USDA
United States Department of Agriculture

Controls Over Inspection of Exported Grain

Audit Report 30601-0001-21

December 2018

OFFICE OF INSPECTOR GENERAL

Controls Over Inspection of Exported Grain

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OIG reviewed FGIS' controls over export grain inspection and weighing.

OBJECTIVE

To evaluate and test controls over the inspection and weighing process for exported grains.

REVIEWED

We reviewed the process to inspect export grain and the process used to weigh grain exports to determine if they conformed to established standards. We also reviewed statutory requirements and GIPSA's policies, procedures, directives, and standards. We also observed grain inspection and weighing activities at grain export locations.

RECOMMENDS

We recommended that AMS complete a risk assessment of all processes used to extract, share, calculate, or input data into FGISonline; implement a plan of action to ensure compliance with QMP requirements; and document the methodology used to prepare the FGIS annual report to Congress.

WHAT OIG FOUND

The Agricultural Marketing Service's (AMS) Federal Grain Inspection Service (FGIS) officially inspects and weighs export grain and provides the shipper with official certificates showing the official grade designation and certified weight. Official inspection certificates provide accurate, official descriptions of the grade, class, and condition of grain. Official weight certificates contain the weight of the grain exported, as measured by accurate scales.

We determined that while FGIS has adequate controls over export grain inspection and weighing, FGIS can still improve its information technology. Specifically, although FGIS developed the FGISonline system to improve its grain inspection program's efficiency and effectiveness, FGISonline applications continue to rely on manual processes to extract, compute, input, and share data. This results in program inefficiencies, reduced assurance of data accuracy and reliability, and reduced traceability of inspection results throughout the inspection cycle. We also determined that FGIS field offices did not successfully develop and implement a quality management program (QMP) to resolve the root causes of issues identified in their reviews.

Finally, the Grain Inspection, Packers and Stockyards Administration (GIPSA) FGIS 2016 Annual Report to Congress contained errors and data that we could not verify. If the information presented in this report is not accurate and reliable, Congress, the Department of Agriculture (USDA), and stakeholders cannot determine GIPSA's progress and effectiveness concerning FGIS' inspection and weighing activities.

AMS officials concurred with our findings and recommendations, and we accepted management decision on all six recommendations.

United States Department of Agriculture
Office of Inspector General
Washington, D.C. 20250

DATE: December 13, 2018

AUDIT NUMBER: 30601-0001-21

TO: Bruce Summers
Administrator
Agricultural Marketing Service

ATTN: Frank Woods
Chief, Internal Audits
Compliance Safety & Security Division

FROM: Steve Rickrode
Acting Assistant Inspector General for Audit

SUBJECT: Controls Over Inspection of Exported Grain

This report presents the results of the subject audit. Your written response to the official draft is included in its entirety at the end of the report. We have incorporated excerpts from your response, and the Office of Inspector General's (OIG) position, into the relevant sections of the report. Based on your written response, we are accepting management decision for all six audit recommendations in the report, and no further response to this office is necessary. Please follow your internal agency procedures in forwarding final action correspondence to the Office of the Chief Financial Officer (OCFO).

In accordance with Departmental Regulation 1720-1, final action needs to be taken within 1 year of each management decision to prevent being listed in the Department's annual Agency Financial Report.

We appreciate the courtesies and cooperation extended to us by members of your staff during our audit fieldwork and subsequent discussions. This report contains publicly available information and will be posted in its entirety to our website (http://www.usda.gov/oig) in the near future.

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Background and Objectives

Background

The United States Grain Standards Act (USGSA) of 1916 authorized the Secretary of Agriculture to establish uniform standards for all grain shipped in foreign and domestic commerce.[1,2] In 1976, USGSA was amended to establish the Federal Grain Inspection Service (FGIS) as the Federal-level administrator for the grain inspection and weighing system.[3] In 1994, FGIS and the Packers and Stockyards Administration were joined by the Secretary of Agriculture to create the Grain Inspection, Packers and Stockyards Administration (GIPSA). In November 2017, the Secretary of Agriculture placed GIPSA under the Agricultural Marketing Service (AMS), and FGIS became a mission area of AMS.

FGIS' primary mission is to promote the marketing of high-quality grain to domestic and international buyers and maintain objective standards for grain to certify its quality as accurately as practicable. These standards define uniform and descriptive terms to facilitate the grain trade, help determine grain storability, offer users the best possible information to determine end-product yield and quality, provide market incentive frameworks, reflect the economic value-based characteristics to end-users, and accommodate scientific advances in the testing of grains.

Under the provisions of USGSA, FGIS must officially inspect and weigh export grain sold or described by grade and must provide the shipper with a valid, official certificate showing the official grade designation (for example, U.S. No. 1, U.S. No. 2, and U.S. No. 3) and certified weight. Additionally, FGIS must test export corn for aflatoxin prior to shipment unless the sales contract stipulates that such testing is not required.[4] The mandatory inspection and weighing requirements were waived for: (1) grain exporters shipping less than 15,000 metric tons of grain abroad annually; (2) grain exported by rail or truck to either Canada or Mexico; (3) grain exported for seeding purposes and sold and invoiced as seed; (4) grain transshipped through the United States; and (5) high-quality specialty grain, such as organic grain or grain exceeding the grade limits for U.S. No. 1 grain, shipped in containers.

FGIS personnel perform official grain inspections on official samples in accordance with regulations.[5,6] Official inspection certificates provide accurate, official descriptions of the grade, class, and condition of grain. Official weight certificates contain the weight of the grain exported, as measured by accurate scales, and certify that official personnel monitored the

[1] Grain includes corn, wheat, rye, oats, barley, flaxseed, sorghum, soybeans, canola, sunflower seed, triticale, mixed grain, and any other food grains, feed grains, and oilseeds.
[2] United States Grain Standards Act of 1916, Pub. L. No. 64-190, as amended (codified at 7 U.S.C. §71 et seq.).
[3] United States Grain Standards Act of 1976, Pub. L. No. 94-582, 90 Stat. 2868.
[4] Mycotoxins (aflatoxin, deoxynivalenol, fumonisin, zearalenone, and ochratoxin A) are toxic substances naturally produced by fungi (molds) that may contaminate agricultural commodities.
[5] An official sample is a grain sample obtained by official personnel in a reasonably continuous operation, representative of the grain in the lot and protected from manipulation, substitution, and improper or careless handling.
[6] Grain quality requirements and variability tolerance levels are set by regulation under 7 CFR §800.86.

movement of the grain through the facility, including the scale and grain sampler, to the point of discharge into the stowage area.[7]

FGIS provides mandatory grain inspection and weighing services on a fee-for-service basis at 45 grain export locations and oversees 5 delegated States that provide official services at an additional 13 grain export locations.[8] In addition to performing mandatory inspection and weighing services, FGIS also provides stowage examination services and conducts or supervises testing of equipment used for grain sampling, grading, inspection, and weighing.[9]

FGIS headquarters offices are located in Washington, D.C. and the National Grain Center in Kansas City, Missouri. FGIS is comprised of four divisions: (1) the Technology and Science Division (TSD), (2) the Departmental Initiatives and International Affairs (DIIA), (3) the Quality Assurance and Compliance Division (QACD), and (4) the Field Management Division (FMD).

- TSD develops, maintains, improves, and supports all official test methods for grain, rice, beans, peas, and lentils. TSD provides reference materials for conducting visual inspection and lab tests (for example, protein, oil, and mycotoxin content analysis) for grain, instrument calibration of inspection equipment (for example, moisture meters, test weight devices, dockage machines, and sieves), biotechnology laboratory accreditation of private testing labs conducting DNA-based testing for biotechnology derived grains, performance verification for rapid test kits used in testing biotechnology derived grains, technical training, quality control and standardization processes, and final inspection appeals. TSD also develops and maintains internationally accepted reference methods for protein, oil, moisture, starch, and mycotoxins, and develops and maintains reference guides for visual inspection methods, such as damage, class, appearance, and all other visually determined quality attributes of grain.

- DIIA administers all GIPSA international programs.[10] DIIA addresses disruptions in grain trade related to the quality, sanitary, or phytosanitary (sanitary with regard to pests and plant disease) attributes of grain export shipments and investigates discrepancies reported by importing countries on the quality or weight of GIPSA-certified export grain shipments.

- QACD is responsible for protecting the integrity of the national grain inspection and weighing system. QACD conducts reviews and evaluations and, as necessary, initiates enforcement actions to ensure procedural conformance and operational efficiency nationwide.

[7] A stowage area is the area of a carrier or container into which grain will be loaded.
[8] A delegated State is a State agency delegated authority under USGSA to provide official grain inspection and weighing services at one or more export port locations in the State. The five delegated States are Alabama, South Carolina, Virginia, Washington, and Wisconsin.
[9] A stowage examination is a service performed by official personnel who visually inspect an identified carrier or container and determine if the stowage areas are clean, dry, free of infestation, rodents, toxic substances, and foreign odor and suitable to store or carry bulk or sacked grain, rice, beans, peas, lentils, or processed commodities. A prior-to-loading stowage examination is required for export grain.
[10] As part of the November 2017 Department of Agriculture (USDA) reorganization, DIIA is now the International Affairs Division.

- FMD is responsible for the overall planning, development, administration, and management of all grain inspection and weighing activities. This division is also responsible for developing and executing inspection and weighing programs, policies, and procedures. FMD directs and oversees the operation of all FGIS field offices and delegated State offices. FGIS maintains seven field offices nationwide in Stuttgart, Arkansas; New Orleans, Louisiana; Grand Forks, North Dakota; Toledo, Ohio; Portland, Oregon; League City, Texas; and the Domestic Inspection Operations Office in Kansas City, Missouri. There is also one Federal/State office located in Olympia, Washington.

For fiscal year (FY) 2016, FGIS reported in its annual report to Congress that of the 554.9 million metric tons (Mmt) of grains produced in the United States, 133 Mmt were exported.[11] For FY 2016, FGIS officially inspected 85.7 Mmt of export grain. FGIS field offices conducted 116,322 official grain inspections and issued 78,539 weight certificates resulting in $45.5 million in user fee revenues.

Grain Inspection Process

As part of the grain sales agreement, the buyer will specify the type and quantity of grain the seller will deliver to the shipper for export to the destination country. The sales agreement specifies the grain quality designation (for example, U.S. No. 1, U.S. No. 2, or U.S. No. 3) and the grain quality attributes acceptable for shipping (for example, moisture percentage, protein percentage, foreign materials percentage, and broken kernels percentage). The shipper transfers these export grain specifications to a load order that accompanies a request for grain inspection and weighing services from FGIS. FGIS will transfer the load order specifications to a Uniform Shiplot and Combined Lot Inspection Plan (CuSum plan) for use in inspecting grain to ensure it meets the buyer's specifications.

The grain inspection process requires continuous sampling during loading, and FGIS officials examine grain at periodic intervals based on established sublots (grain quantities established in the CuSum plan). A sublot sample must be uniform in size and may represent as much as 100,000 bushels when loading cargo ships. Sublots are dependent on certain restrictions, depending on the type of grain being inspected, or may be established by the buyer/shipper. As shippers transfer grain from storage units (silos) to the transport ship using conveyor belts, a mechanical sampling device automatically diverts a grain sample from the conveyor belt to the FGIS inspection facility. When the quantity of grain loaded onto a ship reaches the established sublot quantity, FGIS officials will inspect the grain sample collected.

Grain inspection procedures consist of grain quality analysis using laboratory equipment and visual inspection. The grain inspection process begins with an aroma test and visual inspection of the grain sample. Inspectors smell for a sour, musty, or objectionable foreign odor and visually examine the grain sample for insects, heating, distinctly low quality, or other unusual conditions. If the grain sample includes one or more of these conditions, the entire grain sublot is designated a material portion and may be removed from the ship, or it may remain on the ship

[11] FGIS obtains grain production records from USDA's National Agricultural Statistics Service.

and be certified as a separate lot.[12] Grain samples that pass the aroma and visual inspection tests are subdivided into several work samples to be used for lab analysis and visual inspection. FGIS inspectors use special lab equipment to reduce the size of a grain sample into sub-samples, referred to as work samples, while maintaining the representativeness of the original sample. FGIS lab technicians use work samples to conduct grain quality analysis using lab equipment to determine grain attributes such as the grain weight per bushel; moisture content; protein, oil, and starch content; and percentage of foreign matter. FGIS inspectors use rapid test kits when testing grain for levels of mycotoxins (aflatoxin, deoxynivalenol, fumonisin, zearalenone, and ochratoxin A). FGIS inspectors also use work samples to grade the quality of grain (for example, U.S. No. 1, U.S. No. 2, and U.S. No. 3) by visually inspecting grain work samples. FGIS inspectors visually examine grain work samples to determine the percentage of damaged kernels, broken kernels, foreign material (for example, stones and stems), and the presence of other grains in the sample.

FGIS inspectors record the results of their lab analysis and visual inspections on the CuSum plan for each grain sublot they inspect. They compare the results to the grain attribute specifications listed on the CuSum plan. Although the grain quality results of an individual sublot may fluctuate above or below the grain quality specifications, the average grain quality of all sublot grain inspection results must meet or exceed the grain quality specifications stated in the CuSum plan. If grain quality results for each sublot exceed the CuSum plan breakpoints (grain quality specifications plus or minus established variance levels), the entire sublot is designated a material portion and the grain sublot may be removed from the ship, if already loaded, or it may remain on the ship and be certified as a separate lot. Final grain quality averages for the entire lot (all sublots combined), as specified in the initial load order, are calculated on the CuSum plan and input to the FGISonline system.[13] Once the final grain inspection results are updated to FGISonline, the official grain inspection certificate listing the inspection results is printed and delivered to the shipper and/or buyer.

Grain Weighing Process

In addition to grain quality attributes, the load order specifies the quantity of grain to be loaded onto the cargo ship. FGIS inspectors weigh export grain using an electronic weighing system that includes a grain load receiving element (such as a bin, basket, or hopper that sits atop the scale), an indicating element that captures the weight of grain in the scale load receiving element, a printer, and associated grain handling equipment. Load cells sense the volume of applied load in the load receiving element and produce an output voltage that is sent to a digital instrument that converts the output voltage into a digital display. The tape printer records the digital display to a tape or ticket for a permanent record. Digital instruments have a process control that allows operators to control grain flow into and out of the weight scales manually or by automatic mode. In the automatic mode, the scale hopper fills and empties by itself. In the manual mode, the

[12] A sublot is designated a material portion if any grain factor (for example, moisture content, protein level, and broken kernels) has a CuSum value that exceeds the allowable breakpoint. A sublot is also designated a material portion if a grain factor exceeds the load order limit when the contract specifies the factor result cannot exceed the specified limit.
[13] FGISonline is comprised of 18 stand-alone SQL databases referred to as FGISonline applications.

operator controls the filling and emptying of the scale hopper. FGIS officials are responsible for monitoring the electronic weighing system and recording weighing results on a weight loading log. Fully automated electronic weighing systems systemically update an electronic weight loading log, which FGIS officials must verify for completeness and accuracy.

At the beginning of each work shift, FGIS personnel must test the electronic weighing system and ensure that the load receiving elements of the scale are free from binds, obstruction, and debris. FGIS personnel will also observe the digital display in the empty scale condition, establish a reference for the operating tare weight, verify that the weight display value on the digital instrument is identical to the printed value on the scale tape, and document all these checks on the scale tapes and weight loading log.[14] When grain loading commences, at the end of each sublot or pre-determined interval, FGIS personnel will total and record the sublot weight on the scale tape and the weight loading log and initial the tape. During loading, FGIS personnel will also update a grain spills log if any grain is accidently spilled onto the dock, ship decks, or into the water. FGIS personnel deduct grain spills from the weight loading log weight totals. The weight loading log is updated to the FGISonline system. Once FGIS personnel enter the weight loading log data in FGISonline, an official weight certificate is printed and provided to the shipper and/or buyer.

Grain Inspection and Weighing System of Record

In 2002, GIPSA embarked on an enterprise architecture project to develop an information technology (IT) system architecture for both FGIS and Packers & Stockyards Administration programs. GIPSA officials derived the eGov tactical plan from their strategic plan to replace outdated, stove-piped, multi-platform systems in place at that time.[15] The GIPSA eGov initiatives included plans to develop 11 software applications for FGIS with an estimated cost of $4.5 million and an estimated delivery date of August 2008. FGIS' IT system development work, referred to as the GIPSA Application Modernization (GAM) program, began in 2003 after agency officials awarded a contract, which expired in 2007, to a third-party software developer. The initial eGov tactical plan identified multiple applications to be developed based on the high volume of tables (databases) that would be required to automate all grain inspection and weighing processes as well as the need for faster system and data recovery. The IT system was designed using individual, web-based Structured Query Language (SQL) databases for each of the 11 FGIS software applications identified in the eGov tactical plan. In 2006, the direction of the project changed, as multiple software applications were canceled or suspended.

[14] Tare weight is the weight of an empty container (for example, bin, basket, or hopper).

[15] In 2001, the President's E-Government (eGov) task force identified 24 presidential priority eGov initiatives to simplify and unify processes used by the Federal Government. These eGov initiatives drove the need for departments and agencies to develop Enterprise Architecture. In February 2002, the Office of Management and Budget (OMB) created the Federal Architecture Program Management Office, which had stewardship for the eGov initiatives. Enterprise Architecture is comprised of four architectures: (1) the Enterprise Business Architecture describes business functions, key information needs and information flows, (2) the Enterprise Information Architecture captures business information needs and the inter-relationship of that information, (3) the Enterprise Technology Architecture describes the business application needs, and (4) the Enterprise Solution Architecture documents the current application portfolio and its coverage of the business functions and information needs of the business.

In 2007, after the Packers & Stockyards Administration pulled out of the project, GAM was renamed "FGISonline" and was released to FGIS for implementation. In 2008, a second software development contract was awarded to a third-party software developer, which expired in 2013, for completion of previously suspended or canceled software applications and enhancements to the FGISonline system. In 2013, software development was suspended in order to be evaluated. After assessing FGIS' future business needs, its existing business processes that support the service request life cycle (from requesting inspection services to billing), and its future-state system requirements to bridge the gap between the future business needs and as-is processes, the focus for further FGISonline enhancements shifted from merely producing inspection and weighing certificates to end-to-end service traceability, including direct billing and certificate creation from collected data. In 2015, a third software development contract was awarded to a third-party software developer for further FGISonline enhancements to automate the existing business processes that support the service request life-cycle, beginning with an applicant's request for service and ending with billing. As of FY 2017, approximately $15 million has been spent on third-party software development contracts for the FGISonline system. It is estimated that an additional 3 years is needed to complete all software development work at an additional cost of approximately $10 million.

Objective

Our objective was to evaluate and test controls over the inspection and weighing process for exported grains.

Section 1: Service Delivery Enhancements

Finding 1: AMS Needs to Improve FGISonline to Modernize the Inspection and Weighing Program

We determined that although FGIS has adequate controls over export grain inspection and weighing, the entire inspection and weighing cycle is comprised of manual processes that should be automated. Although FGIS developed the web-based FGISonline system to modernize its grain inspection program and improve program efficiency and effectiveness, we determined that the FGISonline applications used to record the results of grain inspection and weighing activities need system enhancements to extract, compute, input, and share data needed to accomplish business functions.[16] This situation exists because FGIS designed its FGISonline applications as independent SQL databases to maintain data needed to produce specific outputs, such as printing certificates and invoices. Consequently, most FGISonline applications are stand-alone databases that do not allow data to be extracted, shared, or communicated with other complementary applications. For example, the application used for stowage examination certificates cannot interface or communicate with the billing application. Since data cannot be shared across applications, end users must manually extract, compute, and input data for each application. In some cases, end users must manually enter the same information into more than one application. As a result, FGISonline applications are not integrated, and their functionality is limited to the specific outputs for which they were designed, such as printing certificates. Additionally, because FGISonline relies heavily on manual data entry, outputs such as certificates and invoices may contain errors. Because these certificates are used to verify the quality and quantity of grain, it is critical that they be accurate to preserve the integrity of USDA's certification. Additionally, due to the use of manual procedures and computations for data needed between applications, users have limited ability to trace inspection results throughout the entire inspection cycle.

Office of Management and Budget (OMB) Circular A-123 states, "Federal leaders and managers are responsible for establishing and achieving goals and objectives, seizing opportunities to improve effectiveness and efficiency of operations, providing reliable reporting, and maintaining compliance with relevant laws and regulations."[17] Additionally, the Government Accountability Office (GAO) *Standards for Internal Control in the Federal Government* states, "management should design the entity's information system and related control activities to achieve objectives and respond to risks. Information technology enables information related to operational processes to become available to the entity on a timelier basis." The design of information systems should ensure that information/transactions are complete, accurate, and valid.[18]

[16] GIPSA modernized its grain program business functions through development of FGISonline, which GIPSA believed would improve internal program efficiencies and effectiveness. 75 Fed. Reg. No. 244 (Dec. 21, 2010).
[17] OMB, *Management's Responsibility for Internal Control*, Circular A-123 (Dec. 21, 2004, amended July 15, 2016).
[18] GAO-01-1008G, *Internal Control Management and Evaluation Tool* (August 2001) and GAO-14-704G, *Standards for Internal Control in the Federal Government* (September 2014).

The FGISonline system is comprised of 18 stand-alone SQL databases, referred to as applications, that capture data referenced by other FGISonline applications and used by end-users for lookup and reporting purposes. The four primary FGISonline applications used in grain inspection and weighing activities are the Inspection, Testing, and Weighing (ITW) application, Certificates (CRT) application, Inspection Data Warehouse (IDW) application, and GIPSA Billing Application (GBA). Grain inspection results for each sublot of grain inspected are manually recorded on the CuSum plan (inspection log). Grain weight results for each sublot of grain weighed are manually recorded on the weight loading log. First, FGIS officials manually input the CuSum plan and weight loading log results into the ITW application. Next, the final grain inspection data (the average of all sublot inspection results on the CuSum plan) and the final grain weight loading data (the total of all sublots weighed on the weight loading log) are calculated and used by: (1) the CRT application to print official inspection and weight certificates, and (2) the IDW application to store grain inspection and weighing records for customers. FGIS officials use GBA to bill customers for grain inspection and weighing services provided.

FGIS officials stated that because FGISonline applications were designed as stand-alone databases with the intention of generating certificates, FGISonline relies heavily on manual input, which can limit its accuracy and efficiency. Additionally, some applications, such as the CRT application, capture information for printing certificates but do not share this critical information with other applications, such as those used for billing. FGIS is working to address these issues. Since 2013, FGIS has reported in its annual report to Congress that it has been working to streamline and improve FGISonline to better meet the needs of its inspection and weighing program. GIPSA reported in its FY 2016–2020 Strategic Plan that one of its objectives was to improve operational efficiency and accuracy through increased automation. We encourage FGIS to consider the following limitations when implementing solutions.

Limitations of the Manual Process

Through discussion with FGIS officials and field office visits, we learned that FGIS relies on manual processes to extract, compute, input, and share data needed to accomplish business functions.[19] While FGIS officials acknowledged that they are working to automate manual processes through FGISonline, many processes still rely on manual procedures and paper documents. Manual paper-based processes decrease the efficiency of FGIS business functions. Customer billing, which is done through GBA, is one such manual process.[20] During our site visits to FGIS field offices, we observed that GBA requires users to manually extract, compute, and input billing data from paper stowage examination worksheets to generate an invoice instead of automatically extracting, computing, and storing data from FGISonline applications such as the CRT application,

[19] We non-statistically selected three FGIS field offices to visit and assess FGIS' grain inspection process. Those field offices were: (1) League City, Texas; (2) New Orleans, Louisiana; and (3) Portland, Oregon.

[20] GBA records billing documents and accounting information to calculate invoice amounts. GBA interfaces with the Financial Management Modernization Initiative system, which the Animal and Plant Health Inspection Service (APHIS) uses for USDA's marketing and regulatory programs mission area, to perform FGIS' billing and payment processing services. The agencies associated with marketing and regulatory programs are AMS and APHIS.

which already contains this information.[21] This occurred because GBA is a stand-alone application that cannot extract data from complementary FGISonline applications to systematically compute and generate invoices. Billing is a multi-step process that results in a large number of manual entries, as FGIS performs thousands of billable services each day. FGIS officials agreed that the billing application should be enhanced to reduce the need for users to manually extract, compute, and input data, which would increase program efficiency.

FGISonline's reliance on manual processes to extract, compute, and input data increases the likelihood of data input errors occurring, which in turn could compromise the data used for generating certificates and invoices. Through our field office visits, we determined that in order to bill for stowage examination services, FGIS users must manually: (1) identify the correct type of FGIS inspection (stowage or grain) service to bill using tables found in the service fees and billing codes directive, (2) identify the correct fees to apply using the service fees and billing codes tables, (3) compute needed factors (such as the correct number of hours or the correct number of stowage holds to bill), and (4) compute the correct amount of total fees to assess for the stowage examination and input this billing data into GBA to generate an invoice.[22]

Each manual step increases the risk of miscalculation or human error and places the burden on FGIS personnel to correctly calculate fees and remember billing formulas, extenuating factors, and special billing rules. For instance, at one FGIS field office, we observed that an FGIS billing clerk had incorrectly calculated the billing fees for 2 of the 71 stowage inspection certificates we reviewed at that field office.[23] The FGIS billing clerk had incorrectly billed the applicant using the prior year mileage rate of 0.54 cents per mile, instead of the current 2017 rate of 0.535 cents per mile. Additionally, the billing clerk entered the wrong number of billable hours into GBA for a stowage examination. According to the stowage examination worksheet, one inspector started working on the stowage examination at 0600 hours, while a second inspector started at 1200 hours. The billing clerk should have manually calculated the billable start time hours by averaging the start times for both inspectors (0600 hours plus 1200 hours divided by 2) and should have entered 0900 hours as the correct start time. Instead, the billing clerk entered a work start time of 0930 hours. Requiring FGIS officials to identify the correct billing rates, perform manual billing calculations, and enter the billing data manually, as opposed to having FGISonline automatically calculate and generate invoices, increases the likelihood that errors or inconsistent calculations could occur.

We identified other manual processes that are in need of automation to decrease the likelihood of data errors. For example, at another field office, we determined that the weight loading log, which was used to report the quantity of grain loaded onto the cargo

[21] FGIS official service providers enter inspection and weighing results, and produce electronic or paper official inspection and weighing certificates on the CRT application.
[22] The Secretary adjusts fees for inspection services annually. 7 C.F.R. §79(j)(4) (Amended Sept. 30, 2015).
[23] We used a non-statistical random sample methodology to select 100 inspection certificates for review. Each certificate pertained to a grain export shipment from one of the three FGIS field offices selected for visits (League City, Texas—23, New Orleans, Louisiana—71, and Portland Oregon—6).

ship, and grain spill log, which was used to document the quantity of grain spilled while loading the cargo ship, were manually updated, which increased the likelihood of errors occurring. In fact, of the nine weight certificates associated with the grain inspection certificates we reviewed at that field office, two had errors because the quantity of grain spilled into the water, dock, or ship decks was incorrectly tabulated and deducted from the total quantity of grain loaded onto the ship on the weight loading log. Field office personnel agreed that the errors were the result of manual input errors. As a result, two of the nine weight certificates we reviewed for that field office were issued with an incorrect weight. Field office personnel agreed that automating this process would greatly improve the accuracy of the grain spills and weight loading logs as well as the subsequent weight certificates.

In addition to introducing potential data inaccuracies, using manual processes to extract, compute, and input data also reduces the ability to trace inspection results throughout the entire inspection process. This, in turn, hinders the ability to identify and correct potential errors before reporting on those results or issuing inspection certificates and invoices. For example, at one field office, the stowage examination worksheet did not support the number of hours billed on the invoice because the hours billed were calculated manually using two different start times. The stowage examination worksheet listed one inspector's work start time as 1200 hours and a second inspector's work start time as 1300 hours. However, the start time on the invoice was 1230 hours because the FGIS billing clerk had to manually compute the average start time for billing purposes by adding both start times and dividing by two (1200 hours plus 1300 hours divided by 2 equals 1230 hours). Since this was a manual computation, we were not able to match the 1230 hours start time that appeared on the invoice to the start time on the stowage examination worksheet. In fact, we were not able to match the billing hours start times that appeared on the invoice back to the start times on the stowage examination worksheet on 4 of the 71 stowage inspection certificates associated with the grain inspection certificates selected for review at this field office.

In addition to calculating billable hours by averaging the work start times, the billing clerk had to manually calculate stowage examination fees using billing formulas that apply in certain instances (such as when the inspector examined less than five stowage holds or when the stowage inspection was done on weekends, holidays, or after hours). For example, for billing purposes, the minimum number of cargo hold inspections to bill for on a cargo ship stowage examination invoice is five.[24] In instances in which less than five cargo holds were inspected, billing clerks had to ensure that at least five cargo holds were billed instead of the number of cargo holds actually examined that were listed on the stowage examination worksheet. Additionally, if the stowage inspection was done after hours, on weekends, or on holidays, the billing clerk had to multiply the number of stowage holds examined by 1.5 to bill the stowage hold inspections at the time-and-a-half overtime rate. We were not able to match the number of stowage holds examined that

[24] FGIS Directive 9180.74, *Service Fees and Billing Codes*, Jan. 1, 2017, states that a fee of $54.20 per stowage space will be assessed for ship stowage examinations and a minimum of $271 per ship will be charged ($271 per ship divided by $54.20 per stowage space equals a 5 stowage space minimum).

appeared on the invoice to the number of examined stowage holds listed in the stowage examination worksheet for 6 of the 71 stowage inspection certificates associated with the grain inspection certificates selected for review at this field office. In our view, automating the billing application would increase traceability by allowing users to trace billing data back to their source document.

Additional FGISonline Limitations

Additionally, some of the FGISonline applications, like the CRT application, have limitations that reduce their functionality. Our review of stowage examination certificates for shipping containers determined that the FGISonline CRT application did not print the complete shipping container identification number on the certificates. This occurred because the CRT application was designed to only allow 10 characters for the container identification number, even though container identification numbers are 11 characters long. FGIS field office officials explained that this was a carryover from the system used prior to FGISonline and that when the new CRT application was being developed, it was decided that the 10-character container identification number would remain since it had been that way for years. However, FGIS' handbook requires FGIS officials to complete the stowage examination certificate based on the work record (the stowage examination worksheet), which contains the shipping container identification number in its entirety.[25] We maintain that FGISonline should capture complete shipping container identification numbers. Because FGIS' application does not correctly capture the entire shipping container identification number, the stowage examination certificates that it produces are incomplete and, therefore, inaccurate.

Potential Solutions

A majority of the grain inspection manual processes rely on paper-based documents and manual input into one or more of FGISonline's applications. According to GIPSA's FY 2016–2020 Strategic Plan, FGIS' target goal was to have 10 percent of FGIS laboratory equipment and instruments transmitting grain analysis results via automated data capture by FY 2017.[26] However, FGIS did not implement this technology. We believe that FGIS can reduce FGISonline's reliance on manual processes in order to properly record the results of grain inspections and share this data across applications.

For example, during our visits to the FGIS national office and field offices, we observed that laboratory moisture meters, scales, and other measurement and analysis equipment have the capability of connecting to a laptop or computer server to capture lab grain analysis results. We understand that automating other areas of the complex, multi-level grain inspection process may need to be addressed before automating these types of grain

[25] FGIS Directive 9180.48, *Stowage Examination Services*, April 8, 2009.
[26] GIPSA' FY 2016-2020 Strategic Plan targets for percentage of laboratory equipment and instruments transmitting results via automated data capture were increased from 10 percent in FY 2017 to 90 percent by FY 2020.

analysis lab tests.[27] We therefore recommend FGIS assess the entire inspection cycle and identify those manual grain inspection and weighing processes that should be automated within FGISonline to increase the programs efficiency, data reliability, and data traceability. Next, FGIS should develop a plan to enhance automation of all inspection cycle processes to increase the efficiency of the entire inspection process. This plan should document FGIS' assessment and its planned timeline for implementation.

Rather than using FGISonline to modernize and automate its processes, FGIS is still reliant on manual processes. This reliance on manual processes exposes FGIS to input errors, miscalculations, and reduced traceability throughout the inspection process. FGIS officials are aware of system limitations and are working to enhance FGISonline to streamline business processes and improve customer experience. While FGIS has worked to modernize its business activities since 2013, it is our view that the FGISonline applications need additional IT system enhancements to extract, compute, input, and share necessary data. To address this issue, we concluded that FGIS needs to assess FGISonline application limitations and timely implement enhancements to ensure that FGISonline furthers program efficiency and modernization.

Recommendation 1

Complete and document a risk assessment of all processes used to extract, share, calculate or input data into FGISonline to identify system limitations and areas that should be automated to increase efficiency and functionality. The risk assessment should include a ranking of processes that, if automated, would enhance system controls and improve FGISonline's data accuracy and traceability.

Agency Response

FGIS will conduct and document a risk assessment in FY 2019 of all processes used to extract, share, calculate or input data into FGISonline to identify system limitations, as well as areas that should be automated to increase efficiency and functionality. The risk assessment will rank the manual processes in sequence to identify those that provide the greatest enhancement to system controls, data accuracy and traceability. The estimated completion date is May 2019.

OIG Position

We accept management decision for this recommendation.

[27] The FGIS grain inspection cycle consists of multiple processes, such as requests for service, stowage examinations, weighing, visual inspections, laboratory analysis, phytosanitary inspections, and billing for services.

Recommendation 2

Based on the risk assessment, develop and implement a plan of action to timely and systematically automate manual FGIS inspection cycle processes to enhance the program's efficiency.

Agency Response

FGIS will develop and implement a plan of action in FY 2019 based on the outcomes of the conducted risk assessment, which will outline how FGIS can systematically automate manual FGIS inspection cycle processes to enhance the program's efficiency. The plan of action will reflect the rankings established for the manual processes and outline timeframes for accomplishing program efficiencies, including the dependencies and constraints faced by FGIS due to funding and information technology support. The estimated completion date is December 2019.

OIG Position

We accept management decision for this recommendation.

Section 2: Quality Assurance Enhancements

Finding 2: FGIS Needs to Strengthen its Quality Management Program

FGIS field offices did not successfully develop and implement a quality management program (QMP), conduct required QMP yearly reviews, or properly resolve the root causes of issues identified during the reviews. This occurred because FGIS did not take steps to ensure each field office successfully implemented a QMP to monitor field office compliance with statutory requirements and GIPSA policies, procedures, directives, and standards. As a result, issues uncovered during the quality reviews were not timely identified or were not adequately addressed.

According to GAO, management should establish and monitor an internal control system and evaluate and document "the results of ongoing monitoring and separate evaluations to identify internal control issues." When management identifies deficiencies in these evaluations, they should complete and document corrective actions and "remediate identified internal control deficiencies on a timely basis."[28] According to GIPSA, responsibility for internal controls falls to division directors, regional directors, field office managers, and branch/staff chiefs who must:

- review and evaluate their programs' and activities' internal controls on an ongoing basis to determine effectiveness and adequacy,
- promptly report deficiencies and/or vulnerabilities identified during the review process,
- initiate changes whenever program deficiencies are found,
- maintain adequate controls of their assigned programs to ensure the accuracy and reliability of information, and
- ensure compliance with statutory requirements and GIPSA policies and procedures.[29]

On September 6, 2007, GIPSA established quality management standards for official service providers (OSP) that include developing a quality management system.[30] GIPSA quality standards are based on internationally accepted quality management principles including: (1) understanding and meeting customer needs and requirements, (2) considering processes in terms of added value, (3) obtaining best quality results of process performance and effectiveness, and (4) continually improving processes.

To establish these internal controls and ensure compliance, FGIS requires OSP to develop and implement a local quality program and submit their quality manuals to FGIS' Compliance Division's Review Branch for review to assess compliance with the QMP.[31] The Compliance Division will then review OSP annual audit reports on the performance of their local quality program. Based on the OSP findings in their report, the Review Branch can choose to conduct

[28] GAO-01-1008G, *Internal Control Management and Evaluation Tool* (Aug. 2001) and GAO-14-704G, *Standards for Internal Control in the Federal Government* (September 2014).
[29] GIPSA Directive 1110.1, *Internal Control Program* (Nov. 15, 2012).
[30] OSP are all entities authorized to provide official services on behalf of GIPSA, including FGIS field offices. For the purposes of this audit, we only visited FGIS field offices.
[31] Directive 9180.81, *Quality Management Program, Requirements for Official Service Providers* (March 25, 2009).

onsite audits of OSP every 1, 2, or 3 years depending on the field office's performance to assess whether OSP are fully implementing the provisions of its quality manual as well as GIPSA policies, procedures, directives, and standards.[32]

As part of our site visits to FGIS field offices, we reviewed the results of their annual QMP reviews and QACD's triennial onsite audit reports.[33] We determined that one FGIS field office had not yet finalized its QMP manual, did not conduct its annual QMP reviews, did not sufficiently implement corrective actions recommended in QACD's onsite audit report, and did not respond to QACD's findings in a followup onsite audit. Specifically, the FGIS field office did not conduct its yearly QMP reviews for calendar years 2013 and 2014, and did not review all components listed in the QMP template when conducting its 2015 yearly review. QACD's Compliance Division conducted an onsite audit in November 2015 and identified 12 issues. However, even though QACD requires that OSP provide a response to the onsite audit reports within 30 days, field office officials did not provide a response, including proposed corrective actions, until May 2016, approximately 7 months after the November 2015 review. When the Compliance Division conducted a followup audit in January 2017, it found that the field office had not resolved 7 of the 12 issues, even though 14 months had passed. As of December 2017, the field office had not provided its response to the Compliance Division's January 2017 audit report. Field office officials explained that they had not yet responded to the Compliance Division's 2017 report because they requested a delay to file a response until after they finalized needed updates to their QMP manual.

During our visit to FGIS field offices, we reviewed supporting documentation for the official stowage, weight, and inspection certificates.[34] Our file review identified several items similar to those found by the annual field office QMP reviews and the Compliance Division's onsite audits. For instance, FGIS field office QMP reviews, FGIS Compliance Division reviews, and our own review identified:

- missing documents in the files to support official certificate results,
- incomplete and incorrect billing for stowage examinations,
- missing information and errors on weight loading logs,
- certificates not adhering to load order requests,
- weight scale tape errors, and
- phytosanitary worksheets designating live insects found as "Other Live Insects."

We identified items similar to those observed by the field offices and the Compliance Division because field offices had not yet implemented corrective actions that address the root cause of items found. Although the items identified did not affect the accuracy of grain inspection, grain

[32] Directive FGIS 9180.81, *Quality Management Program, Requirements for Official Service Providers* (Mar. 25, 2009). According to this directive, QACD must review field offices every 3 years at a minimum, but should follow up with field offices with lower performance (below 80 percent) more frequently (every 1 or 2 years).
[33] Generally, QACD reviews the field offices every 3 years, with the exception of one field office that QACD reviewed yearly.
[34] This documentation included grain shipment load orders, weight loading logs, grain spill logs, grain inspection (CuSum) logs, scale tapes, stowage examination worksheets, phytosanitary inspection worksheets, and stowage inspection invoices.

weight, or stowage examination certificates, field office and Compliance Division reviews continued to identify the same issues on follow-up audits.

FGIS officials generally agreed that field offices did not successfully implement their own QMPs as expected and were not following through on their action plans to address identified items. FGIS officials also acknowledged that field office personnel were not trained in developing quality assurance procedures, conducting compliance audits, identifying the root cause of items identified, or developing action plans to address the root cause of items identified. To address these issues, FGIS officials stated that they are in the process of updating the national office QMP and providing national and field office staff with additional training on developing and implementing quality assurance programs.

While we commend FGIS officials' attempts to establish an effective quality assurance program for OSP, additional steps need to be taken in order to ensure OSP successfully develops and implements a QMP to monitor compliance with statutory requirements and GIPSA policies, procedures, directives, and standards. FGIS officials need to evaluate the program to identify the reasons why FGIS field offices have not been successful in developing and implementing QMPs. For instance, one Compliance Division's onsite audit report mentioned field office management's lack of commitment to successfully implementing its QMP. Once FGIS officials have identified the reasons why field offices have not successfully implemented their QMPs, FGIS officials should develop and implement a plan of action to address those reasons.

Recommendation 3

Conduct a formal assessment of the QMP to determine why OSP have not successfully implemented it.

Agency Response

FGIS has collaborated with both FGIS field offices and other OSP to improve the QMP. A preliminary assessment has been completed with a significant portion of the assessment dedicated to identifying knowledge gaps at the OSP level and targeting efforts to create a standard protocol and basic understanding of the fundamentals of quality. The final assessment will be completed by the end of calendar year 2018. The estimated completion date is December 2018.

OIG Position

We accept management decision for this recommendation.

Recommendation 4

Based on the QMP assessment, develop and implement a plan of action to ensure that OSP comply with QMP requirements. The plan of action should include steps to ensure OSP develop and implement a QMP, conduct yearly QMP reviews, and develop action plans that resolve the root cause of identified items.

Agency Response

FGIS developed a QMP implementation plan to stagger the roll out of the program, while continually assessing process improvement. The preliminary baseline assessment is complete. Several QMP process documents and tools have been issued. The remaining quality documents are projected to be issued by the end of calendar year 2018. Formal and informal training of OSP will be held to enable successful implementation of the QMP in 2019. Yearly reviews to assess implementation success and an Internal Audit Program will be completed by the end of calendar year 2019. The estimated completion date is December 2019.

OIG Position

We accept management decision for this recommendation.

Section 3: Reporting Enhancements

Finding 3: FGIS Needs to Document its Methodology for Preparing its Annual Report to Congress

The GIPSA FGIS 2016 Annual Report to Congress contained errors and data that could not be verified. This occurred because FGIS officials did not document in handbooks and directives the methodology used to extract and compute performance results presented in the report, preserve data extraction results, or preserve the data used to prepare the report. The FGIS 2016 Annual Report to Congress is intended to reflect the inspection and weighing program's activities and effectiveness. If the information presented in this report is not accurate and reliable, Congress, USDA, and stakeholders cannot determine GIPSA's progress and effectiveness or make informed decisions concerning FGIS' inspection and weighing activities.

USGSA requires that each year on December 1, GIPSA submit a report to Congress regarding the effectiveness of the official inspection and weighing system for the prior fiscal year.[35] According to GAO, management must establish internal controls to ensure that objectives—such as reliable internal and external reporting—are accomplished.[36] Likewise, OMB states that Federal managers are responsible for providing reliable reporting.[37] GIPSA Directive 1110.1, *Internal Control Program*, requires division directors, regional directors, field office managers, and branch/staff chiefs to establish and maintain an internal control program for reliable accounting and operating data.

We reviewed the FGIS 2016 Annual Report to Congress and attempted to verify performance measurement data presented in the report. Although most of FGIS' procedures are documented in handbooks and directives, FGIS had no documented methodology for extracting, computing, and preparing data presented in the report. FGIS officials responsible for preparing the report were trained by their predecessors and relied on paper and mental notes, spreadsheets, and computer screen shots of data extraction queries to prepare the report's performance measurement data. This lack of documented methodology contributed to the following errors in the FGIS 2016 Annual Report to Congress:

- FGIS officials used different methodologies to compute the number of official original inspections performed by delegated States and official agencies in the 2015 and 2016 reports. In the 2015 report, FGIS officials did not include the category "full grade inspections for sublots" in their computation, but did include it in the 2016 report. FGIS officials were unable to determine if the FGIS Deputy Administrator had requested a change in methodology from one year to the next or if the methodology used was erroneous in 2015 or 2016 due to a computation error.
- In the 2015 report, FGIS officials included aflatoxin inspections for barge shipments but did not include them in the 2016 report.

[35] United States Grain Standards Act of 1916, Pub. L. No. 64-190, as amended (codified at 7 U.S.C. §71 et seq.).
[36] GAO-14-704G, *Standards for Internal Control in the Federal Government*, (Sept. 2014).
[37] OMB, *Management's Responsibility for Internal Control*, Circular A-123 (Dec. 21, 2004, amended July 15, 2016).

- FGIS officials used an erroneous conversion factor of 36.3679 bushels per metric ton instead of the correct conversion factor of 39.3679 bushels per metric ton to calculate corn production. As a result, the total quantity of grain produced is not correct for both FYs 2015 and 2016.

In our view, documenting the methodology would help reduce errors and maintain a consistent process for extracting, computing, and reporting performance measurement data in the annual report to Congress. Additionally, GAO's internal control standards require management to document all transactions and other significant events in a manner that allows the documentation to be readily available for examination. We recommend that FGIS document the methodology used to prepare its annual report to Congress to ensure the process used is consistent and produces accurate performance measurement reporting data. When we discussed documenting FGIS' methodology for producing the annual report to Congress, FGIS officials stated they thought a common guide would benefit officials tasked with producing separate portions of the annual report to Congress.

FGIS officials also did not preserve documents, reports, or the results of data extraction queries performed on their database. Consequently, when we ran our own data extraction query, the results of our reports and queries on the same database FGIS used did not match several of the performance measurement data in the report. For instance, the number of aflatoxin inspections conducted by delegated States and official agencies for FY 2015 was erroneously reported as 110,998 inspections instead of 110,988 inspections—the correct number. Similarly, our results revealed that the eight international complaints filed with FGIS involving 146,354 metric tons of export grain amounted to 0.11 percent by weight of the total quantity of grain exported instead of FGIS' reported 0.06 percent.[38]

We were unable to verify several performance measurement data reported in the FGIS 2016 Annual Report to Congress because FGIS did not preserve the database used to extract data for the report. FGIS officials explained that the data extracted for the report represent a "point-in-time" of the database. Normally, data used for the report are extracted during the second or third week in October following the end of each fiscal year, which ends September 30. However, FGIS may add, delete, and modify database records after this point-in-time. Therefore, data presented in the report may not be verifiable after the fact because the records may have changed. While we agree that data may not be easily verified because they represent a point-in-time of the database, this situation can be avoided by preserving a copy of the database used to extract report data. Doing so would allow an independent verification of the performance measurement data presented in the report at any time in the future.

FGIS officials acknowledged that documents supporting the results of data extracted for use in the FGIS 2016 Annual Report to Congress should have been preserved after preparing the report. FGIS officials agree that performance measurement data presented in the report should be verifiable. We recommend that FGIS preserve the database used to extract data for the report

[38] We arrived at this number using the following calculation: 146,354 metric tons divided by the 133 million metric tons of export grain reported in the report, which equaled 0.11 percent.

and the results of its data extraction procedures to ensure the data presented in the report can be independently verified.

Recommendation 5

Document the methodology used to extract data for the annual report to Congress to ensure the process is consistent and produces accurate reporting data.

Agency Response

FGIS plans to create queries to extract data for the annual report to Congress to ensure the process is consistent and produces accurate reporting data. FGIS will document the steps to recreate the queries as a backup. The queries and documented process will be saved to a SharePoint page for the annual report team to access. The estimated completion date is May 2019.

OIG Position

We accept management decision for this recommendation.

Recommendation 6

Preserve the database used to extract data for the report and the results of FGIS' data extraction procedures to ensure the information presented in the report is reliable and can be verified by tracing it back to its source.

Agency Response

FGIS will create a preserved database used to extract data for the annual report to Congress. This will ensure that no matter when the data is extracted, the results will be the same. The database will contain, no less than, inspection and weighing data certified between October 1 through September 30 of each FY. The first preserved database for the 2018 Annual Report has been created. The completion date was October 2018.

OIG Position

We accept management decision for this recommendation.

Scope and Methodology

We conducted an audit of FGIS' controls over the inspection and weighing of export grain. During our audit, we reviewed: (1) the process used to inspect export grain and determine its conformity to established grain standards; (2) the process used to weigh grain exports; and (3) compliance with statutory requirements and FGIS' policies, procedures, directives, and standards. To evaluate and test controls over the inspection and weighing process for exported grains, we observed grain inspections and weighing activities conducted by FGIS officials at selected grain export locations and reviewed file documents in support of inspection and weight certificate results. Our audit scope covered inspection certificates issued in FYs 2016 and 2017. We commenced audit fieldwork in April 2017 at FGIS national office in Washington D.C. and completed audit fieldwork in September 2018. We visited the National Grain Center in Kansas City, Missouri and FGIS field offices in New Orleans, Louisiana; League City, Texas; and Portland, Oregon.

Using FGIS data, we non-statistically selected three FGIS field offices to visit by identifying the top five port areas in the United States with the highest volume of export grain inspections in FY 2016. The three FGIS field offices selected from the top five port areas provided inspection and weighing services for approximately 78 percent of all exported grain in FY 2016.[39]

We worked with FGIS officials throughout the audit to ensure that weaknesses we identified were valid, and that we correctly understood the agency's policies, procedures, and positions regarding those weaknesses.

To accomplish our audit objectives, we:

- Interviewed FGIS officials responsible for developing and maintaining inspection and weighing procedures, quality assurance and compliance oversight, and information technology software applications;
- Obtained and reviewed laws, rules, regulations, handbooks, and directives that provide statutory requirements and guidance on grain inspection and weighing activities;
- Reviewed and documented FGIS activities related to stowage examinations, grain weighing, grain sampling, grain inspection, grain grading, phytosanitary inspections, official certificate issuance, and billing;
- Reviewed FGIS field office internal compliance reviews and FGIS national office compliance audit reports;
- Visited three FGIS field offices, interviewed field office management, and observed field office management oversight of grain inspection and weighing activities in their area;
- Visited FGIS field office area export grain locations to observe FGIS personnel conducting inspection and weighing activities on export grain shipments;
- Observed midstream and dockside stowage examinations performed on ocean-going vessels and stowage examinations performed on shipping containers;

[39] Volume of export grain inspections by port areas for FY 2016: Mississippi River area 49.81 percent, Columbia River area 20.62 percent, and North Texas area 7.11 percent (See Exhibit A).

- Selected a non-statistical sample of 100 export grain inspection certificates issued by the three FGIS field offices selected for visits to evaluate and test controls over the inspection and weighing of export grain;[40]
- Reviewed the 100 export grain inspection certificates selected in our sample and their associated stowage examination certificates and weight certificates, as well as all file documents in support of the data appearing on the certificates at FGIS field offices; and
- Reviewed and verified performance measurement data reported in FGIS' annual report to Congress.

During the course of our audit, we obtained export grain inspection certificate data from the FGISonline information system for use in selecting our non-statistical sample of 100 export grain certificates to review. We also obtained data from the FGISonline information system for use in verifying performance measurement data reported in FGIS' annual report to Congress. We assessed the reliability of data by: (1) reviewing existing information about the data and the system that produced them, (2) interviewing agency officials knowledgeable about the data, and (3) comparing the results of our observation of inspection and weighing activities at grain export locations to FGISonline data that captured those results. In addition, we traced a non-statistical random sample of data on the official inspection and weight certificates to source documents. We determined that the data were sufficiently reliable for the purposes of this report.

We conducted this audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient and appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

[40] From an FGIS provided list of 368,593 official certificates issued between October 1, 2016 through August 2, 2017, we extracted 14,927 export grain inspection certificates issued by the three FGIS field offices selected for visits: (League City, Texas–3,454 (23 percent), New Orleans, Louisiana–10,682 (71 percent), and Portland, Oregon–791 (6 percent)). Using the percentage of certificates issued by the three field offices, we randomly selected 100 certificates for review (See Exhibit B).

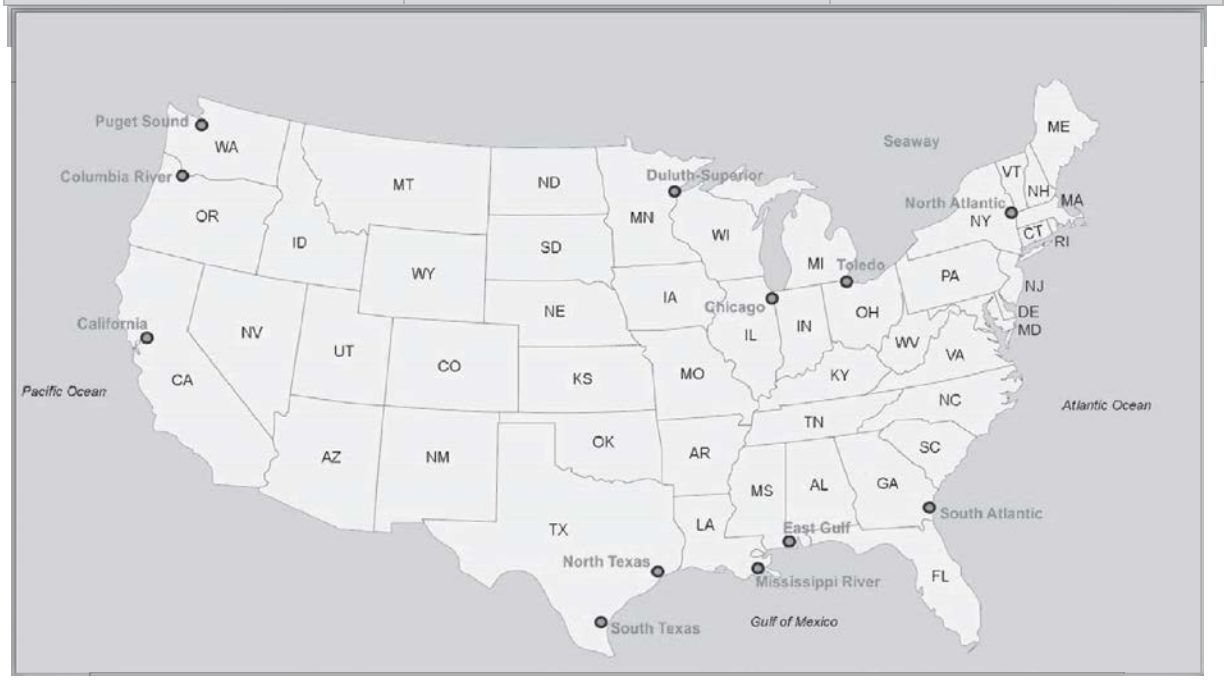
Abbreviations

AMS	Agricultural Marketing Service
APHIS	Animal and Plant Health Inspection Service
CFR	Code of Federal Regulations
CRT	certificates
CuSum plan	Uniform Shiplot and Combined Lot Inspection Plan
DIIA	Departmental Initiatives and International Affairs
eGov	E-Government
FGIS	Federal Grain Inspection Service
FMD	Field Management Division
FY	fiscal year
GAM	GIPSA Application Modernization
GAO	Government Accountability Office
GBA	GIPSA Billing Application
GIPSA	Grain Inspection, Packers and Stockyards Administration
IDW	Inspection Data Warehouse
IT	information technology
ITW	Inspection, Testing, and Weighing
Mmt	million metric tons
OIG	Office of Inspector General
OMB	Office of Management and Budget
OSP	official service providers
QACD	Quality Assurance and Compliance Division
QMP	Quality Management Program
SQL	Structured Query Language
TSD	Technology and Science Division
USC	United States Code
USDA	United States Department of Agriculture
USGSA	United States Grain Standards Act

Exhibit A: Volume of Export Grain Inspections

This exhibit shows the volume of export grain inspections by port area, as displayed on the map, for FY 2016.[41]

Port Areas	Million Metric Tons (Mmt)	Percent of Total U.S. Exports
California	0.02	0.01
Chicago	0.39	0.29
Columbia River	27.49	20.62
Duluth-Superior	0.76	0.57
East Gulf	0.44	0.33
Interior[42]	12.89	9.67
Lake Superior	0.24	0.18
Mississippi River	66.42	49.81
North Atlantic	0.40	0.30
North Texas	9.48	7.11
Puget Sound	8.15	6.11
South Atlantic	2.16	1.62
South Texas	3.29	2.47
Seaway	0.33	0.24
Toledo	0.89	0.67
TOTAL	**133.35**	**100.00**



[41] United States Department of Agriculture, Grain Inspection, Packers and Stockyards Administration, *Federal Grain Inspection Service 2016 Annual Report*.

[42] Figures include all rail and containers loaded in the continental United States destined for export. The primary destination for rail shipments is Mexico, with containers shipped worldwide through established ports.

Exhibit B: Non-Statistical Sampling Methodology

This exhibit shows the official certificates issued between October 1, 2016, and August 2, 2017, and selected for review.

Certificates Issued By	Official Certificates Issued	Export Grain Inspection Certificates	Export Grain Certificates Issued by FGIS	Certificates from field offices selected for review	Percentage of field offices selected for review	Certificates selected for review
Analytical Chemistry Branch	13	0	0			
Board of Appeals and Review	473	8	8			
Crowley Sub-Office	975	0	0			
Domestic Inspection Operations Office	3,056	30	30			
Grand Forks Field Office	9,191	0	0			
League City Field Office	8,316	3,454	3,454	3,454	23	23
Moscow Sub-Office	1,005	0	0			
New Orleans Field Office	77,577	10,682	10,682	10,682	71	71
Olympia Field Office	52	3	3			
Portland Field Office	7,906	791	791	791	6	6
Stuttgart Field Office	8,527	0	0			
Toledo Field Office	13,658	511	511			
Technology and Science Division	836	0	0			
All Other Official Agencies	237,008	9,532	0			
Totals:	**368,593**	**25,011**	**15,479**	**14,927**	**100**	**100**

AGRICULTURAL MARKETING SERVICE'S RESPONSE TO AUDIT REPORT

USDA Agricultural Marketing Service

1400 Independence Avenue, SW
Room 3071-S, STOP 0201
Washington, D.C. 20250-0201

TO: Gil H. Harden
Assistant Inspector General for Audit
Office of Inspector General

FROM: Bruce Summers /s/
Administrator

SUBJECT: Agricultural Marketing Service Response to Office of Inspector General (OIG) Audit #30601-0001-21: Controls Over Inspection of Exported Grain

We have reviewed the subject audit report and agree with the recommendations. Our detailed response, including actions to be taken to address the recommendations, is attached.

If you have any questions or need further information, please contact Frank Woods, Internal Audits Branch Chief, at 202-720-8836.

Attachment

Agricultural Marketing Service (AMS) Response to Office of Inspector General (OIG) Audit #30601-0001-21: Controls Over Inspection of Exported Grain

The U.S. Department of Agriculture's (USDA) Agricultural Marketing Service (AMS) Federal Grain Inspection Service (FGIS) agrees with the OIG findings on the *Controls Over Inspection of Exported Grain*. Please find the Program's response to OIG's findings and recommendations below.

Finding 1: AMS Needs to Improve FGISonline to Modernize the Inspection and Weighing Program

Recommendation 1

Complete and document a risk assessment of all processes used to extract, share, calculate or input data into FGISonline to identify system limitations and areas that should be automated to increase efficiency and functionality. The risk assessment should include a ranking of processes that, if automated, would enhance system controls and improve FGISonline's data accuracy and traceability.

Agency Response:

FGIS will conduct and document a risk assessment in fiscal year (FY) 2019 of all processes used to extract, share, calculate or input data into FGISonline to identify system limitations, as well as areas that should be automated to increase efficiency and functionality. The risk assessment will rank the manual processes in sequence to identify those that provide the greatest enhancement to system controls, data accuracy and traceability.

Estimated Completion Date: May 2019

Recommendation 2

Based on the risk assessment, develop and implement a plan of action to timely and systematically automate manual FGIS inspection cycle processes to enhance the program's efficiency.

Agency Response:

FGIS will develop and implement a plan of action in FY2019 based on the outcomes of the conducted risk assessment, which will outline how FGIS can systematically automate manual FGIS inspection cycle processes to enhance the program's efficiency. The plan of action will reflect the rankings established for the manual processes and outline timeframes for accomplishing program efficiencies, including the dependencies and constraints faced by FGIS due to funding and IT support.

Estimated Completion Date: December 2019

Finding 2: FGIS Needs to Strengthen its Quality Management Program

Recommendation 3

Conduct a formal assessment of the QMP to determine why Official Service Providers (OSP) have not successfully implemented it.

Agency Response:

FGIS has collaborated with both FGIS Field Offices and other OSP to improve the Quality Management Program. A preliminary assessment has been completed with a significant portion of the assessment dedicated to identifying knowledge gaps at the OSP level and targeting efforts to create a standard protocol and basic understanding of the fundamentals of quality. The final assessment will be completed by the end of calendar year 2018.

Estimated Completion Date: December 2018

Recommendation 4

Based on the QMP assessment, develop and implement a plan of action to ensure that OSP comply with QMP requirements. The plan of action should include steps to ensure OSP develop and implement a QMP, conduct yearly QMP reviews, and develop action plans that resolve the root cause of identified items.

Agency Response:

FGIS developed a QMP implementation plan to stagger the roll out of the program, while continually assessing process improvement. The preliminary baseline assessment is complete. Several QMP process documents and tools have been issued. The remaining quality documents are projected to be issued by the end of calendar year 2018. Formal and informal training of OSP will be held to enable successful implementation of the QMP in 2019. Yearly reviews to assess implementation success and an Internal Audit Program will be completed by the end of calendar year 2019.

Estimated Completion Date: December 2019

Finding 3: FGIS Needs to Document its Methodology for Preparing its Annual Report to Congress

Recommendation 5

Document the methodology used to extract data for the annual report to Congress to ensure the process is consistent and produces accurate reporting data.

Agency Response:

FGIS plans to create queries to extract data for the annual report to Congress to ensure the process is consistent and produces accurate reporting data. FGIS will document the steps to recreate the queries as a backup. The queries and documented process will be saved to a SharePoint page for the annual report team to access.

Estimated Completion Date: May 2019

Recommendation 6

Preserve the database used to extract data for the report and the results of FGIS' data extraction procedures to ensure the information presented in the report is reliable and can be verified by tracing it back to its source.

Agency Response:

FGIS will create a preserved database used to extract data for the annual report to Congress. This will ensure that no matter when the data is extracted, the results will be the same. The database will contain, no less than, inspection and weighing data certified between October 1 through September 30 of each FY. The first preserved database for the 2018 Annual Report has been created.

Completion Date: October 2018

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