

National Type Evaluation Technical Committee (NTETC) Belt-Conveyor Scale (BCS) Sector Meeting Summary

February 23, 2012 / St. Louis, Missouri

INTRODUCTION

The charge of the BCS Sector is important in providing appropriate type evaluation criteria based on specifications, tolerances and technical requirements of *NIST Handbook 44* Sections 1.10. General Code and 2.21. Belt-Conveyor Scale Systems. The sector’s recommendations are presented to the NTEP Committee each January for approval and inclusion in *NCWM Publication 14 Technical Policy, Checklists and Test Procedures* for national type evaluation.

The sector is also called upon occasionally for technical expertise in addressing difficult *NIST Handbook 44* issues on the agenda of the National Conference on Weights and Measures (NCWM) Specifications and Tolerances Committee. Sector membership includes industry, NTEP laboratory representatives, technical advisors and the NTEP Administrator. Meetings are held annually, or as needed and are open to all NCWM members and other registered parties.

Suggested revisions are shown in **bold face print** by ~~striking out~~ information to be deleted and underlining information to be added. Requirements that are proposed to be nonretroactive are printed in *bold faced italics*.

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Table B
Glossary of Acronyms and Terms

Acronym	Term	Acronym	Term
BCS	Belt-Conveyor Scale	NTEP	National Type Evaluation Program
MTL	Minimum Test Load	NTETC	National Type Evaluation Technical Committee
NCWM	National Conference on Weights and Measures	OWM	Office of Weights and Measures
NIST	National Institute of Standards and Technology	USNWG	U.S. National Work Group

Details of All Items
(In order by Title of Content)

CARRY-OVER ITEMS

1. Belt-Conveyor Scale NTEP Checklist

Source:

NIST, OWM

Background / Discussion:

Prior to the 2009 NTETC BCS Sector Meeting, Mr. Ripka, Chair submitted a draft of an amended *NCWM Publication 14* Belt-Conveyor Scales Technical Policy, Checklists, and Test Procedures to the sector members for review. The changes in this draft related primarily to Master Weight Totalizers intended to be installed as substitutions within a BCS system in addition to a number of other minor editorial changes. Among the suggested changes that were included in this draft were proposed changes involving procedures used when evaluating semi-automatic and automatic zero-setting mechanisms.

This proposed draft has not been sufficiently vetted yet. That draft was offered for use on a trial basis by NTEP laboratories when evaluating manufacturer’s replacement instruments that are scheduled to undergo NTEP evaluation. Some manufacturers within the sector have indicated that they may have instruments ready to be submitted to NTEP for evaluation.

NTEP laboratories have agreed to use the amended checklist in order to identify gaps or necessary changes within the draft. Feedback from evaluators who have used this amended checklist is needed so that the sector can determine if the proposed changes need further development. Any input and additional comments that are available will be discussed.

NTEP evaluator Mr. Jones, California Division of Measurement Standards, informed the sector that there have not been any submissions of BCS Totalizers from manufacturers that could serve as a model unit to apply this amended checklist to on a trial basis.

Belt-conveyor scale manufacturer representatives from Thermo Fisher Scientific and Merrick Industries, Inc. informed the sector that they anticipate submitting devices to NTEP for evaluation in the near future. These manufacturers stated that their devices should be appropriate models to be used to evaluate the draft procedures.

Conclusion:

The sector agreed that upon the application of the new draft test procedures, a report would be made to the sector by the NTEP evaluator(s) detailing any gaps in the procedures and further amendments if necessary. The amended checklist will be applied to these instruments when they become available.

2. Sealable Parameters List for NTEP Evaluation

Source:

NIST, OWM

Background / Discussion:

A list of BCS features and parameters which were identified by the sector as those that should be protected by a form of security seal had been developed during the 2009 NTETC BCS Sector Meeting. The list has been forwarded to NTEP laboratories who have agreed to use this list during NTEP evaluation of BCS to determine if the list is sufficiently comprehensive. Feedback from NTEP evaluators using this amended checklist is requested so that sector members are able to determine if the list is sufficient. Any additional input and comments available from manufacturers and NTEP evaluators on the proposed changes will be discussed.

The sector was informed that although the sealable parameters list developed during the 2009 NTETC BCS Sector Meeting is in the current *NCWM Publication 14*, there have not been any instruments submitted for evaluation under NTEP that provide the opportunity to compare this list to.

Conclusion:

The sector agreed that the list as developed at the 2009 NTETC BCS Sector Meeting will remain in *NCWM Publication 14* in its current form, and will be updated as needed based on any gaps identified by NTEP evaluators.

3. Linearization Feature for BCS

Source:

NIST, OWM

Background / Discussion:

Manufacturers and service agents of belt-conveyor scales have voiced support for the use of electronic instruments equipped with a linearity correction feature (i.e. multiple point calibrations) to reduce span errors that deviate from a linear pattern. It has been reported by some sector members that this practice may be in conflict with the prohibition of this type of feature by certain weights and measures regulatory authorities. Some sector members have asked for clarification from the National Institute of Standards and Technology (NIST), Office of Weights and Measures (OWM) on the use of this type of feature and whether it is (or should be) permitted in existing U.S. standards. The U.S. National Work Group (USNWG) on BCS has deliberated on the use of a linearization feature for enhancing the performance of belt-conveyor scale systems and considered whether there is a need to develop requirements within *NIST Handbook 44* to address its use. Test procedures (including those used for type evaluation) are to be analyzed and further developed or amended as needed in order to verify that this feature will comply with the current *NIST Handbook 44*. Manufacturers at the 2011 NTETC BCS Sector Meeting agreed to participate in a work group formed to develop a draft of test procedures that could be submitted to the NTEP Committee as proposed changes within *NCWM Publication 14*. This work group will also consider the scope for the application of any newly developed test procedures (i.e. whether the test procedures will be applied retroactively to devices that have already received NTEP approval). The work group includes the following members:

- Mr. Bill Ripka, Thermo Fisher Scientific
- Mr. Peter Sirrico, Thayer Scale / Hyer Industries
- Mr. Lars Marmsater, Merrick Industries, Inc.
- Mr. Ian Burrell, Control Systems Technology Pty Ltd.

The work group agreed to continue work on developing test procedures through correspondence and offer a draft for review by the sector. An update on any progress that has been made in this effort will be provided to the sector.

The sector recognizes that linearization correction features may at this time be in use in some manufacturer's devices. The sector also understands that manufacturers may take different approaches in the design of such features and that it would be impractical to write a single set of procedures to follow during type evaluation of different manufacturer's devices.

Mr. Barton, NIST Technical Advisor suggested that a simple, generic statement may be all that is needed to provide the evaluator with the information necessary (e.g., a statement that would direct the evaluator to follow procedures that are provided by the manufacturer).

Mr. Marmsater, Merrick Industries, Inc. noted that many electronic components used in the construction of belt-conveyor scale systems become obsolete very rapidly and this causes the manufacturer to redesign the instruments to accommodate necessary changes in design. He questioned whether this will require that a reevaluation be performed at the time of these redesigns. Mr. Truex, NTEP Administrator acknowledged that this could be a potential problem and that NTEP and if necessary, NTEP Committee would properly address this issue.

Conclusion:

The sector agreed that the same work group that originally took on the linearization feature project during the 2011 NTETC BCS Sector Meeting will regroup and continue the work to produce a rough draft of procedures to be followed when evaluating the instruments ability to compensate for non-linear performance. This rough draft is to be completed by May 31, 2012 and then circulated to the sector for review and comment.

4. Conveyor Belt Profiling

Source:

NIST, OWM

Background / Discussion:

This method of establishing a zero-condition for a totalization operation enables the belt-conveyor scale to synchronize the application of an individual "tare" weight values associated with distinct segments of the belt to the movement of those belt segments over the scale portion of the conveyor. If this alternative to averaging the weight of segments of the belt carcass is used there is a potential need to establish a procedure to evaluate its effectiveness, to ensure that it functions as intended, and is maintained during operation of the BCS.

NIST OWM has received inquiries seeking guidance on whether this type of feature is permitted under U.S. standards. It is also being reported by some members of the USNWG BCS that some regulatory field officials will not issue an approval for devices equipped with this feature when it is not listed as a standard feature or an option on the NTEP Certificate of Conformance.

During the 2011 NTETC BCS Sector Meeting the sector was asked to consider if there is a need for procedures to evaluate the effectiveness of belt profiling and to ensure that correct operation is maintained during totalization. A majority of sector members voiced their opinion that this feature should receive some level of evaluation, and that at a minimum the ability to enable or disable any belt profiling feature should be protected by some form of security seal.

The sector also concluded that it may be preferable to have the analysis and necessary action(s) for the consideration of belt profiling features taken on by the same work group formed under the previous agenda item. The work group is comprised of the same members as the work group formed under the previous agenda item and includes:

- Mr. Bill Ripka, Thermo Fisher Scientific
- Mr. Peter Sirrico, Thayer Scale / Hyer Industries
- Mr. Lars Marmsater, Merrick Industries, Inc.
- Mr. Ian Burrell, Control Systems Technology Pty Ltd.

A draft of test procedures is expected to be made available for review by the sector. An update on any progress made by the work group will be provided to the sector.

At the 2011 NTETC BCS Sector Meeting, the work group reported that no progress has been made on developing a draft for test procedures to evaluate belt profiling features.

Conclusion:

The sector agreed that there is merit to incorporating guidance for NTEP evaluators by providing procedures for testing this feature. They agreed that the same group that originally took on the project will regroup and continue the work to produce a rough draft of procedures to be followed when evaluating a belt-profiling type of feature. This rough draft will be completed by May 31, 2012 and will be circulated to other sector members for review and comment.

NEW ITEMS

5. 2012 NIST Handbook 44 Changes

Source:

NIST, OWM

Background / Discussion:

The proposed amendments were presented to the sector members and an explanation was provided for necessary changes that are being recommended.

Conclusion:

The 2012 edition of *NIST Handbook 44* BCS code contains an amended paragraph N.3.1.3. After a review of the suggested changes, there were no opposing comments from the sector. It is recommended that *NCWM Publication 14* be changed to reflect this amendment as shown below:

13. Field Test Procedure (page BCS-18)

Field Performance Test of the Belt-Conveyor Scale

N.3.1.3. Check for Consistency of the Conveyor Belt Along Its Entire Length. – During a zero-load test with all operational ~~no~~ **low**-flow lockout disabled, the total change indicated in the totalizer during ~~one~~ **any complete** revolution of the belt shall not exceed **the absolute value of** 0.12 % of the minimum ~~test~~ **totalized** load. ~~The end value of the zero-load test must meet the ± 0.06 % requirement (Test for Zero Stability). After a zero-load test with flow rate filtering disabled, the totalizer shall not change more than plus or minus (± 3 d) 3.0 scale divisions from its initial indication during one complete belt revolution.~~

Note: The end value of the zero-load test must meet the ± 0.06 % requirement referenced in the “Test for Zero Stability.”

(Added 2002) (Amended 2004 **and 2011**)

6. Recommended Changes to Existing Language in NCWM Publication 14

6.a. 9. Installation Requirements - paragraph numbering (page BCS-11)

Source:

NIST, OWM

Background / Discussion:

The proposed amendments were presented to the sector and an explanation was provided for necessary changes that are being recommended.

Conclusion:

The sector was asked to consider that the paragraph numbers within *NCWM Publication 14* be changed to correspond with the previous renumbering of paragraphs in Section 9. There were no opposing comments. Suggested amendments are shown below:

Code Reference: UR.2.2.1.

- 9.7.3. Pulleys, if used, must be properly protected from material build-up. Yes No N/A
- 9.7.4. If the tail pulley rides on a carriage, the guides must be protected against material build-up. Yes No N/A
- 9.7.5. If the arrangements in ~~(3)~~ **(9.7.3.)** and ~~(4)~~ **(9.7.4.)** are used, then the bridle attaching the cable to the carriage must be designed such that the carriage will not become cocked in its guides or tracks. Yes No N/A

6.b. Minimum Test Load (MTL) References

Source:

NIST, OWM

Background / Discussion:

When the value for MTL in *NIST Handbook 44* [2.21], paragraph N.2.3. (a) was changed from 1000 scale divisions to 800 scale divisions in the 2005 edition of *NIST Handbook 44*, not all corresponding values in *NCWM Publication 14* were changed.

Conclusion:

The proposed amendments were presented to the sector and explanations were provided for necessary changes that are being recommended. There were no opposing comments. To reconcile these *NCWM Publication 14* references with current *NIST Handbook 44* requirements, it is recommended that MTL references in *NCWM Publication 14* Belt-Conveyor Scales Checklist be changed as shown, from 1000 d to 800 d in the following locations:

a. 6. Zero-Setting Mechanism (page BCS-7)

Code Reference: S.3.1. and S.3.1.1.

The zero-setting mechanism may be either a manual or automatic mechanism. In either case, the range of the zero-setting mechanism is limited to $\pm 2\%$ of the rated capacity of the scale. If a greater adjustment is needed, the access to the adjustment must be through some security means. An audio or visual signal shall be given when the automatic and semi-automatic zero-setting mechanisms reach the limit of adjustment of the zero-setting mechanism. The zero-setting mechanism must be constructed such that the zero-setting operation is done only after a whole number of belt revolutions (a minimum of 3 revolutions or a time period equivalent to the time required to deliver ~~1000~~ **800** d of load.) The completion of the zero-setting operation must be indicated. The low-flow lockout must be deactivated for this test.

b. 6. Zero-Setting Mechanism (page BCS-8)

- 6.3. The zero-setting operation shall be performed only after at least 3 Yes No N/A belt revolutions or a time period equivalent to the time required to deliver ~~1000~~ 800 d of load.

c. 7. Sensitivity at Zero Load (page BCS-8)

Test Procedure

Apply a load equal to the weight required to determine compliance with the Belt-Conveyor Scale Code paragraph S.3.2. based upon the equation:

$$\frac{2 * W_c}{C_m}$$

For Example: $2 * \frac{500 \text{ 400 lb}}{1000 \text{ 800 d}} = 1 \text{ lb}$

d. 12. Laboratory Test Procedures (page BCS-14 and 15)

Voltage Tests

5. Run an accuracy test at 98% of scale capacity for the time to deliver ~~1000~~ 800 d.
6. Change the voltage of the power supply to 100 V.
7. Run a zero test.
8. Run an accuracy test at 98% of scale capacity for the time to deliver ~~1000~~ 800 d.
9. Change the voltage of the power supply to 130 V.
10. Run a zero test.
11. Run an accuracy test at 98% of scale capacity for the time to deliver ~~1000~~ 800 d.
12. Return the voltage of the power supply to a nominal value.

Percent of Static Scale Capacity	Nominal Time (minutes)	Equivalent Belt Travel ¹
0	20 minutes, or $MTL_{min}/[(0.35)(BL_{min})$ (belt speed for test)] ¹ whichever is greater	
35% of SSC_{min}	20 minutes, or $MTL_{min}/[(0.35)(BL_{min})$ (belt speed for test)], whichever is greater	
35% of SSC_{max}	Time to deliver 1000 <u>800</u> d	
70% of SSC_{max}	Time to deliver 1000 <u>800</u> d	
98% of SSC_{max}	Time to deliver 1000 <u>800</u> d	
Leave the scale under load for 1 hour.		
98% of SSC_{max}	Time to deliver 1000 <u>800</u> d	
70% of SSC_{max}	Time to deliver 1000 <u>800</u> d	
35% of SSC_{max}	Time to deliver 1000 <u>800</u> d	
35% of SSC_{min}	20 minutes, or $MTL_{min}/[(0.35)(BL_{min})$ (belt speed for test)], whichever is greater	
0	20 minutes, or $MTL_{min}/[(0.35)(BL_{min})$ (belt speed for test)] ² whichever is greater	

e. 15. Data Sheet and Laboratory Test Procedure (page BCS-20 and 21)

Device Parameters		Abbreviations	Maximum	Minimum	Dim.
Load per unit length (from manufacturer) corresponds to the largest capacity and the lowest capacity rating.		BL			lb/ft
Length of the weighbridge (inches.)					in
Belt speed (from manufacturer.)		SP			ft/min
Determine scale capacity in units per hour $SC = SP \times BL \times 60 / 2000$		SC			ton/hr
Record the static scale capacity in units of weight. SSC = (maximum weight per foot) (length of weighbridge)		SSC			lb
Allowable zero error for temperature change of 10 °C (18 °F) $AZE = (0.0007) (SC_{min}) (time) / 60$ where "time" is the time of the zero test in minutes.		AZE			ton
Size of scale division required for zero.		SD			ton
Determine the minimum and maximum totalized loads.		MTL			ton
Test Conditions		Abbreviations	Maximum	Minimum	Dim.
Determine the time in minutes to acquire MTL with the test load to be applied in laboratory testing.	Test load, pound/foot.				lb/ft
	Test load, total.				lb
	Time (minutes) to deliver MTL (at least 10 minutes.)	time			min
Determine number of belt travel sensor revolutions required for the above time. Manufacturer to provide revolutions per foot or pulses per foot as appropriate to determine 3 belt revolutions and a delivery of 1000 800 d (from manufacturer.)		BTR			Revolutions
Allowable weighing error (units of weight) for dynamic tests which will be divisions on master weight totalizer (MWT.) $AWE = 0.45(0.005)(TL)$		AWE			ton

Percent of Static Scale Capacity	Time (minutes)	Totalized Load TL (ton)	Tolerance AWE = 0.45 (.005) (TL)
0	20 minutes, or $MTL_{min}/[(0.35)(BL_{min})]$ (belt speed for test), whichever is greater		
35% of SSC_{min}	20 minutes, or $MTL_{min}/[(0.35)(BL_{min})]$ (belt speed for test), whichever is greater		
35% of SSC_{max}	*Time to deliver 1000 800 d		
70% of SSC_{max}	*Time to deliver 1000 800 d		
98% of SSC_{max}	*Time to deliver 1000 800 d		
Leave the scale under load for 1 hour.			
98% of SSC_{max}	*Time to deliver 1000 800 d		
70% of SSC_{max}	*Time to deliver 1000 800 d		
35% of SSC_{max}	*Time to deliver 1000 800 d		
35% of SSC_{min}	20 minutes, or $MTL_{min}/[(0.35)(BL_{min})]$ (belt speed for test), whichever is greater		
0	20 minutes, or $MTL_{min}/[(0.35)(BL_{min})]$ (belt speed for test), whichever is greater		

7. Field Test Procedures for Reference Scales

7.a. Hopper Scales – 13. Field Test Procedure(page BCS – 17)

Source:
NIST, OWM

Background / Discussion:

The required minimum test weights of 10% of scale capacity as stated in *NCWM Publication 14* does not correspond with the minimum test weight required in *NIST Handbook 44* [2.20], Table 4 of 12.5%. The sector is asked if these values should be reconciled.

Sector members agreed that the minimum test weight amount of 10% of scale capacity is in conflict with *NIST Handbook 44* Scales Code, Table 4 where it is required that, for scales of greater than 3000 lb capacity the minimum test weight required is 12.5% of scale capacity. The origin of the established value of 10% is uncertain at this time. Mr. Barton, NIST Technical Advisor offered that the possible source for this value may have been from the stated value for minimum test weight in the *NIST Handbook 44* Automatic Bulk Weighing Systems code where that type of device is required to be tested using 10% of scale capacity as the minimum test weight.

The sector originally agreed that this reference to 10% minimum test weight required should be amended to coincide with the minimum test weight required under Table 4 – *NIST Handbook 44* Scales Code (e.g., 12% of scale capacity). Further discussion by the sector disclosed that no requirement is present in *NIST Handbook 44* BCS code to specify the capacity of a reference scale used and that the only specific requirement is that the scale used must produce weighments within 0.1% accuracy.

Conclusion:

The amendments shown below were agreed upon by the sector which specify that no more than three substitutions can be used during the testing of a hopper scale used a reference scale, and that the hopper scale be tested according to *NIST Handbook 44* procedures. The sector recommends the changes as shown below be made in *NCWM Publication 14*.

13. Field Test Procedure (page BCS-17)

Test of the Reference Scale

Hopper Scales

Hopper scales must be tested to the used capacity using a maximum of three substitution tests according to NIST Handbook 44 procedures. ~~Test weights equal to a minimum of 10% of scale capacity are needed; more test weight is recommended.~~ The scale must be accurate to 0.1% and adjusted if necessary.

Notice: After the 2012 NTETC BCS Sector Meeting, Mr. Barton, NIST Technical Advisor received feedback regarding concerns about this item and decision reached by the sector. These concerns were specifically related to the deletion of a stated minimum required test weight and the apprehension that this type of scale may be tested using test weight in amounts that are smaller than what has been established as minimum. Mr. Ripka, Chair and Mr. Truex, NTEP Administrator were consulted, with a decision reached that since this is not a critical issue currently preventing a manufacturer from completing an NTEP evaluation, it would be best to hold as a carry-over item to be re-addressed at the next sector meeting.

7.b. Railway Track Scales – 13. Field Test Procedure (page BCS-17)

Source:

NIST, OWM

Background / Discussion:

The sector was asked to provide input regarding a recommendation that uncoupled in-motion railway scales used to establish reference weights for material tests be required to be tested in the mode (in-motion or statically) that will be used to determine the reference weights.

As written, this procedure does not prohibit weighing rail cars, uncoupled in-motion, to obtain reference weights for use during a material test when the railway scale's accuracy has only been verified through static testing. Considering the substantial time and effort involved in testing an uncoupled in-motion railway scale, it is questionable whether the scale will be properly tested as an in-motion scale (when used as such) or if it will only have its accuracy verified through a statically performed test.

The sector was asked if the railway track scale is not tested as an in-motion scale, should it be accepted that the scale will be capable of producing reference weights of 0.1% accuracy when the scale is used as an in-motion scale. Several sector members expressed their belief that reference weights can be obtained on an in-motion scale that has had its accuracy verified however; the weights should be obtained by static weighing only. This notion was based on the uncertainty whether in-motion weighing can consistently produce 0.1% accuracy for all weighments.

Mr. Burrell, Control Systems Technology Pty Ltd. pointed out that to exclude the use of in-motion weighing from acceptable methods to obtain reference weights would be placing unfair limitations on technological advancements. He further stated that static type scales cannot be absolutely relied on to accurately produce weighments without error. Other sector members expressed the view that they are not aware of any tests being performed where reference weights are obtained by in-motion weighing.

Conclusion:

The sector agreed that no action be taken on this recommendation, and that the current language in *NCWM Publication 14* should not be amended.

13. Field Test Procedure (page BCS-17)

Test of the Reference Scale

Railway Track Scales

Because of the difficulties of obtaining adequate test weights or test cars to test railway track scales, the American Association of Railroads Committee simply recommends that the scales be tested the best way that can be arranged. The scale must be accurate to 0.1% and adjusted if necessary.

Split-draft static-weighing is acceptable. ~~Uncoupled in-motion weighing is permitted if it is done as a single draft.~~

8. Time and Date Information Required on Recorded Indications

Source:

NIST, OWM

Background / Discussion:

The 2012 USNWG on BCS Meeting included discussion regarding paragraph S.1.4. in *NIST Handbook 44* BCS code which requires that recorded indications include the date and time in addition to the initial and final totalizer reading and the unit of measurement.

The statement of date and time however is non-specific in that there is no association made for the date and time record with the stage that the totalization process is in.

This issue has also been included in the agenda for the NTETC BCS Sector Meeting due to the reference to this *NIST Handbook 44* requirement in *NCWM Publication 14*. The example of a recorded indication provided in *NCWM Publication 14* (shown below) indicates a single, unspecified date and time. It may be reasonable to assume that because the total quantity is also provided on the recorded indication, that the date and time shown are associated with the final MWT reading.

2. Recording Element (page BCS-5)

Code Reference S.1.4. and G-S.5.2.2.:

- 2.3. The value of the scale division of the recording element shall be the same as that of the indicating element. The belt-conveyor scale system shall record the initial indication and the final indication on the MWT, the quantity delivered, the unit of measurement, (e.g., kilograms, tonnes, pounds, tons, etc.), the date, and time. This information shall be recorded for each delivery. The indicated and recorded weight values must agree to the nearest scale division. Yes No N/A
- 2.4. All weight values shall be recorded as digital values. Yes No N/A
- 2.5. Information required on the ticket. Yes No N/A

	05 06 92
	15:30
MASTER START TOTAL	44113.5 T
MASTER STOP TOTAL	44300.5 T
QUANTITY	187.0 T

The sector is asked to consider whether or not it is useful to include a time and date for the recorded indications of both the initial MWT reading and the final MWT reading. Additionally, is there justification for providing enough information on the recorded indications to establish a span of time for the delivery of the total amount of material?

If it is determined that an amendment is needed to the *NIST Handbook 44* requirement, it is recommended that the sector draft the appropriate necessary changes to *NCWM Publication 14*.

The sector generally agreed that there is some justification for providing sufficient information on recorded indications to be able to determine the amount of time that has passed during a totalization of material and that this amount of time could easily be obtained by referencing a time and date indication on both the beginning and final totalization recorded indication. Some sector members noted however, that recorded information that is already required to be indicated on flow chart recorders will provide that information. Other sector members agreed and added that it has been their experience that the flow chart recordings are always available for inspection as required.

Conclusion:

Considering the limited amount of space on many typical printed tickets that is available for the required recorded (printed) information, the sector agreed not to support that additional information be required on the printed/recorded indications and that no changes to *NCWM Publication 14* should be recommended with regard to this issue.

9. Short Conveyor Belt (Weigh-Belts) Systems

Source:
NIST, OWM

Background / Discussion:

The 2012 USNWG BCS Meeting Agenda include the reintroduction of language in *NIST Handbook 44* under UR.2. regarding shorter belt systems that are designed and furnished by the manufacturer. This proposal would place language back into *NIST Handbook 44* that had been stricken in 2001.

Although this language is not in the current edition of *NIST Handbook 44*, reference to *NIST Handbook 44* in the current *NCWM Publication 14* still includes this deleted wording. The sector is asked to consider how to reconcile *NCWM Publication 14* with references to requirements in *NIST Handbook 44*.

Conclusion:

The sector acknowledged there is on-going work regarding this issue being done by a sub-group of the U.S. National Work Group on belt-conveyor scales which may result in changes to future editions of *NIST Handbook 44*. The sector agreed however, that any references made in *NCWM Publication 14* to requirements contained in *NIST Handbook 44* should mirror the existing language in those requirements. They also agreed to recommend that the following amendments be made to *NCWM Publication 14* to reflect existing language in *NIST Handbook 44*.

9. Installation Requirements (page BCS-11)

Code Reference: UR.2.2.1.

9.7. ~~Unless the scale is installed in a short conveyor designed and furnished by the scale manufacturer or built to the scale manufacturer's specifications, the conveyor shall comply with the following minimum requirements: The design and installation of the conveyor leading to and from the belt-conveyor scale is critical with respect to scale performance. The conveyor can be horizontal or inclined, but if inclined, the angle shall be such that slippage of material along the belt does not occur. Installation shall be in accordance with the scale manufacturer's instructions and the following:~~ Yes No N/A

9.7.1. If the belt length is such that a take-up device is required, this device shall be of the counter-weighted type for either vertical or horizontal travel. Yes No N/A

9.7.1.1. Indicate the Type: Vertical Horizontal

ATTENDANCE

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