

CHAPTER 4

EXAMINATIONS

4.1 MONTHLY CHECKS AT EXPORT PORT LOCATIONS

Once a month-at a minimum-licensed or authorized personnel must do a general condition and security check of all diverter-type samplers at export locations.

- a. Examine the site for unauthorized modifications, such as unauthorized dust collection equipment.
- b. Stop the sampler with the pelican positioned so it can be inspected and gauged. This may be mid-spout or parked at the side, depending on the location of the inspection door.
- c. Follow lockout procedures on Page 4-4.
- d. Record seal or lock identification numbers. Open the primary and secondary sampler inspection doors.
- e. Examine the pelican for damage. Use the go-no-go gauge to check for the correct pelican opening ($\frac{3}{4}$ to $\frac{7}{8}$ inch.)
- f. Check that the dust seals are undamaged.
- g. Check for objects stuck in the pelican opening or body.
- h. Check the secondary sampler and delivery tube for plugs.
- i. Release the equipment from lockout using procedures on Page 4-4.
- j. Using the panel controls, energize the sampler to allow the pelican to come to rest under the left dust seal. Turn off power. Open the inspection door. Do not place your hands or any tools into the sampler.
- k. Visually find out if the pelican fits against the dust seal. Repeat for the right dust seal.

- l. Reseal or lock the inspection plates, record the seal or lock identification numbers. Record the results of the monthly check in a logbook; include the date and your name or initials. When a 6-month condition examination is performed instead of the monthly check, write, "See 6-month condition examination file for (month) check results." in the logbook. Maintain the log book at the work site, under control of official personnel.
- m. If physical or mechanical problems (such as: torn dust seals, bent pelican) are observed, do not use the sampler until the problems have been corrected. Inform your supervisor and elevator management. Document the problem, repair, and all subsequent activities.

4.2 INITIAL EXAMINATION

Immediately before the first test, thoroughly examine the sampling system and its immediate area and record the condition on the front page of Form FGIS-936, "Sampler Condition Report." The examination shall encompass all items listed on the Form FGIS-936 and any other items deemed necessary by the testing office. Sampling systems found to have one or more unsatisfactory items shall not be authorized.

4.3 PERIODIC EXAMINATION

- a. Periodically, examine the sampling system and its immediate area thoroughly and record the condition on Form FGIS-936. The examination shall encompass all items listed on the Form FGIS-936 and any other items deemed necessary by the testing office. A sampling system that fails a periodic examination may also be required to be retested before its authorization is reinstated. If a mechanical sampling system is not being used when it is due for examination or testing, it may be delayed until the system is again being used. Unless the facility is seasonal, a formal suspension may be required if necessary to ensure the system is not used officially.
- b. Reexamine diverter-type, probe-type and point-type sampling systems at least once every 6 months, regardless of the type of facility where located. Calculate the period starting from the first day of the next calendar month after the examination.

4.4 SUPPLEMENTAL EXAMINATIONS

- a. When official inspection personnel have auxiliary samples or other information that shows the sampling system to be of questionable accuracy, the testing office shall examine and test the system (for example, noticeable variations between the quality of the grain and the sample, significant differences between samples of the same lot drawn at the same time by different primary samplers, or inexplicable variations between origin and destination inspections). When performing the test and the first test lot is found within tolerance, no additional tests are required. If the first test lot is not within tolerance, test four additional lots and average the results of the five test lots to learn if the system is in tolerance. When origin and destination are involved in grade differences that suggest sampling problems, headquarters must arrange to test both samplers.
- b. If repairs are made, the testing office shall examine the system and decide whether a test is necessary to ensure that the system's accuracy has not been affected. A simple replacement of parts with equivalent pieces of equipment may require only an examination; a major repair or replacement of the primary or secondary sampler requires testing with five test lots.
- c. After a system has been altered by addition, deletion, or relocation of primary samplers, secondary samplers, and/or sample delivery equipment, the testing office shall test the system using five test lots.
- d. Diverter-type sampling systems are designed to function at the maximum flow rate specified by the facility at the time of installation. Facilities increasing commodity flow rates, by changing the handling equipment, may exceed the capacity of the sampling system. When sampling systems are being used in locations where commodity flow rates have been increased after installation and original authorization, the testing office shall examine and test the system using one test lot.
- e. If a commodity handling system is upgraded by either the addition of dust collection units or by operating the existing dust collection units with increased airflow (on or near the mechanical sampler), the testing office shall examine and test the system (one test lot).

4.5 LOCKOUT PROCEDURES

Each office must develop, document and utilize specific written lockout procedures for each mechanical sampler. The procedures should be based upon the requirements

contained in 29 CFR 1910.147, The control of hazardous energy sources (lockout/tagout) and the following example.

This procedure establishes minimum requirements for lockout of mechanical samplers before employees perform any inspection or maintenance activities where the unexpected energization, start-up, or release of stored energy could cause injury. Types and magnitudes of energy are mechanical movement of pelican, movement of grain, electricity-120/240 volts, and air pressure-100 psi.

Procedural Steps.

- 1 Preparation for Shutdown-Trained Employees Only. Notify facility management. Determine the types of energy to be controlled and their sources. Most primary samplers have a timer circuit and a separate motor circuit. Pneumatic or hydraulic sources may need to be disconnected.
- 2 Shutdown. Shut the system down using its operating controls. These are the controls we use on a daily basis such as the on-off switches located on the front panels, etc.
- 3 Isolation. Operate the energy isolating devices so that the equipment is isolated from its energy sources.
- 4 Lockout. Apply lock(s) and properly filled out tag.
- 5 Stored energy. Remove stored energy from the equipment. This may require bleeding down air pressure, blocking, or bracing parts, and closing gates.
- 6 Verification. Make sure that everyone is clear of the equipment. Try using the operating controls (on-off switch) to verify that the equipment has been successfully de-energized and locked out. Return the controls to "off."

Figure 9. Example of a Lockout Procedure

4.6 REMOVING LOCKOUT

- a. Make sure the equipment is safe to operate.
- b. Notify and make sure everyone is clear of the equipment.
- c. Except in emergencies, only the person who applied the lockout is authorized to remove it.
- d. Follow local rules for returning locks and tags you may have signed out.

MECHANICAL SAMPLING SYSTEMS HANDBOOK
CHAPTER 4
11-07-03

OMB NO.: 0580-0013			
U.S. DEPARTMENT OF AGRICULTURE GRAIN INSPECTION, PACKERS AND STOCKYARDS ADMINISTRATION FEDERAL GRAIN INSPECTION SERVICE			
SAMPLER CONDITION REPORT			
NAME OF ELEVATOR, CITY, AND STATE 1		DATE EXAMINED 2	FIELD OFFICE 3
		NAME OF OFFICIAL AGENCY 4	
*INSTRUCTIONS TO EXAMINER: For a six month examination fill out the front of this form. For a complete grain test, including initial sampler test, fill out both sides of this form and send the original to the FGIS Field Office. Explain "FAIL" items in detail. If the sampler is not being used, indicate that fact under "Remarks" and prepare a report before the sampler is put into use.			
PRIMARY SAMPLER		SECONDARY SAMPLERS	
BRAND/MODEL 5	SERIAL NO. 6	BRAND/MODEL 7	SERIAL NO. 8
GRAIN FLOW RATE (Past Sampler) 9	SAMPLING INTERVAL (Cycle Time) 10	BRAND/MODEL	SERIAL NO.
SAMPLER CODE: <input type="checkbox"/> D - Diverter <input type="checkbox"/> P - Probe <input type="checkbox"/> 0 - All Grains <input type="checkbox"/> 1 - Small Grains <input type="checkbox"/> 2 - Coarse Grains-not corn <input type="checkbox"/> 3 - IN Inspections <input type="checkbox"/> 4 - OUT Inspections 11 <input type="checkbox"/> 5 - Cargolots <input type="checkbox"/> 6 - Bargelots <input type="checkbox"/> 7 - Hopper Carlots <input type="checkbox"/> 8 - Carlots <input type="checkbox"/> 9 - Trucklots			
SECTION 1 -- ALL SAMPLERS		SECTION 2 -- D/T SAMPLERS	
ITEMS EXAMINED	PASS / FAIL	ITEMS EXAMINED	PASS / FAIL
Lighting around sampler 12	<input type="checkbox"/> / <input type="checkbox"/>	Pelican speed approx. 0.5 m/s 27	<input type="checkbox"/> / <input type="checkbox"/>
Safe access to areas 13	<input type="checkbox"/> / <input type="checkbox"/>	Pelican dust seals (interior) 28	<input type="checkbox"/> / <input type="checkbox"/>
Safe access to inside of devices 14	<input type="checkbox"/> / <input type="checkbox"/>	Pelican go-no-go gauge 29	<input type="checkbox"/> / <input type="checkbox"/>
Lockouts (safety switches) 15	<input type="checkbox"/> / <input type="checkbox"/>	Pelican cuts entire grain stream 30	<input type="checkbox"/> / <input type="checkbox"/>
Cleanliness of area 16	<input type="checkbox"/> / <input type="checkbox"/>	Condition of excess sample return leg or belt 31	<input type="checkbox"/> / <input type="checkbox"/>
Cleanliness of device 17	<input type="checkbox"/> / <input type="checkbox"/>	Timer set correctly 32	<input type="checkbox"/> / <input type="checkbox"/>
Lubrication (if required) 18	<input type="checkbox"/> / <input type="checkbox"/>	SECTION 3 -- TRUCK PROBES	
Panel board indicator lights 19	<input type="checkbox"/> / <input type="checkbox"/>	ITEMS EXAMINED	PASS / FAIL
Air or hydraulic pressure 20	<input type="checkbox"/> / <input type="checkbox"/>	Tip not bent/damaged 33	<input type="checkbox"/> / <input type="checkbox"/>
Delivery tube secure 21	<input type="checkbox"/> / <input type="checkbox"/>	Tip vacuum check w/ith paper 34	<input type="checkbox"/> / <input type="checkbox"/>
Delivery tube air inlet secure 22	<input type="checkbox"/> / <input type="checkbox"/>	Hydraulic oil level OK 35	<input type="checkbox"/> / <input type="checkbox"/>
Collection box secure 23	<input type="checkbox"/> / <input type="checkbox"/>	Vacuum adjustments sealed 36	<input type="checkbox"/> / <input type="checkbox"/>
Collection box screen clean 24	<input type="checkbox"/> / <input type="checkbox"/>	Sample size 37	<input type="checkbox"/> / <input type="checkbox"/>
Sampler not modified or repaired 25	<input type="checkbox"/> / <input type="checkbox"/>	Collection box seal 38	<input type="checkbox"/> / <input type="checkbox"/>
Seals/padlocks in place 26	<input type="checkbox"/> / <input type="checkbox"/>	Delivery tube condition 39	<input type="checkbox"/> / <input type="checkbox"/>
Inspected By: (LI or AGC) 41	42	Vacuum pressure if known: 40	
Reviewed By: (ACG) _____			
Form FGIS-936 (5-03) Previous editions are obsolete.			

Figure 8. Form FGIS-936, "Sampler Condition Report," (Front)

INSTRUCTIONS FOR COMPLETING
FORM FGIS-936, "SAMPLER CONDITION REPORT," (FRONT)³

1. Name of the elevator, city, and state.
2. Date examination was done.
3. Name of FGIS field office in charge of the circuit.
4. Name of the official agency that does original inspections at the facility.
5. Brand name and type of primary (diverter-type sampler) or probe-type sampler being examined and tested. Are they of a type approved by FGIS?
6. Serial number of primary diverter-type or probe-type sampler.
7. Brand name of secondary sampler.
8. Serial number of secondary sampler.
9. Calculate the maximum flow of spout or belt on which the sampler is installed.
10. Sampling Interval-Read from the timer.
11. Type of carriers or lots the system will sample.

Section 1 – All Samplers

12. Lighting should be approximately 30 footcandles (general task lighting).
13. Safe access includes approved stairs, fixed ladders, platforms, and railings.
14. Safe access to the inside of the housing or hood without endangering the examiner.
15. Lockout switches must be present and meet requirements.
16. Cleanliness of the area-overhead, floor, stairs.
17. Cleanliness/condition of primary-check for plugs, leaks, dust, sprouted grain, broken hasps/hinges, wiring.
18. Lubrication-Grease or oil leaks.
19. Panel lights-Use radio or phone (if needed) to ensure that the power and traverse lights work properly. Have any changes been made in the wiring?
20. Air or hydraulic pressure-Is there enough? Record the gage pressure, if available.
21. Delivery tube must be secure from loss or introduction of material.
22. Delivery tube-Pneumatic systems must have a guard over the air supply inlet.
23. Collection box-If not continuously attended, must be secure at inlet and outlet.
24. Collection boxes that have a screen must be maintained in a clean condition.
25. Sampler not Modified-For this check, good installation records are essential.
26. Seals-Were the security seals on inspection doors found intact? Was the delivery tube found secure?

Section 2 – D/T Samplers

27. Pelican speed must be uniform with no slow spots. Speed can be estimated.
28. Pelican dust seals-Must be present, not torn, and must seal-off the pelican, no air gap.
29. Pelican Go-no-go Gauge-Use it to ensure the opening is between 3/4 and 7/8 inch wide along its entire length.

³ The reverse of Form FGIS-936 is used for performing a test (grain test). Instructions for completing the reverse are contained in Chapter 5, Tests.

30. Pelican cuts stream-If practical, observe a cut to see that the pelican is sampling the entire stream, and that it does not back up from excess grain.
31. Condition of excess sample return-Check if it is leaking, infested, or backing up.
32. Timer-Does the timer setting match the documented setting (required). Use a stopwatch or read the timer; do not rely on posted signs or old records.

Section 3 – Truck Probes

33. Probe tip must be in good condition.
34. For core-type probes, a small piece of paper is placed over the tip to check the air supply/vacuum balance. The paper should not fall off or be sucked into the tip.
35. Check levels if possible.
36. After adjustment, air supply/vacuum balance should not be changed. If it is possible to seal them or record settings, this provides assurance that they remain correctly adjusted.
37. Is the sample size adequate? Has it changed?
38. If the collection box has a gasket, is it in good condition with no air leaks.
39. Is the delivery tube in good condition,
40. If a gage reading is available, it can indicate leaks or misadjustment.

Name of Inspector

41. Show the name of the inspector who completed the examination. If any item is unsatisfactory, the sampler is not acceptable. Keep the not acceptable Form FGIS-936 as a record. Even if the facility brings the sampler into compliance immediately, complete another form.
42. An ACG should review some forms for correctness when possible. Any questionable information or remarks must be verified to be accurate.

Reserved