United States Department of Agriculture
Grain Inspection, Packers and Stockyards Administration
Federal Grain Inspection Service

Program Notice FGIS-PN-12-02 5/21/12

CHECK TESTING OF DIVERTER-TYPE (D/T) SAMPLERS: DROP SAMPLE TEST OPTION

1. PURPOSE

This program notice announces that the Grain Inspection, Packers and Stockyards Administration (GIPSA) has approved the use of a Drop Sample test as an alternate to the pelican sampler, for the purpose of check testing D/T samplers at export and domestic facilities.

2. BACKGROUND

Mechanical sampling systems used for official sampling purposes must be examined, tested, and authorized prior to official use, upon installation or after alteration or modification. The Mechanical Sampling Systems Handbook, Chapter 5, names the pelican/Ellis cup sampler as the official test device for check testing a D/T sampler. As elevator throughput has increased over time, safety and accuracy (due to higher grain flow rates) have become areas of concern. GIPSA has evaluated an alternative method to the pelican/Ellis cup sampler for check-testing D/T samplers. The new Drop Sample Test, in conjunction with an examination of proper installation and approval of system drawings, is approved as a method for authorizing use of D/T samplers for official sampling purposes.

3. PROCEDURES

To ensure that the test is completed in a safe and timely manner FGIS/Official Agencies must enlist the services of elevator facility personnel for activities such as transporting samples and providing safe access to sampling systems.

Example: Moving grain to and from the location of the secondary sampler and the inspection lab etc.

a. Operational Verification.

This step is designed to clear the system of contaminants, to determine if there is a leak in the system, and to determine the size of the Drop Sample needed to yield **a minimum Test unit of 1250 grams** in the collection box.

(1) Introduce 25 lbs (weighed by approved scale) of clean corn into the secondary sampling system.

(2) Collect and account for all grain introduced into the system (both the collection box and the grain return line).

(3) Reweigh the recovered grain and enter the weight in the Operational Verification (Weight Out box).

Calculate the percent loss, if any, and report a loss greater than 0.5 percent (excluding spilled grain) to the manager. Check the appropriate box on form FGIS-936 in "Operational Verification Tolerance IN/OUT?

Note: To calculate the size in pounds of the Drop Sample to be prepared, divide 1250 by the number of grams recovered in the collection box, and multiply that value by 25.

b. Standard Unit.

This step is designed to prepare the Drop Sample and determine the percent of Broken Corn and Foreign Material (BCFM) in the Drop Sample. After calculating the size of the Drop Sample (from the Operational Verification Step):

(1) Evenly distribute naturally occurring machine separable foreign material, in an amount sufficient to yield 2.5-5.0% BCFM, into the drop sample containers.

(2) **Thoroughly** mix the drop sample using approved equipment identified in the following Drop Sample Mixing Flow Chart (see attachment). Cut the sample down to 1000-1050 grams using an approved Boerner/Gamet Divider. Weigh the sample and record the weight on the FGIS 936 in the 1000 grams column next to Std. Unit.

(3) To obtain the Standard Value of BCFM for the Drop Sample use an approved Carter-Day dockage tester equipped with a 12/64, #3 machine sieve to separate the sample. Record the weight of machine separable material from the bottom pan on FGIS 936 next to the Std. Unit row in the BCFM column. Calculate the percent BCFM and record the percent to the nearest tenth of a percent in the percent BCFM column.

(4) After the BCFM result for the Standard unit sample is calculated and recorded combine the 1000-1050 gram Standard Value Sample back with the Drop Sample.

c. Drop Testing.

This step describes the procedure for introducing the drop sample into the secondary sampling system.

(1) Introduce the entire Drop Sample prepared per the Drop Sample Mixing Flow Chart into the highest exit point of the primary sampler leading into the secondary sampler as possible, and in a manner that will not result in loss or spillage of the sample. Typically a large funnel with tubing/piping is used to deliver the sample with minimal spillage**.**

d. <u>Test Unit.</u>

Once the entire Drop Sample is introduced into the system, and the Test Unit portion has been delivered to the collection box, retrieve and weigh the Test Unit portion to verify the drop sample yielded at least 1,000-1,050 grams at the collection box.

(1) If you receive greater than 1,050 grams divide the sample down to 1,000-1,050 grams (with approved Boerner/Gamet Divider). Record the Test Unit weight on form FGIS- 936 in the Test Unit row (1000 grams column).

(2) Machine separate the Test Unit portion using an approved Carter-Day dockage tester (preferably the same dockage tester used to determine the Standard Unit BCFM value). Record the weight of machine separable material in the bottom pan on FGIS-936 in the Test Unit row of the BCFM column. Calculate the percent BCFM and record the percent to the nearest tenth of a percent in the percent BCFM column.

(3) Calculate the difference between the Standard Unit percent BCFM and the Test Unit percent BCFM and record the calculation in the difference row of the percent BCFM column.

(4) Repeat sections b,c,d above four additional times for a total of five drop tests. Calculate the overall average percent BCFM value after the 5th drop. Acceptable performance is defined as the Test Unit average BCFM differing by no more than +/- 10 percent from the Standard Unit average BCFM.

4. EQUIPMENT & MATERIALS

- 100-600 lbs of clean corn (weight may vary depending on your ability to recapture the entire Drop Sample)

- Any necessary equipment to introduce samples into system (funnel, tubing, piping etc.)
- Any necessary equipment to transport and collect samples (buckets, bags etc.)
- Approved Carter-Day dockage tester (12/64, #3 machine sieve)
- Approved calibrated laboratory scale
- Approved dividers – Cargo and Boerner/Gamet

5. QUESTIONS

Direct any questions concerning this program notice to Joseph Han, Policies, Procedures, and Market Analysis Branch, at (202)-205-4016 or email at Joseph.D.Han@usda.gov.

6. FILING INSTRUCTIONS

Retain this program notice with the Mechanical Sampling Systems Handbook until this information is incorporated into the handbook.

/s/ Robert Lijewski

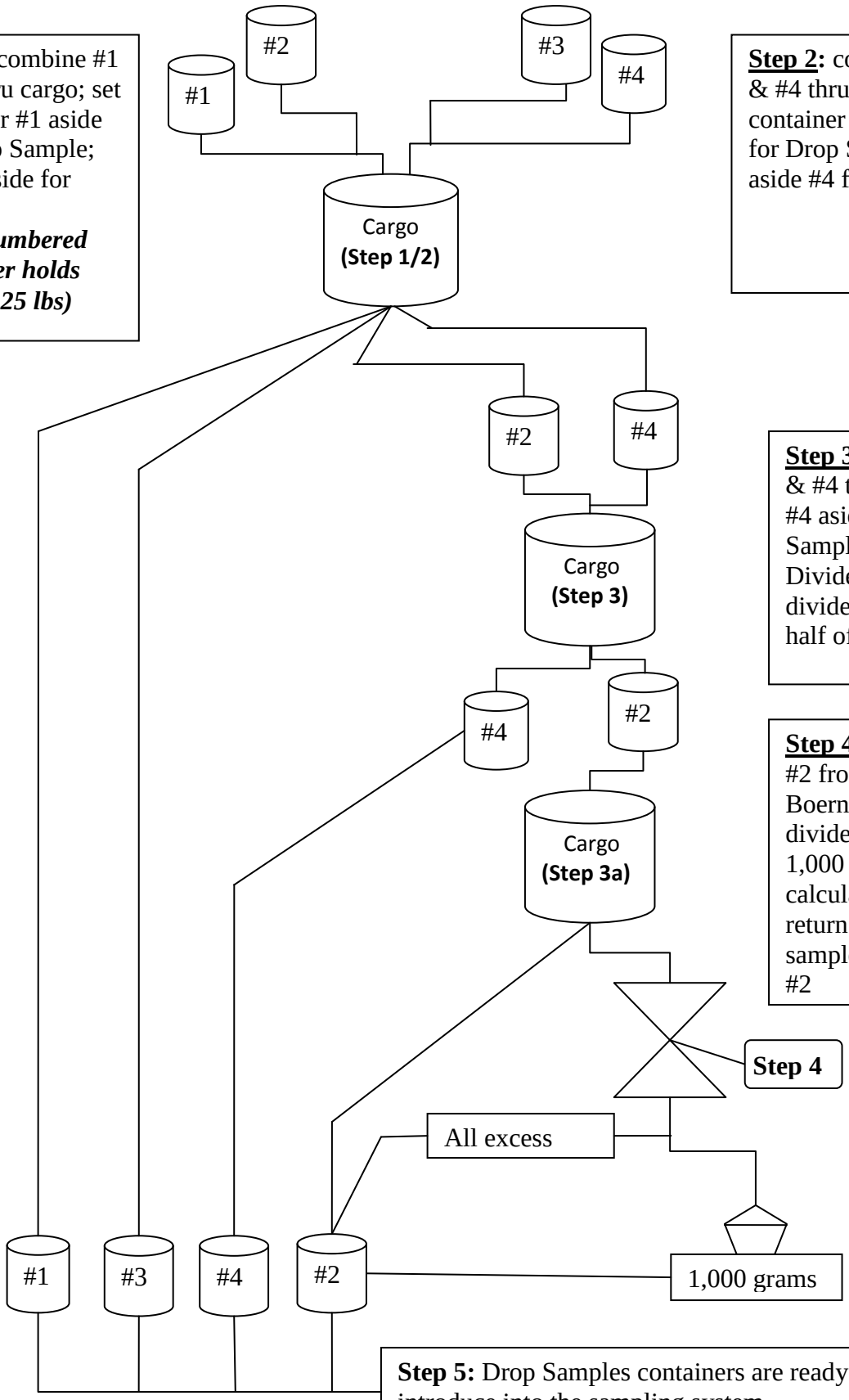
Robert Lijewski, Director
Field Management Division

Attachment
Drop Sample Mixing Flow Chart

Using approx. 100 lbs. clean corn, divide to obtain a representative portion of 1,000 grams

Step 1: combine #1 & #2 thru cargo; set container #1 aside for Drop Sample; set #2 aside for Step 3.
(each numbered container holds approx. 25 lbs)

Step 2: combine #3 & #4 thru cargo; set container #3 aside for Drop Sample; set aside #4 for Step 3.



Step 3: Combine #2 & #4 thru cargo; set #4 aside for Drop Sample; **Step 3a:** Divide #2 thru cargo divider; set aside half of #2 for Step 4

Step 4: Divide ½ of #2 from Step 3a thru Boerner/ Gammet divider to obtain 1,000 grams; calculate BCFM; return 1,000 gram sample to container #2

Step 5: Drop Samples containers are ready to introduce into the sampling system