

**Sampling Associates International, LLC**  
**Dominion Terminal Associates**  
**Newport News, Virginia**

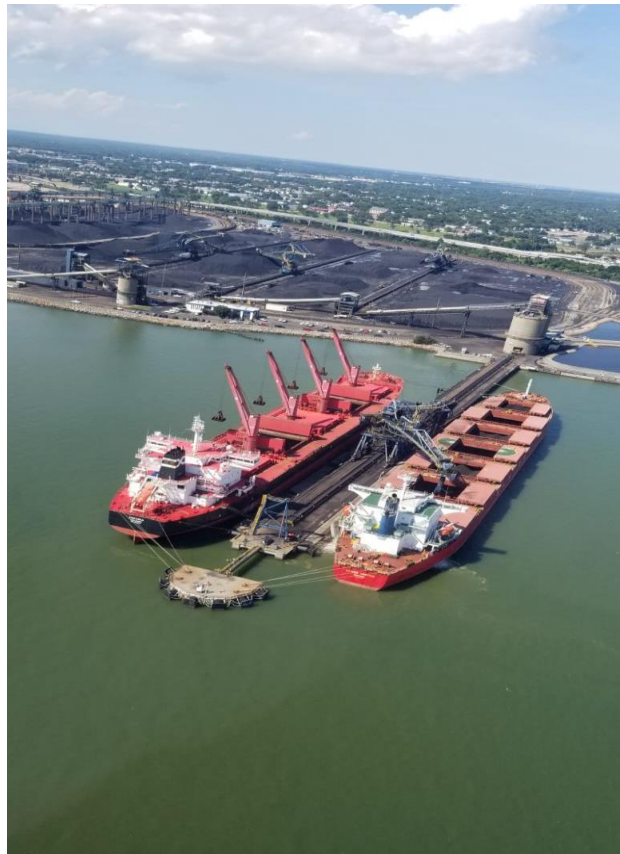


**Dominion Terminal Associates (DTA)**

Coal is delivered to the terminal via CSX Rail Transportation where it is unloaded by a dual-car rotary dumper. As coal travels on conveyors, it can be directed to stacker/reclaimer(s) in the stockyard to customer-specific stockpiles or directly to a vessel. In either scenario, the material can be sampled by the **As-Received Mechanical Sampling System** located at the transfer point between the C-2 conveyor and the SS-1 Surge Silo.

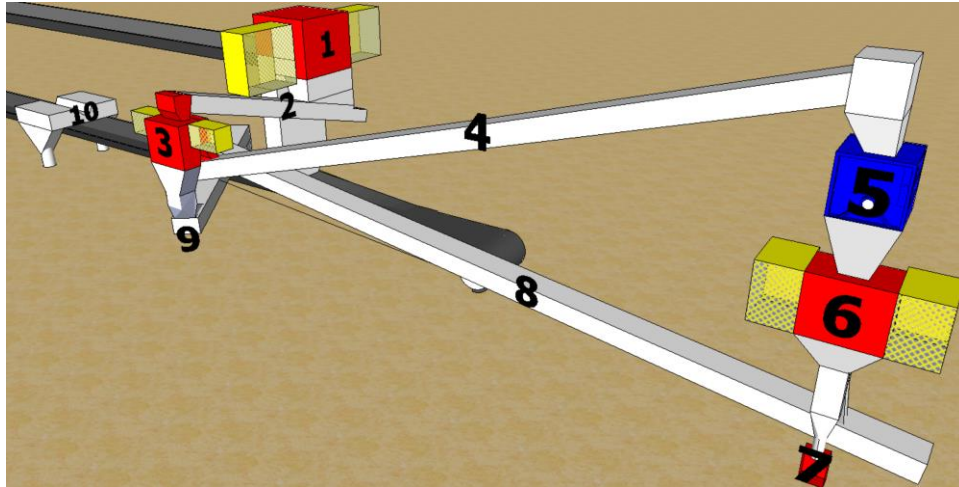
When a vessel arrives for loading the material is reclaimed by the stacker/reclaimers(s) and/or taken direct from rail. As the material travels to the vessel, it can be sampled by the **As-Shipped Mechanical Sampling System** located at the transfer point between the C-12 and C-10 conveyors or by the Mechanical **Part-Stream Sampler** located on the C-10 Conveyor.

Both the As-Received and the As-Shipped mechanical sampling systems are manufactured by **HSS Sampling System by McLanahan Corporation**, with designs and operating programs described below.



## As-Shipped Mechanical Sampling System (AS)

The system's key components are listed below and operate to meet or exceed ASTM standards when accepting a product of 75 mm x 0 (3 in. x 0) or less.



*(Measurements provided herein are approximate for general reference only.)*

**Primary Sampler** - This cross-stream component (1) travels at a speed of 0.43 m/s (17 in/s) as it extracts 523 kg (1153 lb.) increment every 48 seconds from the C-12 to C-10 conveyor transfer chute. The cutter opening is 178 mm (7 in.) wide, with each Primary increment gravity-fed to the Primary Feeder Conveyor (BF-3).

**Primary Feeder Conveyor (BF-3)** - This 610 mm (24 in.) enclosed conveyor (2) operates at 0.24 m/s (47 ft/min) as it transfers material via a gravity-fed chute to a cross-stream Secondary Sampler.

**Secondary Sampler** - This cross-stream component (3) travels at a speed of 0.4 m/s (15.8 in/s) as it extracts 6 kg (13 lb.) increment every 3.6 seconds from the transfer chute. The cutter opening is 216 mm (8.5 in.) wide. Each Secondary increment is gravity-fed to the Secondary Feeder Conveyor (BF-4). All material not collected by the Secondary Sampler is returned to the C-10 conveyor through the Reject Conveyor System (9).

**Secondary Feeder Conveyor (BF-4)** - This 610 mm (24 in.) enclosed conveyor (4) operates at 0.09 m/s (17 ft/min) as it transfers material via a gravity-fed chute to a Hammer-Mill Crusher

**Hammer Mill Crusher** - The Jeffrey-Rader 34AB Crusher (5) is comprised of a motor, a rotor with swinging hammers, and a set of 15.9 mm (0.625 in.) round-holed screens. A plugged-chute indicator is installed at the inlet chute of this component. Sample material is crushed to a top size of 4-mesh and then gravity-fed through a chute to the Tertiary Sampler.

**Tertiary Sampler** - This cross-stream component (3) travels at a speed of 0.29 m/s (11.6 in/s) as it extracts 0.23 kg (0.5 lb.) increment every 35 seconds from the transfer chute. The cutter opening is 41 mm (1.62 in.) wide. Each Tertiary increment is gravity-fed to a heavy-duty plastic bag affixed to a collection chute (7). All material not collected by the Tertiary Sampler is returned to the C-10 conveyor through the Reject Conveyor System (8 & 9).

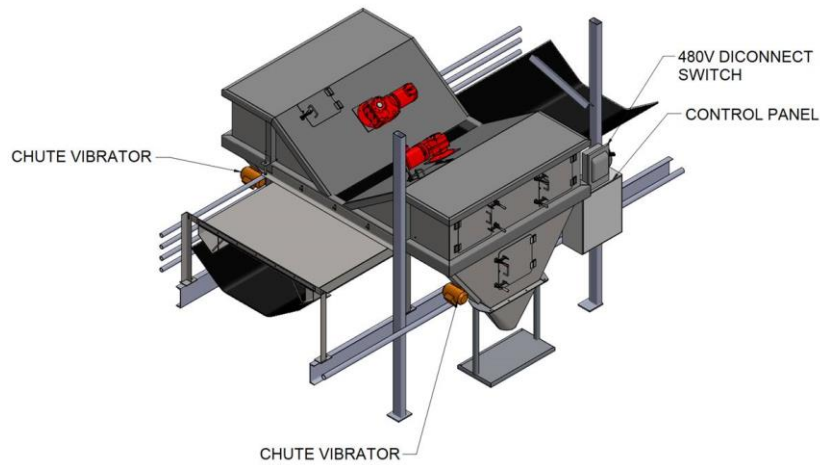
**Reject Conveyor 1 (BF-5)** - This 610 mm (24 in.) enclosed conveyor (8) operates at 0.54 m/s (106 ft/min) as it transfers reject material from the Tertiary Sampler to the Reject Conveyor 2.

**Reject Conveyor 2 (BF-6)** - This 610 mm (24 in.) enclosed conveyor (9) operates at 0.69 m/s (133 ft/min) as it transfers reject material from the Secondary Sampler and Reject Conveyor 1 to the C-10 Conveyor.

**Save Sample Ratio** - The sampling system is designed to collect approximately 4.68 kg (10.31 lb.) of final-save sample per 1,000 net tons of coal.

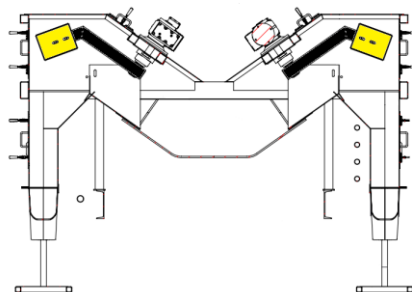
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## Mechanical Part-stream Sampler (MPS) / Outbound



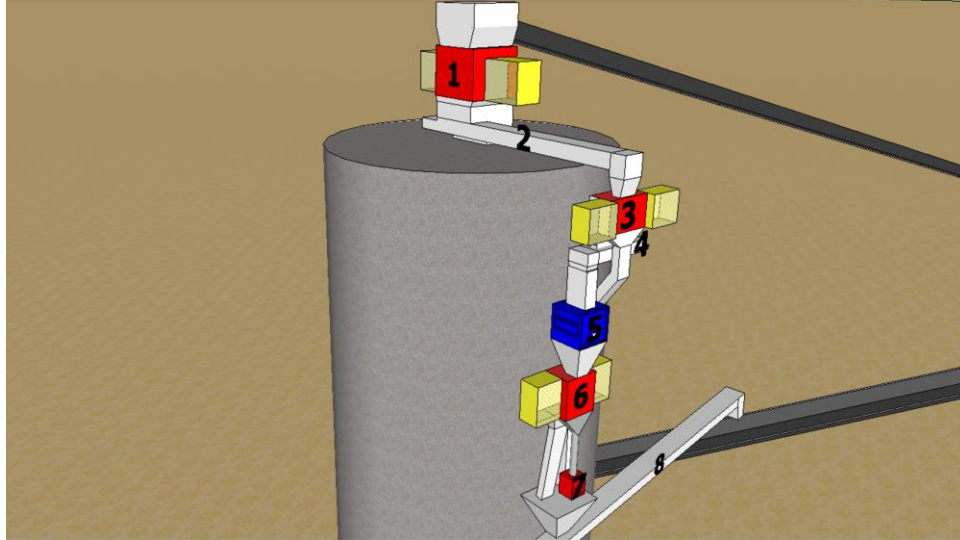
**The Mechanical Part-stream Sampler (MPS)** is primarily an alternate mechanized sampling device that can be placed into service in the event the As-Shipped sampling system is inoperable. Having this back-up sampling device available eliminates the need for personnel to manually sample off a conveyor, and thus avoids potential safety hazards associated with that sampling method. The MPS can also be used in tandem with the As-Shipped sampling system to collect extra uncrushed sample material for a size analysis or other special tests.

The collection equipment is comprised of two scoops (below, highlighted yellow), which normally are designed to operate in conjunction with one another. However, if one of the scoops fails the other scoop can continue to operate. Sample increments are gravity-fed through two independent collection tubes located on opposite sides of the MPS and into heavy-duty plastic bags at ground level. The increments are a minimum weight of 3 kg (6.6 lbs.) each, depending on the type of material and flow rate of the main conveyor. The sampling frequency is adjustable per the purpose of sampling required.



## As-Received Mechanical Sampling System (AR)

The system's key components are listed below and operate to meet or exceed ASTM standards when accepting a product of 75 mm x 0 (3 in. x 0) or less.



**Primary Sampler** - This cross-stream component (1) travels at a speed of 0.44 m/s (17.29 in/s) as it extracts 729 kg (1607 lb.) increment every 48 seconds from the C-2 conveyor to SS-1 Surge Silo transfer chute. The cutter opening is 254 mm (10 in.) wide. Each Primary increment is gravity-fed to the Primary Feeder Conveyor (BF-1).

**Primary Feeder Conveyor (BF-1)** - This 610 mm (24 in.) enclosed conveyor (2) operates at 0.34 m/s (66 ft/min) as it transfers material via a gravity-fed chute to a cross-stream Secondary Sampler.

**Secondary Sampler** - This cross-stream component (3) travels at a speed of 0.28 m/s (11.12 in/s) as it extracts 12.63 kg (27.84 lb.) increment every 5.77 seconds from the transfer chute. The cutter opening is 235 mm (9.25 in.) wide. Each Secondary increment is gravity-fed to the Secondary Feeder Conveyor (BF-2). All material not collected by the Secondary Sampler is returned to the C-3 conveyor through the Reject Conveyor System (8).

**Secondary Feeder Conveyor (BF-2)** - This 610 mm (24 in.) enclosed conveyor (4) operates at 0.05 m/s (10 ft/min) as it transfers material via a gravity-fed chute to a Hammer-Mill Crusher.

**Hammer Mill Crusher** - The Jeffrey-Rader 45WBE Crusher (5) is comprised of a motor, a rotor with swinging hammers, and a set of 15.9 mm (0.625 in.) round-holed screens. A plugged-chute indicator is installed at the inlet chute of this component. Sample material is crushed down to a top size of 4-mesh and then gravity-fed through a single chute to the Tertiary Sampler.

**Tertiary Sampler** - This cross-stream component (3) travels at a speed of 0.35 m/s (13.6 in/s) as it extracts 0.66 kg (1.46 lb.) increment every 35 seconds from a transfer chute. The cutter opening is 48 mm (1.87 in.) wide. Each Tertiary increment is gravity-fed to a heavy-duty plastic bag affixed to a collection chute (7). All material not collected by the Tertiary Sampler is returned to the C-3 conveyor through the Reject Conveyor System (8).

**Reject Conveyor (BF-7)** - This 610 mm (24 in.) enclosed conveyor (8) operates at 0.54 m/s (264 ft/min) as it transfers reject material from the Tertiary Sampler to the Reject Conveyor 1.

**Save Sample Ratio** - The sampling system is designed to collect approximately 6.21 kg (13.69 lb.) of final-save sample per 1,000 net tons of coal.

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## **Additional Services**

SAI offers additional services to clients at the DTA facility and the Port of Hampton Roads region either directly or through our partnerships. Examples are temperature monitoring surveys, cargo surveys and inspections, and sampling system assessments and repairs.

***“The Mechanical Sampling Specialist”***

***Installation – Operations – Maintenance – Repair – Inspection – Auditing – Bias Testing***

[www.samplingassociates.com](http://www.samplingassociates.com)

