at the 48th International Congress of Meat Science and Technology (ICoMST), Rome, Italy, 2002.
21. Invited to present a plenary lecture "Protein Turnover and Proteolytic Enzymes in Relation with Species, Breed and Muscle Type" at the 48th International Congress of Meat Science and Technology (ICoMST), Rome, Italy, 2002.
22. Invited to write a book chapter for "Texture in Food Volume 1: Solid Foods" edited by Dr. David Kilcast of Leatherhead Food Research Association, UK, 2002.
23. Invited to give a talk on "New Technologies for Tenderness Enhancement" at the byinvitation-
only Beef Palatability Enhancement Workshop organized by the Canadian Cattlemen, Calgary, Canada, 2002.
24. Invited to give two talks at the Consistency of Quality International Meat Symposium. Titles of the talks were "The Biological Basis and Strategies to Optimize Beef Tenderness" and "Prevalence of Foodborne Pathogens and Methods to Combat These Pathogens in Beef Processing Plants." At the invitation of the director, Dr. Koohmaraie visited ARC-ANPI meat research laboratories and facilities to advise him and the scientists on the new trends and research techniques/approaches, Johannesburg, South Africa, 2003.

International Meetings and Congresses (cont'd)
25. Invited to write a book chapter on "Biotechnology in the Meat Industry: (c) Transgenic Animals for Non-Meat Traits" in "Encyclopedia of Meat Sciences" to be published by Elsevier Science, Oxford, England, 2003.
26. Invited to speak at a meat quality symposium sponsored by the Canadian Society of Animal Science on "The Biological Basis and Strategies to Optimize Beef Tenderness," Saskatoon, Saskatchewan, Canada, 2003.
27. Invited to speak at the French Meat and Livestock Association with the sponsorship of the International Meat Secretariat at a workshop on "Control of Growth, Carcass and Meat Quality Characteristics: Beef," Paris, France, 2003.
28. Invited to present plenary lecture "Latest Advances in Meat Quality Research" at the Brazilian Nation Meeting, Santa Maria, Rio Grande De Sol, Brazil, 2003.
29. Invited by the Guelph University to present a lecture to an audience that encompassed the university, the Guelph community, and the Ontario meat industry on "Biological Factors Regulating Beef Tenderness" and "The Status of *E. coli* O157:H7 in U.S. Beef Production and Intervention Designed to Combat These Pathogens in U.S. Beef," 2003.
30. Invited to give two talks at the South African Feedlot Association Conference titled "Beef is Good for You." Titles of the talks were "The Biological Basis and Strategies to Optimize Beef Tenderness" and "Prevalence of Foodborne Pathogens and Methods to Combat These Pathogens in Beef Processing Plants," Johannesburg, South Africa, 2004.

31. Invited to make a presentation on "New Technologies for the Evaluation of Beef Carcass Quality" at the Western Nutrition Conference, Saskatoon, Saskatchewan, Canada, 2004.
32. Invited to give a talk on "Understanding and Managing Beef Quality" at the 9th World Angus Forum, Cape Town, South Africa, March 2005.
33. Invited to attend the annual Langford Food Industry Conference and present an overview talk on beef tenderness, Bristol, England, May 2005.
34. Invited to travel to New Zealand (South Island) and give a series of presentations on meat quality and meat safety to the meat industry and faculty and graduate students of Lincoln University. August 2005.
35. Invited by the International Conference of Meat Science and Technology (ICoMST) to present "Contribution of Postmortem Muscle Biochemistry to the Delivery of Consistent Meat Quality with Particular Focus on the Calpain System" for a Session on "A Science Based Approach to Assuring Consistent Meat Quality," Dublin, Ireland, Aug. 2006.
36. Invited to make a presentation on "Biology of Food-Borne Pathogens and Analysis of Bacterial Toxins" in Session on Methods of Public Health Laboratories for Detection of Human, Animal and Food Microbial Pathogens at the United States-Japan Cooperative Program on Development & Utilization of Natural Resources (UJNR) 10th International Symposium on Toxic Microorganisms, Washington, DC, Nov. 2006.
37. Invited to travel to China and make two presentations on food safety and meat quality to the faculty, graduate students and staff of the Nanjing Agricultural University. Nanjing, China. Dec 2006.
38. Invited as a Key Address Speaker for the 53rd International Conference of Meat Science and Technology (ICoMST), to present "Interventions to Reduce/Eliminate *Escherichia coli* O157:H7 in Ground Beef" in Beijing, China, Aug. 2007.
39. Invited to attend the 2008 New Zealand Institute of Food Science and Technology and make a presentation titled "Sources of E.coli 0157:H7 and Interventions to reduce / eliminate pathogens on beef." Ruakura, New Zealand, June 2008.
41. Invited to attend the 2008 New Zealand Institute of Food Science and Technology and make and participate on panel on E.coli 0157:H7 - Effect on sustainability of the beef industry - a discussion." Ruakura, New Zealand, June 2008.
42. Invited to make a plenary presentation on "Using research to enhance red meat sustainability by meeting consumer expectations" to the 17th International Meat Secretariat's World Meat Congress in Cape Town, South Africa. September 2008.
43. Invited to attend the 2008 New Zealand Institute of Food Science and Technology and make a make a presentation on "The biological basis for the variation in meat tenderness and tools for predicting beef tenderness." Ruakura, New Zealand, June 2008.
44. Invited to visit Lincoln University to meet with the faculty and students and a make a presentation on "Beef Demand." Lincoln, New Zealand. June 2008.
45. Invited to visit Lincoln University to meet with the faculty and students and a make a presentation on "Beef Demand." Lincoln, New Zealand. June 2008.
46. Invited to attend Tropical and Subtropical Beef Cattle Congres which we are organizing in Porto Alegre, Brazil and present a talk on : "The quality of beef:

Measures that can be taken by the ranchers, packers and retailers to improve it." November 2008.

47. Invited to attend the IV Congress "Del Campo al Plato" and make a presentation on "Factors that determines beef demand (beef safety and quality)." Montevideo, Uruguay, November 2008.

48. Invited to attend the final international conference in the current Pathogenic Escherichia coli Network project (FOOD-CT-026356) and present a titled "A systematic approach to control *E. coli* O157:H7 in the red meat supply." Teagasc-Ashtown Food Research Centre in Dublin, Ireland. September 2009

49. Invited to attend and make a presentation entitled " Recent Advances in Science that Have the Potential to Benefit the Meat Processing Industry" at the Australian Meat Industry Council's Meat Industry Conference. Gold Coast, Australia. September 2009

PUBLICATIONS

Refereed & Reviewed Journal Articles

1. Elgasim, E. A., W. H. Kennick, A. F. Anglemier, E. A. Elkhlifa and M. Koohmaraie. 1982. Effects of prerigor pressurization on the emulsifying capacity of muscle proteins. J. Food Sci. 47:861-863.

2. Elgasim, E. A., W. H. Kennick, A. F. Anglemier, M. Koohmaraie and E. A. Elkhlifa. 1983. Effect of pre-rigor pressurization on bovine lysosomal enzyme activity. Food Microstructure 2:91-97.

3. Koohmaraie, M., W. H. Kennick, E. A. Elgasim, R. L. Dickson and W. E. Sandine. 1983. Storage and display-life characteristics of beef as affected by prerigor pressurization. J. Food Prot. 46:878-882.

4. Koohmaraie, M., W. H. Kennick, E. A. Elgasim, R. L. Dickson and W. E. Sandine. 1983. Effect of prerigor pressurization on the retail characteristics of beef. J. Food Sci. 48:998-999.

5. Koohmaraie, M., W. H. Kennick, A. F. Anglemier, E. A. Elgasim and T. K. Jones. 1984. Effect of postmortem storage on cold-shortened bovine muscle: Analysis by SDSpolyacrylamide gel electrophoresis. J. Food Sci. 49:290-291.

6. Koohmaraie, M., W. H. Kennick, E. A. Elgasim and A. F. Anglemier. 1984. Effects of postmortem storage on muscle protein degradation: Analysis by SDS-polyacrylamide gel electrophoresis. J. Food Sci. 49:292-293.

7. Lin, C. K., W. H. Kennick, W. E. Sandine and M. Koohmaraie. 1984. Effect of electrical stimulation on meat microflora: Observations on agar media, in suspensions and on beef carcasses. J. Food Prot. 47:279-283.

8. Koohmaraie, M., W. H. Kennick, E. A. Elgasim and A. F. Anglemier. 1984. Effect of prerigor pressurization on the activity of calcium-activated factor. J. Food Sci. 49:680-684.

9. Elgasim, E. A., M. Koohmaraie, W. H. Kennick and A. F. Anglemier. 1985. The combined effects of the calcium activated factor and cathepsin D on skeletal muscle. Food Microstructure 4:55-61.

10. Koohmaraie, M., J. E. Schollmeyer and T. R. Dutson. 1986. Effect of low-calciumrequiring calcium activated factor on myofibrils under varying pH and temperature conditions. J. Food Sci. 51:28-32 & 65.

11. Koohmaraie, M., J. E. Schollmeyer and T. R. Dutson. 1986. The reversible inhibition of myoblast proliferation by -hexachlorocyclohexane. J. Anim. Sci. 63:326-333.

12. Koohmaraie, M. 1987. The relationship between cell proliferation and phosphatidylinositol metabolism in skeletal muscle cells in culture. J. Anim. Sci. 64:633-641
13. Koohmaraie, M. S. C. Seideman, J. E. Schollmeyer, T. R. Dutson and J. D. Crouse. 1987. Effect of post-mortem storage on Ca++-dependent proteases, their inhibitor and myofibril fragmentation. Meat Sci. 19:187-196.
14. Seideman, S. C., M. Koohmaraie and J. D. Crouse. 1987. Factors associated with tenderness in young beef. Meat Sci. 20:281-292.
15. Seideman, S. C., M. Koohmaraie and J. D. Crouse. 1988. The influence of muscle fiber size on tenderness in A-maturity heifers. J. Food Qual. 11:27-34.
16. Koohmaraie, M., S. C. Seideman, J. E. Schollmeyer, T. R. Dutson and A. S. Babiker. 1988. Factors associated with the tenderness of three bovine muscles. J. Food Sci. 53:407-410.
17. Koohmaraie, M., S. C. Seideman and J. D. Crouse. 1988. Effect of subcutaneous fat and high temperature conditioning on bovine meat tenderness. Meat Sci. 23:99-109.
18. Koohmaraie, M. 1988. Palatability of meat from bull and steer carcasses. ISI Atlas of Science 1:124-128. (Invited Review Paper)
19. Koohmaraie, M., A. S. Babiker, R. A. Merkel and T. R. Dutson. 1988. Role of Ca++-dependent proteases and lysosomal enzymes in postmortem changes in bovine skeletal muscle. J. Food Sci. 53:1253-1257.
20. Koohmaraie, M., A. S. Babiker, A. L. Schroeder, R. A. Merkel and T. R. Dutson. 1988. Acceleration of postmortem tenderization in ovine carcasses through activation of Ca^{2+}-dependent proteases. J. Food Sci. 53:1638-1641.
21. Koohmaraie, M. 1988. The role of endogenous proteases in meat tenderness. Proc. Recip. Meat Conf. 41:89-100. (Invited Review Paper)
22. Dickson, J. S. and M. Koohmaraie. 1989. Cell surface charge characteristics and their relationship to bacterial attachment to meat surfaces. Appl. Environ. Microbiol. 55:832-836.
23. Koohmaraie, M., J. D. Crouse and H. J. Mersmann. 1989. Acceleration of postmortem tenderization in ovine carcasses through infusion of calcium chloride: Effect of concentration and ionic strength. J. Anim. Sci. 67:934-942.
24. Crouse, J. D., L. V. Cundiff, R. M. Koch, M. Koohmaraie and S. C. Seideman. 1989. Comparisons of *Bos indicus* and *Bos taurus* inheritance for carcass beef characteristics and meat palatability. J. Anim. Sci. 67:2661-2668.

25. Crouse, J. D. and M. Koohmaraie. 1990. Effect of time of sampling postmortem on myofibril fragmentation index of meat. J. Food Sci. 55:254-256.
26. Koohmaraie, M. 1990. Inhibition of postmortem tenderization in ovine carcasses through infusion of zinc. J. Anim. Sci. 68:1476-1483.
27. Koohmaraie, M. 1990. Quantification of Ca^{2+}-dependent protease activities by hydrophobic and ion-exchange chromatography. J. Anim. Sci. 68:659-665.
28. Koohmaraie, M., G. Whipple and J. D. Crouse. 1990. Acceleration of postmortem tenderization in lamb and Brahman-cross beef carcasses through infusion of calcium chloride. J. Anim. Sci. 68:1278-1283.
29. Koohmaraie, M. and D. H. Kretchmar. 1990. Comparisons of four methods for quantification of lysosomal cysteine proteinase activities. J. Anim. Sci. 68:2362-2370.
30. Crouse, J. D. and M. Koohmaraie. 1990. Effect of freezing of beef on subsequent postmortem aging and shear force. J. Food Sci. 55:573-574.

31. Whipple, G., M. Koohmaraie, M. E. Dikeman, J. D. Crouse, M. C. Hunt and R. D. Klemm. 1990. Evaluation of attributes that affect longissimus muscle tenderness in *Bos taurus* and *Bos indicus* cattle. J. Anim. Sci. 68:2716-2728.
32. Whipple, G., M. Koohmaraie, M. E. Dikeman and J. D. Crouse. 1990. Effects of hightemperature conditioning on enzymatic activity and tenderness of *Bos indicus* longissimus muscle. J. Anim. Sci. 68:3654-3662.
33. Whipple, G., M. Koohmaraie, M. E. Dikeman and J. D. Crouse. 1990. Predicting beeflongissimus tenderness from various biochemical and histological muscle traits. J. Anim. Sci. 68:4193-4199.
34. Crouse, J. D. and M. Koohmaraie. 1990. Effect of post-cooking storage conditions on shear-force values of beef steaks. J. Food Sci. 55:858 & 860.
35. St. Angelo, A. J., M. Koohmaraie, K. L. Crippen and J. Crouse. 1991. Acceleration of tenderization/inhibition of warmed-over flavor by calcium chloride-antioxidant infusion into lamb carcasses. J. Food Sci. 56:359-362.
36. Shackelford, S. D., M. Koohmaraie, M. F. Miller, J. D. Crouse and J. O. Reagan. 1991. An evaluation of tenderness of the longissimus muscle of Angus by Hereford versus Brahman crossbred heifers. J. Anim. Sci. 69:171-177.
37. Koohmaraie, M., G. Whipple, D. H. Kretchmar, J. D. Crouse and H. J. Mersmann. 1991. Postmortem proteolysis in longissimus muscle from beef, lamb and pork carcasses. J. Anim. Sci. 69:617-624.

38. Wheeler, T. L. and M. Koohmaraie. 1991. A modified procedure for simultaneous extraction and subsequent assay of calcium-dependent and lysosomal protease systems from a skeletal muscle biopsy. J. Anim. Sci. 69:1559-1565.
39. Koohmaraie, M. and S. D. Shackelford. 1991. Effect of calcium chloride infusion on the tenderness of lambs fed a -adrenergic agonist. J. Anim. Sci. 69:2463-2471.
40. Crouse, J. D., M. Koohmaraie and S. C. Seideman. 1991. The relationship of muscle fibre size to tenderness of beef. Meat Sci. 30:295-302.
41. Crouse, J. D., M. Koohmaraie and J. S. Dickson. 1991. Storage and bacterial contamination effects on myofibrillar proteins and shear force of beef. J. Food Sci. 56:903-905.
42. Shackelford, S. D., M. Koohmaraie, G. Whipple, T. L. Wheeler, M. F. Miller, J. D. Crouse and J. O. Reagan. 1991. Predictors of beef tenderness: Development and verification. J. Food Sci. 56:1130-1135 & 1140.
43. Whipple, G. and M. Koohmaraie. 1991. Degradation of myofibrillar proteins by extractable lysosomal enzymes and m-calpain and the effects of zinc chloride. J. Anim. Sci. 69:4449-4460.
44. Koohmaraie, M., S. D. Shackelford, N. E. Muggli-Cockett and R. T. Stone. 1991. Effect of the -adrenergic agonist, L644,969, on muscle growth, endogenous proteinase activities and postmortem proteolysis in wether lambs. J. Anim. Sci. 69:4823-4835.
45. Wheeler, T. L., M. Koohmaraie and J. D. Crouse. 1991. Effects of calcium chloride injection and hot-boning on the tenderness of round muscles. J. Anim. Sci. 69:4871-4875.
46. Koohmaraie, M. 1992. The role of Ca^{2+}-dependent proteases (calpains) in *post mortem* proteolysis and meat tenderness. Biochimie 74:239-245. (Invited Review Paper)
47. Whipple, G. and M. Koohmaraie. 1992. Effects of lamb age, muscle type, and 24-hour

activity of endogenous proteases on postmortem proteolysis. J. Anim. Sci. 70:798-804.
48. Wheeler, T. L. and M. Koohmaraie. 1992. Effects of the -adrenergic agonist L644,969 on muscle protein turnover, endogenous proteinase activities and meat tenderness in steers. J. Anim. Sci. 70:3035-3043.
49. Koohmaraie, M. 1992. Effect of pH, temperature and inhibitors on autolysis and catalytic activity of bovine skeletal muscle -calpain. J. Anim. Sci. 70:3071-3080.
50. Whipple, G. and M. Koohmaraie. 1992. Freezing and calcium chloride marination effects on beef tenderness and calpastatin activity. J. Anim. Sci. 70:3081-3085.
51. Koohmaraie, M. 1992. Muscle proteinases and meat aging. ICoMST 38:61-69. (Invited Review Paper)

52. Wheeler, T. L., J. D. Crouse and M. Koohmaraie. 1992. The effect of postmortem time of injection and freezing on the effectiveness of calcium chloride for improving beef tenderness. J. Anim. Sci. 70:3451-3457.
53. Koohmaraie, M. 1992. Ovine skeletal muscle multicatalytic proteinase complex (proteasome): Purification, characterization and comparison of its effects on myofibrils with -calpains. J. Anim. Sci. 70:3697-3708.
54. Koohmaraie, M. 1992. Role of the neutral proteases in postmortem muscle protein degradation and meat tenderness. Proc. Annu. Recip. Meat Conf. 45:63-71. (Invited Review Paper)
55. Koohmaraie, M. 1992. Postmortem proteolysis and meat tenderness. Amer. Assoc. Meat Sci. Newsletter 28:6-7. (Invited Editorial Paper)
56. Whipple, G. and M. Koohmaraie. 1993. Calcium chloride marination effects on beef steak tenderness and calpain proteolytic activity. Meat Sci. 33:265-275.
57. Morgan, J. B., T. L. Wheeler, M. Koohmaraie, J. D. Crouse and J. W. Savell. 1993. Effect of castration on myofibrillar protein turnover, endogenous proteinase activities and muscle growth in bovine skeletal muscle. J. Anim. Sci. 71:408-414.
58. Kendall, T. L., M. Koohmaraie, J. R. Arbona, S. E. Williams and L. L. Young. 1993. Effect of pH and ionic strength on bovine m-calpain and calpastatin activity. J. Anim. Sci. 71:96-104.
59. Pringle, T. D., C. R. Calkins, M. Koohmaraie and S. J. Jones. 1993. Effects over time of feeding a -adrenergic agonist to wether lambs on animal performance, muscle growth, endogenous muscle proteinase activities, and meat tenderness. J. Anim. Sci. 71:636-644.
60. Morgan, J. B., T. L. Wheeler, M. Koohmaraie, J. W. Savell and J. D. Crouse. 1993. Meat tenderness and the calpain proteolytic system in longissimus muscle of young bulls and steers. J. Anim. Sci. 71:1471-1476.
61. Wheeler, T. L., M. Koohmaraie and E. T. Littledike. 1993. Effects of dietary copper and molybdenum supplementation on meat characteristics of Texel and Finnsheep rams. Sheep Res. J. 9:76-81.
62. Bishop, M. D., M. Koohmaraie, J. Killefer and S. Kappes. 1993. Rapid Communication: Restriction fragment length polymorphisms in the bovine *calpastatin gene*. J. Anim. Sci. 71:2277-2278.
63. Wheeler, T. L., M. Koohmaraie, J. L. Lansdell, G. S. Siragusa and M. F. Miller. 1993. Effects of postmortem injection time, injection level and concentration of calcium chloride on beef quality traits. J. Anim. Sci. 71:2965-2974.

64. Arbona, J. R. and M. Koohmaraie. 1993. Technical Note: Quantification of multicatalytic proteinase complex (proteasome) activity by ion-exchange chromatography. J. Anim. Sci. 71:3301-3306.
65. Koohmaraie, M. 1994. Muscle proteinases and meat aging. Meat Sci. 36:93-104.
66. Pringle, T. D., S. M. Lonergan, C. R. Calkins, S. J. Jones, P. S. Miller and M. Koohmaraie. 1994. Temporal response of rabbits to -adrenergic agonist feeding: Tissue weight, calpains and calpastatin activities, and nucleic acid and protein concentrations. J. Anim. Sci. 72:68-74.
67. Shackelford, S. D., M. Koohmaraie, T. L. Wheeler, L. V. Cundiff and M. E. Dikeman. 1994. Effect of biological type of cattle on the incidence of the dark, firm, and dry condition in the longissimus muscle. J. Anim. Sci. 72:337-343.
68. Killefer, J. and M. Koohmaraie. 1994. Bovine skeletal muscle calpastatin: Cloning, sequence analysis, and steady-state mRNA expression. J. Anim. Sci. 72:606-614.
69. Gregory, K. E., L. V. Cundiff, R. M. Koch, M. E. Dikeman and M. Koohmaraie. 1994. Breed effects and retained heterosis for growth, carcass, and meat traits in advanced generations of composite populations of beef cattle. J. Anim. Sci. 72:833-850.
70. Gregory, K. E., L. V. Cundiff, R. M. Koch, M. E. Dikeman and M. Koohmaraie. 1994. Breed effects, retained heterosis, and estimates of genetic and phenotypic parameters for carcass and meat traits of beef cattle. J. Anim. Sci. 72:1174-1183.
71. Kretchmar, D. H., M. Koohmaraie and H. J. Mersmann. 1994. Comparison of proteolytic variables in a lean and obese strain of pig at the ages of 2.5 and 7 months. Lab. Anim. Sci. 44:38-41.
72. Shackelford, S. D., M. Koohmaraie, L. V. Cundiff, K. E. Gregory, G. A. Rohrer and J. W. Savell. 1994. Heritabilities and phenotypic and genetic correlations for bovine postrigor calpastatin activity, intramuscular fat content, Warner-Bratzler shear force, retail product yield, and growth rate. J. Anim. Sci. 72:857-863.
73. Shackelford, S. D., M. Koohmaraie and J. W. Savell. 1994. Evaluation of *longissimus dorsi* muscle pH at three hours post mortem as a predictor of beef tenderness. Meat Sci. 37:195-204.
74. Shackelford, S. D., M. Koohmaraie and T. L. Wheeler. 1994. The efficacy of adding a minimum adjusted fat thickness requirement to the USDA beef quality grading standards for Select grade beef. J. Anim. Sci. 72:1502-1507.
75. Wheeler, T. L. and M. Koohmaraie. 1994. Prerigor and postrigor changes in tenderness of ovine longissimus muscle. J. Anim. Sci. 72:1232-1238.
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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First Named Inventor	Mansour Samadpour
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	First Named Inventor	Mansour Samadpour
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	1	JARVIS, "Errors Associated With Quantal Response Methods," STATISTICAL ASPECTS OF THE MICROBIOLOGICAL EXAMINATION OF FOODS, Chapter 8, pp. 143-176, 2008, Academic Press, Amsterdam, London, and San Diego	☐
	2	JARVIS, "On the compositing of samples for qualitative microbiological testing," Letters in Applied Microbiology, 2007, pp. 592-598, Volume 45	☐
	3	SILLIKER et al., "Laboratory Methods," FOOD-BORNE INFECTIONS AND INTOXICANTS," Chapter XI, pp. 455-474, 1969, Academic Press, New York and London, Edited by Hans Riemann	☐
	4	THOMAS et al., "Examination of Stockfeeds for Salmonella," Australian Veterinary Journal, 1981, pp. 69-71, Volume 57	☐

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1]See Kind Codes of USPTO Patent Documents at www.USPTO.GOVor MPEP 901.04. [2]Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3]For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5]Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	95001294
	Filing Date	2010-04-05
	First Named Inventor	Mansour Samadpour
	Art Unit	N/A
	Examiner Name	N/A
	Attorney Docket Number	66090-008US2

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ None

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Barry L. Davison, Ph.D., J.D./	Date (YYYY-MM-DD)	2010-07-26
Name/Print	Barry L. Davison, Ph.D., J.D.	Registration Number	47309

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In *Inter Partes* Reexamination of	:	Examiner: Brenda G. Brumback
Mansour SAMADPOUR	:	Group Art Unit: 3991
Patent No.: 7,534,584 B2	:	**Control No.: 95/001,294**
Issued: May 19, 2009	:	
Reexam Request Filed: April 5, 2010	:	

For: MODULAR COMPOSITING-MULTIPLE LOT SCREENING PROTOCOLS FOR DETECTION OF PATHOGENS, MICROBIAL CONTAM INANTS AND/OR CONSTITUENTS

Attn: Mail Stop "*Inter Partes* Reexam"
Central Reexamination Unit
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

THIRD-PARTY REQUESTER'S COMMENTS ON THE OFFICE ACTION OF MAY 26, 2010 AND PATENTEE'S RESPONSE THERETO

These Comments are submitted in response to the Patentee's Response to Office Action filed and served on July 26, 2010. Accordingly these Comments are timely filed if submitted on or before August 25, 2010. The Comments being timely filed and served, entry and consideration thereof is requested.

THIRD-PARTY REQUESTER'S COMMENTS

Ground 1 of the Rejections (Response at pages 10 – 22)

1. The Patentee Argues the References Individually

The Examiner correctly rejected claims 1-4, 8, 10-20, 24-27, 31 and 32 under Ground 1 based on the combined teachings of Jarvis, Midura, and FSIS. Rather than addressing this rejection, the Patentee has attempted to distinguish the Jarvis reference in isolation and makes only passing reference to the teachings of the Midura and the FSIS reference. Indeed, the Patentee devotes virtually the entire Response to Ground 1 to arguing that there are purported deficiencies of the Jarvis reference and all but ignores the contributions of the other references. Moreover, to support its arguments, the Patentee distorts the teachings of Jarvis and argues features of the alleged invention that are not recited in the claims.

The Examiner correctly relied on Jarvis to teach methods of statistical validation of procedures for sampling and testing foods for low numbers of pathogenic organisms using composited samples. Jarvis primarily addresses methods of achieving statistical confidence in the outcome of testing and validation procedures; therefore, the Examiner cited FSIS and Midura for their teachings of practical methods of sampling and testing foods.

The Patentee's first argument focuses on Jarvis' reference to the use of pre-enrichment media. The criticisms of Jarvis (and other references) based on their use of pre-enrichment media for wet compositing suffers from a number of defects, each of which is discussed in greater detail in these comments. First, pre-enrichment satisfies the requirements of the '584 patent claims, because it results in growth of the target microorganism to detectable levels. Second, irrespective of the criticisms of pre-enrichment, persons of ordinary skill were well aware of direct enrichment techniques and would have been motivated to substitute them for pre-enrichment if the latter presented problems or diminished the efficiency of the testing. Third,

The claims do not exclude pre-enrichment. Pre-enrichment, followed by selective enrichment (as disclosed by Jarvis and Price) fully meet the requirements of the claims, which do not require a single-step enrichment/testing procedure.

The Patentee offers unsupported conclusions that pre-enrichment media are not media that favor growth of target organisms. This assertion ignores the teachings of the FSIS protocol directing that ground beef samples be put into a well-known enrichment media for the growth and detection of *E. coli*. (Bailey Decl., ¶19). Enrichment media were well known to persons of ordinary skill. Indeed, the Patentee acknowledges that enrichment media and culturing techniques to increase the target microorganism were known prior to his alleged invention. (*See* '584 patent, col. 2, lines 46-58. *also see* col. 2, lines 59-60 (acknowledging that the described procedures were in the prior art)). The nutrient medium employed in the FSIS procedure for pathogenic *E. coli* is but one example of such a medium. The fact that enrichment media and culturing methods were well known, as illustrated by FSIS, was not addressed by the Patentee. Nor was the FSIS protocol's directive to subject the enrichment culture to a commercial test for *E. coli*. It is axiomatic that the FSIS protocol's directing the testing of enrichment medium cultures, indicates that those cultures were capable of fostering microbial growth to detectable levels.

The Patentee also asserts that Jarvis lacks statistical significance for real-world testing scenarios. The Patentee's implicit argument that a person of ordinary skill would not have recognized the importance of obtaining a statistically representative sample by employing a reliable sampling plan is belied by the fact that the specification of the '584 patent contains no teachings regarding the design or implementation of sampling plans –those details are properly left to the person of ordinary skill to work out. Moreover, the Patentee ignores the teachings of Midura concerning the importance of a reliable sampling plan to obtain a representative sample.

A person skilled in the art of designing methods for the sampling, testing and validation of food products would have been well aware of the importance of employing such a plan to obtain a sample that is representative of the lot of product being tested. This point is highlighted by Midura's admonition to consult a statistician before implementing a sampling plan. (Midura at 14). A person of ordinary skill, following the teachings of Midura, would take a statistically significant number of samples from various locations within the lot of product being tested, such that positive and negative results could be validated. Thus, Jarvis and Midura in combination teach the statistical validation of results.

The Patentee's discussion of the FSIS and Midura references is limited to an argument that they do not teach inter-lot pooling. However, the Patentee provides no evidence supporting this assertion. In actuality, Midura provides the same definition of "test lot" as the '584 patent. (Bailey Decl., ¶16). The Midura reference also teaches that a sampling plan is defined as a design that indicates the number of units to be collected from each lot and the criteria to be applied in accepting or rejecting that lot. The FSIS Protocol indicates how to test for *E.coli* contamination. Thus a person of ordinary skill would know to apply the FSIS Protocol to "test lots" as indicated by the Midura reference which contains the same term definitions as the '584 patent. Midura makes clear that, by August of 2004, it was common practice for microbiologists to sample operationally linked production units. (Bailey Decl. ¶16).

The Patentee also argues that Jarvis is limited to intra-lot compositing, but distorts the teachings of the reference in arriving at that conclusion. Such an interpretation is illogical and would frustrate the stated purpose of method (2) of section 8.4.2.1 (Jarvis at 141). That method teaches that equal volumes of each pre-enrichment medium be composited. Each pre-enrichment medium corresponds to one "sample." Patentee's argument requires that "sample" be construed to mean an "intra-lot" sample (i.e., Patentee argues that each sample exposed to pre-enrichment

according to the Jarvis method be obtained from the same lot of product). But that is not a reasonable interpretation in view of Jarvis' stated purpose of method (2). Jarvis teaches that in case of a positive result for the composited enrichment culture, "[m]ethod (2), at least in theory, permits the tests to be repeated on stored pre-enrichment cultures so that some indication of the proportion of contaminated samples can be obtained." (Jarvis at 141-42). If each of the samples came from the same lot, as Patentee argues, then learning the "proportion of contaminated samples" would be of no value, because the entire lot would fail validation in any event. The Jarvis method (2) procedure only has value if the "samples" are from different "lots," so that, if retesting demonstrates that some of those lots are uncontaminated, they can be validated. To conclude that the only value of Jarvis' method is to satisfy "curiosity" as Patentee argues (Patentee's Resp. at 15), is a distortion of the plain teachings of the reference. A person of ordinary skill would interpret "samples" in Jarvis to mean samples of individual test lots of product capable of validation or rejection independently of the other samples.

From Midura, a skilled person also would have understood that the "sample" referenced in Jarvis would be a sample that is representative of the lot of product being tested. In the case of a product that is a solid or semi-solid that is not capable of being blended to homogeneity, a "representative sample" is one that is a composite of an appropriate number of samples taken from different locations within the lot. (Midura at 20).

Accordingly, the combination of references on which the Examiner relies in Ground 1 discloses each and every feature of the claimed method. Because the Patentee does not address the combined teachings of the prior art references, the Patentee's response to Ground 1 fails to overcome the Examiner's rejection.

2. The Patentee Imports A Limitation into the Claims

The Patentee acknowledges that the respective use of pre-enrichment and enrichment media to resuscitate and grow cultures was known in the art. (Patentee's Resp. at 13). However, in an effort to distinguish Jarvis, the Patentee argues that meaningful detection occurs only in enrichment medium. (Patentee's Resp., p.12). Thus, because Jarvis uses the term "pre-enrichment medium" instead of enrichment medium, the Patentee appears to argue that Jarvis does not meet the functional limitations of the claim. This argument is incorrect for several reasons.

First, irrespective of the teachings of Jarvis, the prior art taught the use of direct enrichment (including in selective media) well before the alleged invention of the '584 patent. The FSIS reference discloses such direct enrichment, followed by a sensitive detection procedure, and, as discussed above, the Patentee acknowledged in the specification that direct enrichment procedures were known. A person of ordinary skill following the teachings of Jarvis would have appreciated that compositing of direct enrichment cultures could have been used in place of Jarvis' closely related procedure of culturing samples in pre-enrichment media followed by compositing in selective enrichment media. *See, e.g.,* Price at 682 (teaching that direct enrichment is an alternative to pre-enrichment if competitive organisms are observed).

Second, the pre-enrichment procedure described in Jarvis meets the requirements of the claims. The claims do not recite a single-step inoculation/detection procedure. The claims only require that separate test lot samples be incubated under conditions to allow target organisms to multiply to detectable levels. ('584 patent, Claim 1 (c)). Thus, pre-enrichment, which indisputably increases the levels of the target microorganism (*see* Bailey Decl. at ¶ 9d) meets the requirements of step (c) of the '584 patent claims. The subsequent selective enrichment and plating (for serological testing) satisfies the "suitable detection assay" requirement of step (e) of

the claims. The pre-enrichment of Jarvis necessarily results in the growth of the organism to detectable levels, because the subsequent steps proceed to detection.

In addition, as discussed below and in Dr. Bailey's declaration, pre-enrichment was known to result in multiplication of the target microorganism to detectable levels. Bailey Decl. at ¶ 9d. For each of these reasons, the Patentee's arguments regarding Jarvis' reference to pre-enrichment media fail to overcome the rejection set forth in Ground 1.

3. The Patentee Misconstrues Jarvis

a. Jarvis teaches testing of organisms after detectable levels of growth

The Examiner correctly found that the pre-enrichment media of Jarvis meet the limitations of the patented claims. In response to the Examiner's rejection, the Patentee invents a distinction between the pre-enrichment medium of Jarvis and enrichment media of the '584 patent. The '584 patent defines "enrichment medium" as a mixture which contains nutrients and which has properties (e.g., pH and/or oxygen content) which favor the growth of the target agent/organism. Jarvis' teaching that the samples can be tested for contamination shows that growth of the target organism in Jarvis has reached detectable levels. (Jarvis at 141). It is also well known in the art that pre-enrichment media permit both resuscitation and growth. (Bailey Decl. ¶9d). Accordingly, the Patentee's unsupported assertion that the pre-enrichment medium of Jarvis is only for resuscitative purposes is erroneous.

The Patentee emphasizes the pre-enrichment step described by Jarvis is intended to insure that at least one viable organism is transferred to the selective enrichment medium, and that only one organism is not sufficient for detection. (Patentee's Resp. at 13). This argument suffers from at least two defects. First, the Jarvis goal of transferring at least one viable cell per mL indicates that, in cases, a greater number of cells are transferred.

Second, sensitive "Rapid" test methods that were known at the time of the alleged invention of the '584 patent were capable of detecting a little as a single cell of a target microorganism. For example, see the Berri reference (Berri, et al., *Veterinary Microbiology*, *72* at 285-293 (2000), which is submitted with this response pursuant to MPEP §2666.05 in rebuttal to the Patentee's argument. Berri discloses the detection of a single *C. burnetii* organism in 1 mL of milk. (Berri at 292). Berri's detection method involves use of common laboratory techniques (centrifugation, pellet washing, purification, PCR amplification, etc.) equally applicable to any DNA-containing sample. The Berri reference specifically contemplates application of its method to other bacteria. (Berri, p.292).

Jarvis states that 1 mL of pre-enrichment culture is to be transferred into the enrichment media. As Patentee acknowledges this step transfers at least 1 viable organism into enrichment medium. It would have been obvious to one of ordinary skill in the art to use the PCR detection technology such as that described in Berri to test for microbial contamination. (Bailey Decl., ¶21). Moreover, the '584 patent specifically contemplates the use of DNA based detection technology. ('584 patent. col.8, ll. 14). Thus, the pre-enrichment media of Jarvis are sufficiently enriched to allow detection of bacteria.

b. Jarvis teaches testing after pre-enrichment

The Patentee argues that Jarvis does not teach or suggest testing following the "pre-enrichment" stage. This argument is incorrect. Jarvis explicitly teaches the transfer of 1 mL of culture from a pre-enrichment medium into enrichment medium followed by streaking onto a plate and selecting colonies. (Jarvis at 139) This is a suitable method of detection that meets the limitations of the '584 patent. Accordingly, Jarvis teaches testing after "pre-enrichment." It is clear that in the *Salmonella* testing referenced in Jarvis, the "detection" is a two-step process: first enrichment, second plating. Nothing in the claims excludes such a two-step procedure.

c. Jarvis does not require the use of the entire pre-enrichment culture

In a last-ditch effort to distinguish Jarvis, the Patentee contends that the reference requires transfer of the entire pre-enrichment medium into an enrichment medium. (Patentee's Resp. at 13.) As alleged support, the Patentee refers to a sentence in Jarvis stating, "in methods which permit only resuscitation, not growth, during pre-enrichment, it is essential to use the entire pre-enrichment culture to inoculate double-strength medium…" (Jarvis at 141). Thus, according to the Patentee, the possibility of re-testing the pre-enrichment step is eliminated.

As an initial matter, this argument ignores the explicit teaching in Jarvis that retesting be performed on "stored pre-enrichment cultures." (Jarvis at 141). Second, in making this argument, the Patentee ignores the context of the sentence upon which he relies. The paragraph from which this paragraph is taken begins, "[o]nce sufficient growth has occurred in pre-enrichment for at least 3 viable salmonellae/mL medium, the probability of transferring at least one viable organism in an inoculum of 1 mL or more will be > 0.95…" Accordingly, Jarvis anticipates that following incubation in a pre-enrichment medium, sufficient growth will have occurred such that at least one viable organism will be transferred per mL of pre-incubation medium. It is only if growth does not occur that the entire pre-enrichment culture should be transferred.

In addition, Jarvis' reference to "methods which permit only resuscitation…" necessarily indicates that there are methods that promote both resuscitation and growth. Indeed, such methods and media are well known in the art. (Bailey Decl. ¶9d).

In summary, the Patentee seizes on an exceptional circumstance described by Jarvis to support the erroneous argument that the reference requires use of the entire pre-enrichment culture so as to preclude the possibility of retesting the pre-enrichment culture. As the Examiner has found, Jarvis explicitly teaches retesting of "stored pre-enrichment cultures" to determine

which cultures are positive for contamination and which may be cleared for release into commerce.

d. Jarvis teaches compositing aliquots of enriched cultures

The Patentee next misconstrues the Jarvis reference by indicating that it does not teach compositing aliquots of enriched cultures. The Patentee asserts that Jarvis only teaches initial inoculation of "pre-enrichment" broth, and subsequent inoculation of "the" enrichment broth. (Patentee's Resp., p.14). According to Patentee, Jarvis does not teach compositing enriched cultures, but rather teaches only compositing of pre-enrichment cultures. Patentee's argument is erroneous.

Jarvis explicitly discloses compositing of enriched cultures. Jarvis indicates that equal volumes of pre-enrichment medium "after a suitable incubation period" are transferred into selective enrichment medium. (Jarvis at 139). As stated in the Bailey Declaration incubation in pre-enrichment medium will enrich the culture for the target microorganism. (Bailey Decl., ¶9d). The Patentee presents no evidence to the contrary. Thus, Jarvis teaches compositing aliquots of enriched cultures.

Furthermore, Jarvis states "1 mL [of pre-enrichment medium] is transferred to 10 mL of each of two selective enrichment media. Thereafter, one 5 mm loopful (about 0.02 mL) for each selective enrichment is streaked on to one plate of each of three selective diagnostic media…" (Jarvis at 139). Thus, Jarvis teaches "removing portions of each enriched separate test lot sample, and combining the removed portions to provide a modular composite sample" as required by the '584 patent. ('584 Patent, Claim 1 step d)).

e. Jarvis teaches statistical validation of no contamination of individual pre-enrichment cultures

Patentee asserts that even if Jarvis teaches verification of positive samples by re-testing stored individual pre-enrichment cultures, it does not provide for statistical validation of no

contamination of individual pre-enrichment cultures. (Patentee's Resp. at 18). According to the Patentee, this alleged limitation is because Jarvis (and all other prior art methods) involve sampling of a single lot and intra-lot pooling. According to Patentee's argument, samples are taken from a lot and lumped in a non-statistically significant way into pre-enrichment cultures. These cultures are then combined and tested, with the result being statistically significant only for the entire lot as a whole. As discussed above in Section 1, this reading of Jarvis is inconsistent with the purpose of the method described in the reference. Moreover, Patentee's argument completely overlooks the teachings of the FSIS and Midura references as discussed above.

The Jarvis reference is directed to methods for establishing the statistical validity of food testing procedures. Thus, Patentee's assertion that Jarvis does not provide for the statistical validation of individual pre-enrichment cultures is erroneous. There would be no purpose for Jarvis to suggest retesting of the stored pre-enrichment cultures if such retesting would be solely for the purpose of "curiosity." (*See* Patentee's Resp. at 15.) To suggest otherwise eviscerates the very purpose of the Jarvis teachings. Moreover, Jarvis must be read – as a person of ordinary skill would have done – in combination with the FSIS Protocol and Midura.

f. Jarvis together with Midura teach the pooling of lumped samples with subsequent pooling of pre-enrichment broths.

The Patentee asserts that Jarvis does not provide motivation to practice assays comprising lumped samples with subsequent pooling of pre-enrichment broths. (Patentee's Resp. at 15-16). Again, the Patentee fails to address the Examiner's rejection, which was based on the combined teachings of the references. Midura discusses sampling plans and the importance of obtaining a representative sample of a lot of food product to be tested. (Midura at 14). A person of ordinary skill would readily have appreciated from Midura that in the case of solid or semi-solid food products, the "sample" to which Jarvis refers would be a representative sample obtained by

compositing an adequate number of separate samples taken from different locations within the lot of products. (Midura at 20).

g. Jarvis takes into account non-statistical factors.

The Patentee asserts that Jarvis does not take into account art-recognized, real-world, non-statistical factors because it is a purely mathematical work. (Patentee's Resp., p.16). The Patentee then argues that Jarvis himself recognizes this alleged deficiency and corrects his work in a subsequent volume, Jarvis 2008. Patentee's statements regarding both Jarvis publications are misleading. While Jarvis does address mathematical and statistical analyses, the reference also warns of the danger of "technical errors" which may impact the results of a presence/absence test. Jarvis at 135 ("Apart from purely technical errors, presence/absence tests are subject to a number of statistical considerations concerning the distribution of samples."). Thus, it is clear that Jarvis acknowledges the potential impact of non-statistical factors.

The Patentee also cites the second edition Jarvis volume for disclosing the only fully acceptable method of wet compositing.[1] Interestingly, the language in the second volume is virtually identical to that disclosed on the original Jarvis reference under method 2. (Jarvis. p.141). Similarly, the language that the Patentee cites regarding the use of retaining the original pre-enrichment samples in the Jarvis second edition, is simply a restatement of the value of retaining stored pre-enrichment cultures as in the original Jarvis reference. Simply put, there are no substantive differences between the two Jarvis references.

h. Jarvis and the prior art do not teach away from combining both lumping and pooling.

The Patentee erroneously asserts that prior art references teach away from the statistical methods of Jarvis. (Patentees Resp. at 17-18). Patentee bases this assertion on the Price

[1] It is not clear how the Patentee believes that a person of ordinary skill at the time of the alleged invention of the '584 patent would have been influenced by a reference that was published later.

reference and the Silliker & Gabis reference. However, this assertion is baseless when the references are examined in proper context with Jarvis.

The Patentee states the Silliker & Gabis reference shows that combining lumping with pooling results in false negatives. The Patentee neglects to point out that the paper concludes that "[p]ooling sixty 25-g or fifteen 100-g pre-enrichment cultures into groups of five (wet compositing) followed by selective enrichment of the composites apparently results in the same assurance of detection of positive lots as the analysis of individual samples." (Silliker & Gabis at 478). In addition, the false negatives to which the Patentee refers are found in the 100 g wet composite samples. Silliker & Gabis point out that the National Research Council recommends use of sixty 25-g samples for *Salmonella* testing. (Silliker & Gabis at 479). Silliker & Gabis themselves recommend that using 25-g samples results in statistical control. Importantly, Jarvis recommends use of 25-g samples when it discusses compositing samples. (Jarvis at 141). Jarvis method 3 also indicates that pre-enrichment cultures can be composited into groups of five at the enrichment stage. (Jarvis at 141). Thus, far from teaching away from Jarvis, the Silliker & Gabis reference supports the validity of the Jarvis sampling methods.

The Patentee further asserts that Price teaches away from Jarvis. (Patentee's Resp. at 17). The Patentee directs to the statement in Price that indicates that higher numbers of positives were recorded by pooling pre-enrichments rather than pooling samples. (Price at 681). This is an accurate statement and is supported by the Jarvis reference which teaches a person of ordinary skill in the art to pool pre-enrichment cultures. (Jarvis at 141). Accordingly, Price also confirms the Jarvis reference.

i. Jarvis is not limited to intra-lot pooling.

As discussed above, the Patentee asserts that Jarvis, and all other prior art references, are limited to intra-lot pooling. (Patentee's Resp. at 19). However, Jarvis states that it describes

methods to verify the results of "the lot of food under test." (Jarvis at 137, emphasis added). As explained above, the Patentee's interpretation of Jarvis is unreasonable and is contrary to the stated purpose of the method described in the reference.

To support the assertion that Jarvis is limited to intra-lot pooling, the Patentee indicates that Jarvis does not teach how to trace back contamination to an individual "combo." This assertion disregards the purpose of retesting the stored pre-enrichment cultures as indicated in the Jarvis reference. (Jarvis, p.141-42.) Further, a person of ordinary skill in the art would know that the purpose of testing for the presence or absence of contaminating organisms is to validate the release of the food lot into commerce. Jarvis and Midura both refer to the testing of "lots." When a "lot" is a "combo," a person of ordinary skill would have understood that the methods described by the references would be applied to the "combo" to improve the efficiency of sampling and testing and to avoid destruction of uncontaminated "combo" lots. Accordingly, after consultation with a statistician as recommended by Midura, a person of ordinary skill would know to take a sufficient number of samples from each combo tested to validate that combo individually. (Midura at 14). Further, there is nothing "surprising" about application of a detection test to a single enrichment vessel "exclusively dedicated to that combo." A "combo" is simply a term coined by the beef industry to represent one type of lot of product that can be separately validated or rejected. A "sample" from a combo is the type of sample contemplated by Jarvis, and, as taught by Midura, would be a representative sample obtained by combining a sufficient number of subsamples taken from different locations within the lot. In conclusion, Patentee's argument that Jarvis must be limited to intra-lot sampling is misplaced.

Patentee has failed to consider the teachings of the references as a whole, and misconstrued the Jarvis reference. Accordingly, the Patentee has failed to rebut the Examiner's

prima facie case of obviousness. Therefore, it is respectfully requested that the rejection of claims 1-4, 8, 10 – 20, 22, 24- 27, 31, and 32 be maintained.

Ground 2 of the Rejection (Response at pages 23 – 30)

1. **The Patentee Does Not Address the References as a Whole**

The Examiner rejected claims 1-4, 6-18, 20, 22, 24-26, and 31 as unpatentable over FSIS in view of Price and Midura. In responding to this rejection, the Patentee again fails to address the combined teachings of these references, but instead simply attacks each reference separately. The overall teachings of these references would have rendered the claimed invention obvious.

The Patentee asserts that the FSIS reference is limited to sampling for a single lot and does not teach anything about post-enrichment pooling, post-enrichment inter-lot pooling, or validation of negative lots. (Patentee's Resp.., p.24). This argument suffers from two defects. First, the FSIS reference is not so limited. Second, the Patentee ignores the fact that Price and Midura disclosed the alleged missing features.

The Price reference teaches post-enrichment pooling and post-enrichment inter-lot pooling. Price teaches that samples are first incubated in pre-enrichment broth. These pre-enrichment broth cultures meet the requirements of the claims because organisms are capable of detection within them. The Patentee offers no evidence to the contrary. This fact would have been clear to one of ordinary skill in the art, because a portion of the pre-enrichment culture is transferred to an enrichment medium. (Bailey Decl.,¶10e). To further expand the target organism in enrichment media, the pre-enrichment cultures necessarily contained detectable levels of that organism. Moreover, regardless of the teachings of Price, direct enrichment, optionally in combination with "rapid" test methodology, was well known to persons skilled in this field as is evident, for example, from the FSIS reference. A person of ordinary skill would have recognized that the direct enrichment cultures of FSIS could be pooled according to the

Price method. Thus, the prior art taught post-enrichment pooling. Because Price taught the combination of multiple pre-enrichment broths derived from separate lots of food products were combined, Price also taught post-enrichment inter-lot pooling. In addition, a person of ordinary skill in the art also would have recognized that, because Price taught testing of a composite of enrichment cultures, a negative result would validate each of the samples making up the composite.

As discussed in greater detail below, Patentee's criticism that Price does not teach the taking of multiple samples of the product test lot and dry compositing them ignores the nature of the products tested by Price and ignores the teachings of Midura regarding test lot sampling. (Midura, Sec. 2.52). The products tested by Price were powdered products that could be blended to homogeneity. As Midura taught, for products of that nature, a single sample is representative of the entire lot. This single sample is, of course, made up of a large number of individual particles that are "composited" together to make up the sample. Midura further taught that for solids and semi-solids, a representative sample may be obtained by taking multiple samples from different locations of the test lot and compositing them – the identical method defined by the '584 patent claims.

Price was cited for its teaching of wet compositing of individual culture media of test lots wherein a negative result validates all of the lots and a positive result directs the analyst to test of the retained culture media individually. These steps are the same as those defined in steps (d) and (e) of the '584 patent claims, which the Patentee has argued is the point of novelty of his invention.

Midura also addresses Patentee's criticisms of the FSIS reference as it pertains to the validation of negative results. Midura emphasizes the importance of developing a reliable sampling plan, so as to insure that a representative sample is obtained. Midura directs that a

professional statistician be consulted when a sampling plan is designed. Accordingly, a person of ordinary skill in the art, reading the Midura reference in view of FSIS and Price, would insure that a statistically valid sampling plan was designed so as to be sufficient to validate a negative result.

Finally, Patentee's assertion that FSIS only discusses single lot sampling is misplaced. FSIS describes a procedure for taking multiple samples of a test lot of ground beef, compositing them, and culturing the composite in a suitable enrichment medium, and testing that medium for pathogenic *E. coli* using an appropriate test method. As Dr. Bailey explained, a person of ordinary skill would readily recognize that if multiple test lots require testing (as often would be the case in a large processing facility), this procedure would be applied to each of them. (Bailey Decl., ¶19). The Patentee has introduced no evidence contradicting Dr. Bailey's statement. The fact that FSIS describes the procedure for testing a lot of products is not an indication that the procedure would not be replicated for testing multiple lots at substantially the same time.

Because the Patentee has not rebutted the Examiner's prima facie case of obviousness the rejection of claims 1-4, 6-18, 20, 22, 24-26, and 31 as unpatentable over FSIS in view of Price and Midura should be maintained.

2. The Patentee Relies on Features that are Not Limitations of the Claims

a. The Patentee again argues that Price is limited to the compositing of pre-enrichment media

The Patentee again argues that a reference, in this case Price, requires incubation in pre-enrichment media. According to the Patentee this feature of Price is sufficient to preclude the reference's meeting the claims of the '584 patent. However, the '584 patent claims do not recite such a limitation. All that is required is that the samples are incubated "under conditions suitable to allow levels of the target microbial agent or organism that is present in one or more of the separate test lot samples to reach detectable levels and become uniform or substantially uniform…" ('594 patent, col. 6, lines, 7-11, and claims 1 and 17). There is no claim language that indicates that this procedure must be a single-step process, or that a pre-enrichment medium is to be avoided. Furthermore, the Patentee overlooks Price's teaching of direct enrichment as an alternative to the two-step pre-enrichment/enrichment procedure. (Price at 682.) Patentee's attempt to import extraneous limitations into the claims is improper.

b. The Patentee imports a limitation of immediacy into the claim language.

The Patentee repeatedly asserts that the enriched composited samples can be tested immediately. The Patentee indicates these time savings have "a profound consequence in the art." However, this limitation is not recited in the claims of the '584 patent. The claims only require that testing be done with a suitable detection assay. To import a limitation indicating the speed or time frame in which the samples are tested is improper.

Moreover, Patentee invented neither direct enrichment media (including selective media) nor modern "rapid" test methods. A person of ordinary skill already had these tools available if expeditious testing was required.

3. The Patentee Misconstrues the Teachings of the References

a. FSIS teaches sampling multiple test lots

The Patentee argues that the FSIS Protocol only discusses sampling a single lot, and then defines that lot to be a single day of production. The '584 patent defines test lot as an assemblage of one or more specimens that are operationally linked in manner where information derived is applicable to all specimens of the assemblage. Proximity, time, or process steps are each factors for determining that specimens of the assemblage are operationally linked. The Midura reference similarly defines a test lot as a being of the same "type, grade, class, size, and composition" and "manufactured under the same conditions at essentially the same time." (Bailey Decl. ¶16). The single day's production referenced in the FSIS protocol is a "test lot" as defined in the '584 patent and the prior art.

As discussed above, the Patentee also distorts the FSIS protocol by not acknowledging that it must be viewed through the eyes of one of ordinary skill in the art. As discussed above, a person of ordinary skill in the art in August of 2004 would have understood that the FSIS protocol would be applied in a replicative manner to multiple separate production lots or test lots to produce a set of separate test lot samples. (Bailey Decl., ¶19). As an analogy, if a reference describes a process for manufacturing "a car," a person of ordinary skill would readily appreciate that the process could be used to make two cars, or a million cars, or any number, as desired. Patentee's efforts to limit the teachings of the FSIS reference to the testing of a single test lot are unavailing and ignore the practical applications of the method. Combining the FSIS process with the sampling procedures of Midura and the wet-compositing/testing/retesting procedures of Price satisfies all of the requirements of the '584 patent claims.

b. Patentee misconstrues the Price reference

The Patentee asserts that Price teaches that individual samples from a single lot are pre-enriched in isolation, because otherwise the target organism may face competition from the fauna of all the samples in the pool. (Patentee's Resp. at 26). The nature of the Patentee's criticisms

are not entirely clear and appear to be based on two theories: first, that Price takes a single sample from a particulate (powdered) food product, and second, that Price discusses the potential competition between the target microorganism and related non-target microorganisms during pre-enrichment. Based on these arguments, the Patentee contends that Price does not teach initial formation of composited test lot samples.

Addressing first the Patentee's argument that a target microorganism in the Price sample may face competition with the other microorganisms, the Patentee overlooks the fact that direct enrichment in a selective nutrient medium was a well known technique. (Andrews at 360). Price did not indicate that such competition would be experienced in all cases, but simply pointed out a potential complication. Those skilled in the art would recognize that methods existed for overcoming this complication if it was encountered. Indeed, the Price reference provides alternative solutions. Price expressly taught that if competition by *Salmonella*-like organisms was perceived to be a problem, an alternative was to "use direct selective enrichments, or possibly even a reduction in the incubation time of the pre-enrichment cultures." (Price, at 682). Thus, the Patentee's criticism, to the extent that it is relevant at all to the primary teachings of Price on which the Examiner relied, ignored the fact that the prior art provided means for dealing with competition problems.

The Patentee's argument that Price took a single sample from a food product overlooks the nature of the products that Price used to prove the viability of his sampling and compositing procedures. In Price, the tested food products were of a particulate or powdered nature capable of being blended to homogeneity. As a consequence, a single sample (illustrated in Price Figure 1 as a strip of product) was representative. (This sample would, of course, consist of numerous individual particles, which can be viewed as separate portions as defined in step (a) of the '584 patent claims.) Midura teaches that food products that cannot be blended to homogeneity require

multiple samples to be taken from several areas of the product to ensure that a representative sample is obtained. (Midura, Sec. 2.52). A person of ordinary skill in the art understood the importance of obtaining a representative sample, as taught by Midura, and so would have taken the appropriate number of samples.

Also, in misconstruing Price, the Patentee argues that multiple samples from a "single lot" are pre-enriched and, therefore, the claim requirement for "inter-lot" testing is not met. (Patentee's Resp. at 26.) Based on this argument, the Patentee asserts that the method of Price is unable to validate a negative result for the overall sample lot. The Patentee distorts the teachings of Price and his interpretation is contrary to the whole purpose of the Price method. Nothing in Price suggests that the testing is limited to single lots. As discussed above in connection with Jarvis, such an interpretation would defeat the purpose of the enrichment culture-pooling (wet compositing) procedure of Price. Pooling of pre-enrichment cultures of multiple samples derived from a single lot would be of no value, because a positive result would invalidate the entire lot in any event. However, Price teaches that, if the composited enrichment culture tests positive, then the retained samples are to be tested individually. (*see* Price Fig. 1 and text at 681). Such re-testing would only make sense if a negative result on an individual retained culture would allow validation of the test lot from which the sample corresponding to that retained culture was derived. If the enrichment cultures were all derived from the same lot, a positive result for the composited culture would require rejection of the lot, regardless of whether individual pre-enrichment cultures tested negative. Thus, interpreting Price (as Patentee does) to require that all samples be taken from the same lot is irrational and would defeat the purpose of the method. The reference would not have been so interpreted by person of ordinary skill. Patentee's unduly restrictive reading of Price ignores these practical considerations and is unreasonable.

c. Midura teaches sampling multiple lots

The Patentee asserts the teachings of Midura are limited to a recommendation for sampling a single lot. The overall purpose of the Midura reference is to aid in the design of a sampling plan and instruct how to obtain representative samples for microbiological testing. A person of ordinary skill in the art would understand from Midura that the sampling of "test lots" would be carried out by taking a plurality of portions and combining them. (Bailey Decl. ¶16). A skilled person would readily appreciate that if multiple test lots required testing, then the sampling plans described by Midura would be applied to each of them.

Ground 3 of the Rejections (Response at pages 30- 33)

1. The Patentee has not refuted the admissions of the '584 patent

The Examiner has rejected claims 1 and 17 as unpatentable over Jarvis in view of the Patentee's Admissions. Specifically, the Examiner relies on Jarvis as in the Ground 1 rejection, but states that Jarvis does not teach collecting a plurality of portions from a plurality of test lots, each test lot comprising one or more specimens, and combining the portions to provide a corresponding set of separate test lot samples for testing. As discussed in Requester's comments regarding Grounds 1 and 2, a person of ordinary skill would have read Jarvis and Price as teaching pooling of pre-enrichment cultures from samples derived from multiple test lots. Otherwise the procedures described in these references would not serve the purposes for which they were designed - namely to validate one or more uncontaminated lots by re-testing retained enrichment cultures.

The Examiner cites to admissions in the Background section of the '584 patent for the teachings that Patentee argues to be missing from the reference. Specifically, in the discussion of well-known sampling plans, the patent includes the statement that,

> the common features of these sampling plans is that several samples representing production lots, or a number of environmental samples, are combined into a combined production lot prior to sampling. For example, a typical plan for microbial pathogen detection calls for taking more than one sample, for instance ten (10) to sixty (60) sample pieces from a given sample lot (combined production lot), to form a composite sample for testing.

('584 patent, col. l, line 67 – col. 2, line 7). The Patentee asserts that these sentences "merely describe the art-recognized practice of sample lumping; that is combining the samples taken from a lot to be tested." (Patentee's Resp. at 33).

As an initial matter, the Patentee ignores the plain language of the first quoted sentence, which clearly refers to "several samples representing production lots" (emphasis added). Therefore, samples of multiple production lots are correctly admitted to have been taught in the prior art. Second, the Patentee ignores the remaining passages cited by the Examiner including sentences stating, "[w]ith respect to *E. coli* O157 testing, for example, a typical plan calls for taking 60 samples (e.g., sample pieces) from a production lot to form a composite sample. With respect to *Listeria monocytogenes* thirty (30) samples are typically taken from a production lot to form a composite sample." ('584 patent, col.2, lls. 13-18). These sentences acknowledged that the prior art included taking multiple samples from a single production lot to form a composite sample. Single production lot is defined in the '584 patent as a form of test lot. ('584 patent, col.5, lines 33-34.) A test lot is defined as an assemblage of one or more specimens of a medium or process…where such assemblage can be sampled by taking portions of the one or more specimens thereof…" ('584 patent, col. 5, lines 21-23).

Accordingly, the plain language of the'584 patent admits that the prior art included combining multiple portions from a single test lot, each test lot consisting of an assemblage of

one or more specimens, to form a composite sample. The Background section of the '584 patent further admits that the prior art included combining multiple production lots together to form another composite sample for testing. Thus, the Patentee's admissions in combination with the Jarvis reference render claims 1 and 17 obvious and the Patentee has not refuted this combination.

2. The Patentee Improperly Imports a Limitation into the Claim Language

The Patentee again insists that use of pre-enrichment media is not within the meaning of the '584 patent claims. Because this exact argument concerning the Jarvis reference has already been discussed under the Ground 1 rejection, the response will not be repeated. However, Requester again asserts that reading in such a limitation into the claim language is improper.

3. The Patentee Misconstrues the Jarvis reference

The Patentee again misconstrues the Jarvis reference as in his response to the Ground 1 Rejection. Specifically, the Patentee repeats his arguments that 1) the pre-enrichment medium of Jarvis does not allow for microbial growth to detectable levels, 2) Jarvis does not teach testing for organisms after pre-enrichment, and 3) Jarvis does not allow for retesting of pre-enrichment cultures because it requires the entire pre-enrichment culture to be transferred into enrichment medium. These arguments have already been addressed in full in the Ground 1 response, and so the Requester will not repeat them. Requester submits that Patentee's arguments distort and improperly limit the plain teachings of Jarvis.

Ground 5 of the Rejections (Response at pages 33-35)

1. The Patentee has not overcome the Examiner's prima facie case of obviousness.

The Examiner has rejected claims 1 and 17 as unpatentable over Andrews in view of Price and Midura. Specifically, the Examiner states that the Andrews reference teaches methods of testing foods comprising collecting a plurality of portions from the food to be analyzed to

comprise a larger sample unit, which is then used to determine the acceptability of the entire lot of food. Andrews also teaches that samples should be inoculated into pre-enrichment broth and incubated to permit microorganisms to reach a desired number. Following this incubation, the pre-enrichment broth should be inoculated into a second enrichment medium selective for the target organism. The Examiner indicates that Andrews does not teach incubating the test lots separately. The Examiner also indicates that Midura teaches collecting a plurality of samples and/or performing multiple test runs.

The Patentee asserts that the Price and Midura references have been discussed above and does not repeat those arguments. With respect to Andrews, the Patentee states only that it does not teach that a pre-enrichment medium is a medium that meets the limitations of the patented claims, but does not provide any basis for these assertions. This erroneous statement is discussed in detail below.

As discussed in preceding sections of this submission, inoculation of samples in pre-enrichment media meets the limitations of the '584 claims and Patentee has presented no evidence to the contrary. Moreover, the Andrews reference explicitly discloses transfer into a selective enrichment culture. (Andrews, p.360). As previously discussed, there is no limitation in the '584 patent claims that precludes the use of a pre-enrichment medium followed by inoculation into an enrichment medium. Patentee's argument to the contrary requires an improper construction of the '584 claim language.

Further, as discussed in the comments above regarding Ground 2, Price discloses the separate incubation the sample lots. Figure 1 of the Price reference explicitly shows the incubation of individual samples and the subsequent compositing of those cultures. Accordingly, Price teaches initially incubating the test lots separately. In addition, a person of ordinary skill would understand from the teachings of Midura regarding sampling procedures that an

individual sample of solid or semi-solid food is in reality composed of a number of samples for a single, individual source. It is only for particulate or liquid products, where test lots can be mixed to homogeneity that a single individual aliquot would be used.

In addition, a person of ordinary skill would have understood from Midura that multiple samples or multiple test runs would be required for statistical validation of the results. Andrews also acknowledges this fact by stating, "[t]o reach [a 95% confidence level] with non-random distribution would require negative results of a much larger number of randomly drawn samples." (Andrews at 360).

The Patentee did not address any of these points in the Ground 5 rejection. Accordingly, the Patentee has not rebutted the Examiner's prima facie case of obviousness and the rejection of claims 1 and 17 over Andrews in view of Price and Midura are well founded.

2. The Patentee Misconstrues the Andrews reference

The Patentee asserts the Andrews reference does not disclose pre-enrichment media within the meaning of the '584 patent claims. However, the Patentee only asserts that the reference does not meet this limitation "for reasons that have been discussed above in detail." The Patentee appears to conclude that Andrews, Price, Jarvis and Midura are all deficient on this point for the same reasons. The Patentee's improperly restrictive interpretation of Jarvis, Price and Midura and his failure to address the combined teachings of these references have been discussed previously.

The Andrews reference does disclose pre-enrichment media within the meaning of the '584 patent. The '584 patent claims require only that the media to grow the bacteria to "reach detectable levels." Andrews indicates that growth in pre-enrichment media is sufficient to accomplish this goal. Specifically, Andrews discloses that "*Salmonella* organisms in foods are often present in low numbers and in a debilitated condition. As indicated previously, pre-

enrichment in a non-selective medium obviates this problem..." Here Andrews implies that it may be difficult to detect *Salmonella* because of low numbers. However, Andrews then provides a solution by teaching that growth in pre-enrichment medium will fix this problem. In other words, Andrews indicates that growth in pre-enrichment will result in greater numbers of *Salmonella*.

Andrews continues by stating, "North (citation omitted) first noted enhanced recovery of *Salmonella* from egg albumen as a result of pre-enrichment in lactose broth." (Andrews, p.360). In order for North to note the enhanced recovery of *Salmonella* as a result of pre-enrichment North obviously would have had to have been able to detect the *Salmonella*.

Finally, Andrews also states that, "wet compositing (combining pre-enrichment cultures of individual analytical units) (citation omitted) substantially reduces the analytical workload without compromising method sensitivity." (Andrews, p.360). This is a clear statement that analysis for the presence of a target microorganism, in this case *Salmonella*, is possible by testing pre-enrichment broth. Therefore, the pre-enrichment broth of Andrews clearly meets the limitations of the '584 patent by growing bacteria to "detectable levels."

3. The Patentee Again Attempts to Distinguish the Prior Art by Improper Reliance on the Inter-Lot Claim Limitation

The Patentee again argues that the '584 patent teaches inter-lot pooling while every other reference only teaches intra-lot pooling. This contention is incorrect for the reasons discussed above in connection with the Comments on the Claim Amendments section.

Ground 6 of the Rejections (Response at pages 35 – 40)

1. The Patentee Argues the References Separately

The Examiner has rejected claims 1 and17 as unpatentable over Silliker in view of Price and Midura. The Examiner states that it would have been prima facie obvious to follow the composite-testing procedures disclosed by Silliker with individual tests of the pre-enrichment

cultures upon obtaining a positive result for the composite subsample, as suggested by Price. The Examiner also states that a person of ordinary skill in the art would have found it obvious to collect a plurality of samples, as recommended by Midura, in order to detect highly pathogenic organisms present at low levels.

The Patentee traverses this rejection but does so by arguing the references separately instead of addressing the Examiner's rejection based on their combined teachings. Initially, the Patentee notes that it has already discussed the Price and Midura references and will not do so again. However, the Patentee has not properly addressed Price and Midura in combination with the teachings of Silliker.

With respect to the Silliker reference, the Patentee asserts that Silliker, alone or in combination with Price and Midura actually teaches away from the '584 patent. The Patentee begins by suggesting that the clear aim of Silliker was to compare different pre-enrichment sample sizes and different wet compositing protocols. What is relevant is that Silliker discloses collecting a plurality of subsamples, incubating those subsamples in individual cultures of pre-enrichment broth and wet compositing the pre-enrichment cultures. Silliker also indicates that wet compositing followed by selective enrichment is as sensitive a detection method as analysis of individual samples. The incubation of samples in pre-enrichment cultures meets the incubation procedure of claim step (c), the wet compositing of those cultures meets claim step (d), and the further incubation and the plating steps meet the "detection" procedure of claim step (e).

a. Silliker in view of Midura teaches statistical methods to overcome false negatives

The Patentee asserts that one of ordinary skill in the art would not construe Silliker as an indication that pre-enrichment pooling of lumped samples was as reliable as pre-enrichment of non-lumped samples. Patentee makes this argument despite the fact that the Silliker reference

explicitly states that the two methods are equally reliable. (Silliker, p.478 "Pooling sixty 25-g or fifteen 100-g pre-enrichment cultures into groups of five (wet compositing) followed by selective enrichment of the composites apparently results in the same assurance of detection of positive lots as the analysis of individual samples.") Patentee improperly argues that because Silliker reports the occasional occurrence of false positives and false negatives that a person of ordinary skill in the art would not find the reference enabling.

The Patentee offers no evidence to support this assertion, a person of ordinary skill in the art viewing Silliker and Midura would know to compensate for the same purpose as disclosed in the '584 patent. A person of ordinary skill in the art would be familiar with the possibilities of false positives and false negatives, and such a person would look to the Midura reference, which teaches that any sampling plan must be statistically valid. A statistically valid plan would be one that contemplates and minimizes the possibilities of false negatives and false positives. Indeed, Midura includes tables indicating how many samples must be taken to ensure the validity of a test. Accordingly, a person of ordinary skill would not discount the teachings of Silliker in view of Midura simply because Silliker discloses the occurrence of false positive and false negatives.

b. Silliker, in view of Price and Midura, teaches making initially composited test lots

The Patentee attempts to distinguish the claimed invention from Silliker on grounds that Silliker tests "effectively homogenous" samples. (Patentee's Resp. at 38). The Patentee states that the samples of Silliker were ground or blended in a food-solid blender. According to the Patentee, this means Silliker did not teach making initially composited test lot samples. Even if true, this argument effectively overlooks the teaching of Price and Midura. Further, this argument is contrary to the meaning of "compositing" as used in the '584 patent.

Price teaches use of individual samples as explicitly demonstrated in Figure 1 of the Price reference. Midura teaches that when working with solid or semi-solid foods multiple aliquots

from several areas of the food under examination should be taken. Accordingly, it is clear from these two references that the initial samples used in Silliker protocol would be the product of compositing several aliquots from each individual lot. Thus in combination, Silliker, Price, and Midura teach initially compositing test lot samples.

Further, the '584 patent states that "compositing" refers to combining a number of single product portions to form one larger sample. Nothing in this definition precludes homogenizing the samples once combined. Accordingly, this argument is moot even if a person of ordinary skill in the art would homogenize the samples of Silliker in view of the teachings of Price and Midura.

The Examiner correctly held that the Silliker reference in combination with Price and Midura render claims 1 and 17 unpatentable. The Patentee has failed to rebut the rejection.

2. The Patentee Imports Claim Limitations

a. The Patentee again asserts use of pre-enrichment medium is precluded by the claims

The Patentee again insists that use of pre-enrichment medium is not within the meaning of the '584 patent claims. This argument is meritless for the reasons discussed above in connection with the Ground 1 rejection. The Patentee's effort to read such a limitation into the claim language is improper.

b. The Patentee again asserts immediate detection is a limitation within the claims

The Patentee asserts that the cited references are deficient because they do not allow for "immediate" testing. That argument is misplaced, because the claims are not limited to "immediate" testing. This argument has been addressed in more detail under the Ground 2 response and so will not be repeated here.

3. The Patentee Misconstrues the Silliker Reference

The Patentee asserts that the pre-enrichment samples of Silliker are not sufficiently enriched to provide detection of the target organism. Patentee cites the Figures it created to provide evidence of this assertion. The Patentee is incorrect in this assertion.

As an initial matter, it is well-known in the art that pre-enrichment broth is capable of growing a target organism to detectable levels. (Bailey Decl. ¶9d). In addition, Silliker indicates that following incubation, 1 mL of the pre-enrichment growth is transferred into a selective enrichment broth. After incubation in the selective broth, the organisms are detected via conventional plating techniques. For this to occur, the original pre-enrichment broth would have had to contain a detectable number of organisms.

Ground 7 of the Rejections (Response at pages 40 – 42)

The Examiner has rejected claims 1 and17 as unpatentable over Gabis in view of Price and Midura. The Examiner states it would have been prima facie obvious to follow the composite testing disclosed by Gabis with the individual tests of pre-enrichment broths following a positive result for the composite subsample as disclosed by Price. Midura is cited because it would direct a person of ordinary skill in the art to collect a plurality of samples to detect low levels of target organisms.

1. **The Patentee Argues the References Individually**

The Patentee states that the teachings of Gabis are limited to "inoculating each of the specimens" sampled from a lot into individual "pre-enrichment culture," followed by intra-lot pooling at the pre-enrichment samples into enrichment medium, followed by assay. (Patentee's Resp. at 41). The Patentee argues that this procedure is no different from that described in the Silliker reference. Patentee then asserts that Price and Midura have already been discussed and will not be discussed again.

Once again, the Patentee fails to address the combined teachings of the references, which was the basis for the Examiner's rejection. Price teaches use of individual samples as explicitly demonstrated in Figure 1 of the Price reference. Midura teaches that when working with solid or semi-solid foods multiple aliquots from several areas of the food under examination should be taken. Accordingly, it is clear from these two references that the initial samples used in Silliker protocol would be the product of compositing several samples from each individual lot. Thus in combination, Silliker, Price, and Midura teach initially compositing test lot samples. Midura also teaches that sampling plans should be developed for obtaining representative composite samples from "each lot," i.e. separate lots, of product. (Midura at 16.) Further, a person of ordinary skill in the art would understand that these procedures were to be applied to a plurality of separate test lots. (Bailey Decl., ¶20).

For these reasons, and those discussed below, claims 1 and 17 of the '584 patent are rendered obvious by Gabis in view of Price and Midura.

2. The Patentee Imports Limitations into the Claims

The Patentee asserts that the cited references are deficient because they do not allow for "immediate" testing. That argument is misplaced, because the claims are not limited to "immediate" testing. This argument has been addressed in more detail under the Ground 2 response and so will not be repeated here.

3. The Patentee Misconstrues the Gabis Reference.

The Patentee asserts that the pre-enrichment samples of Gabis are not sufficiently enriched to provide detection of the target organism. Patentee cites the Figures it created to provide evidence of this assertion. The Patentee is incorrect in this assertion.

As an initial matter, it is well-known in the art that pre-enrichment broth is capable of growing a target organism to detectable levels. (Bailey Decl. ¶9d). Cultures in such pre-enrichment broths are also substantially uniform. (*Id.*). In addition, Gabis indicates that

following incubation, 1 mL of the pre-enrichment culture is transferred into a selective enrichment broth. After incubation in the selective broth, the organisms are detected via conventional plating techniques. For this detection to have occurred, the original pre-enrichment broth would have had to contain a detectable number of organisms. (Bailey Decl., ¶20.)

The Patentee also asserts that the Gabis reference does not teach post-enrichment pooling. However, as discussed above, the pre-enrichment cultures of Gabis are sufficient to detect organism growth and are substantially uniform. Therefore, the inoculation of individual pre-enrichment cultures into enrichment broth corresponds to post-enrichment pooling within the meaning of the '584 patent claims.

Persons of ordinary skill were will well aware of enrichment media, including selective media. (E.g. *see* Andrews §37.123 – 124, Bailey Declaration, ¶ 9(d), 9(e).) If such a person desired to enrich microorganisms directly without a pre-enrichment step, the art provided the technology for doing so. Moreover with the advent of "rapid" detection methods using PCR or immunochemical technology, skilled artisans designing samples and testing procedures would have understood that less enrichment was necessary than with prior art culture procedures. (Bailey Decl., ¶21).

Ground 8 of the Rejections (Response at pages 42-45)

The Examiner has rejected claims 1 and 17 as unpatentable over Jarvis in view of BAM. The Examiner states that it would have been prima facie obvious to collect a plurality of food samples as taught by BAM to test by the method of Jarvis. The Patentee traverses this rejection by repeating his previous erroneous arguments regarding Jarvis.

1. The Patentee Argues the References Individually

The Patentee first argues that Jarvis does not teach statistical validation of individual pre-enrichment cultures. Patentee asserts that statistical verification means validation of no

contamination by means of a number of samples sufficient for a level of statistical confidence. (Patentee's Resp. at 43). The Patentee then argues the same points as in the Ground 1 rejection regarding the statistical validity of the Jarvis reference. These arguments are addressed below.

Patentee fails to address the BAM and Jarvis references in combination. The references teach collecting a sufficient number of samples to verify individual pre-enrichment cultures statistically. The BAM reference cautions that if the samples are "not representative of the sampled lot, the laboratory results will be meaningless." (BAM at 1). BAM further states, "[t]he number of units that comprise a representative sample from a designated lot of a food product must be statistically significant." (*Id.*). Accordingly, a person of ordinary skill in the art would have known from BAM that for the individual pre-enrichment cultures retested in Jarvis to have statistical significance, collection of a statistically significant number of samples would be required.

The Patentee also asserts that Jarvis in combination with BAM does not teach: (i) initial formation of composited test lot samples from multiple test lots; that (ii) are enriched to above the detection limit prior to inter-lot aliquot pooling; to make (iii) the modular inter-lot composite sample (wet composite inter-lot sample) that can be tested immediately, and where (iv) the individual enriched composited test lot samples can be also be tested immediately. The Patentee continues that Jarvis and BAM do not teach post-enrichment pooling, post-enrichment inter-lot pooling, or validation of negative results. The Patentee offers no argument as to why the combination of Jarvis and BAM fail to teach these combinations. Presumably the Patentee is relying on previous arguments offered to refute the Jarvis reference. These arguments are unavailing for the reasons discussed above in connection with Ground 1.

The Patentee also does not specifically refute the Examiner's combination of the Jarvis and BAM reference with the exception of the validation argument addressed below.

Accordingly, the Patentee has not rebutted the Examiner's prima facie case of obviousness and the rejection of claims 1 and 17 as obvious over Jarvis in view of BAM should be maintained.

2. The Patentee Imports Limitations into the Claims

The Patentee asserts that the cited references are deficient because they do not allow for "immediate" testing. That argument is misplaced, because the claims are not limited to "immediate" testing. This argument has been addressed in more detail under the Ground 2 response and so will not be repeated here.

3. The Patentee Misconstrues the Jarvis Reference

The Patentee asserts that even if Jarvis teaches verification of positive samples by retesting stored individual pre-enrichment cultures, it does not provide for statistical validation of no contamination of individual pre-enrichment cultures. According to the Patentee, this is because Jarvis (and all other prior art methods) involve sampling of a single lot and intra-lot pooling. Under Patentee's theory, samples are taken from a lot and lumped in a non-statistically significant way into pre-enrichment cultures. These cultures are then combined and tested with the result being statistically significant only for the entire lot as a whole. As discussed in greater detail above in connection with Ground 1, this reading of Jarvis is inconsistent with the purpose of the Jarvis reference.

The Jarvis reference is directed to methods to prove the statistical validity of food testing procedures. Thus, Patentee's assertion that Jarvis does not provide for the statistical validation of individual pre-enrichment cultures is clearly erroneous. There would be no purpose for Jarvis to suggest retesting of the stored pre-enrichment cultures if such retesting would be solely for the purpose of "curiosity." To suggest otherwise eviscerates the very purpose of the Jarvis teachings.

Ground 9 of the Rejections (Response at pages 45 – 50).

The Examiner has rejected claims 1 and 17 as unpatentable over Price in view of BAM and Davies. The Examiner found that it would have been prima facie obvious to collect a plurality of portions of food, as taught by either of BAM or Davies, and to have combined the portions to provide a corresponding set of composite test lot samples for testing, as taught by Price. The Examiner further concluded that a person of ordinary skill would have also found it obvious to inoculate each of the test lot samples into separate enrichment broth cultures, to incubate them to allow the target organism to reach detectable levels and then pool the aliquots for testing.

1. The Patentee Argues the References Individually

The Patentee initially asserts that the limitations and deficiencies of the Price and BAM references have been discussed and will not be addressed again. The Patentee then argues that Davies does not disclose a modular inter-lot sample. This argument is erroneous for the reasons discussed below. Moreover, aside from the teachings of Davies, Price also discloses the use of a modular composite sample. Davies is cited by the Examiner for teaching a plurality of portions from a plurality of test lots.

Davies explicitly discloses taking samples from a plurality of test lots. Davies discloses sampling 20 different pig herds and collecting a plurality of samples from each pig sampled. (Davies at 1017). Davies also indicates that each herd was being treated as a unit rather than as individual animals, and so confirms the use of the term "test lot" as defined in the '584 patent. (Davies at 1018). BAM teaches that the number of samples should be representative and statistically significant. (BAM at 1). Once these samples are taken, the method of Price teaches the samples from each individual pig should be incubated in pre-enrichment medium separately from the samples taken from other pigs. Following incubation, an aliquot of each pre-enrichment broth correlating to an individual pig is then combined into one selective enrichment

broth. This procedure corresponds to the modular inter-lot composite sample that Patentee asserts is not made in this combination of references. In addition, if the sample tests positive, then Price teaches to retest each individual pre-enrichment test. The results of these numbers will be statistically significant due to the BAM reference's teaching to take sufficient samples for statistical significance.

Accordingly, when viewed in combination, the references render the claimed invention obvious. The Patentee has failed to overcome the rejection based on this combination of references. For this reason, the rejection of claims 1 and17 as obvious over the combination of Price in view of Davies and BAM should be maintained.

2. The Patentee Misconstrues the Davies Reference.

The Patentee asserts that the Davies reference does not teach making a modular inter-lot composite sample. The Patentee asserts only that Davies teaches only formation of a modular intra-lot sample. This assertion is erroneous.

The Davies reference explicitly discloses in the introduction that "bacterial samples can be pooled in composites of up to 20 subsamples." (Davies at 1017). This reference is directed specificly to a modular inter-lot sample. It is of note that the Davies reference discloses this point in the Introduction section thereby indicating this information is well-known in the art.

Ground 14 of the Rejections (Response at pages 51-52)

The Examiner has rejected claims 5, 6, 23, 29, and 30 as unpatentable over Jarvis in view of FSIS and Midura and further in view of Entis. The Examiner asserts that it would have been prima facie obvious to concentrate the target agent from the cultures described by Jarvis in view of FSIS and Midura, as taught by Entis, in order to increase testing sensitivity and negate interference from the food sample. The Examiner also found that a person of ordinary skill in the art would have also found it prima facie obvious to have used one or more of the rapid

detection methods described in Entis to identify the target agent because they are more sensitive and more efficient.

The Patentee asserts that it has already effectively rebutted Jarvis in view of FSIS and Midura with respect to independent claims 1 and 17. The Patentee then asserts that Entis does not cure the previously alleged deficiencies. Patentee does not address the specific rejection of the dependent claims as set forth in Ground 14. Accordingly, these rejections are not traversed and should be maintained.

Requester believes the Patentee's arguments with respect to Jarvis in view of FSIS and Midura have already been addressed with respect to claims 1 and 17. However, Requester asserts the addition of Entis adds additional rationale for those rejections.

Under the Ground 1 rejection, Patentee asserts that the pre-enrichment broth of Jarvis does not meet the '584 claim limitations because it does allow target organism growth to detectable levels. In addition to the defects in this argument set forth above, Requester submits that Entis provides further support for the rejections. Entis is directed to rapid methods for the detection of microorganisms. Entis, for example, discloses the use of PCR. Entis notes:

> The appeal of PCR technology lies in the amplification of small quantities of DNA to detectable levels in a short amount of time. Theoretically, a single gene target can be amplified a million-fold for detection in a few hours. Thus, direct detection, i.e., without the need for lengthy enrichment step is possible. In practice, however, direct detection of a single gene target is difficult to achieve. The small sample volumes used in PCR (microliter-scale) limit the sensitivity of the procedure for examining foods directly. In addition, inhibitory substances that interfere with the PCR are present in many foods. Thus, a preliminary enrichment culture step to increase target levels is common in PCR detection protocols. Enrichment culture also provides some assurance that the DNA detected is derived from viable cells. The superior sensitivity of the PCR compared to conventional culture methods may allow for shorter enrichment times, however.

(Entis at 94). This passage indicates that direct detection of target microorganisms may be ineffective, but if the target sample is enriched in pre-enrichment culture then the target organism becomes detectable. The '584 patent specifically contemplates the use of

DNA based detection methods. ('584 patent, col. 8, line 14). Thus, despite the Patentee's arguments to the contrary, the pre-enrichment cultures of Jarvis are sufficient to allow for detection within the meaning of the '584 patent. This also means that Jarvis teaches the pooling of enriched cultures within the meaning of the '584 patent.

The Patentee's remaining arguments regarding the deficiencies of Jarvis are further addressed by application of Midura and FSIS as discussed in Ground 1. Accordingly, Patentee has not rebutted the Examiner's prima facie case of obviousness and the rejection of claims 5, 6, 23, 29, and 30 as unpatentable over Jarvis in view of FSIS and Midura and further in view of Entis should be maintained.

Ground 15 of the Rejections (Response at pages 53-54)

The Examiner has rejected claims 5, 23, 29, and 30 as unpatentable over FSIS in view of Price, Midura, and Entis. The Examiner states that it would have been prima facie obvious to have concentrated the target agent from the cultures as disclosed by FSIS in view of Price and Midura, as taught by Entis, in order to increase testing sensitivity and negate interference from the food sample. The Examiner further found that a person of ordinary skill in the art would have found it prima facie obvious to have used one or more of the rapid detection methods described in Entis to identify the target agent because they are more sensitive and more efficient.

The Patentee asserts that it has already effectively rebutted FSIS in view of Price and Midura with respect to independent claims 1 and 17. The Patentee then asserts that Entis does not cure the previously alleged deficiencies. Patentee does not address the specific rejection of the dependent claims as set forth in Ground 15. Accordingly, these rejections are not traversed and should be maintained.

Requester believes the Patentee's arguments with respect to FSIS in view of Price and Midura have already been addressed with respect to claims 1 and 17. However, Requester asserts the addition of Entis adds additional rationale for the rejections discussed in connection with the Ground 14 rejection above. Requester will not repeat those arguments here, but notes they are equally applicable to the Ground 15 rejection.

Ground 21 of the Rejections (Response at pages 55-56)

The Examiner has rejected claim 21 as unpatentable over Jarvis in combination with FSIS, Midura, and Cousin. The Examiner states that it would have been prima facie obvious to have used the method disclosed by Jarvis in view of FSIS and Midura to test for a spoilage organism, such as a psychrotoph, because Cousin teaches that such organisms are responsible for spoilage of refrigerated foods and can be detected by culture.

The Patentee asserts that is has already effectively rebutted Jarvis, in view of FSIS and Midura with respect to independent claims 1 and 17. The Patentee then asserts that Cousin does not cure these deficiencies. Requester believes the Patentee's arguments with respect to Jarvis in view of FSIS and Midura have already been addressed with respect to claims 1 and 17 under the Ground 1 Rejection.

Patentee does not address the specific rejection of dependent claim 21 as set forth in Ground 21. Accordingly, this rejection is not traversed and should be maintained.

Ground 22 of the Rejections (Response at pages 56 – 57)

The Examiner has rejected claim 21 as unpatentable over FSIS in combination with Price, Midura, and Cousin. The Examiner states it would have been prima facie obvious to have used the method disclosed by FSIS in view of Price and Midura to test

for a spoilage organism, such a psychrotoph, because Cousin teaches that such organisms are responsible for spoilage of refrigerated foods and can be detected by culture.

The Patentee asserts that is has already effectively rebutted FSIS in view of Price and Midura with respect to independent claims 1 and 17. The Patentee then asserts that Cousin does not cure these deficiencies. Requester believes the Patentee's arguments with respect to FSIS in view of Price and Midura have already been addressed with respect to claims 1 and 17 under the Ground 2 Rejection.

Patentee does not address the specific rejection of dependent claim 21 as set forth in Ground 22. Accordingly, this rejection is not traversed and should be maintained.

Ground 23 of the Rejections (Response at pages 57 – 58)

The Examiner has rejected claim 23 as unpatentable over Jarvis in view of FSIS, Midura, and Price. The Examiner states that it would have been prima facie obvious to have identified the target agent or organism from the composite sample in the method of Jarvis in view of FSIS and Midura using serological testing which is an immunochemical method as described by Price.

The Patentee asserts that he has already effectively rebutted Jarvis, in view of FSIS and Midura with respect to independent claims 1 and 17. The Patentee then asserts that Price does not cure these deficiencies. Requester believes the Patentee's arguments with respect to Jarvis in view of FSIS and Midura have already been addressed with respect to claims 1 and 17 under the Ground 1 Rejection.

Patentee does not address the specific rejection of dependent claim 23 as set forth in Ground 23. Accordingly, this rejection is not traversed and should be maintained.

Ground 24 of the Rejections (Response at pages 58 – 60)

The Examiner has rejected claims 24, 28, 32, and 33 as unpatentable over FSIS in combination with Price, Midura, and Gabis. The Examiner states it would have been prima facie obvious to have inoculated the test lot samples disclosed by FSIS in view of Price and Midura into individual broths containing a selective agent for *Salmonella* because Gabis taught that the individual enrichment broth culture may or may not contain a selective agent for the target organism. The Examiner also found that it would have been prima facie obvious to have tested pork and/or poultry because Gabis teaches that the method is suitable for such high moisture foods.

The Patentee asserts that is has already effectively rebutted FSIS in view of Price and Midura with respect to independent claims 1 and 17. The Patentee then asserts that Gabis does not cure these deficiencies. Requester believes the Patentee's arguments with respect to FSIS in view of Price and Midura have already been addressed with respect to claims 1 and 17 under the Ground 2 Rejection.

Patentee does not address the specific rejection of dependent claims 24, 28, 32, and 33 as set forth in Ground 24. Accordingly, this rejection is not traversed and should be maintained.

Ground 25 of the Rejections (Response at pages 60 – 61)

The Examiner has rejected claim 28 as unpatentable over Jarvis in view of FSIS, Midura, and Andrews. The Examiner states that it would have been prima facie obvious to have included a selective agent in the pre-enrichment broth cultures of Jarvis in view of FSIS and Midura, because Andrews teaches that the use of two or more selective media improves sensitivity.

The Patentee asserts that is has already effectively rebutted Jarvis, in view of FSIS and Midura with respect to independent claims 1 and 17. The Patentee then asserts that Andrews

does not cure these deficiencies. Requester believes the Patentee's arguments with respect to Jarvis in view of FSIS and Midura have already been addressed with respect to claims 1 and 17 under the Ground 1 Rejection. It should also be noted that the teachings of Andrews as set forth under the Ground 5 response further supports the idea that the pre-enrichment broth of Jarvis allows for organism growth to detectable levels.

Patentee does not address the specific rejection of dependent claim 28 as set forth in Ground 25. Accordingly this rejection is not traversed and should be maintained.

COMMENTS ON CLAIM AMENDMENTS

1. The Addition of "Inter-Lot Pooling" Does Not Change the Scope of the Original Claims

The Patentee amends claims 1 and 17 to reflect that their methods comprise inter-lot pooling of cultures. Patentee argues that all other prior art methods comprise intra-lot pooling of a statistically insufficient number of samples. The addition of the limitation of inter-lot pooling does nothing to obviate the Examiner's rejections. The claims already required collecting samples for a plurality of test lots, separately incubating those test lot samples, and combining removed portions of enriched test lot samples. Therefore, the recitation of inter-lot pooling does not alter the scope of the claims. Indeed, the Patentee asserts that the "inter-lot" limitation is implicit in the claimed method, because lot validation is only possible if the pooled media are from different lots. Requester does not disagree, but points out that this assertion is equally applicable to the Jarvis and Price references. For example, as discussed above (*see* Comments to Ground 1), the Jarvis reference discloses statistical methods to validate individual lots for release if there is a positive test for the composited pre-enrichment media. For this disclosure to have meaning, Jarvis necessarily would have been understood as disclosing the use of composited media from different lots. Otherwise no individual lot could be released, and no purpose would be served in testing the individual pre-enrichment media samples. This same rationale applies to the interpretation of Price. Accordingly, Patentee's argument regarding implicit claim limitations actually supports Requester's interpretation that the Jarvis reference and Price references must not be limited to intra-lot samples.

To support the "inter-lot" claim limitation, Patentee relies on statements from the '584 patent such as "each test lot is separately sampled according to a statistical sampling plan." (Patentee's Resp. at 20). However, this is merely a restatement the combined teachings of Jarvis

and Midura references discussed below. Accordingly, the Patentee's attempt to distinguish the present invention from the prior art based on the inter-lot pooling amendment is unavailing.

2. The Limitation of a "Statistical Sampling Plan" Does Not Overcome the Examiner's Rejection.

The Patentee has introduced a limitation into Step A of claims 1 and 17 reciting that single-unit production lots should be sampled "according to a statistical sampling plan for a particular microbial agent or organism." Step (e) has also been amended to recite that validation should be "according to the statistical sampling plan." Patentee does not specifically direct to a passage in the specification of the '584 patent supporting this amendment. This limitation does not overcome the Examiner's rejection, because use of statistical sampling plans for the validation of food lots was well known in the art.

As addressed above (*see*, for example, Ground 1, §1), the Jarvis and Midura references both describe use of a statistical sampling plan to validate food lots. Accordingly, it would have been obvious to a person of ordinary skill in the art to have employed a statistically valid sampling plan in the testing of food lots for microbial contamination. Indeed, the principal thrust of Midura is to emphasize the importance of developing a valid sampling plan that will result in obtaining a representative sample. Therefore, Patentee's inclusion of this limitation does not overcome the Examiner's rejection of the claims as obvious.

While the claims have been amended to require a statistical sampling plan, it is noteworthy that the specification contains no teaching concerning the details required for such a plan. The absence of such details indicates that the Patentee recognizes that the design and implementation of such plans was well within the abilities of the ordinary skilled artisan. The Midura reference, for example, provides this guidance, and the specification of the '584 patent provides no relevant teachings beyond what was described by Midura.

3. Patentee's New Claims 34 and 35 Would Have Been Obvious

The Patentee has added new claims 34 and 35. Patentee states new claims 34 and 35 differ from claims 1 and 17 in that step (c) now recites the incubation step should be under conditions suitable to allow the target microbial agent or organism to increase in the respective one or more separate test lot samples. (Patentee's Resp. at 61-2). New claim 35 also has a preamble reciting lots of food that have been validated can be shipped into commerce.

The claim term "increase" is vague and ambiguous because it fails to specify (either quantitatively or functionally) the extent of increase. This addition to the claims does not alter their scope, inasmuch as the claims already specified that the incubation is conducted under conditions "suitable to allow levels of a target agent or microorganism….to reach detectable levels." This language was understood by a person of ordinary skill to mean that the target microorganism grows or increases. *see* Bailey Decl., ¶9d (describing the effects of pre-enrichment and enrichment). The methods described by the cited prior art references, i.e. Jarvis, Price, Andrews, etc., all permit the target microbial agents or organisms to increase.

The preamble for new claim 35 is not a claim limitation and does nothing more than recite an intended use of the claimed method. For these reasons, Requester asserts the arguments directed to the claims currently under reexamination are equally applicable to new claims 34 and 35

4. Patentee's New Claim 36 is Improperly Introduced

The Patentee has submitted new claim 36 which is a reintroduction of original claim 2. In response to a Restriction Requirement, the Patentee selected single-unit production lot. Patentee now attempts to circumvent the Restriction Requirement and reintroduce matter not within the subject matter of the Reexamination. Requester asserts this is improper and requests that claim 36 not be entered.

The subject matter of claim 36 encompasses, inter alia, "single-unit product lot comprising one or more operationally-linked product specimens." As such, the claim

encompasses the embodiments for testing "test lots" of original claims 1 and 17. (*see* '584 patent, col. 5, lines 20 et. seq. for definition of "test lot.") Accordingly, the Examiner's rejection of claims 1 and 17 would apply with equal force to new claim 36 if that claim were to be entered.

COMMENTS ON PATENTEE'S DECLARATIONS

The Patentee submits declarations of inventor, Mansour Samadpour, Ph.D. and his employee, Mohammad Koohmaraie, Ph.D. Neither of these declarations was discussed or even referenced in Patentee's response, and the manner in which they are intended to apply to the rejections, if at all, is not clear.

Dr. Koomaraie's declaration refers to alleged advantages of applying post-enrichment, inter-lot pooling to individual combo bins in the beef industry. He argues that doing so avoids the unnecessary disposal of uncontaminated combos that might occur if five combos were treated as a single test lot. These arguments do not overcome the strong obviousness case presented in the Office Action. The advantages to which Dr. Koomaraie refers are advantages that are inherent in the prior art upon which the Examiner has relied in rejecting the claims. Jarvis and Price, when read in combination with Midura, the FSIS protocol and other cited art provide efficiency of testing and labor savings. The wet-compositing and retesting steps taught by Jarvis and Price are the same as those set forth in the '584 patent claims and allow uncontaminated lots of product to be validated even in those instances in which the composited enrichment cultures test positive. The advantages identified by Dr. Koohmaraie were not unexpected, but instead are results that naturally flow from the practice of the prior art. Therefore, they are not relevant to the obviousness determination. *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1371 (Fed. Cir. 2007) ("[A]ny superior property must be unexpected to be considered as evidence of non-obviousness [citation omitted].").

Dr. Samadpour's declaration largely repeats (and incorporates by reference) the arguments presented in Patentee's response to the Office Action. Those arguments (e.g., appearing in paragraphs 8 and 9 of the declaration) have each been addressed in the foregoing Requester's comments and will not be repeated here.

In paragraphs 10 and 11, Dr. Samadpour argues that the claimed invention has been commercially successful. However, his declaration falls far short of establishing such success or a nexus between the alleged success and the invention as claimed. *See In re Paulsen*, 30 F.3d 1475, 1482 (Fed. Cir. 1994) ("It has not been shown that such evidence is relevant to a computer within the scope of these claims, i.e., that [the commercial success] is attributable to the inventions of these claims, rather than to extraneous factors such as advertising and marketing or to [unclaimed] features.") Dr. Samadpour has not shown that his company's products or services employ the method of the claims; he has not shown that the invention is commercially successful in relation to competing methods; he has not shown that the alleged success is attributable to the claimed method as opposed to advertising, marketing, price discounts, or unclaimed features. In short, commercial success has not been established, and even if it had been, a nexus between the success and the invention as claimed has not been proved. Moreover, even a showing of success could not overcome the strong case of obviousness that has been presented in the Office Action. *In re Inland Steel Co.*, 265 F.3d 1359, 1366 (Fed. Cir. 2001) ("[T]he proffered commercial success, even when combined with other objective indicia of non-obviousness, is insufficient to overcome the strong prima facie obviousness case.").

For these reasons, Patentee's declarations fail to overcome the outstanding rejections and should be given no weight.

Conclusion

In view of the above comments, it is respectfully requested that the rejection of claims 1-33 be maintained. It is also requested that the Examiner reject new claims 34 and 35 as obvious under the same rationale as that applied to claims 1-33. Further, Requester submits that introduction of new claim 36 is improper and that it should not be entered, but if it is entered that it be rejected for the reasons discussed above.

Date: August 25, 2010

Respectfully submitted,

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	95001294
Filing Date	2009-05-19
First Named Inventor	Samadpour
Art Unit	3991
Examiner Name	Brenda G. Brumback
Attorney Docket Number	2781-129

U.S.PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							☐

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NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Art Unit	3991
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	Attorney Docket Number	2781-129

	1	BERRI, Mustapha et al., "The detection of Coxiella burnetii from ovine genital swabs, milk and fecal samples by the use of a single touchdown polymerase chain reaction," Veterinary Microbiology, 72: 285-293 (2000)	☐

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	95001294
Filing Date	2009-05-19
First Named Inventor	Samadpour
Art Unit	3991
Examiner Name	Brenda G. Brumback
Attorney Docket Number	2781-129

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ None

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	S.C. Fig	Date (YYYY-MM-DD)	8/25/10
Name/Print	E. Anthony Figg	Registration Number	27195

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
95/001,294	04/05/2010	7534584	2781-128	1914

22504 7590 12/17/2010

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EXAMINER	
BRUMBACK, BRENDA G	
ART UNIT	PAPER NUMBER
3991	

MAIL DATE	DELIVERY MODE
12/17/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

ACTION CLOSING PROSECUTION (37 CFR 1.949)	Control No. 95/001,294	Patent Under Reexamination 7534584	
	Examiner BRENDA BRUMBACK	Art Unit 3991	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address. --

Responsive to the communication(s) filed by:
Patent Owner on 26 July 2010
Third Party(ies) on 25 August 2010

Patent owner may once file a submission under 37 CFR 1.951(a) within 1 month(s) from the mailing date of this Office action. Where a submission is filed, third party requester may file responsive comments under 37 CFR 1.951(b) within 30-days (not extendable- 35 U.S.C. § 314(b)(2)) from the date of service of the initial submission on the requester. **Appeal cannot be taken from this action.** Appeal can only be taken from a Right of Appeal Notice under 37 CFR 1.953.

All correspondence relating to this inter partes reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of this Office action.

PART I. THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☐ Notice of References Cited by Examiner, PTO-892
2. ☒ Information Disclosure Citation, PTO/SB/08
3. ☐ _____

PART II. SUMMARY OF ACTION:

1a. ☒ Claims 1-36 are subject to reexamination.
1b. ☐ Claims _____ are not subject to reexamination.
2. ☐ Claims _____ have been canceled.
3. ☐ Claims _____ are confirmed. [Unamended patent claims]
4. ☐ Claims _____ are patentable. [Amended or new claims]
5. ☒ Claims 1-36 are rejected.
6. ☐ Claims _____ are objected to.
7. ☐ The drawings filed on _____ ☐ are acceptable ☐ are not acceptable.
8 ☐ The drawing correction request filed on _____ is: ☐ approved. ☐ disapproved.
9 ☐ Acknowledgment is made of the claim for priority under 35 U.S.C. 119 (a)-(d). The certified copy has:
☐ been received. ☐ not been received. ☐ been filed in Application/Control No _____
10. ☐ Other _____

DETAILED ACTION: Inter Parte Reexamination

Action Closing Prosecution

This is the Action Closing Prosecution (ACP) in *inter partes* reexamination proceeding 95/001,294 of U.S. Patent 7,534,584 to Samadpour.

Procedural Posture

A corrected Request pursuant to 37 CFR 1.913 for *inter partes* reexamination of claims 1-33 of U.S. Patent 7,534,584 was filed 04/05/10 with a Declaration by J. Stan Bailey, Ph.D.

An Order granting *inter partes* reexamination of claims 1-33 of U.S. Patent 7,534,584 was mailed 05/26/10.

A non-final Office Action rejecting claims 1-33 of U.S. Patent 7,534,584 was mailed together with the Order granting *inter partes* reexamination on 05/26/10. 37 CFR 1.935.

A Patent Owner's Response was filed 07/26/10. Included in the response were declarations by Mansour Samadpour, Ph.D. and Mohammad Koohmaraie, Ph.D., as well as an amendment amending claims 1 and 17 and adding new claims 34-36.

Comments by Third Party Requester were filed 08/25/10.

This ACP is based on Patent Owner's Amendment and Comments filed 07/26/10 with the Samadpour and Koohmaraie Declarations, the Requester's Response filed 08/25/10, and the Bailey Declaration filed 04/05/10, which is referenced in Requester's comments.

Patentee's Amendment

The amendment filed 07/26/10 fails to comply with 37 CFR 1.530 (f) because it was not made relative to the text of the issued claims, as is required in *inter partes* reexamination proceedings. Specifically, newly added claims 34-36 were not underlined in their entirety. Additionally, in step e) of claims 1 and 17 (line 17 of claim 1 and line 19 of claim 17), the term "modular" appears in the amended claims prior to inter-lot and is not underlined. Since the term was absent in the original claims, correction in the form of underlining is required.

In order to prevent any further delay of the reexamination proceeding and to ensure that it is conducted with special dispatch, the Office has *sua sponte* waived the requirements of 37 CFR 1.530(f) to the extent that the improper amendment of 07/26/10 is *provisionally* accepted *for examination purposes*. **Applicant is required to file a corrected amendment in response to this office action**. MPEP 2250.

Status of Claims

Amended claims 1 and 17, original claims 2-16 and 18-33, and newly added claims 34-36 are present and subject to reexamination.

Documents Cited

1. DAVIES *et al.*, *Evaluation of the use of pooled serum, pooled muscle tissue fluid (meat juice) and pooled faeces for monitoring pig herds for Salmonella*, J. Appl. Microbiol., 95:1016-25 (2003) (Exhibit 2, hereinafter, "**Davies**").

2, MIDURA, *et al.*, *Sampling Plans, Sample Collection, Shipment and Preparation for Analysis,* Chapter 2, pp.13-23, in Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., *Eds.* Downes and Ito, American Public Health Association (2001) (Exhibit 3, referenced in the Request as "Compendium Chapter 2" and hereinafter as "**Midura**").

3. MENG, *et al.*, *Pathogenic Escherichia coli*, Chapter 35, pp.331-341, in Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., *Eds.* Downes and Ito, American Public Health Association (2001) (Exhibit 4, referenced in the Request as "Compendium Chapter 35" and hereinafter as "**Meng**").

4. ANDREWS, *et al.*, *Salmonella*, Chapter 37, pp. 357-380, in Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., *Eds.* Downes and Ito, American Public Health Association (2001) (Exhibit 5, referenced in the Request as "Compendium Chapter 37" and hereinafter as "**Andrews**").

5. US Dept of Agriculture, FSIS Directive, *Microbial Testing Program and Other Verification Activities for Echerichia coli0157:H7 In Raw Ground Beef Products and Raw Ground Beef Components and Beef Patty Components*, 10.010.1, Revision 1, (3/13/2004), pp. 1-28 (Exhibit 6, hereinafter, "**FSIS**").

6. SILLIKER, *et al.*, "ICMSF Methods Studies. I. Comparison of analytical schemes for detection ofSalmonella in dried foods," Can. J. Microbiol. 19:475-479 (1973) (Exhibit 7, hereinafter, "**Silliker**").

7. PRICE, *et al., Salmonella Testing of Pooled Pre-Enrichment Broth Cultures for Screening Multiple Food Samples*, Appl. Microbiol. 23:679 (1972) (Exhibit 8, hereinafter, "**Price**").

8. GABIS, *et al., ICMSF Methods Studies. II. Comparison of analytical schemes for detection ofSalmonella in high-moisture foods*," Can. J. Microbiol. 20:663-669 (1974) (Exhibit 9, hereinafter "**Gabis**").

9. ICMSF (The International Committee on Microbiological Specifications for Foods), *Indicator microorganisms* , pp. 1-11; *Important considerations for the analyst*, pp. 91-102; *Preparation and dilution of the food homogenate*, pp. 107-111; *Enumeration of mesophilic aerobes: the agar plate methods*, pp. 113-123; *Coliform bacteria*, pp. 125-139; *Enterobacteriaceae*, pp. 141-143; *The enterococci*, pp. 144-147; *Hemolytic streptococci,* pp. 149-155; *The enumeration of yeasts and molds*, pp. 157-159; and *Salmonellae*, pp. 160-172, in Microorganisms in Foods, Their Significance and Methods of Enumeration, Second Edition, University of Toronto Press (1978) (Exhibit 10, hereinafter "**ICMSF**").

10. BAM (Bacteriological Analytical Manual), *Food Sampling/Preparation of Sample Homogenate*, Chapter 1, pp. 1-11, US FDA, (April 2003) (Exhibit 11, hereinafter, "**BAM**").

11. JARVIS, B., *Errors Associated with Dilution Count and Presence/Absence Methods*, Chapter 8, pp. 117-142, in Statistical Aspects of the Microbiological Analysis of Foods. Progress in Industrial Microbiology, Vol. 21, Elsevier (1989) (Exhibit 13, hereinafter, "**Jarvis**").

12. ENTIS, *et al., Rapid Methods for Detection, Identification, and Enumeration*, Chapter 10, pp. 89-126 in Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., *Eds*. Downes and Ito, American Public Health Association (2001) (Exhibit 15, referenced in the Request as "Compendium, Chapter 10" and hereinafter as "**Entis**").

13. COUSIN, *et al., Psychrotrophic Microorganisms*, , Chapter 13, pp. 159-166, in Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., *Eds*. Downes and Ito, American Public Health Association (2001) (Exhibit 16, referenced in the Request as "Compendium Chapter 13", and hereinafter as "**Cousin**").

14. U.S. Patent 6,080,437, issued 06/27/2000 to Mauer (Exhibit 14, hereinafter, "**Mauer**").

Scope of claims

In reexamination, patent claims are construed broadly. In re Yamamoto, 740 F.2d 1569, 1571,222 USPQ 934, 936 (Fed. Cir. 1984) (claims given "their broadest reasonable interpretation consistent with the specification"). The 7,534,584 patent consists of claims 1-33, drawn to methods of sampling, testing and validating test lots for microbial contamination.

Claims 1 and 17, as amended, are representative.

1. A method of sampling, testing and validating test lots for microbial contamination, comprising:

a) collecting a plurality of portions from each of a plurality of test lots, the test lots each comprising an assemblage of one or more specimens, wherein each test lot is separately sampled, according to a statistical sampling plan for a particular microbial agent or organism, by taking said plurality of portions thereof;

b) combining the collected plurality of portions corresponding to each of the separate test lots to provide a corresponding set of separate test lot samples, wherein each separate test lot sample is attributed to a particular corresponding separate test lot;

c) incubating the set of separate test lot samples under conditions suitable to allow levels of a target microbial agent or organism that is present in one or more of the separate test lot samples to reach detectable levels and become uniform, or substantially uniform, throughout the respective one or more separate test lot samples, to provide a set of separate test lot samples enriched for the target microbial agent or organism;

d) removing portions of each enriched separate test lot sample, and combining the removed portions to provide a modular inter-lot composite sample; and

e) testing of the modular inter-lot composite sample, using a suitable detection assay, for the target microbial agent or organism, wherein when such testing is negative all of said separate test lot samples are validated, and wherein when such testing is positive, individual separate test lots are validated, according to the statistical sampling plan, by further testing of a portion of the respective enriched separate test lot sample using the same or a more sensitive protocol and
obtaining test result for each test lot.

17. A method of sampling, testing and validating test lots for microbial contamination, comprising:

a) collecting a plurality of portions from each of a plurality of single-unit production lots, the single-unit production lots each comprising an assemblage of one or more production specimens, wherein each single-unit production lot is separately sampled, according to a statistical samling plan for a particular microbial agent or organism, by taking said plurality of portions thereof;

b) combining the collected plurality of product portions corresponding to each of the separate single-unit production lots to provide a corresponding set of separate single-unit production lot samples, wherein each separate single-unit production lot sample is attributed to a particular corresponding separate single-unit production lot;

c) incubating the set of separate single-unit production lot samples under conditions suitable to allow levels of a target microbial agent or organism that is present in one or more of the separate single-unit production lot samples to reach detectable levels and become uniform, or substantially uniform, throughout the respective one or more separate single-unit production lot samples, to provide a set of separate single-unit production lot samples enriched for the target microbial agent or organism;

d) removing portions of each enriched separate single-unit production lot sample, and combining the removed portions to provide a modular inter-lot composite sample; and

e) testing of the modular inter-lot composite sample, using a suitable detection assay, for the target microbial agent or organism, wherein when such testing is negative all of said separate single-unit production lot samples are validated, and wherein when such testing is positive, individual separate single-unit production lots are validated by further testing of a portion of the respective enriched separate single-unit production lot sample using the same or a more sensitive protocol and obtaining test result for each single-unit production lot.

The following selected claim terms are defined as follows in the '584 patent disclosure:

Test lot or reportable lot: an assemblage of one or more specimens of an operationally linked medium or process (column 5, lines 21-32).

Product portion: piece, aliquot or weight of a product (column 5, lines 38-49).

Test lot sample (or single-unit production lot sample or single production unit lot sample): a sample formed by combining multiple product portions from a test lot (column 5, line 57, through column 6, line 6).

Enrichment: incubating a test lot sample under conditions suitable to allow levels of a target agent or organism to reach detectable levels (see column 6, lines 7-16).

Enrichment medium: mixture which contains nutrients and which has properties (*e.g.*, pH and/or oxygen content) which favor the growth of the target agent/organism (column 6, lines 17-35).

Modular composite sample: a larger sample formed from combining equal portions of a plurality of enriched single-unit production lot samples (column 6, lines 57-61).

Validation: determining that a particular sample tests negative using a detection assay (column 7, lines 1-10). When a modular composite sample tests negative, all single unit production lot samples are validated.

Summary of Proposed Grounds of Rejection Under 35 U.S.C. 103(a)

Grnd #	Reference(s)	Adopted/not adopted/withdrawn
1	Jarvis/FSIS, Midura	Adopted in part/withdrawn in part
2	FSIS/Price, Midura	Adopted in part/withdrawn in part
3	Jarvis/P.O. Admissions	Adopted
4	P.O.Admissions/Price	Not adopted
5	Andrews/Price, Midura	Adopted
6	Silliker/Price, Midura	Adopted
7	Gabis/Price, Midura	Adopted
8	Jarvis/BAM	Adopted
9	Price/BAM, Davies	Adopted
10	FSIS/Midura, P.O. Admissions	Not adopted
11	Jarvis/FSIS, Midura, BAM	Not adopted
12	FSIS/Price, Midura, P.O. Admissions	Not adopted

13	FSIS/Price, Midura, BAM	Not adopted
14	Jarvis/FSIS, Midura, Entis	Adopted
15	FSIS/Price, Midura, Entis	Adopted
16	Jarvis/FSIS, Midura, Mauer	Not adopted
17	FSIS/Midura, Mauer, BAM	Not adopted
18	Jarvis/FSIS, Midura, Silliker	Not adopted
19	FSIS/Price, Midura, Silliker	Not adopted
20	FSIS/Price, Midura, Jarvis, Silliker	Not adopted
21	Jarvis/FSIS, Midura, Cousin	Adopted
22	FSIS/Price, Midura, Cousin	Adopted
23	Jarvis/FSIS, Midura, Price	Adopted
24	FSIS/Price, Midura, Gabis	Adopted in part/withdrawn in part
25	Jarvis/FSIS, Midura, Andrews	Withdrawn
26	Jarvis/FSIS, Midura, BAM, ICMSF	Not adopted

Rejections, 35 U.S.C 103

Ground #1:

The rejection of claims 1-4, 8, 10, 11, 13, 17-19, 22, 24, 26, 27, and 31 as unpatentable over Jarvis in view of FSIS and Midura (see SNQ #s 1, 10, 16, 18, 24, 27, 29, 33, 47, 49, 56, 61, 66, 68, and 75 at pages 28-34, 54-55, 57-59, 64-65, 67-69, 70-71, 74, 82, 83, 87-88, 91, 94-95, and 100 respectively of the Request) is maintained for claims 1-3, 8, 10, 11, 13, 17-19, 22, 24, 26, 27, and 31 and is applied to newly added claims 34-36. The rejection **is withdrawn** for claim 4.

This rejection was proposed by the third party requester and **adopted** for the reasons stated in the request and for those reasons set forth in the office action mailed 05/26/10. The proposed rejections at pages 28-34, 54-55, 57-59, 64-65, 67-69, 70-71, 74, 82, 83, 87-88, 91, 94-95, and 100 of the request and the claim charts at pages 106-114, 117, 119-121, 123, 125, and 126 are herein incorporated by reference. In addition, claims 12, 14, 15, 16, 20, 25, 32, and 34-36 are added to the proposed ground of rejection as unpatentable over Jarvis in view of FSIS and Midura for the reasons outlined below. The rejection, which has been modified to address the application to the newly added claims and the withdrawal for claim 4, is as follows.

Claims 1-3, 8, 10-20, 22, 24-27, 31, 32, and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jarvis in view of FSIS and Midura.

Regarding ***claims 1, 17, 34, and 35***, Jarvis discloses methods of sampling and testing foods for low numbers of pathogenic organisms using composite samples for testing (page 135, section 8.4, first paragraph). Jarvis teaches that testing composite samples reduces the workload on the laboratory (page 141, section 8.4.2.1). The methods described by Jarvis (methods 2 and 3) comprise collecting a plurality (10) of product samples or portions (25g size); either inoculating the samples separately into one each of a pre-enrichment medium or broth to give test lot samples, each comprising a single specimen (method 2), or alternatively, pooling a plurality (about 5) of specimens and inoculating the pooled specimens into a pre-enrichment culture medium or broth (method 3); incubating the pre-enrichment broth cultures to allow for growth of the target organisms; compositing aliquots of the pre-enrichment cultures and inoculating the composite into a second enrichment culture, incubating the composite enrichment culture, and subsequently testing for the pathogenic organism. Jarvis teaches that methods 1 and 2 both provide the same degree of statistical confidence as would be attained by separately testing each of the 10 samples (see page 141 in its entirety). Jarvis teaches that composite testing method 2 has the advantage of allowing for verification of positive samples by retesting of the stored individual pre-enrichment cultures to provide an indication of the proportion of contaminated samples (see the paragraph bridging pages 141 and 142). Regarding ***claim 2***, since Jarvis teaches analysis of foods for low numbers of pathogenic organisms by collecting samples from the food, the test lot would necessarily be composed of operationally-linked product specimens (page 135, section 8.4, first paragraph). With respect to ***claim 3***, Jarvis teaches incubating a modular composite sample in enrichment broth prior to testing for pathogenic organisms, *e.g.*, salmonellae (page 135, section 8.4, first paragraph, and pages 141-142, section 8.4.2.1). In reference to ***claims 11 and 13***, Jarvis teaches a test lot of 10 samples, which falls within the claimed range of 3 to 10. Regarding ***claim 19***, Jarvis teaches testing for *Salmonella* (page 135, section 8.4, first paragraph). With respect to ***claims 18, 22 and 31***, Jarvis teaches aseptically removing and combining equal portions of each of the pre-enriched separate test lot cultures (10 x 1 ml, see page 141, section 8.4.2.1, method 2). As for ***claims 27 and 36***, the food

samples described by Jarvis would be understood by one of skill in the art to be synonymous with product portions or product specimens.

Jarvis defines the medium used for incubation of the individual test lot samples as a "pre-enrichment" medium, while the instant claims do not specify the incubation medium. The instant claims either recite incubating the test lot samples under conditions suitable to allow levels of a target microbial agent to reach detectable levels and become uniform or substantially uniform throughout the test lot samples in order to provide a set of separate test lot samples enriched for the target microbial agent or organism (***claims 1 and 17***) or they simply recite incubating the set of separate test lot samples under conditions suitable to allow levels of a target microbial agent or organism to increase in the test lot samples to provide a set of separate incubated test lot samples (***claims 34 and 35***). As was set forth *supra*, the '584 patent specification defines "enrichment" as incubating a test lot sample under conditions suitable to allow levels of a target agent or organism to reach detectable levels (see column 6, lines 7-16). Since the pre-enrichment medium disclosed by Jarvis is designed to recover target organisms which have been compromised by less than optimal growth conditions and render them "actively growing" (see Price, of record, page 681, second full paragraph), the method disclosed by Jarvis provides a set of separate test lot samples wherein the levels of target organisms are increased to detectable levels, thus meeting the limitations of the instant claims.

The method described by Jarvis differs from the claimed method in that Jarvis does not teach repeat testing of negative samples, as in patented ***claim 8***; does not specify that the test lot samples are collected from a single combo, bin, pallet or production assemblage, as in patented ***claim 10***; does not specify testing for *E. coli* 0157:H7 (among others), as in ***claims 19 and 20***, and does not specify the food to be tested, as in patented ***claims 24-26***.

Regarding ***claim 20***, FSIS discloses methods of sampling ground beef or poultry for *E. coli* O157:H7 contamination, comprising aseptically collecting a plurality of pieces or samples and combining the pieces for a representative sample of a production lot from the current day's production (a production assemblage, see pages 4 and 27-28 in their entirety), thus meeting the limitations of patented ***claims 10, 19, 20, 24, and 26***. Regarding ***claims 8 and 12***, FSIS teaches follow-up sampling upon identification of contaminated lots and corrective or remedial measures (see the paragraph bridging pages 8-9). With respect to ***claims 32 and 36***, FSIS teaches that

manufacturing trimmings (e.g., pieces of meat remaining after steaks, roasts, and other intact cuts are removed) may be processed for a food product (page 2, second paragraph).

Midura discloses methods for sampling and testing foods for microbial contamination. Midura teaches collecting a plurality of samples from a food lot produced in one batch or in some specified period of time, as in patented ***claim 10*** (with fish, meats, and shell fish exemplified, as in patented ***claims 24 and 25***); pooling the samples to obtain a pooled or composite sample; and testing the composite sample for the presence of microbial contaminants, with coliforms and *Salmonella* exemplified. Regarding ***claim 8***, Midura teaches subsequent testing of a second sample depending on the results of the first sample as multiple sampling attribute plans (two or three class) (see pages 17-20). Midura also teaches that when products with a low incidence of the target pathogen are tested, additional samples need to be collected and tested to ensure a high probability of detecting the pathogen if present (see page 19, the paragraph bridging columns 1 and 2). With respect to ***claims 14-16***, Midura exemplifies collecting 30 or 60 samples or portions (see page 16, Fig. 1, page 17, column 1, first full paragraph; page 19, column 2, last full paragraph; and page 20, column 1, first full paragraph).

It would have been *prima facie* obvious for one of ordinary skill in the art at the time of the invention to have sampled, tested, and validated food lots by collecting portions or samples from a particular food lot, to have combined one or more portions into a test lot for recovery of a target agent or organism, to have incubated the test lots separately, and to then have combined the enriched test lots for testing because Jarvis teaches that testing composite samples has the same degree of sensitivity as individual sample testing, while reducing workload, and also teaches that initial incubation of the food portions or samples in separate broth cultures allows for follow-up testing of individual test lots if the composite enriched sample tests positive for the target pathogen. The person of ordinary skill in the art at the time of the invention would also have found it *prima facie* obvious to have taken the samples from a test lot operationally linked, *e.g.*, by time of production, as is taught by FSIS, in order to pinpoint the contamination to a particular lot of food. Lastly, the person of ordinary skill in the art at the time of the invention would have found it *prima facie* obvious to have subsequently followed up with additional testing when composites test negative because both FSIS and Midura contemplate additional testing of test lots depending on the initial testing results and Midura teaches that testing

production lots of product with low numbers of the target pathogen requires collecting and testing additional samples.

Response to Patent Owner's arguments:

Patent Owner's arguments regarding Ground 1 have been fully considered as they pertain to claims 1-3, 8, 10-20, 22, 24-27, 31, 32, and 34-36 but are not persuasive for the following reasons:

Patent owner argues (pages 12-14 of the Comments filed 07/26/10) that Jarvis does not disclose pre-enrichment medium "as a medium that favors the growth of the target organism in a way that meets the limitations of the patent claims" because of the art-recognized distinction between "pre-enrichment" and "enrichment" media. Patent owner, however, is arguing features which are not limitations of the instant claims. The claims do not recite an "enrichment medium" and do not require that the medium favor the growth of or be selective for the target agent. Rather, the claims recite incubating the test lot samples under conditions suitable for the target agent to increase and/or to reach detectable levels. As is taught in Price (of record, see page 681, column 1, second full paragraph), the pre-enrichment medium in the individual test lot sample cultures disclosed by Jarvis provides conditions which facilitate recovery of the target agent (e.g., *Salmonella*) from a debilitated condition and which enable the organism to actively grow, *i.e.,* to increase in numbers (see also Andrews, of record, page 360, section 37.123). Such recovery and growth subsequently renders the organisms detectable, *e.g.*, by a DNA-based method such as PCR. Those of ordinary skill in the art at the time of the invention would have readily recognized that sensitive diagnostic methods, such as PCR, are capable of detecting the target agent in a sample medium at levels as low as a single organism (see for example, Entis, of record, at page 93 and 94-95). Thus, the organisms in the pre-enrichment cultures taught by Jarvis are increased in numbers over those found in the specimens and have reached detectable levels. The pre-enrichment broth cultures of Jarvis, therefore, fully meet the limitations set forth in the instant claims.

Patent owner argues (pages 13-14) that the meaning and use of an enrichment medium in the instant claims is consistent with the art recognized meaning. The art-recognized meaning of "enrichment medium" is a medium that preferentially selects for the target pathogenic organism,

while discouraging growth of competing undesired organisms. The examiner agrees that the definition of enrichment medium which is set forth in the '584 specification at column 6, lines 17-35 is consistent with the art recognized definition. However, instant claims 1 and 17 do not recite an "enrichment medium", but more broadly recite "conditions suitable to allow levels of the target microbial agent or organism ... to reach detectable levels ... to provide test lot samples enriched for the target agent". As was set forth *supra*, the '584 patent specification defines "enrichment" as "conditions suitable to allow levels of a target agent or organism to reach detectable levels" (see column 6, lines 7-16). There is no requirement for differential selection of the target agent over competing organisms within the definition of "enrichment" that is set forth in the specification. Therefore, the pre-enrichment medium of Jarvis meets the limitations of the claims.

Patent owner argues (pages 14-15) that Jarvis and other prior art statistical sampling/ testing methods involve sampling of a single lot and subsequent intra-lot sample pooling where the number of samples lumped in each pre-enrichment culture is insufficient to validate/certify the lot for release. Patent owner further argues that the patented method comprises inter-lot pooling of enriched cultures, each inoculated with a statistically sufficient number of samples to satisfy lot validation criteria. Patent owner, however, is once again arguing features which are not part of the claims. Patented claims 1 and 17 do not require a statistically sufficient number of samples. Rather, the patent claims recite collecting a plurality of portions from a plurality of test lots comprising one or more specimens, *i.e.*, they encompass collecting as few as two (a plurality) portions from two (a plurality of) test lots, each test lot comprising as little as a single specimen. Jarvis teaches collecting from 1 to 100 samples (see Table 8.9 at page 138) and exemplifies collecting 10 samples (page 141). Each of the individual samples disclosed by Jarvis meets the claimed limitation of a test lot comprising one or more specimens. Furthermore, the '584 specification defines "validation" as determining that a particular sample tests negative using a detection assay (column 7, lines 1-10). There is no disclosure in the '584 patent specification of any particular number of samples required for validation to occur. There is no disclosure regarding what number is a statistically significant number of samples. Regarding intra-lot vs. inter-lot sampling, the '584 patent specification fails to set forth any demarcation of a "lot" that renders the claimed methods distinct from the method disclosed by Jarvis in view of

FSIS and Midura. Indeed, it would appear that the terms "inter-lot" and "intra-lot" are arbitrary designations based on how one defines a "lot". The instant claims recite a test lot as an assemblage of "one or more" specimens; therefore, a single specimen falls within the definition of a "lot", as is recited in the patented claims.

Patent owner's arguments (pages 16-17) directed to experimental results, assay sensitivity, sample dilution, and introduction of competitive organisms are noted; however, they do not appear to be germane to the present grounds of rejection because the claimed methods do not contain limitations directed to assay sensitivity, sample dilution, or introduction of competitive organisms. Regarding the argument that Jarvis does not provide the same degree of real world reliability of negative results, Patent owner is once again reminded that the instant claims do not recite any statistical parameters for collection of samples or for validation of negative results. The '584 patent specification does not disclose any particular sample numbers required to achieve statistical reliability. Nevertheless, Jarvis is directed to the microbiological analysis of foods, which is a real world application. Furthermore, Patent owner is arguing against the Jarvis reference individually, where the rejection is based on the combination of Jarvis with FSIS and Midura. FSIS is a directive for microbiological testing from the United States Department of Agriculture, and as such is directed to a real-world application. Likewise, Midura is directed to microbiological testing of food, which is also a real world application.

Regarding the argument (pages 17-18) that the prior art generally teaches away from combining both lumping and pooling in a sampling and testing scheme, as in the instant claims, Patent owner is once again reminded that the test lot of the instant claims consists of as little as two portions of a single sample, and so encompasses test lots of as little as one or two samples "lumped" together. Even so, Jarvis directly exemplifies combining lumping and pooling in a sampling and testing scheme as option 3 (page 141), wherein 5 samples are composited into a pre-enrichment broth and subsequently, two composited pre-enrichment broths are pooled and inoculated into the enrichment medium. Jarvis teaches that the combination provides the same degree of statistical confidence as is attained by testing the samples separately.

Patent owner's argument (pages 19-20) that the patented methods comprise inter-lot pooling or enriched cultures each inoculated with a number of samples sufficient to provide for statistical validation according to the demands of a Lot validation plan, in contrast to Jarvis,

which comprises intra-lot pooling of pre-enrichment samples each inoculated with a statistically insufficient number of samples has been addressed *supra*. To reiterate, the methods of the '584 patent claims require pooling of enriched cultures taken from a plurality of test lots consisting of as little as a single specimen (see for example, claim 1, lines 3-4). Jarvis exemplifies inoculating pre-enrichment broths, one per individual sample (option 2, page 141) or one per 5 samples lumped together (option 3, page 141). Neither the patented claims nor the '584 patent specification discloses validation in statistical terms and neither recites or discloses a number of samples required to meet statistical validation. Lastly, Patent owner's claims do not recite or require incubation in an "enrichment broth", which is understood by those of ordinary skill in the art and defined in the '584 patent specification as a medium which is selective for the target agent or organism. Rather, the claims merely require incubation under conditions suitable to allow levels of the target microbial agent to increase and/or reach detectable levels (see, for example patent claims 1, lines 10-12, and new claim 34, lines 10-12). The pre-enrichment broth described by Jarvis fully meets this limitation.

With regard to Patent owner's argument (page 20) that the claims, as presently amended, require sampling according to a statistical sampling plan, pointing to the '584 patent specification at columns 5 and 6, it is noted that the disclosure of such which is found therein does not provide any specific number of samples required for such a statistical sampling plan or for validation of negative lots. In fact, at column 5, line 63, through column 6, line 1, the '584 specification states,

> For production lot samples, the number of potions [sic]/pieces combined many [sic] be **essentially any number**, but preferably is selected so as to conform to statistical-based sampling plans. Preferably, the number of pieces combined is selected from the range group consisting of from about 5 to about 100... (emphasis added).

As has been set forth herein, Jarvis exemplifies combining 5 samples (option 3). This number falls within the numbers set forth in the '584 specification as exemplary of the number of pieces to be sampled in a statistical sampling plan. Even more importantly, Jarvis is directed to statistical microbiological analysis of foods in general (see the title and document in its entirety) and thus teaches sampling plans for statistical validation. The testing protocols disclosed by Jarvis at pages 141-142 are by way of example only; they in no way teach away from larger

sampling numbers. In fact, the entire Jarvis reference is directed to improving testing accuracy and confidence levels in direct proportion to the numbers of samples or cultures tested. See pages 135-141 and especially Table 8.9, wherein the number of samples to be tested is evaluated for 1 to 100 samples, with the corresponding estimated percentage of defectives at each level listed. It is clear from the data presented therein that the percentage of defectives is inversely proportional to the number of samples tested, *i.e.,* the higher the number of samples tested, the greater the statistical confidence level in the accuracy of negative results. The range of samples disclosed by Jarvis in Table 8.9 squarely encompasses the range disclosed in the '584 specification for the number of samples to be tested.

The arguments at pages 21-22, which are directed to sub-domains of the overall testing space and later vindication of the sub-domains for the purpose of allowing portions of the carload of beef to be cleared for release, are noted; however, their relevance to the rejection of the present claims is not readily apparent. They do not appear to be on point because the claims do not recite such limitations. Patent owner also makes statements regarding the testing in Jarvis as not for the purpose of allowing portions of the carload to be released, but merely as allowing for additional tests, "...so that some indication of the proportion of contaminated samples can be obtained". To the extent that these statements are understood to relate to the limitations of the patented claims, the argument is not persuasive. The totality of Jarvis is directed to testing food samples for microbial contamination. Common sense dictates that this testing is performed to ensure food safety before the food is released for consumption. This is the logical and readily apparent reason to test food for microbial contamination.

At page 22, Patent owner argues in summary that the patented claims are more than a predictable use of prior art elements according to their established functions. As has been set forth herein, all of the elements of the patent claims are taught in the prior art and they are taught for the same established functions as in the '584 patent claims. For this reason and for the reasons set forth herein, Patent owner's arguments are not persuasive. The rejection is maintained for claims 1-3, 8, 10-20, 22, 24-27, 31, 32, and 34-36.

The rejection of claim 4 as being unpatentable over Jarvis in view of FSIS and Midura is withdrawn pursuant to Patent Owner's arguments, which were persuasive with regard to claim 4.

Claim 4, which depends from claim 1, further recites , "...wherein incubating each separate test lot sample in c) comprises incubating each separate test lot sample with enrichment medium suitable to enrich for the target microbial agent or organism..." As was set forth *supra*, the '584 patent specification defines "enrichment medium" as a "mixture which contains nutrients and which has properties (*e.g.*, pH and/or oxygen content) which favor the growth of the target agent/organism. The '584 patent specification further describes "enrichment medium" as "...formulated to mimic the environment of the target agent/organism or take advantage of a known metabolic property of the target agent/organism" and as including "selective agents that will inhibit competing undesired agents/organisms" (column 6, lines 17-35). Therefore, the enrichment medium of patent claim 4 is understood to be a selective enrichment medium, which preferentially favors the growth of the target organism over other organisms in the sample. While Jarvis teaches that "In the analysis of foods for low numbers of pathogenic organisms (*e.g.*, salmonellae), it is normal to inoculate one or more samples into a suitable selective or enrichment medium prior to streaking on to a diagnostic medium to determine whether or not the specific organism sought is present" (page 135, second from last full paragraph), Jarvis does not teach or fairly suggest incubating test lot samples individually in selective enrichment broth and pooling the sample broth cultures for subsequent testing. While the individual pre-enrichment broth cultures of Jarvis do allow levels of the target agent or organism to increase and to reach detectable levels by rendering them actively growing, they do not selectively favor the growth of the target organism over other competing organisms in the sample.

Response to Third Party Requester's arguments:

Requester's arguments regarding pre-enrichment and enrichment media will be addressed to the extent that they relate to withdrawal of the rejection of claim 4 as unpatentable over Jarvis in view of FSIS and Midura. These arguments have been fully considered but are not persuasive for the following reasons.

Requester argues (pages 2-3) that persons of ordinary skill were well aware of direct enrichment techniques and would have been motivated to substitute them for pre-enrichment if the latter presented problems. Jarvis, FSIS, and Midura, however, lack the motivation to substitute direct enrichment for pre-enrichment. Jarvis teaches inoculation of dry food sampled into pre-enrichment cultures, incubation of the pre-enrichment cultures, and pooling of pre-enrichment cultures into enrichment broth for further incubation and testing (see pages 140 and 141). There is no motivation found in any of Jarvis, FSIS, or Midura to eliminate the pre-enrichment stage and directly inoculate the dry food samples into individual selective enrichment broth cultures for subsequent pooling and testing.

Requester argues at page 3 that pre-enrichment, followed by selective enrichment (as disclosed by Jarvis and Price), fully meets the requirements of the claims, which do not require a single-step enrichment/testing procedure. Claim 4, however, does require inoculating and incubating each of the test lot samples in an individual enrichment medium culture and subsequently removing a portion of the medium from each of the cultures for pooling to provide a composite sample for testing. None of Jarvis, FSIS or Midura teaches direct inoculation of the test lot samples into individual selective enrichment broths followed by pooling of aliquots of the broths to provide a composite sample for testing. While it is agreed that claim 4 is drawn to a method comprising the recited steps and allowing for additional steps, the samples to be tested must be inoculated into separate enrichment broth cultures before pooling and testing, in order to meet the limitations of the claimed method. Jarvis teaches pooling aliquots from individual pre-enrichment broth cultures into a single enrichment broth. The pre-enrichment medium of Jarvis does not meet the limitation of an enrichment medium, which is defined by the '584 patent specification and understood by those of ordinary skill in the art to be a medium which selectively favors the growth of the target organism over other competing organisms present in the test specimen. Jarvis does not teach or fairly suggest inoculation of separate individual selective enrichment broth cultures.

Price (Grounds 2, 5, 6, 7, 9, 22, and 23 *infra*) also teaches inoculation of individual pre-enrichment broth cultures followed by pooling of aliquots into a single enrichment broth culture for subsequent testing (see the abstract). Price does not teach or fairly suggest inoculation of the

samples into individual selective enrichment broth cultures prior to pooling and testing, which is required by claim 4.

Ground #2:

The rejection of claims 1-4, 6-11, 13, 17-18, 22, and 31 as obvious over FSIS in view of Price and Midura (see SNQ #s 2, 13, 15, 17, 19, 22, 23, 25, 26, 28, 30, 34, 48, 57, and 76 at pages 34-36, 58, 59-60, 62-64, 66-67, 69-70, 71, 74-75, 82-83, 88, and 101-102 respectively of the Request) is maintained for the reasons stated in the request and for those reasons set forth in the office action mailed 05/26/10. The proposed rejections at pages 34-36, 58, 59-60, 62-64, 66-67, 69-70, 71, 74-75, 82-83, 88, and 101-102 of the request and the claim charts at pages 106-116, 118-120, 123, 125, and 126 are herein incorporated by reference. Claims 12, 14-16, 20, and 24-26 are also included in the rejection for the reasons set forth in the office action mailed 05/26/10. The rejection, which has been modified to address the application to the newly added claims, is as follows.

Claims 1-4, 6-18, 20, 22, 24-26, 31, and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over FSIS in view of Price and Midura.

Regarding ***claims 1, 17, 18, 20, 24***, and ***34-36***, FSIS discloses methods of sampling ground beef for *E. coli* O157:H7 contamination, comprising collecting a plurality of pieces or samples per lot and combining the pieces for a representative sample of a product lot (see pages 4 and 27-28 in their entirety). Regarding ***claims 2, 10, and 36,*** FSIS teaches that the samples are to be aseptically collected from the "current day's production", at specific times, or by specific boxes or combo bins, which is equivalent to a teaching of a test lot consisting of a single combo, single bin, or production assemblage or a teaching of a single unit product lot comprising operationally-linked product specimens (page 4, last paragraph, and page 27 in its entirety). With respect to ***claims 8 and 12,*** FSIS teaches collecting additional samples (follow-up verification) after remedial or corrective action following a positive test result (paragraph bridging pages 8-9 and page 23, last paragraph).

FSIS differs from the claimed invention in that it is silent as to the testing method to be used for detection of microbial contamination and does not specify testing of foods other than ground beef products.

Regarding ***claims 1, 17, 34 and 35***, Price teaches a method for testing multiple food samples for *Salmonella* comprising collecting a plurality of samples (or portions) from the food, inoculating the samples individually into pre-enrichment broth cultures, incubating the cultures to allow for growth of the *Salmonella*, pooling the pre-enrichment broth cultures into wet composite test lots, incubating the pooled test lots into a single enrichment broth (the "modular composite sample" of the patented claims), incubating the composite enrichment broth, and subsequently identifying any *Salmonella* organisms present in the culture. Price teaches that the procedure offers a simple, effective way to increase sample capacity in the *Salmonella* testing of foods and also permits the pre-enrichment broth cultures to be retained for subsequent individual analysis if a positive result is obtained from the pooled enrichment culture (see page 679, abstract; page 680, Fig. 1; page 681, column 1, second full paragraph and column 2, first full paragraph).

Price defines the medium used for incubation of the individual test lot samples as a "pre-enrichment" medium, while the instant claims either do not specify the incubation medium or define the incubation medium as "enrichment medium". As was set forth above, the instant claims either recite incubating the test lot samples under conditions suitable to allow levels of a target microbial agent to reach detectable levels and become uniform or substantially uniform throughout the test lot samples in order to provide a set of separate test lot samples enriched for the target microbial agent or organism (***claims 1 and 17***) or they simply recite incubating the set of separate test lot samples under conditions suitable to allow levels of a target microbial agent or organism to increase in the test lot samples to provide a set of separate incubated test lot samples (***claims 34 and 35***). The '584 patent specification defines "enrichment" as incubating a test lot sample under conditions suitable to allow levels of a target agent or organism to reach detectable levels (see column 6, lines 7-16). Since the pre-enrichment medium disclosed by Price is designed to recover target organisms which have been compromised by less than optimal growth conditions and render them "actively growing" (see page 681, second full paragraph), the method disclosed by Price provides a set of separate test lot samples wherein the levels of target

organisms are increased to detectable levels, thus meeting the limitations of the instant claims. Regarding ***claim 3,*** Price teaches incubating the composite broth culture *(i.e.*, the modular composite sample) prior to testing. With respect to ***claim 4***, the pre-enrichment medium disclosed by Price (0.5% lactose broth; see page 679, column 2, first full paragraph) would be equivalent to the enrichment medium of the patented claims as follows. As has been set forth previously herein, the '584 patent specification defines an enrichment medium as "medium which contains nutrients and which has properties (*e.g.*, pH and/or oxygen content) which favor the growth of the target agent/organism." (See the '584 patent specification at column 6, lines 17-35.) Price teaches that the pre-enrichment lactose broth enables the actively growing salmonellae to compete more favorably with organisms introduced from the other samples when pooled at the enrichment stage (see page 681, column 1, second full paragraph). Therefore, absent evidence to the contrary, the pre-enrichment broth disclosed by Price meets the definition of enrichment medium in patented ***claim 4***. Regarding ***claim 6***, Price teaches testing individual pre-enrichment broth cultures if the composite enrichment broth tests positive (see the abstract and page 681, column 2, first full paragraph). Price teaches testing via both biochemical and serological tests, in order to increase the chances of detecting *Salmonella*. With respect to ***claims 22 and 31***, Price teaches aseptically transferring 1 ml each of the pre-enrichment broth cultures to the enrichment broth, which is a teaching of equal volume portions (see page 682, first column, last full paragraph).

Midura discloses methods for sampling and testing foods for microbial contamination. Regarding ***claims 7 and 9***, Midura teaches that when products with a low incidence of the pathogen are tested, additional samples need to be collected and tested to ensure a high probability of detecting the pathogen (see page 19, the paragraph bridging columns 1 and 2). Regarding ***claim 8***, Midura teaches subsequent testing of a second sample depending on the results of the first sample in the form of multiple sampling (two or three class) attribute plans (see pages 17-20). Midura teaches collecting a plurality of samples from a food lot produced in one batch or in some specified period of time, as in patented ***claim 10*** (with fish, meats, shell fish, and canned ready-to-eat food products exemplified, as in patented ***claims 24-26***; see page 18, column 1, last full sentence); pooling the samples to obtain a pooled or composite sample; and testing the composite sample for the presence of microbial contaminants, with coliforms and

Salmonella exemplified. Midura provides recommendations for the number of samples or portions necessary to detect a positive pathogenic organism at varying confidence levels (see section 2.516 beginning on page 19 and Table 1). Midura exemplifies taking 4, 5, 6, 8, 10, 30, 34, 38, 43, 50, and 60 samples, which read on the claimed ranges of 3 to 10 and 30 to 60 in patented ***claims 11 and 14*** respectively and which meets the limitations of ***claims 15 and 16***.

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to have applied the testing method disclosed by Price as the testing means for the FSIS Directive because Price teaches that the method is as sensitive as individual sample analysis and provides an important saving in the analytical effort required for quality control (see page 679, abstract and first paragraph). The person of ordinary skill in the art at the time of the invention would also have found it *prima facie* obvious to have collected multiple samples, and/or to have performed multiple sampling runs, as recommended by Midura, in order to be able to detect highly pathogenic organisms present in foods at low levels.

Response to Patent owner's arguments:

Patent owner's arguments have been fully considered but they are not persuasive for the following reasons.

Patent owner argument (pages 24-25) that FSIS fails to teach post-enrichment inter-lot pooling and validation of negative lots argues against the reference individually, where the rejection is based on the combination of FSIS with Price and Midura. As set forth in the rejection, Price teaches the method steps of the instant claims and Midura supplies teachings of follow-up testing recited in dependent claims.

Patent owner's arguments with respect to the teachings of Price (pages 25-26) essentially argue that Price teaches away from compositing samples prior to pre-enriching, whereas the patented method requires a composited initial test lot sample, exemplified in Exhibit A as a composite of 60 pieces. Patent owner argues that Price teaches away from the present method by teaching that pooling samples prior to pre-enrichment results in loss of testing sensitivity. Initially it is noted that Patent owner's argument regarding the embodiment of 60 pieces is relevant only for claims 14-16. As was set forth *supra* in response to Patent owner's argument pertaining to Ground 1, the remaining claims broadly recite collecting and compositing as few as

two portions each from test lots, each having as few as a single specimen; therefore, Patent owner's argument is not commensurate in scope with the majority of the claims. With respect to claims 14-16, as well as the remaining claims rejected herein, Price does not teach away from the invention that is claimed. With the exception of claim 4, the claims do not require incubation in individual broth cultures of selective enrichment medium; they require incubation in individual broth cultures providing conditions suitable to allow levels of the target agent to increase or to reach detectable levels. The individual pre-enrichment broth cultures disclosed by Price meet the limitations of the claims. The teaching referenced by Patent owner in Price (page 681, column 1, second full paragraph) reads as follows:

> If **many** food samples are pooled at the pre-enrichment stage, the salmonellae face competition from the flora of all the samples in the pool. If, on the other hand, the samples are individually pre-enriched, the actively growing salmonella might be expected to compete more favorably with organisms introduced from other samples when pooled at the enrichment stage" (emphasis added).

Patent owner's claimed method is directed to incubation of a plurality of **portions** from the same single-unit or operationally-linked food lot (emphasis added, see new claim 36). They are not drawn to compositing numerous unrelated or inter-lot food samples, *per se*. Price is teaching that samples from "other" food lots might contain more extraneous organisms that would compete with growth of the salmonellae in the food lot of interest. To overcome this disadvantage, Price teaches incubation of each of the sampled food lots in individual broth cultures to allow the target agent to become actively growing and capable of competition when pooled with other broth culture for subsequent testing. This teaching does not teach away from the presently claimed method. It mirrors it.

Even if this were not the case, the samples described by Price are powders which would be expected to have any target agents or organisms homogeneously distributed throughout (see Price, the paragraph bridging pages 679-680, and Midura, page 20, section 2.522). Midura teaches that for products such as these, a single sample may be considered representative of the lot. However, Midura also teaches that for solids and semi-solids, where the levels of target organism vary throughout the specimen, in order to obtain a representative sample of the specimen, multiple portions should be sampled from different locations (see section 25 and

especially 2.522 and 2.523). These teachings found in Midura point directly to step a) in the instant claims.

Patent owner once again argues (page 26) that Jarvis teaches "pre-enrichment medium" for the individual cultures, rather than "enrichment medium", as in the patented claims. As has been set forth herein, with the exception of claim 4, the claims do not require enrichment medium. With respect to claim 4, which specifies that the individual test lot samples are incubated in enrichment medium, Price provides motivation to substitute selective enrichment broth for the pre-enrichment broth in the individual broth cultures at page 682, first full paragraph, wherein Price teaches,

> Alternatively, problems with interfering organisms may warrant the use of direct selective enrichments, two selective enrichments, or possibly even a reduction in the incubation time of the pre-enrichment cultures.

The present rejection is one of obviousness, not anticipation. Based on this teaching found in Price, one of ordinary skill in the art at the time of the invention would have considered selective enrichment broth to be an equivalent medium for the individual broth cultures and would have been motivated to substitute selective enrichment medium for pre-enrichment medium in the individual broth cultures disclosed by FSIS in view of Price and Midura whenever the possible presence of interfering organisms would be of concern.

Patent owner's argument (pages 27-28) directed to intra-lot pooling in the prior art as opposed to inter-lot pooling in the patented claims, as well as validation of negative results, have been addressed *supra* in the Examiner's comments to Patent owner's response to the Ground 1 rejection; those comments are equally applicable to the present ground of rejection. Once again, the terms "intra-lot" and "inter-lot" appear to be arbitrary terms based on how one defines a "lot". Since the patented claims define a lot as "an assemblage of one or more specimens", a method which teaches incubation of individual specimens in individual broth cultures followed by pooling of those samples for detection of the target organism satisfies the definition of "inter-lot" pooling and thus reads on the instant claims. The method disclosed by Price is such a method.

The argument (page 28) that the teachings of Midura "amount to nothing more that recommendations for the number of pieces to be taken from an initial lot..." once again argues

against the reference individually, wherein the rejection is based on the combination of Midura with FSIS and Price. As set forth above, Price furnishes the requisite teachings for the recited method steps. Similarly, the argument that Midura is limited to teachings of sampling a single lot argues against the reference individually.

The references of record in combination provide all of the requisite elements of the patent claims. These elements are provided according to their established functions, which are the same as in the instant claims.

For these reasons, Patent owner's arguments are not persuasive. The rejection of claims 1-4, 6-18, 20, 22, 24-26, 31, and 34-36 is maintained.

Ground #3:

Claims 1 and 17 are unpatentable as obvious over Jarvis in view of Patent owner's admissions regarding the state of the prior art (see SNQ # 3 at pages 36-38 of the Request).

This rejection was proposed by the third party requester and **adopted** for the reasons stated in the request and for those reasons set forth in the office action mailed 05/26/10. The rejection is also applied to newly added claims 34-36. The discussion of the state of the prior art at pages 3-23 and the proposed rejection at pages 36-38 of the request and the claim charts at pages 106-111 and 119-120 are herein incorporated by reference. The rejection, which has been modified to address the newly added claims, is as follows.

Claims 1, 17, and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jarvis in view of Patent owner's admissions regarding the state of the prior art.

As was set forth *supra* (Ground 1), with respect to ***claims 1, 17, 34 and 35***, Jarvis discloses methods of sampling and testing foods for low numbers of pathogenic organisms using composite samples for testing (page 135, section 8.4, first paragraph). Jarvis teaches that testing composite samples reduces the workload on the laboratory (page 141, section 8.4.2.1). The methods described by Jarvis (methods 2 and 3) comprise collecting a plurality (10) of product samples or portions (25g size); either inoculating the samples separately into one each of a pre-enrichment medium or broth to give test lot samples, each comprising a single specimen (method 2), or alternatively, pooling a plurality (about 5) of specimens and inoculating the pooled

specimens into a pre-enrichment culture medium or broth (method 3); incubating the pre-enrichment broth cultures to allow for growth of the target organisms; compositing aliquots of the pre-enrichment cultures and inoculating the composite into a second enrichment culture, incubating the composite enrichment culture, and subsequently testing for the pathogenic organism. Jarvis teaches that methods 1 and 2 both provide the same degree of statistical confidence as would be attained by separately testing each of the 10 samples (see page 141 in its entirety). Jarvis teaches that composite testing method 2 has the advantage of allowing for verification of positive samples by retesting of the stored individual pre-enrichment cultures to provide an indication of the proportion of contaminated samples (see the paragraph bridging pages 141 and 142).

Jarvis defines the medium used for incubation of the individual test lot samples as a "pre-enrichment" medium, while the instant claims do not specify the incubation medium. The instant claims either recite incubating the test lot samples under conditions suitable to allow levels of a target microbial agent to reach detectable levels and become uniform or substantially uniform throughout the test lot samples in order to provide a set of separate test lot samples enriched for the target microbial agent or organism (***claims 1 and 17***) or they simply recite incubating the set of separate test lot samples under conditions suitable to allow levels of a target microbial agent or organism to increase in the test lot samples to provide a set of separate incubated test lot samples (***claims 34 and 35***). As was set forth *supra*, the '584 patent specification defines "enrichment" as incubating a test lot sample under conditions suitable to allow levels of a target agent or organism to reach detectable levels (see column 6, lines 7-16). Since the pre-enrichment medium disclosed by Jarvis is designed to recover target organisms which have been compromised by less than optimal growth conditions and render them "actively growing" (see Price, of record, page 681, second full paragraph), the method disclosed by Jarvis provides a set of separate test lot samples wherein the levels of target organisms are increased to detectable levels, thus meeting the limitations of the instant claims.

While Jarvis teaches collecting multiple samples (10) and either incubating them individually in pre-enrichment broth cultures or pooling a portion (about 5) of the samples for incubation in the pre-enrichment broth cultures, Jarvis does not specify collecting plural portions from each of a plurality of test lots, each test lot comprising one or more operationally-linked

specimens (as recited in ***claim 36***), and combining the portions to provide a corresponding set of separate test lot samples for testing. However, Patent owner admits in the Background section of the '584 patent specification that in the testing of foods, pharmaceuticals, neutraceuticals, water and the environment, collecting plural portions from each of a plurality of test lots, each test lot comprising one or more specimens, and combining the portions for subsequent testing was well known in the art (see column 1, line 37, through column 2, line 26).

One of ordinary skill in the art at the time of the invention would have found it *prima facie* obvious to have applied the testing method disclosed by Jarvis to a collection of a plurality of portions of a food, pharmaceutical, neutraceutical, water, or environmental samples designated a test lot, as was known in the prior art. The person of ordinary skill in the art at the time of the invention would have been motivated to test by the Jarvis method because Jarvis teaches that enrichment of samples in separate pre-enrichment broth cultures allows for subsequent identification of individual positive samples if the composite sample tests positive for a target agent or organism.

Response to Patent owner's arguments:

Patent owner's arguments (pages 31-32) regarding Jarvis are essentially the same as were set forth *supra* in response to Ground 1, in that Jarvis teaches incubation of individual cultures of pre-enrichment broth, rather than individual cultures of enrichment broth prior to pooling and testing. As was set forth in the examiner's response therein, which is incorporated herein by reference, patent owner is arguing limitations which are not found in the claims. To summarize, the present claims do not recite an "enrichment medium" and do not require that the medium favor the growth of or be selective for the target agent. Rather, the claims recite incubating the test lot samples under conditions suitable for the target agent to increase and/or to reach detectable levels. The pre-enrichment broth cultures of Jarvis fully meet the limitations of the claims.

Patent owner's arguments (pages 32-33) regarding "hold and release" monitoring efforts, different sampling plans pursuant to ICMSF, and collection of 10 to 60 samples, are noted; however, once again Patent owner is arguing features which are not recited in the instant claims. None of claims 1, 17, or 34-36, which are the claims at issue in the present ground of rejection,

recites these features or requires specific numbers of samples for a statistical sampling plan. Nevertheless, as was set forth *supra* under Ground 1, the entirety of Jarvis is directed to disclosure of statistical sampling plans, with the number of samples tested disclosed as 1 to 100, for example (Table 8.9).

Ground # 4:

Claims 1 and 17 are unpatentable under 35 USC § 103(a) as obvious over Patent owner's admissions regarding the state of the art in view of Price.

This rejection was proposed by the third party requester (see pages 38-39 of the request) and is **not adopted** for the reasons set forth in the office action mailed 05/26/10.

The consideration under 35 U.S.C. 303 of a request for reexamination is limited to prior art patents and printed publications. See *Ex parte McGaughey*, 6 USPQ2d 1334, 1337 (Bd. Pat. App. & Inter. 1988). Thus an admission, *per se*, may not be the primary basis for establishing a substantial new question of patentability or for rejecting the claims. While admissions in conjunction with prior art patents or publications may be considered in a reexamination proceeding, any rejection must be based on prior art patents or publications, as explained by the admissions. Accordingly, admissions are utilized to interpret or modify the patent or printed publication which is the basis for the SNQ and which is used as the primary reference in a ground of rejection; they are not themselves used as the primary basis for rejecting the claims. Therefore, the proposed rejection of claims 1 and 17 as unpatentable over Patent owner's admissions regarding the state of the art in view of Price is **not adopted.**

Neither the Patent owner nor the Requester presented arguments regarding the non-adoption of Ground 4. Therefore, the examiner's position remains unchanged.

Ground # 5:

Claims 1 and 17 are unpatentable over Andrews in view of Price and Midura (see SNQ # 5 at pages 39-43 of the Request).

This rejection was proposed by the third party requester and **adopted** for the reasons stated in the request and for those reasons set forth in the office action mailed 05/26/10. The

rejection is also applied herein to new claims 34-36. The proposed rejection at pages 39-43 of the request and the claim charts at pages 106-111 and 119-120 are herein incorporated by reference. The rejection, which has been modified to address the newly added claims, is as follows.

Claims 1, 17, and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews in view of Price and Midura.

Regarding ***claims 1, 17, and 34-35,*** Andrews teaches methods of testing foods for the presence of *Salmonella* comprising collecting at random a plurality of portions (analytical units) from the food to be analyzed to comprise a larger sample unit, which is then used to determine the acceptability of the entire lot of food (see page 358, column 2, full paragraph). Andrews teaches that because *Salmonella* organisms in foods are often present in low numbers and in a debilitated condition due to processing the food, samples should be inoculated into pre-enrichment broth cultures (with lactose broth exemplified), incubated to allow the organisms to reach a desired number and condition, transferred into enrichment medium, which is selective for the target organism, and again incubated. Regarding ***claim 36***, Andrews teaches analysis of environmental samples, *e.g.*, from air filters, contents of dust collectors, static material on processing equipment, swabs from floor drains, etc., which are examples of operationally-linked specimens (see page 360, sections 37.123 and 37.124). Andrews does not teach incubating the sample units or test lots separately, as in the patented claims.

As was set forth previously in Ground 2, Price teaches a method for testing multiple food samples for *Salmonella* comprising collecting a plurality of samples (or portions) from the food, inoculating the samples individually into pre-enrichment broth cultures (with lactose broth exemplified, as was exemplified in Andrews; see Price at page 679, column 2, first full paragraph), incubating the cultures to allow for growth of the *Salmonella*, pooling the pre-enrichment broth cultures into wet composite test lots, incubating the pooled test lots into a single enrichment broth (the "modular composite sample" of the patented claims), incubating the composite enrichment broth, and subsequently identifying any *Salmonella* organisms present in the culture. Price teaches that the procedure offers a simple, effective way to increase sample capacity in the *Salmonella* testing of foods and also permits the pre-enrichment broth cultures to

be retained for subsequent individual analysis if a positive result is obtained from the pooled enrichment culture (see page 679, abstract; page 680, Fig. 1; page 681, column 1, second full paragraph and column 2, first full paragraph). Price teaches that the pre-enrichment lactose broth enables the actively growing salmonellae to compete more favorably with organisms introduced from the other samples when pooled at the enrichment stage (see page 681, column 1, second full paragraph).

Midura discloses methods for sampling and testing foods for microbial contamination. Midura teaches that when products with a low incidence of the pathogen are tested, additional samples need to be collected and tested to ensure a high probability of detecting the pathogen (see page 19, the paragraph bridging columns 1 and 2). Midura teaches collecting a plurality of samples from a food lot produced in one batch or in some specified period of time, pooling the samples to obtain a pooled or composite sample, and testing the composite sample for the presence of microbial contaminants, with coliforms and *Salmonella* exemplified.

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to have incubated the pre-enrichment broth cultures taught by Andrews separately, as suggested by Price, in order to be able to specifically identify the contaminated food. The person of ordinary skill in the art at the time of the invention would also have found it *prima facie* obvious to have collected a plurality of samples, and/or to have performed multiple sampling runs, as recommended by Midura, in order to be able to detect highly pathogenic organisms present in foods at low levels.

Response to Patent owner's arguments:

Patent owner argues (page 35) that Andrews, alone or in combination with Price and Midura, does not teach "pre-enrichment medium" in a way that meets the limitations of the patented claims and does not teach inter-lot pooling of enriched cultures inoculated with a number of samples for validation of lots testing negative, but rather teaches intra-lot pooling of pre-enrichment cultures. The examiner's responses to these arguments with regard to Price and Midura, which were set forth above, are equally applicable to the present ground of rejection and are herein incorporated by reference. No new arguments regarding Andrews have been set forth in Patent owner's response.

Ground #6:

Claims 1 and 17 are unpatentable over Silliker in view of Price and Midura (see SNQ # 6 at pages 43-46 of the Request).

This rejection was proposed by the third party requester and **adopted** for the reasons stated in the request and for those reasons set forth in the office action mailed 05/26/10. The proposed rejection at pages 43-46 of the request and the claim charts at pages 106-111 and 119-120 are herein incorporated by reference. The rejection is also applied herein to new claims 34-36. The rejection, which has been modified to address the newly added claims, is as follows.

Claims 1, 17, and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silliker in view of Price and Midura.

Silliker discloses a method for sampling dried foods for *Salmonella* contamination comprising collecting a plurality of 25g or 100 g subsamples (the samples equivalent to operationally linked product samples (as recited in ***claim 36***), incubating these subsamples in individual cultures of pre-enrichment broth, and wet compositing the pre-enrichment cultures in groups of five (for 25 g subsamples) or three (for 100 g subsamples) (see page 475, abstract and last full paragraph of the page, and page 176, column 1, second full paragraph, and column 2, last full paragraph). Silliker teaches that pooling sixty 25g or fifteen 100g pre-enrichment cultures into groups of 5 (wet compositing) followed by selective enrichment of the composites is as sensitive a detection method as analysis of individual samples (page 478, last full paragraph of the page) and is economically more feasible (page 179, first full paragraph).

The method described by Silliker differs from the claimed method in that Silliker defines the incubation step of individual cultures as "pre-enrichment", while the patented claims recite separately incubating the test lot samples in medium favorable for "enrichment" of the target microbial agent or organism or simply recite incubating the test lot samples to increase the levels of the target agent (see step "c" of patented ***claims 1, 17, 34, and 35***) However, as has previously been set forth herein, the '584 patent specification defines "enrichment" as "incubating a test lot sample under conditions suitable to allow levels of a target agent or organism to reach detectable levels..." (see column 6, lines 7-16). Absent evidence to the

contrary, incubation of the pre-enrichment cultures disclosed by Silliker meets the limitation of step c) in patented ***claims 1, 17, 34, and 35***. Silliker does not teach testing individual subsamples separately upon obtaining a positive result from the composite sample.

As was set forth previously in Ground 2, Price teaches a method for testing multiple food samples for *Salmonella* comprising collecting a plurality of samples (or portions) from the food, inoculating the samples individually into pre-enrichment broth cultures (with lactose broth exemplified, as was exemplified in Andrews; see Price at page 679, column 2, first full paragraph), incubating the cultures to allow for growth of the *Salmonella*, pooling the pre-enrichment broth cultures into wet composite test lots, incubating the pooled test lots into a single enrichment broth (the "modular composite sample" of the patented claims), incubating the composite enrichment broth, and subsequently identifying any *Salmonella* organisms present in the culture. Price teaches that the procedure offers a simple, effective way to increase sample capacity in the *Salmonella* testing of foods and also permits the pre-enrichment broth cultures to be retained for subsequent individual analysis if a positive result is obtained from the pooled enrichment culture (see page 679, abstract; page 680, Fig. 1; page 681, column 1, second full paragraph and column 2, first full paragraph).

Midura discloses methods for sampling and testing foods for microbial contamination. Midura teaches that when products with a low incidence of the pathogen are tested, additional samples need to be collected and tested to ensure a high probability of detecting the pathogen (see page 19, the paragraph bridging columns 1 and 2). Midura teaches collecting a plurality of samples from a food lot produced in one batch or in some specified period of time, pooling the samples to obtain a pooled or composite sample, and testing the composite sample for the presence of microbial contaminants, with coliforms and *Salmonella* exemplified.

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to have followed the composite testing disclosed by Silliker with individual tests of the subsample pre-enrichments cultures upon obtaining a positive result for the composite subsample, as suggested by Price. The person of ordinary skill in the art at the time of the invention would have been motivated to do so to track the contamination to a particular subsample and thus specifically identify the contaminated food. The person of ordinary skill in the art at the time of the invention would also have found it *prima facie* obvious to have collected

a plurality of samples, and/or to have performed multiple sampling runs, as recommended by Midura, in order to be able to detect highly pathogenic organisms present in foods at low levels.

Response to Patent owner's arguments:

Patent owner argues (page 37) that Silliker does not teach that pre-enrichment pooling of lumped samples is as reliable as pre-enrichment of non-lumped samples, as was urged by the examiner in the nonfinal office action, citing data reported in a prior Silliker reference. Patent owner, however, is misconstruing both the examiner's statement and the overall teachings of Silliker. Siliker references a previous study (page 476, first full paragraph) as showing some loss of sensitivity with pooling of wet composites (pooled broth cultures) of lumped specimens; however, Silliker also references a second study by Price, which showed that pre-enrichment broth cultures could be pooled without any loss in sensitivity. The purpose of the study conducted by Silliker in the reference of record was to compare five analytical systems: sixty 25g subsamples; (2) fifteen 100 gm substamples; (3) three 500 gm subsamples; (4) wet compositing of 25 gm pre-enrichment cultures in groups of 5; and (5) wet compositing of 100 gm pre-enrichment cultures in groups of 5 (page 476, second full paragraph). Silliker concluded that one or more of the analytical procedures failed to detect salmonellae at low levels (page 471, Table 1 and paragraph bridging columns 1 and 2). Silliker also concluded, however,

> Analytical results from 26 samples of naturally contaminated dried foods indicate that *Salmonella*-positive samples may be detected with equal facility by analyzing sixty 25-g subsamples, fifteen 100-g subsamples, or three 500-g subsamples. Pooling sixty 25-g or fifteen 100-g pre-enrichment cultures into groups of five (wet–compositing) followed by selective enrichment of the composites apparently results in the same assurance of detection of positive lots as the analysis of individual samples (page 478, column 2, full paragraph).

Thus, Silliker points directly toward the claimed invention by teaching that a plurality of portions may by combined into individual pre-enrichment broth cultures, as in a test lot, and subsequently wet-composited for detection of the target agent without apparent loss of sensitivity.

Ground # 7:

Claims 1 and 17 are unpatentable over Gabis in view of Price and Midura (see SNQ # 7 at pages 46-51 of the Request).

This rejection was proposed by the third party requester and **adopted** for the reasons stated in the request and for those reasons set forth in the office action mailed 05/26/10. The proposed rejection at pages 43-46 of the request and the claim charts at pages 106-111 and 119-120 are herein incorporated by reference. The rejection is also applied herein to newly added claims 34-36. The rejection, which has been modified to address the newly added claims, is as follows.

Claims 1, 17, and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gabis in view of Price and Midura.

Gabis discloses methods for sampling and testing high moisture foods, with meat and poultry exemplified, by collecting thirteen 25g specimens, inoculating each of the specimens individually into pre-enrichment broth cultures, incubating the pre-enrichment cultures to allow for levels of the organism to increase, pooling portions of each of the pre-enrichment cultures into a composite or pooled sample in a single enrichment broth culture, incubating the enrichment broth culture, and subsequently recovering and identifying the salmonellae. The subsamples described by Gabis are the equivalent of the operationally-linked product specimens of ***claim 36***. Gabis teaches that analysis of a single composite sample is as sensitive as analysis of each of the individual subsamples (see page 663, abstract and first paragraph of the page; page 664, the paragraph bridging columns 1 and 2 and column 2, first two full paragraphs; and page 668, first full paragraph).

The method described by Gabis differs from the claimed method in that Gabis defines the incubation step in individual cultures as "pre-enrichment", while the patented claims recite separately incubating the test lot samples in medium favorable for "enrichment" of the target microbial agent or organism or simply incubating the test lot samples under conditions suitable to allow levels of the target agent to increase (see step "c" of patented ***claims 1 and 17 and new claims 34 and 35***) However, as has previously been set forth herein, the '584 patent specification defines "enrichment" as "incubating a test lot sample under conditions suitable to

allow levels of a target agent or organism to reach detectable levels..." (see column 6, lines 7-16). Absent evidence to the contrary, incubation of the pre-enrichment cultures disclosed by Gabis meets the limitation of step c) in the instant claims. Gabis does not teach testing individual subsamples separately upon obtaining a positive result from the composite sample.

As was set forth previously in Ground 2, Price teaches a method for testing multiple food samples for *Salmonella* comprising collecting a plurality of samples (or portions) from the food, inoculating the samples individually into pre-enrichment broth cultures (with lactose broth exemplified, as was exemplified in Andrews; see Price at page 679, column 2, first full paragraph), incubating the cultures to allow for growth of the *Salmonella*, pooling the pre-enrichment broth cultures into wet composite test lots, incubating the pooled test lots into a single enrichment broth (the "modular composite sample" of the patented claims), incubating the composite enrichment broth, and subsequently identifying any *Salmonella* organisms present in the culture. Price teaches that the procedure offers a simple, effective way to increase sample capacity in the *Salmonella* testing of foods and also permits the pre-enrichment broth cultures to be retained for subsequent individual analysis if a positive result is obtained from the pooled enrichment culture (see page 679, abstract; page 680, Fig. 1; page 681, column 1, second full paragraph and column 2, first full paragraph).

Midura discloses methods for sampling and testing foods for microbial contamination. Midura teaches that when products with a low incidence of the pathogen are tested, additional samples need to be collected and tested to ensure a high probability of detecting the pathogen (see page 19, the paragraph bridging columns 1 and 2). Midura teaches collecting a plurality of samples from a food lot produced in one batch or in some specified period of time, pooling the samples to obtain a pooled or composite sample, and testing the composite sample for the presence of microbial contaminants, with coliforms and *Salmonella* exemplified.

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to have followed the composite testing disclosed by Gabis with individual tests of the pre-enrichment cultures upon obtaining a positive result for the composite subsample, as suggested by Price. The person of ordinary skill in the art at the time of the invention would have been motivated to do so to track the contamination to a particular subsample so as to specifically identify the contaminated food. The person of ordinary skill in the art at the time of

the invention would also have found it *prima facie* obvious to have collected a plurality of samples, as recommended by Midura, in order to be able to detect highly pathogenic organisms present in foods at low levels.

Response to Patent owner's arguments:

Patent owner argues (pages 41-42) that Gabis teaches nothing about post-enrichment inter-lot pooling and nothing about validation of negative lots where a post-enrichment inter-lot pool is found to be positive, as is presently claimed. As has been discussed herein regarding the previously set forth grounds of rejection, amendment of the claims to recite an "inter-lot" composite sample does not distinguish over the prior art of record because the '584 patent specification fails to set forth any demarcation of a "lot" that renders the claimed methods distinct from the method disclosed by Gabis. Indeed, the terms "inter-lot" and "intra-lot" are arbitrary designations based on how one defines a "lot". The instant claims recite a test lot as an assemblage of "one or more" specimens; therefore, a single specimen falls within the definition of a "lot", as is recited in the patented claims. With respect to the validation argument, Patent owner is arguing against Gabis individually, wherein the rejection was based on the combination of Gabis with Price and Midura. Price provides the teaching of validation of individual specimens or lots by teaching that the method permits the pre-enrichment broth cultures to be retained for subsequent individual analysis if a positive result is obtained from the pooled enrichment culture (see page 679, abstract; page 680, Fig. 1; page 681, column 1, second full paragraph and column 2, first full paragraph).

Ground # 8:

Claims 1 and 17 are unpatentable as obvious over Jarvis in view of BAM (see SNQ # 8 at pages 51-52 of the Request).

This rejection was proposed by the third party requester and **adopted** for the reasons stated in the request and for those reasons set forth in the office action mailed 05/26/10. The proposed rejection at pages 51-52 of the request and the claim charts at pages 106-111 and 119-120 are herein incorporated by reference. The rejection is also applied herein to newly added

claims 34-36. The rejection, which has been modified to address the newly added claims, is as follows.

Claims 1, 17, and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jarvis in view of BAM.

As was set forth *supra* (Ground 1), Jarvis discloses methods of sampling and testing foods for low numbers of pathogenic organisms using composite samples for testing (page 135, section 8.4, first paragraph). Jarvis teaches that testing composite samples reduces the workload on the laboratory (page 141, section 8.4.2.1). The methods described by Jarvis (methods 2 and 3) comprise collecting a plurality (10) of product samples or portions (25g size); either inoculating the samples separately into one each of a pre-enrichment medium or broth to give test lot samples, each comprising a single specimen (method 2), or alternatively, pooling a plurality (about 5) of specimens and inoculating the pooled specimens into a pre-enrichment culture medium or broth (method 3); incubating the pre-enrichment broth cultures to allow for growth of the target organisms; compositing aliquots of the pre-enrichment cultures and inoculating the composite into a second enrichment culture, incubating the composite enrichment culture, and subsequently testing for the pathogenic organism. Jarvis teaches that methods 1 and 2 both provide the same degree of statistical confidence as would be attained by separately testing each of the 10 samples (see page 141 in its entirety). Jarvis teaches that composite testing method 2 has the advantage of allowing for verification of positive samples by retesting of the stored individual pre-enrichment cultures to provide an indication of the proportion of contaminated samples (see the paragraph bridging pages 141 and 142).

Jarvis defines the medium used for incubation of the individual test lot samples as a "pre-enrichment" medium, while the instant claims do not specify the incubation medium. The instant claims either recite incubating the test lot samples under conditions suitable to allow levels of a target microbial agent to reach detectable levels and become uniform or substantially uniform throughout the test lot samples in order to provide a set of separate test lot samples enriched for the target microbial agent or organism (***claims 1 and 17***) or they simply recite incubating the set of separate test lot samples under conditions suitable to allow levels of a target microbial agent or organism to increase in the test lot samples to provide a set of separate

incubated test lot samples (***claims 34 and 35***). As was set forth *supra*, the '584 patent specification defines "enrichment" as incubating a test lot sample under conditions suitable to allow levels of a target agent or organism to reach detectable levels (see column 6, lines 7-16). Since the pre-enrichment medium disclosed by Jarvis is designed to recover target organisms which have been compromised by less than optimal growth conditions and render them "actively growing" (see Price, of record, page 681, second full paragraph), the method disclosed by Jarvis provides a set of separate test lot samples wherein the levels of target organisms are increased to detectable levels, thus meeting the limitations of the instant claims.

While Jarvis teaches collecting multiple samples (10) and either incubating them individually in pre-enrichment broth cultures or pooling a portion (about 5) of the samples for incubation in the pre-enrichment broth cultures, Jarvis does not specify collecting plural portions from each of a plurality of test lots, each test lot comprising one or more specimens, and combining the portions to provide a corresponding set of separate test lot samples for testing.

BAM teaches that multiple analytical samples must be collected from food for detection of *Salmonella,* with the number of samples collected depending on the category of the food. The multiple samples disclosed by BAM meet the limitation of the operationally-linked product specimens of ***claim 36***. BAM teaches collecting a plurality of analytical units at random from a food lot (equivalent to portions of a test lot), combining the collected samples or portions into a composite test lot sample, inoculating the composite test lot sample into pre-enrichment medium, incubating the pre-enrichment mediium, and subsequently testing for the presence of *Salmonella*. BAM teaches that when the composite unit tests negative, all of the sample lot are considered acceptable (or validated) and when the composite sample tests positive, the food lot is rejected (see pages 3 and 5 in their entirety).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to have collected a plurality of food samples, as outlined by BAM, for testing by the method of Jarvis. The person of ordinary skill in the art at the time of the invention would have been motivated to test by the Jarvis method because Jarvis teaches that enrichment of samples in separate pre-enrichment broth cultures allows for subsequent identification of individual positive samples if the composite sample tests positive for a target agent or organism, thereby negating the necessity for rejecting the entire food lot.

Response to Patent owner's arguments:

Patent owner argues (page 43) that BAM does not teach beyond collecting a plurality of samples at random from a lot, and lumping the collected samples into a composite test lot. This argument, however, is directed against the reference individually wherein the rejection is based on a combination of Jarvis with BAM. As has been set forth herein, the remaining requisite teachings are provided by Jarvis. Patent owner's arguments regarding Jarvis, intra-lot vs. inter lot pooling, and validation have been previously addressed herein.

Ground # 9:

Claims 1 and 17 are unpatentable as obvious over Price in view of BAM and Davies (see SNQ #9 at pages 52-53 of the Request).

This rejection was proposed by the third party requester and **adopted** for the reasons stated in the request and for those reasons set forth in the office action mailed 05/26/10. The proposed rejection at pages 52-53 of the request and the claim charts at pages 106-111 and 119-120 are herein incorporated by reference. The rejection is also applied herein to newly added claims 34-36. The rejection, which has been modified to address the newly added claims, is as follows.

Claims 1, 17, and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Price in view of BAM and Davies.

Price teaches a method for testing multiple food samples for *Salmonella* comprising collecting a plurality of samples (or portions) from the food, inoculating the samples individually into pre-enrichment broth cultures, incubating the cultures to allow for growth of the *Salmonella*, pooling the pre-enrichment broth cultures into wet composite test lots, incubating the pooled test lots into a single enrichment broth (the "modular composite sample" of the patented claims), incubating the composite enrichment broth, and subsequently identifying any *Salmonella* organisms present in the culture. Price teaches that the procedure offers a simple, effective way to increase sample capacity in the *Salmonella* testing of foods and also permits the pre-enrichment broth cultures to be retained for subsequent individual analysis if a positive result is

obtained from the pooled enrichment culture (see page 679, abstract; page 680, Fig. 1; page 681, column 1, second full paragraph and column 2, first full paragraph).

Price defines the medium used for incubation of the individual test lot samples as a "pre-enrichment" medium, while the instant claims do not specify the incubation medium. As was set forth above, the instant claims either recite incubating the test lot samples under conditions suitable to allow levels of a target microbial agent to reach detectable levels and become uniform or substantially uniform throughout the test lot samples in order to provide a set of separate test lot samples enriched for the target microbial agent or organism (***claims 1 and 17***) or they simply recite incubating the set of separate test lot samples under conditions suitable to allow levels of a target microbial agent or organism to increase in the test lot samples to provide a set of separate incubated test lot samples (***claims 34 and 35***). The '584 patent specification defines "enrichment" as incubating a test lot sample under conditions suitable to allow levels of a target agent or organism to reach detectable levels (see column 6, lines 7-16). Since the pre-enrichment medium disclosed by Price is designed to recover target organisms which have been compromised by less than optimal growth conditions and render them "actively growing" (see page 681, second full paragraph), the method disclosed by Price provides a set of separate test lot samples wherein the levels of target organisms are increased to detectable levels, thus meeting the limitations of the instant claims. While Price teaches collecting multiple samples and incubating them individually in pre-enrichment broth cultures which are then pooled, Price does not specify collecting plural portions from each of a plurality of test lots, each test lot comprising one or more specimens, and combining the portions to provide a corresponding set of separate test lot samples for testing.

BAM teaches that multiple analytical samples must be collected from food for detection of *Salmonella,* with the number of samples collected depending on the category of the food. The multiple samples disclosed by BAM are equivalent to operationally-linked specimens of ***claim 36.*** BAM teaches collecting a plurality of analytical units at random from a food lot (equivalent to portions of a test lot), combining the collected samples or portions into a composite test lot sample, inoculating the composite test lot sample into preenrichment medium, incubating the preenrichment medium, and subsequently testing for the presence of *Salmonella.* BAM teaches that when the composite unit tests negative, all of the sample lot are considered acceptable (or

validated) and when the composite sample tests positive, the food lot is rejected (see pages 3 and 5).

Davies discloses methods of sampling and testing pooled samples (test lots) taken from pig herds for *Salmonella* contamination (See the abstract and page 1017 in its entirety). After sample collection and pooling, composite pooled specimens were incubated in enrichment broth (buffered peptone water) and subsequently plated onto agar plates for detection of *Salmonella* contamination. Davies teaches pooled samples for bacteriological testing as pinch-sized fecal samples, carcase swabs, and muscle swabs, among others (for a plurality of assembled portions) (see page 1017, right column, first full paragraph). Davies teaches that testing pooled samples compares well with testing individual samples (page 1023, column 2, second full paragraph). It would have been *prima facie* obvious for one of ordinary skill in the art at the time of the invention to have collected a plurality of portions of food, as taught by either of BAM or Davies, and to have combined the portions to provide a corresponding set of composite test lot samples for testing, as taught by Price. The person of ordinary skill in the art at the time of the invention would have also found it *prima facie* obvious to have inoculated each of the test lot samples into separate enrichment broth cultures, to have incubated them to allow the target agent or organism to reach detectable levels, and then to have pooled aliquots for testing because all of Price, BAM and Davies teach that composite testing is as sensitive as individual cultures, and Price teaches that separately enriching the samples allows for individual testing upon obtaining a positive test result from the composite sample.

Response to Patent owner's arguments:

Patent owner's arguments (page 47) directed to a "test lot sample" for use in preparing a "modular inter-lot composite sample" are noted; however, once again, the claim amendments adding "inter-lot" fail to distinguish over the combination of Price with BAM and Davies because the '584 patent specification fails to provide a definition of "lot" which distinguishes over the samples disclosed in the prior art. Each of claims 1, 17, 34, and 35 recites that the test lots (claims 1, 34, and 35) or production lot (claim 17) comprises "an assemblage of one or more specimens". The samples disclosed by Price and the analytical units disclose by BAM both fully meet the limitations of the test lot or production lot of the instant claims. The argument that the

teachings of Davies are limited to the use of pooled samples to provide a cheaper monitoring program to identify infected pig herds is once again arguing against Davies individually, wherein the rejection is based on the combination of Davis with Price and BAM.

Ground # 10:

Claims 2, 14, 16, 19, and 20 are unpatentable as obvious over Jarvis in combination with FSIS, Midura, and Patent owner's admissions regarding the state of the art.

This rejection was proposed by the third party requester (see SNQ #s 11, 37, 44, 50, and 52 at pages 55, 76-80, and 84-85 of the Request) but is **not adopted** for the reasons set forth in the office action mailed 05/26/10.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Requester's proposed rejection of claim 2, 14, and 19 as unpatentable over Jarvis in view of FSIS and Midura has been adopted herein. See Ground 1. Claim 20 was added to the Ground 1 rejection for the reasons set forth therein. As was discussed in Ground 1, Jarvis in view of FSIS and Midura meet all the limitations of claims 2, 14, 19, and 20. Therefore, the proposed rejection of the same claims (2, 14, 19, and 20) under 103(a) over the same combination of references taken with Patent owner's admissions regarding the state of the art is improper. In a rejection based on 35 U.S.C. 103, the teachings of the references must somehow be modified by the additional reference in order to meet the limitations of the claims. Because Jarvis in view of FSIS and Midura meet all of the claim limitations and renders claims 1, 14, 19, and 20 obvious, there are no differences between the patented claims and the combination of Jarvis, FSIS, and

Midura which would require further modification by Patent owner's admissions regarding the state of the art in order to meet the limitations of the claims (see #2 of the factual inquiries set forth in *Graham v. John Deere Co.* and listed above). Requester has not pointed out any such differences in the request between the claimed invention and the combination of Jarvis, FSIS and Midura, which would require modification by Patent owner's admissions regarding the state of the art in the proposed obviousness rejection.

Ground # 11:

Claims 2, 14, and 15 are unpatentable as obvious over Jarvis in combination with FSIS, Midura, and BAM.

This rejection was proposed by the third party requester (see SNQ #s 12, 35, and 41 at pages 56-57 and 78-79 of the Request) but is **not adopted** for the same reasons as those set forth above in Ground 10.

Requester's proposed rejection of claims 2 and 14 as unpatentable over Jarvis, in view of FSIS and Midura, has been adopted herein (see Ground 1). Additionally, claim 15 was rejected in Ground 1 as obvious over Jarvis in view of FSIS and Midura. Therefore, the proposed rejection of the same claims 2, 14, and 15 over Jarvis, in view of FSIS and Midura and further in view of BAM, is improper because Requester has failed to point to any deficiency in the combination of Jarvis, FSIS, and Midura which would require modification by BAM in order to meet the limitations of the claims.

Ground # 12:

Claims 2, 14, and 16 are unpatentable as obvious over FSIS in combination with Price, Midura, and Patent owner's admissions regarding the state of the art.

This rejection was proposed by the third party requester (see SNQ #s 14, 40, and 46 at pages 57, 77-78, and 81 of the Request) but is **not adopted** for the same reasons as those set forth above in Ground 10.

Requester's proposed rejection of claims 2 and 14 as unpatentable over FSIS, in view of Price and Midura, has been adopted herein (see Ground 2). Additionally, claim 15 was rejected in Ground 2 as obvious over FSIS in view of Price and Midura. Therefore, the proposed rejection of the same claims 2, 14, and 15 over Jarvis, in view of FSIS and Midura and further in view of BAM, is improper because Requester has failed to point to any deficiency in the combination of FSIS, Price, and Midura which would require modification by BAM in order to meet the limitations of the claims.

Ground # 13:

Claims 2, 14, 15, and 24 are unpatentable as obvious over FSIS in combination with Price, Midura, and BAM.

This rejection was proposed by the third party requester (see SNQ #s 15, 38, 42, and 62 at pages 57, 76-77, 79, and 91-92 of the Request) but is **not adopted** for the same reasons as those set forth above in Ground 10.

Requester's proposed rejection of claim 2 as unpatentable over FSIS, in view of Price and Midura, has been adopted herein (see Ground 2). Additionally, claims 14, 15 and 24 were rejected in Ground 2 as obvious over FSIS in view of Price and Midura. Therefore, the proposed rejection of the same claims 2, 14, 15, and 24 over FSIS, in view of Price and Midura and further in view of BAM, is improper because Requester has failed to point to any deficiency in the combination of FSIS, Price, and Midura which would require modification by BAM in order to meet the limitations of the claims.

Response to arguments:

Neither the Patent owner nor the Requester submitted arguments directed to the non-adoption of Grounds 10-13 of Rejection. Therefore, the examiner's position remains unchanged.

Ground # 14:

Claims 5, 23, 29, and 30 are unpatentable as obvious over Jarvis in combination with FSIS, Midura, and Entis (see SNQ #s 20, 59, 71, and 73 at pages 60-61, 89-90, 98, and 99-100 respectively of the Request).

This rejection was proposed by the third party requester and **is adopted** for the reasons stated in the request and for those reasons set forth in the office action mailed 05/26/10. The proposed rejection at pages 60-61, 89-90, 98, and 99-100 and the claim charts at pages 113, 123 and 126 of the request are herein incorporated by reference. Additionally, claim 6 is added to the rejection because claim 30 depends from claim 6. The rejection is as follows.

Claims 5, 6, 23, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jarvis in view of FSIS and Midura, as applied to claim 1 above, and further in view of Entis.

As was set forth supra in Ground 1, which is incorporated herein by reference in its entirety, Jarvis in view of FSIS and Midura teaches a method of sampling and testing food test lots for microbial contamination comprising collecting a plurality of portions from each of a plurality of test lots, combining the portions to provide a corresponding set of test lot samples, separately incubating the test lot samples to enrich for the target microbial agent or organism, removing portions of the test lot sample cultures, combining them into a modular composite sample and testing the composite sample for the presence of the target agent or organism. None of Jarvis, FSIS, or Midura teach concentrating the microbial agent from the modular composite sample by immunomagnetic bead separation or affinity chromatography and none teach testing the modular composite samples by a DNA based method, an immunochemistry based method or a biosensor based method.

Entis teaches rapid procedures for the detection, identification, and enumeration of microorganisms in foods (see page 89, third paragraph). Regarding ***claims 5 and 30***, Entis teaches that since food is a complex matrix which causes interference with analytical methods, some degree of separation or concentration of the microorganism of interest is required (see page 89, first paragraph). With respect to ***claim 29***, Entis teaches concentrating and separating the microorganism of interest from an enrichment culture by immunoaffinity chromatography and

immunomagnetic separation (see page 91). Regarding ***claim 23***, the rapid methods disclosed by Entis comprise antibody-based methods, such as immunofluorescence, enzyme immunoassay (an immunochemistry-based method), nucleic acid based methods (DNA hybridization and PCR) and bioluminescence and limulus amebocyte lysate assay (biosensor based methods) (see pages 89, 90, 93, 94, and 99). Entis teaches that the rapid methods offer savings in both time and labor (page 89, second paragraph) and can be more sensitive than conventional culture methods (see page 89. last full sentence, page 93, second full paragraph, page 94, column, and page 95, column 1).

One of ordinary skill in the art at the time of the invention would have found it *prima facie* obvious to have concentrated the target agent from the cultures disclosed by Jarvis in view of FSIS and Midura, as taught by Entis, in order to increase testing sensitivity and negate the interference from the food sample, as is taught by Entis. Further, the person of ordinary skill in the art at the time of the invention would have found it *prima facie* obvious to have used one of more of the methods described by Entis to identify the target agent in an enrichment culture because Entis teaches that the rapid methods can be more sensitive than traditional methods and can offer significant savings in both time and labor.

Response to Patent owner arguments:

Patent owner submits no additional arguments over those previously submitted regarding Jarvis, FSIS and Midura.

Ground # 15:

Claims 5, 23, 29, and 30 are unpatentable as obvious over FSIS in combination with Price, Midura, and Entis (see SNQ #s 21, 60, 72, and 74 at pages 61, 90-91, 98-99, and 100 respectively of the Request).

This rejection was proposed by the third party requester and **is adopted** for the reasons stated in the request and for those reasons set forth in the office action mailed 05/26/10. The proposed rejection at pages 61, 90-91, 98-99, and 100 and the claim charts at pages 113, 123 and 126 of the request are herein incorporated by reference. Claim 6 is added to the present rejection because claim 30 depends from claim 6. The rejection is as follows.

Claims 5, 6, 23, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over FSIS in view of Price and Midura, as applied to claim 1 above, and further in view of Entis.

As was set forth *supra* in Ground 1, which is incorporated herein by reference in its entirety, FSIS in view of Price and Midura teaches a method of sampling and testing food test lots for microbial contamination comprising collecting a plurality of portions from each of a plurality of test lots, combining the portions to provide a corresponding set of test lot samples, separately incubating the test lot samples to enrich for the target microbial agent or organism, removing portions of the test lot sample cultures, combining them into a modular composite sample and testing the composite sample for the presence of the target agent or organism. None of FSIS, Price, or Midura teaches concentrating the microbial agent from the modular composite sample by immunomagnetic bead separation or affinity chromatography and none teach testing the modular composite samples by a DNA based method, an immunochemistry based method or a biosensor based method.

Entis teaches rapid procedures for the detection, identification, and enumeration of microorganisms in foods (see page 89, third paragraph). Regarding ***claims 5 and 30***, Entis teaches that since food is a complex matrix which causes interference with analytical methods, some degree of separation or concentration of the microorganism of interest is required (see page 89, first paragraph). With respect to ***claim 29***, Entis teaches concentrating and separating the microorganism of interest from an enrichment culture by immunoaffinity chromatography and immunomagnetic separation (see page 91). Regarding ***claim 23***, the rapid methods disclosed by Entis comprise antibody-based methods, such as immunofluorescence, enzyme immunoassay (an immunochemistry-based method), nucleic acid based methods (DNA hybridization and PCR) and bioluminescence and limulus amebocyte lysate assay (biosensor based methods) (see pages 89, 90, 93, 94, and 99). Entis teaches that the rapid methods offer savings in both time and labor (page 89, second paragraph) and can be more sensitive than conventional culture methods (see page 89, last full sentence, page 93, second full paragraph, page 94, column, and page 95, column 1).

One of ordinary skill in the art at the time of the invention would have found it *prima facie* obvious to have concentrated the target agent from the cultures disclosed by FSIS in view of Price and Midura, as taught by Entis, in order to increase testing sensitivity and negate the interference from the food sample, as is taught by Entis. Further, the person of ordinary skill in the art at the time of the invention would have found it *prima facie* obvious to have used one of more of the methods described by Entis to identify the target agent in an enrichment culture because Entis teaches that the rapid methods can be more sensitive than traditional methods and can offer significant savings in both time and labor.

Response to Patent owner's arguments:

Patent owner submits no additional arguments over those previously submitted regarding FSIS, Price, and Midura.

Ground # 16:

Claim 12 is unpatentable as obvious over Jarvis in combination with FSIS, Midura, and Mauer.

This rejection was proposed by the third party requester (see SNQ # 31 at pages 71-73 of the Request) but is **not adopted** for the following reasons.

Claim 12 was rejected in Ground 1 as obvious over Jarvis in view of FSIS and Midura for the reasons set forth therein. Therefore, the proposed rejection of the same claim 12 over Jarvis in view of FSIS and Midura and further in view of Mauer, is improper. At pages 72-73, Requester alleges that the deficiency in the combination of Jarvis, FSIS and Midura regarding patented claim 12 lies in the fact that

> "The specification does not define or provide examples of remedial measures, but refers to 'cooking, disposal, or other acceptably safe endpoint' as ways of handling lots that test positive. Col. 5, lines 10-11; col. 8, lines 31-33. The specification does not disclose what types of testing are contemplated by the recitation of "further testing" of the remediated separate test lots."

The lack of examples in the specification, however, does not represent a deficiency under the factual inquiries which are set forth under the *Graham v. John Deere Co* obviousness analysis that would necessitate the addition of Mauer. The factual inquiries require ascertaining the differences between the prior art and the **claims** at issue (emphasis added, see the discussion of the *Graham v. John Deere Co* analysis set forth in Ground 10 *supra).* Claim 12 generally recites application of remedial measures to positive test lots. FSIS teaches such remedial measures. The specific teaching of an exemplary remedial measure that is set forth in Mauer is not required to meet the limitations of claim 12. Therefore, the proposed rejection of claim 12 as unpatentable over Jarvis in view of FSIS and Midura, and further in view of Mauer is **not adopted**.

Ground # 17:

Claim 12 is unpatentable as obvious over Jarvis in combination with FSIS, Midura, Mauer and BAM.

This rejection was proposed by the third party requester (see SNQ # 32 at page 73 of the Request) but is **not adopted** for the same reasons as those set forth *supra* in Ground 10.

Claim 12 has been rejected herein as unpatentable over Jarvis in view of FSIS and Midura for the reasons set forth supra (Ground 1). Therefore, rejection of the same claim 12 as obvious over FSIS, Midura, Mauer, and BAM is improper. Requester has not pointed to any deficiency in the combination of Jarvis, FSIS, and Midura which would necessitate the addition of Mauer and BAM in order to meet the imitations of the claim.

Ground # 18:

Claims 14, 16, and 25 are unpatentable as obvious over Jarvis in combination with FSIS, Midura, and Silliker.

This rejection was proposed by the third party requester (see SNQ #s 36, 43, and 64 at pages 75-76, 79-80, and 93-94 of the Request) but is **not adopted** for the same reasons as those set forth above in Ground 10.

Requester's proposed rejection of claim 14 as unpatentable over Jarvis, in view of FSIS and Midura, has been adopted herein (see Ground 1). Additionally, claims 16 and 25 were rejected in Ground 1 as obvious over Jarvis in view of FSIS and Midura for the reasons set forth therein. Therefore, the proposed rejection of the same claims 14, 16, and 25 over Jarvis, in view of FSIS and Midura and further in view of Silliker, is improper because Requester has failed to point to any deficiency in the combination of Jarvis, FSIS, and Midura which would require modification by Silliker in order to meet the limitations of the claims.

Ground # 19:

Claims 14, 16, 25 and 26 are unpatentable as obvious over FSIS in combination with Price, Midura, and Silliker.

This rejection was proposed by the third party requester (see SNQ #s 39, 45, 65 and 67 at pages 77, 80-81, 94 and 95 of the Request) but is **not adopted** for the same reasons as those set forth above in Ground 10.

Requester's proposed rejection of claim 14 as unpatentable over FSIS, in view of Price and Midura, has been adopted herein (see Ground 2). Additionally, claims 16, 25 and 26 were rejected in Ground 2 as obvious over FSIS in view of Price and Midura for the reasons set forth therein. Therefore, the proposed rejection of the same claims 14, 16, 25, and 26 over FSIS, in view of Price and Midura and further in view of Silliker, is improper because Requester has failed to point to any deficiency in the combination of FSIS, Price and Midura which would require modification by Silliker in order to meet the limitations of the claims.

Ground # 20:

Claim is unpatentable as obvious over FSIS in combination with Price, Midura, Jarvis, and Silliker.

This rejection was proposed by the third party requester (see SNQ #53 at pages 85-86 of the Request) but is **not adopted** for the same reasons as those set forth above in Ground 10.

Claim 20 was rejected in Ground 2 as obvious over FSIS in view of Price and Midura for the reasons set forth therein. Therefore, the proposed rejection of the same claim 20 over FSIS, in view of Price and Midura and further in view of Jarvis and BAM, is improper because Requester has failed to point to any deficiency in the combination of FSIS, Price and Midura which would require modification by Jarvis and Silliker in order to meet the limitations of the claims.

Response to arguments:

Neither the patent owner nor the Requester has submitted arguments directed to the non-adoption of Grounds 16-20 of rejection. Therefore, the examiner's position remains unchanged.

Ground # 21:

Claim 21 is unpatentable as obvious over Jarvis in combination with FSIS, Midura, and Cousin (see SNQ #54 at page 86 of the Request).

This rejection was proposed by the third party requester and **is adopted** for the reasons stated in the request and for those reasons set forth in the office action mailed 05/26/10. The proposed rejection at page 86 and the claim chart at page 123 of the request are herein incorporated by reference. The rejection is as follows.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jarvis in view of FSIS and Midura, as applied to claim 1 above, and further in view of Cousin.

As was set forth *supra* in Ground 1, which is incorporated herein by reference in its entirety, Jarvis in view of FSIS and Midura teaches a method of sampling and testing food test lots for microbial contamination comprising collecting a plurality of portions from each of a plurality of test lots, combining the portions to provide a corresponding set of test lot samples, separately incubating the test lot samples to enrich for the target microbial agent or organism, removing portions of the test lot sample cultures, combining them into a modular composite sample and testing the composite sample for the presence of the target agent or organism. None of Jarvis, FSIS, or Midura teaches that the target organism is a spoilage organism.

Cousin discloses that certain bacteria (psychrotrophs) are able to grow in foods at low temperatures and are thus the primary organisms responsible for spoilage of refrigerated foods.

Cousin teaches that such organisms are found in meats, poultry, fish, and seafood and include *Listeria* spp., among others (see page 169, column 2, last paragraph). Cousin teaches that such organisms can be detected by culture and microscopic methods (see section 13.21 beginning on page 160).

It would have been *prima facie* obvious to one of skill in the art at the time of the invention to have used the method disclosed by Jarvis in view of FSIS and Midura to test for a spoilage organism, such as a psychrotroph, because Cousin teaches that such organisms are responsible for spoilage of refrigerated foods and can be detected by culture.

Response to Patent Owner's arguments:

Patent owner submits no additional arguments in response to Ground 21 of rejection.

Ground # 22:

Claim 21 is unpatentable as obvious over FSIS in combination with Price, Midura, and Cousin (see SNQ #55 at page 87 of the Request).

This rejection was proposed by the third party requester and **is adopted** for the reasons stated in the request and for those reasons set forth in the office action mailed 05/26/10. The proposed rejection at page 87 and the claim chart at page 123 of the request are herein incorporated by reference. The rejection is as follows.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over FSIS in view of Price and Midura, as applied to claim 1 above, and further in view of Cousin.

As was set forth *supra* in Ground 2, which is incorporated herein by reference in its entirety, FSIS in view of Price and Midura teaches a method of sampling and testing food test lots for microbial contamination comprising collecting a plurality of portions from each of a plurality of test lots, combining the portions to provide a corresponding set of test lot samples, separately incubating the test lot samples to enrich for the target microbial agent or organism, removing portions of the test lot sample cultures, combining them into a modular composite sample and testing the composite sample for the presence of the target agent or organism. None of FSIS, Price, or Midura teaches that the target organism is a spoilage organism.

Cousin discloses that certain bacteria (psychrotrophs) are able to grow in foods at low temperatures and are thus the primary organisms responsible for spoilage of refrigerated foods. Cousin teaches that such organisms are found in meats, poultry, fish, and seafood and include *Listeria* spp., among others (see page 169, column 2, last paragraph). Cousin teaches that such organisms can be detected by culture and microscopic methods (see section 13.21 beginning on page 160).

It would have been *prima facie* obvious to one of skill in the art at the time of the invention to have used the method disclosed by FSIS in view of Price and Midura to test for a spoilage organism, such as a psychrotroph, because Cousin teaches that such organisms are responsible for spoilage of refrigerated foods and can be detected by culture.

Response to Patent Owner's arguments:

Patent owner submits no additional arguments in response to Ground 22 of rejection.

Ground # 23:

Claim 23 is unpatentable as obvious over Jarvis in combination with FSIS, Midura, and Price (see SNQ #58 at pages 88-89 of the Request).

This rejection was proposed by the third party requester and **is adopted** for the reasons stated in the request and for those reasons set forth in the office action mailed 05/26/10. The proposed rejection at pages 88-89 and the claim chart at page 123 of the request are herein incorporated by reference. The rejection is as follows.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jarvis in view of FSIS and Midura, as applied to claim 1 above, and further in view of Price.

As was set forth *supra* in Ground 1, which is incorporated herein by reference in its entirety, Jarvis in view of FSIS and Midura teaches a method of sampling and testing food test lots for microbial contamination comprising collecting a plurality of portions from each of a plurality of test lots, combining the portions to provide a corresponding set of test lot samples, separately incubating the test lot samples to enrich for the target microbial agent or organism, removing portions of the test lot sample cultures, combining them into a modular composite

sample and testing the composite sample for the presence of the target agent or organism. None of Jarvis, FSIS, or Midura teaches testing the composite modular sample by a DNA-based method, an immunochemistry-based method, or a biosensor-based method.

Price teaches identification of *Salmonella* from composite enrichment broth cultures using the standard methods of biochemical and serological testing, which is an immunochemistry based method.

One of ordinary skill in the art at the time of the invention would have found it *prima facie* obvious to have identified the target agent or organism from the composite sample in the method of Jarvis in view of FSIS and Midura using serological testing, which is an immunochemistry based method, as described by Price. One of ordinary skill in the art at the time of the invention would have been motivated to identify the agent by serological testing because Price teaches that this was a standard method of identification of target agents or organisms at the time of the invention.

Response to Patent Owner's arguments:

Patent owner submits no additional arguments in response to Ground 23 of rejection.

Ground # 24:

Claims 24, 28, 32, 33 are unpatentable as obvious over FSIS in combination with Price, Midura, and Gabis (see SNQ #s 63, 70, 78, and 80 at pages 93, 97-98, and 103-105 of the Request).

This rejection was proposed by the third party requester and **is adopted** for the reasons stated in the request and for those reasons set forth in the office action mailed 05/26/10. The proposed rejection at pages 93, 97-98, and 103-105 and the claim chart at page 123-127 of the request are herein incorporated by reference. The rejection is as follows.

Claims 24, 28, 32, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over FSIS in view of Price and Midura, as applied to claims 1 and 4 above, and further in view of Gabis.

As was set forth *supra* in Ground 2, which is incorporated herein by reference in its entirety, FSIS in view of Price and Midura teaches a method of sampling and testing food test lots for microbial contamination comprising collecting a plurality of portions from each of a plurality of test lots, combining the portions to provide a corresponding set of test lot samples, separately incubating the test lot samples to enrich for the target microbial agent or organism, removing portions of the test lot sample cultures, combining them into a modular composite sample and testing the composite sample for the presence of the target agent or organism. FSIS teaches that the food to be tested is beef and Midura teaches that the food to be tested is fish, vegatables, dried foods, frozen foods, milk, meats, and/or shellfish (page 18, column 1, last complete sentence). None of FSIS, Price, or Midura teaches that the food to be tested is poultry, pork, sheep or bison. Additionally, although Price teaches a pooled enrichment broth for *Salmonella* (comprising a selective agent for *Salmonella* which inhibits competing organisms); none of FSIS, Price or Midura teaches that the individual test lot sample broths comprise a selective agent for the target organism.

Gabis teaches a method of sampling, testing, and validating high moisture foods for microbial contamination comprising collecting a plurality of specimens, incubating each of the specimens individually into broth cultures, incubating the broth cultures to allow for levels of the target organism to increase, and pooling the broth cultures together to test for *Salmonella* (see page 663, abstract and first paragraph of the page; page 664, the paragraph bridging columns 1 and 2 and column 2, first two full paragraphs; and page 668, first full paragraph). Gabis teaches two alternative broth cultures for the individual samples, "preenrichment" broths not containing a selective agent and "direct selective enrichment" broth cultures containing an agent selective for *Salmonella* and inhibitory for competing bacteria (see page 664, *Enrichment Procedures* and **Results**). Gabis teaches exemplary high moisture foods suitable for testing as pork and chicken (poultry) among others (page 665, Table1).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to have inoculated the test lot samples disclosed by FSIS in view of Price and Midura into individual broths containing a selective agent for *Salmonella* because Gabis teaches that the individual enrichment broth culture may or may not contain a selective agent for the

target organism. Further, it would have been *prima facie* obvious to have tested pork and /or poultry because Gabis teaches that the method is suitable for such high moisture foods.

Response to Patent Owner's arguments:

Patent owner submits no additional arguments in response to Ground 24 of rejection.

Ground # 25:

Claim 28 is unpatentable as obvious over Jarvis in combination with FSIS, Midura, and Andrews (see SNQ #69 at pages 96-97 of the Request).

This rejection was proposed by the third party requester and **is adopted** for the reasons stated in the request and for those reasons set forth in the office action mailed 05/26/10. The proposed rejection at pages 96-97 and the claim chart at page 126 of the request are herein incorporated by reference. The rejection is as follows.

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jarvis in view of FSIS and Midura, as applied to claims 1 and 4 above, and further in view of Andrews.

As was set forth *supra* in Ground 1, which is incorporated herein by reference in its entirety, Jarvis in view of FSIS and Midura teaches a method of sampling and testing food test lots for microbial contamination comprising collecting a plurality of portions from each of a plurality of test lots, combining the portions to provide a corresponding set of test lot samples, separately incubating the test lot samples to enrich for the target microbial agent or organism, removing portions of the test lot sample cultures, combining them into a modular composite sample and testing the composite sample for the presence of the target agent or organism. None of Jarvis, FSIS, or Midura teaches the enrichment medium in the individual broth cultures as comprising a selective agent for the target organism which inhibits the growth of competing bacteria.

Andrews teaches selective enrichment for *Salmonella*, wherein the enrichment medium contains an agent which is selective for the target organism and inhibitory for competing

bacteria. Andrews teaches that the use of two or more selective media provides greater method sensitivity than a single enrichment medium (see page 360, column 2, lection 37.124).

One of ordinary skill in the art at the time of the invention would have found it *prima facie* obvious to have included a selective agent in the pre-enrichment both cultures of Jarvis in view of FSIS and Midura because Andrews teaches that the use of two or more selective media improves method sensitivity.

Response to Patent Owner's arguments:

Patent owner submits no additional arguments in response to Ground 25 of rejection.

Ground # 26:

Claim 32 is unpatentable as obvious over Jarvis in combination with FSIS, Midura, and BAM and ICMSF.

This rejection was proposed by the third party requester (see SNQ #77 at pages 102-103, of the Request) but is **not adopted** for the following reasons.

Claim 32 was included in Ground 1 as unpatentable over Jarvis, in view of FSIS and Midura, because FSIS teaches the claimed limitation of meat trim pieces (see Ground 1). Therefore, the proposed rejection of the same claim 32 over Jarvis, in view of FSIS, Midura BAM and ICMSF, is improper because the combination of Jarvis, FSIS, and Midura does not have a deficiency which would require modification by BAM and ICMSF in order to meet the limitations of the claim. Furthermore, Requester points to page 135 of ICMSF as providing the teaching of meat trim pieces which Requester alleges is absent from the combination of Jarvis in view of FSIS and Midura (see page 103 of the request). However, this teaching does not appear to be present at page 135 of ICMSF. Therefore, for these reasons, the proposed rejection **is not adopted**.

Response to arguments:

Neither the Patent owner nor the Requester provided arguments regarding the non-adoption of Ground 26 of Rejection. Therefore, the examiner's position remains unchanged.

Response to the Samadpour and Koohmaraie Declarations:

Although not specifically addressed in Patent owner's arguments in response to individual grounds of rejection, the Samadpour and Koohmaraie Declarations, which were submitted with the Comments filed 07/26/10, appear to have been submitted in support of Patent owner's response of 07/26/10. The Declarations have been fully considered but are not persuasive for the following reasons.

Samadpour Declaration:

Dr. Samadpour (sole inventor of the '584 patent) states at ¶6 that his Declaration is intended to "...Declare and corroborate the inventive and nonobvious nature of wet composite inter-lot pooling..." and to provide a "...nexus between the claimed invention and the commercial success of the implemented procedures".

With respect to obviousness, Dr. Samadpour asserts that the person of ordinary skill would not have relied upon results from a test that utilized enrichment only, due to dilution of the organism and competition from non-target organsms (¶8). Dr. Samadpour additionally asserts that the prior art teaches away from combining lumping and pooling in a single scheme and that the prior art was limited to the pre-enrichment level limited to *Salmonella* for release of a single lot of product. As has been discussed herein in response to Patent owner's arguments, with the exception of claims 4 and 28, the claims do not require a selective pre-enrichment broth, but rather simply recite incubating under conditions suitable to allow levels of the target microbial agent to increase or to reach detectable levels. The pre-enrichment broth cultures of the prior art of record (Jarvis, Price, Silliker, and Gabis, for example) fully meet this limitation, as it is recited in the claims. As for claims 4 and 28, which specifically require incubation in an enrichment medium (described as selective enrichment medium in the '584 patent specification), while the prior art of record teaches that it was routine in the art at the time of the invention to inoculate specimens directly into an enrichment broth (see Jarvis at page 135, Section 8.4), the prior art of record is generally silent as to the merits of inoculating lumped specimens into selective enrichment medium vs. pre-enrichment medium, with the exceptions of Gabis, who recommends pre-enrichment over direct enrichment for high moisture foods (see Gabis abstract) and Price, who teaches that when problems with interfering organisms are encountered, direct inoculation

of samples into selective enrichment medium or two selective enrichments, rather than pre-enrichment medium, should be performed (see Price at page 682, first full paragraph). The alternative method described by Price comprises inoculation of individual food samples directly into selective enrichment broths (as an alternative to pre-enrichment broth cultures) and subsequent wet-composite pooling of the enrichment broth cultures into a second enrichment broth for detection of the target organisms. It is noted that the instant claimed methods comprise the recited steps; they do not exclude additional steps, such as the additional selective enrichment step described by Price.

The inter-lot vs. intra-lot argument has also been discussed at length. To summarize, the patent specification and the instant claims themselves define a lot as an assemblage of one or more specimens. The prior art of record which teaches inoculation of single specimens into pre-enrichment broth cultures and subsequent wet-compositing of the broth cultures for detection of the target agent meet the limitation of inter-lot pooling, as is recited in the instant claims. The claims do not require more than a single specimen per "lot". Additionally, contrary to the assertions in the Samadpour Declaration, the prior art of record also teaches inoculation of pre-enrichment broth cultures with lumped specimens followed by wet-compositing of the broth cultures for detection of the target organism. See for example, Silliker at page 178, Discussion, first full paragraph.

Dr. Samadpour's statement at ¶8 that the prior art of record is limited to a single organism, *Salmonella*, is noted; however, the person of ordinary skill in the art at the time of the invention would have understood the testing schemes for *Salmonella* contamination to be exemplary of testing schemes for pathogenic bacteria in general, as *Salmonella* was known in the art at the time of the invention to be one of the most frequently encountered enteric pathogenic bacterial contaminants in food. Even so, the prior art of record in combination does address testing for pathogens other than *Salmonella*. See for example, FSIS, which is directed to testing for *E. coli* O157:H7, and Entis, which is directed to testing for a range of microbial pathogens (see especially, page 101, column 1, second through fourth paragraphs).

Regarding the statements in the Samadpour Declaration attesting to commercial success (¶¶ 10-12), it is noted that in asserting commercial success to support nonobviousness, Patent owner bears the burden of proof of establishing a nexus between the claimed invention and

evidence of commercial success. Further, objective evidence of nonobviousness including commercial success must be commensurate in scope with the claims and should be directly derived from the invention claimed. In considering evidence of commercial success, care should be taken to determine that the commercial success alleged is directly derived from the invention claimed, in a marketplace where the consumer is free to choose on the basis of objective principles, and that such success is not the result of heavy promotion or advertising, shift in advertising, consumption by purchasers normally tied to applicant or assignee, or other business events extraneous to the merits of the claimed invention, etc. (see MPEP 716. 03).
The statements in the Samadpour Declaration (¶¶ 10-12) are general statements directed to percentage increase in sampling and testing costs of the wet composite inter-lot pooling methods as a disincentive for customers to adopt the method and general growth of IEH company sales. As such, they do not address these issues and therefore do not establish the required nexus between the claimed invention and commercial success.

Koohmaraie Declaration:

The Koohmaraie Declaration asserts that post-enrichment inter-lot pooling, as disclosed and claimed in the current patent, has been rapidly and widely adopted for testing beef for *E. coli* O157:H7 despite increased expense over the prior method of the 5 combo bin lot (¶13). The Declaration also presents corroborative data to this effect.

While the Koohmaraie Declaration does not provide a detailed description of the method referenced as the 5 combo bin lot method, the 5 combo bin method appears to be a lumping method in which samples from 5 different bins are lumped together for testing. Presumably, they are lumped and inoculated into a single enrichment broth culture, as opposed to inoculation and incubation of samples from each of the in individual enrichment broth cultures, as in the claimed method. While it is agreed that the data presented in the Koohmaraie Declaration demonstrates a decrease in the number of bins which are unnecessarily discarded upon obtaining a positive result due to the subsequent ability to test broth cultures inoculated with the individual bins, the comparison does not speak to the obviousness of the claimed method over the prior art of record. All of the prior art rejections of record herein are based on methods of incubating samples or lots individually in broth cultures prior to pooling and identification. For this reason,

the Declaration is not sufficient to overcome the *prima facie* obviousness rejections, which are set forth herein.

Dr. Koohmaraie states (¶14) that "...largely because of IEH's implementation of its modular inter-lot pooling methods, IEH provides laboratory testing for about 30% of the cattle processed in the United States and about 40% of the cattle processed in Canada". Assuming that this statement is made with regard to commercial success, once again, such demonstration of commercial success must be based on an established nexus between the claimed invention and the commercial success. Such a nexus has not been established in the Declaration or in the supporting documents and as such, the assertion of commercial success is insufficient to overcome the obviousness rejections of record.

Rejections Necessitated by Amendment

Claim Rejections - 35 USC § 112

Claims 1, 17, 34 and 35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 17, 34, and 35 have been amended to recite a modular inter-lot composite sample. Introduction of the term "inter-lot" introduces ambiguity into the claims because the specification fails to set forth the metes and bounds of what constitutes a modular "inter-lot" composite sample. The '584 disclosure describes more than one kind of "lot" but does not set forth the meaning of the general term "lot" *per se*. The specification defines a "test lot" or "reportable lot" as an assemblage of one or more specimens of a medium or process (column 5, lines 20-23), defines "compositing" as combining a number of single product portions to form one larger sample (column 5, lines 50-52), defines a "test lot sample" or "single-unit production lot sample" or "single production unit lot sample" as a sample formed by combining multiple product portions from a test lot, (*e.g.*, single production unit), such that each test sample (*e.g.*, each single-unit production lot sample) is attributed to a particular corresponding test lot (*e.g.*, production unit) (column 5, lines 57-63), defines "modular composite sample" as a sample formed by removing aseptically, equal portions of each of a plurality of enriched single-unit

production lot samples, and combining the removed portions" (column 6, lines 57-61), and defines a "composite lot-unit" or "five-combo-lot unit" as a composite unit, comprised of five combos (combo-bins)" (column 7, lines 23-24). It is thus not clear if an "inter-lot" composite sample refers to a composite of product portions from one or more specimens of a medium or process, a composite of combos or bins, or to a composite of portions of a plurality of enriched production lot samples. If the term modular inter-lot composite sample is intended to be a composite of portions of enriched production lot samples, it is not clear if the modular inter-lot composite sample of the claims differs from the modular composite sample disclosed in the specification or if it is the same, as there is no *ipsis verbis* support for a modular inter-lot composite sample found in the specification which either distinguishes from or equates the modular inter-lot composite sample with the modular composite sample. It is also not clear from the specification or the claims themselves if the modular inter-lot composite sample is restricted to combined composited portions of broth cultures or if it also encompasses a number of single product portions combined to form one larger sample, as per the definition of "compositing", which is set forth above. The claims do not specifically require inoculation of enrichment broths for pooling into a modular inter-lot composite sample.

Claims 2-16, 18-33, and 36 are also rejected under 35 U.S.C. 112, second paragraph, as depending from a rejected base claim.

Claims 1, 17, 34 and 35 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a rejection for new matter.

As is discussed above, the claims have been amended to recite a modular inter-lot composite sample. The specification fails to provide a supporting disclosure for the term "inter-lot". As was set forth above, various definitions for different kinds of lots are disclosed therein as "test lot", "reportable lot", "single-unit production lot", "single production unit lot", "composite lot-unit", or "five-combo-lot unit". There is no definition or contemplation of a

"lot" *per se* and no disclosure of a modular inter-lot composite sample, as opposed to a modular composite sample. Therefore, the term "inter-lot" constitutes new matter.

Claims 2-16, 18-33, and 36 are also rejected under 35 U.S.C. 112, first paragraph, as depending from a rejected base claim.

Claims 1, 17, 34 and 35 are also rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The first paragraph of 35 U.S.C. 112 states, "The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same...". The courts have interpreted this to mean that the specification must enable one skilled in the art to make and use the invention without undue experimentation. Factors to be considered in determining whether a disclosure meets the enablement requirement of 35 U.S.C. 112, first paragraph, have been described in *In re Colianni*, 195 USPQ 150, 153 (CCPA 1977), have been clarified by the Board of Patent Appeals and Interferences in *Ex parte Forman*, 230 USPQ 546 (BPAI 1986), and are summarized in *In re Wands* (858 F2d 731, 737, 8 USPQ2d 1400, 1404 (Fed Cir. 1988). Among the factors are the nature of the invention, the state of the prior art, the amount of direction or guidance present, the presence or absence of working examples, and the quantity of experimentation needed.

Claims 1, 17, 34 and 35 have been amended to introduce the limitation, "wherein each test lot is separately sampled according to a statistical sampling plan for a particular microbial agent or organism". The '584 specification discloses the phrase "statistical-based sampling plans" (column 5, 65-66) and discloses that for production lot samples, the number of portions/pieces combined is selected from about 5 to about 100 (column 5, line 66, through column 6, line6). This particular reference appears to be the extent of the '584 patent specification disclosure that is directed to statistical sampling plans. The disclosure does not provide any guidance or direction as to what constitutes a statistical sampling plan, does not set

forth sampling plans for particular microbial agents or organisms, and does not provide any examples of statistical sampling plans for any particular organisms. There is no further disclosure anywhere else in the '584 patent specification directed to statistical sampling plans. There are no working examples directed to statistical sampling plans. The specification also fails to direct the skilled artisan to prior art references outlining statistical sampling plans which could be used to enable the claimed methods. Given the lack of disclosure of what constitutes an appropriate sampling plan for the claimed method or where appropriate sampling plans are elucidated in the prior art, the skilled artisan would be unable to practice the claimed invention absent undue experimentation.

Claims 2-16, 18-33, and 36 are also rejected under 35 U.S.C. 112, first paragraph, as depending from a rejected base claim.

Claim Rejections - 35 USC § 305

Claims 1-36 are also rejected under 35 U.S.C. 305 as enlarging the scope of the claim(s) of the patent being reexamined.

In 35 U.S.C. 305, it is stated that "[n]o proposed amended or new claim enlarging the scope of a claim of the patent will be permitted in a reexamination proceeding ...." A claim presented in a reexamination "enlarges the scope" of the patent claim where the claim is broader than any claim of the patent. A claim is broader in scope than the original claims if it contains within its scope any conceivable product or process which would not have infringed the original patent. A claim is broadened if it is broader in any one respect, even though it may be narrower in other respects. The claims are rejected for the introduction of new matter, as is set forth *supra*.

While the '584 patent specification sets forth specific categories of "lots" which are encompassed within the claimed invention, as was previously set forth herein, it fails to contemplate a "lot" *per se*, which is a broader recitation than the more specific "test lot", "reportable lot", "single-unit production lot", "single production unit lot", or "composite lot-unit". The introduction of the term "inter-lot" therefore broadens the scope of the claims due to the introduction of the new matter.

Other Issues

It is noted that an issue not within the scope of reexamination proceedings has been raised. On pages 46-47 of the Requester's Comments filed 08/25/10, Requester states that new claim 36 is improper because it was previously not elected in response to a restriction requirement during the prosecution of the application which issued as the '584 patent. The issue will not be considered in a reexamination proceeding. 37 CFR 1.552(c). While this issue is not within the scope of reexamination, the patentee is advised that it may be desirable to consider filing a reissue application provided that the patentee believes one or more claims to be partially or wholly inoperative or invalid based upon the issue.

Duty to Disclose

The patent owner is reminded of the continuing responsibility under 37, CFR 1.985 to apprise the Office of any litigation activity, or other prior or concurrent proceeding, involving Patent No. 7,534,584 throughout the course of this reexamination proceeding. The third party requester is also reminded of the ability to similarly apprise the Office of any such activity or proceeding throughout the course of this reexamination proceeding.

Conclusion

This is an ACTION CLOSING PROSECUTION (ACP); see MPEP § 2671.02.

(1)Pursuant to 37 CFR 1.951(a), the patent owner may once file written comments limited to the issues raised in the reexamination proceeding and/or present a proposed amendment to the claims which amendment will be subject to the criteria of 37 CFR 1.116 as to whether it shall be entered and considered. Such comments and/or proposed amendments must be filed within a time period of 30 days or one month (whichever is longer) from the mailing date of this action.

Where the patent owner files such comments and/or a proposed amendment, the third party requester may once file comments under 37 CFR 1.951 (b) responding to the patent owner's submission within 30 days from the date of service of the patent owner's submission on the third party requester.

(2) If the patent owner does not timely file comments and/or a proposed amendment pursuant to 37 CFR 1.951 (a), then the third party requester is precluded from filing comments under 37 CFR 1.95 l(b).

(3) Appeal cannot be taken from this action, since it is not a final Office action.

Correspondence

All correspondence relating to this inter partes Reexamination proceeding should be directed to:

By EFS:

Registered users may submit via the electronic filing system EFS-Web at

https://sportal.uspto.gov/authenticate/authenticateuserlocalepf.html

By Mail to:
Attn: Mail Stop "Ex Parte Reexam"
Central Reexamination Unit
Commissioner for Patents
P. O. Box 1450
Alexandria VA 22313-1450

By FAX to:
(571) 273-9900
Central Reexamination Unit

Hand-deliver any communications to:
Customer Service Window
Attn: Central Reexamination Unit
Randolph Building, Lobby Level
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit at telephone number (571) 272-7705.

Signed:

/Brenda Brumback/
Patent Reexamination Specialist, CRU-3991

Deborah D. Jones
Supervisory Patent Examiner
CRU - Art Unit 3991

PADMASHRI PONNALURI
PRIMARY EXAMINER
CRU - AU 3991

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	95001294
	Filing Date	2009-05-19
	First Named Inventor	Samadpour
	Art Unit	3991
	Examiner Name	Brenda G. Brumback
	Attorney Docket Number	2781-129

/B.B./	1	BERRI, Mustapha et al., "The detection of Coxiella burnetii from ovine genital swabs, milk and fecal samples by the use of a single touchdown polymerase chain reaction," Veterinary Microbiology, 72: 285-293 (2000)	☐

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	/Brenda Brumback/	Date Considered	11/18/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	95001294
	Filing Date	2010-04-05
	First Named Inventor	Mansour Samadpour
	Art Unit	N/A
	Examiner Name	N/A
	Attorney Docket Number	66090-008US2

/B.B./	1	JARVIS, "Errors Associated With Quantal Response Methods," STATISTICAL ASPECTS OF THE MICROBIOLOGICAL EXAMINATION OF FOODS, Chapter 8, pp. 143-176, 2008, Academic Press, Amsterdam, London, and San Diego	☐
/B.B./	2	JARVIS, "On the compositing of samples for qualitative microbiological testing," Letters in Applied Microbiology, 2007, pp. 592-598, Volume 45	☐
/B.B./	3	SILLIKER et al., "Laboratory Methods," FOOD-BORNE INFECTIONS AND INTOXICANTS," Chapter XI, pp. 455-474, 1969, Academic Press, New York and London, Edited by Hans Riemann	☐
/B.B./	4	THOMAS et al., "Examination of Stockfeeds for Salmonella," Australian Veterinary Journal, 1981, pp. 69-71, Volume 57	☐

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Examiner Signature	/Brenda Brumback/	Date Considered	11/18/2010

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