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**SDL #: 6860**

**DATE: August 15, 2008**

<b>TO:</b> Area Sales Managers Authorized Canadian Distributors Authorized Domestic Distributors	Customer Service Engineering Marketing	Manufacturing Mgmt. Regional Managers Solutions Group
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**FROM:** Pat Dusang, Director, Heavy Capacity Products, Meridian MS

**SUBJ: Acquiring Railroad Approval for a Railroad Track Scale**

The purpose of this document is to detail the requirements and process for acquiring railroad approval from the serving railroad on a Fairbanks Railroad Track Scale. In the past, there has been much confusion regarding this process, which has caused delays and has frustrated customers, sales, and everybody involved. This document will detail exactly who is responsible for providing what documentation, and when it must be provided to acquire a timely railroad approval on a Fairbanks Railroad Track Scale.

**When do I need to know who the serving railroad will be?**

**At the time the order is entered**, the Fairbanks ASM will provide the name of the serving railroad in the 'Order comments' field in SSA. Distributors must provide this information to KC Customer Service when the order is entered. The order will not be entered until this information is supplied to Fairbanks.

**How will I know when and if the required information has been sent to the railroad?**

When Engineering sends the required information to the serving railroad, an email will be sent to the ASM or Distributor stating that the information has been sent and who it was sent to.

**How will I know that the Railroad has issued approval for the Scale to be built and installed?**

When Fairbanks receives written approval from the serving railroad, Engineering will send an email to Meridian Customer Service releasing the scale to be manufactured and will have the ASM or Distributor copied on the email.

**What if the Customer claims that they do not need railroad approval?**

If a customer claims that they do not require rail approval, or that they own the property and don't need rail approval, or there *is* no serving railroad, Fairbanks requires them to sign a waiver relieving Fairbanks from any and all liability that may occur due to the customer not obtaining railroad approval. The letter (Waiver of RRT Scale Approval) can be acquired from the Fairbanks Intranet or you can send an email to [foundationdrawings@fairbanks.com](mailto:foundationdrawings@fairbanks.com) requesting the letter.

The following pages show documentation that Fairbanks has received from major railroads stating what each railroad requires for approval. At the top of each page is a bulleted list of what is required and who is responsible for providing the information. The last page of this SDL is a copy of the letter for a Waiver of RRT Approval. **It is recommended that you keep this document for future reference when you enter your next order for a Fairbanks Railroad Track Scale.**

If you have any questions, concerns, or comments, contact me a call at 601-483-4311 Ext 104 or by e-mail at [pdusang@fairbanks.com](mailto:pdusang@fairbanks.com).

Below is the CSX policy on Rail Scale Approval. Essentially **they require no rail approval:**

- It is the responsibility of the scale owner to ensure that the scale certification and testing be performed in compliance with NIST and H-44.



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### **CSXT POLICY ON INDUSTRIAL TRACK SCALES**

This policy covers off-line customer and industry scales. The various configurations of scales used to determine commerce rates, charges, or to implement contract or weight agreements are considered a commercial device. All States adopt the "*Specifications, Tolerances, and Other Technical Requirements for Weight and Measuring Devices*" as published by the National Institute of Standards and Technology (NIST) Handbook 44. Handbook 44 requires that all "commercial devices" be tested and approved not less than annually.

#### **SCALE CERTIFICATION AND TESTING**

The certification and testing of all scales are the responsibility of the scale owner and shall be performed in compliance with the National Institute of Standards and Technology (NIST) Handbook 44. A copy of the current test report and certification shall be provided to CSXT only as necessary and upon demand.

#### **SCALE INSTALLATIONS**

It is the United States Department of Commerce Policy to require all scales used to determine freight and tariff charges shall be installed in compliance with the National Institute of Standards and Technology (NIST) Handbook 44. Additional guidance for track scales may be found in the Association of American Railroads (AAR) Scale Handbook. It is the responsibility of the scale owner to ensure compliance with these specifications. Scale facilities that are owned and maintained by the Industry must be designed and constructed under the supervision of a licensed professional engineer familiar with scales. It is the responsibility of the scale owner to ensure compliance with these specifications.

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Office of Director Fixed Plant Engineering  
Engineering Department

Below is the **CP Railway** policy on rail scale approval. Essentially they require:

**From Fairbanks:**

- Submission of construction plans for CP Railway Engineering review (PROVIDED BY FAIRBANKS ENGINEERING TO CP RAILWAY).

From: Brian Kotylak  
To: Fairbanks Scales

Yes Railroad Approval is required on CP Railway.

Prior to construction, we require the customer (scale owner) to provide us with the construction plans so that we can perform an Engineering review of the detailed construction plans for the track scale system. We look for compliance to the AAR Scale Handbook and AREMA engineering requirements - design criteria. And of course if the scale is to be used for Custody Transfer (Legal for Trade) then it must comply with State Statutory Authorities Weights & Measures regulations (In Canada, Measurement Canada) - performance criteria. Once the Railroad Engineering review is completed, we then advise the customer of any comments, recommendations, discrepancies and again this is to be done before actual construction. Finally the commissioning tests are scheduled through this department.

Hope this helps to answer your questions.

Brian Kotylak  
Mgr Scale Operations  
CP Railway  
ph 604.220-6618

Below is the **Norfolk Southern Corporation** policy on rail scale approval. Essentially they require:

**From Fairbanks:**

- Rail scale foundation drawings (PROVIDED BY FAIRBANKS ENGINEERING TO NORFOLK SOUTHERN CORPORATION)
- Drawings of support structures (PROVIDED BY FAIRBANKS ENGINEERING TO NORFOLK SOUTHERN CORPORATION)
- Drawings of load cell assembly (PROVIDED BY FAIRBANKS ENGINEERING TO NORFOLK SOUTHERN CORPORATION)
- Calculations of support structures (PROVIDED BY FAIRBANKS ENGINEERING TO NORFOLK SOUTHERN CORPORATION)
- Certificate of Conformances for Scale and Load cells (PROVIDED BY FAIRBANKS ENGINEERING TO NORFOLK SOUTHERN CORPORATION)

**From Customer:**

- Site Plan that details Track layout, clearances to adjacent structures, elevations and curvatures of the track (PROVIDED BY CUSTOMER TO NORFOLK SOUTHERN CORPORATION)
- Soils engineers report (PROVIDED BY CUSTOMER TO NORFOLK SOUTHERN CORPORATION)

From: Gogolin, Dave  
To: Fairbanks Scales

The documents needed to verify compliance with the AREMA Engineering Manual and the AAR Scale Handbook are:

- Drawings of the pit and foundation which includes approach track detail.
- Soil engineers report
- Drawings of the support structures, weighbridge, and approach stand and beam, etc. Calculations of bending moments and stresses on the weighbridge are appreciated.
- Track layout that depicts scale location. Detail to include clearance distances to adjacent structures, elevations, and curvatures.
- Load cell assembly/Lever System details to verify handbook criteria.

The argument has been a popular one since many railroads have gotten away from approving scale plans of customer scales. NS still reviews the plans and still strictly adheres to AAR and AREMA guidelines.

The bottom line answer is, if any NS owned equipment can access the scale then we need to verify the structural integrity. Yes, that would include the scale test car. Another point of view that rarely comes into consideration but often happens is, ownership of these plants/factories change. Subsequent owners may use the facilities (scales) differently. So, the bottom line is, if NS can access it then we need to verify the structural integrity. There is also another reason to make sure a scale meets code, certified weights. If the scale weights are going to be used for commercial purposes as defined in NIST Handbook-44, then it needs to meet the requirements of Handbook-44 as well as the structural requirements stated above.

Reply for any questions,

*David Gogolin* - Supt. of Scales, Norfolk Southern Corporation  
1200 Peachtree St. NE -- Box 142  
Atlanta GA 30309

Below is the **BNSF** policy on rail scale approval. Essentially they require:

**From Fairbanks:**

- A letter **from Fairbanks** stating; the scale meets all criteria of H-44, the scale has been issued a Certificate of Conformance, the scale has been designed to comply with AAR scale handbook design guidelines for Cooper E-80 loading and the scale meets all State and Local regulatory agency regulations (PROVIDED BY FAIRBANKS ENGINEERING TO BNSF)
- Foundation drawings stamped by a Professional Engineer registered in the state where the scale is to be installed (PROVIDED BY FAIRBANKS ENGINEERING TO BNSF)

**From Customer:**

- A letter **from the scale owner** stating; the scale will be installed according to the AAR Scale Handbook and according to the plans that have been stamped by a Registered Professional Engineer, the soils have been compacted to the specified bearing capacity according to the plans with provisions for positive drainage away from the foundation, the concrete compressive strength, reinforcing steel placement, concrete form dimensions and elevations have been checked and verified to comply with the plans and the scale will be operated, maintained and tested according to the AAR Scale Handbook (PROVIDED BY CUSTOMER TO BNSF)

1) The **Scale Manufacturer** submits a letter to BNSF stating:

- a) the scale meets all criteria of the most current NIST Handbook 44 and has been issued an NTEP Certificate of Conformance.
- b) the scale has been designed to comply with Parts 2 & 3 of the most current AAR Scale Handbook design guidelines for Coopers E-80 live load.
- c) the scale plans have been stamped by a Registered Professional Engineer in the state where the scale is to be installed.
- d) the scale meets all State and local regulatory agency regulations.

2) The **Scale Owner** submits a letter to BNSF stating:

- a) the scale will be installed according to the AAR Scale Handbook and according to the plans that have been stamped by the Registered Professional Engineer
- b) the soils have been compacted to the specified bearing capacity according to the plans and there is a means of providing positive drainage away from the foundation.
- c) the concrete compressive strength, reinforcing steel placement, concrete form dimensions and elevations have been checked and verified to comply with the plans.
- d) the scale will be operated, maintained and tested according to the AAR Scale Handbook.

**BNSF Commentary: Railroad Scale Plan Review Policy**

10/12/99

There are three main publications that define railroad scale design, testing and operation:

- 1) National Institute of Standards and Technology (NIST) Handbook 44
- 2) American Association of Railroads (AAR) Scale Handbook
- 3) American Railway Engineering and Maintenance Association (AREMA) Manual of Recommended Practice

NIST Handbook 44 is adopted as law by most states. Some states have minor variations. A few states have their own laws. Handbook 44 deals primarily with accuracy and testing methods. NIST Handbook 44 is published by the US Department of Commerce, National Conference of Weights and Measures.

AAR Scale Handbook deals with location, design, construction, operation, and testing of railroad scales. The criterion of AAR Scale Handbook meets or exceeds the minimum requirements of NIST Handbook 44. The AAR Scale Handbook is published as Chapter 34 of the greater AREMA Manual for Railway Engineering. Both publications can be purchased by calling AREMA at (301) 459-3200 or on line at: <http://www.arema.org>

There are two other Chapters of the AREMA Manual that are referenced frequently by the AAR Scale Handbook. Chapter 8 is a comprehensive design guide for concrete structures and foundations. Chapter 15 is a comprehensive design guide for steel structures. AAR Scale Handbook does not always parallel the design guidelines of Chapter 8 and Chapter 15. Where there are exceptions, **scale design criteria are more conservative than bridge design criteria**. For example, stress in steel members is limited to 10,000 psi, deflection of the weighbridge is limited to 1/1200 of the span length, and concrete bearing stress is limited to 300 psi. These are just three components of design. There are many more to consider. Therefore it is essential to carefully read both AAR Scale Handbook and AREMA Manual when designing track scale foundations and steel components.

Historically, BNSF review of scale plans was performed at no cost to the Scale Owner by our in house engineering staff. Internal reorganizations and downsizing in recent years have left only a skeleton staff of engineering managers. These managers are primarily contract administrators. Outside Consulting Engineering firms are now contracted for design services. Consequently, plan review is performed by Consultants and their services are costly. These costs must then be recouped from the scale owner or the scale manufacturer.

From a practical standpoint, it should not be necessary to perform a second engineering analysis of the plans, provided the original design was done by a competent engineer according to the comprehensive criteria of the aforementioned AAR, NIST, and AREMA publications. If the Scale Owner desires an independent review of scale plans and structural calculations, we can provide a list of recommended Engineering Consultant firms.

Engineering design is only the beginning of the finished product. **If the scale is not installed according to the plans, utilizing good workmanship and materials, then there is no assurance that the scale owner has a good product in the ground.** For example, AAR Scale Handbook specifies a minimum soil bearing capacity of 4000 lb. per square foot. Unless the scale owner has a soils quality control technician on site, there will be no assurance that the soil compaction meets minimum criteria. If the scale is located in a depressed area, water will pond around the foundation and saturate the supporting soils. The foundation will settle and the scale accuracy will be compromised.

*Continued . . .*

Historically, railroad structural problems have not been due to improper design, rather they were caused by inferior materials and substandard installation practices. The most prevalent causes are poor foundation preparations, inferior concrete quality and defective welds in the steel members. Electronic scale problems are most often caused by improperly spliced wires. BNSF advises scale owners that the best insurance to avoid future scale problems is to focus on the Contractor's practices during the installation.

Therefore, BNSF will not perform a structural review of rail scale plans. In its place, the following documentation must be provided to BNSF for approval for new scale installations:

- 1) The Scale Manufacturer submits a letter to BNSF stating:
  - a) the scale meets all criteria of the most current NIST Handbook 44 and has been issued an NTEP Certificate of Conformance.
  - b) the scale has been designed to comply with Parts 2 & 3 of the most current AAR Scale Handbook design guidelines for Coopers E-80 live load.
  - c) the scale plans have been stamped by a Registered Professional Engineer in the state where the scale is to be installed.
  - d) the scale meets all State and local regulatory agency regulations.
- 2) The Scale Owner submits a letter to BNSF stating:
  - a) the scale will be installed according to the AAR Scale Handbook and according to the plans that have been stamped by the Registered Professional Engineer
  - b) the soils have been compacted to the specified bearing capacity according to the plans and there is a means of providing positive drainage away from the foundation.
  - c) the concrete compressive strength, reinforcing steel placement, concrete form dimensions and elevations have been checked and verified to comply with the plans.
  - d) the scale will be operated, maintained and tested according to the AAR Scale Handbook.

Forward letters to: D.E. Lozano- Asst. Dir. Structures  
4515 Kansas Ave.  
Kansas City, KS 66106  
Email: DONALD.LOZANO@BNSF.COM

After receipt of both letters, the Scale Owner will be notified that the scale installation is approved. Before construction begins, the proposed location of the scale on the owner's property should be reviewed by the local Trainmaster to make sure there are no potential problems with switching operations.

The above criteria apply to scale installations where all construction activity takes place off of BNSF right-of-way. If it is necessary for Contractor's employees or equipment to enter BNSF Railway right-of-way or to cross BNSF tracks, a separate License Agreement and proper railroad liability insurance coverage must be obtained. Construction activity within 25 ft. of a live track will require a railroad flagman to be present during construction.

When the scale is completed, the local Roadmaster must be notified to inspect track work and side clearances before our locomotives and equipment will be allowed to pass over the scale.



Below is the **Union Pacific** policy on rail scale approval. Essentially they require:

**From Fairbanks:**

- A letter from **Fairbanks** stating; the scale meets all criteria of H-44, the scale has been issued a Certificate of Conformance, the scale has been designed to comply with AAR Scale Handbook design guidelines for Cooper E-80 loading and the scale meets all State and Local regulatory agency regulations (PROVIDED BY FAIRBANKS TO UP)
- Foundation drawings stamped by a Registered Professional Engineer (PROVIDED BY FAIRBANKS ENGINEERING TO BNSF)

**From Customer:**

- A Site plan of scale location depicting clearances to adjacent structures and property lines, also showing clearance to other tracks in the area (PROVIDED BY CUSTOMER TO BNSF)
- Soil bearing report including recommendations (PROVIDED BY CUSTOMER TO BNSF)

UNION PACIFIC RAILROAD

NEEDED INFORMATION FOR TRACK SCALE INSTALLATIONS

The Association of American Railroads (AAR) and the American Railway Engineering and Maintenance Association (AREMA) have adopted Railroad Construction Practices specific to the installation of Railroad Track Scales.

This information is published annually as the AAR SCALE HANDBOOK

The following information will be required for submittal of a proposed scale installation on the Union Pacific Railroad or any Industry or Agency that the Union Pacific serves. All information shall be submitted through a Union Pacific Manager of Industry and Public Projects. This information will then be forwarded to Structural Design Department in Omaha for review and approval.

**PREREQUISITES FOR REVIEW AND APPROVAL**

1. Weighing system must meet local Standards for commercial use.
2. Weighing system must be NTEP approved with certificates of conformance.
3. Minimum 115 pound rail on the scale weigh bridge and approaches.
4. Minimum Structural Design per AREMA approved Cooper E-80 Loadings.
- ( 5. All drawings must be stamped and signed by a Licensed Professional Engineer. )
- ( 6. The Professional Engineer assumes the responsibility for design of adequate load bearing conditions under scale and approach slabs. )
7. Site Plan of scale location depicting clearances to adjacent structures and property lines. Also show clearance to other tracks in the area.
8. Drawings:
  - a. Details of scale pit and approach slabs, along with dead section foundation detail.
  - b. Detail of rail anchoring system.
  - c. Detail of Rail Anti-Creep devices and Miter Joint Detail
  - d. Detail of scale pit drainage.
  - e. All manufacturers scale drawings for scale being used.
  - f. Additional drawings of custom or after factory modifications to basic scale design including, augers or conveyor systems with tunnel connections to scale pit, product dump openings, roll over dumps, etc.
  - g. ( Soil bearing report including report with recommendations. )

Several other factors have a direct effect on a scale installation. Please advise us if you encounter any of the following conditions:

1. Wet conditions or construction on man made fill sites near water.
2. Railroad track switches, curves, inclines or grades leading to scale.
3. Location of scale readout if not in direct view of scale platform.
4. Overhead power lines, underground utility and fiber optic lines, petroleum or gas pipelines within 250 feet of the scale excavation site.
5. TV or radio Broadcast antennas within 1/2 mile of scale site.
6. Explosive or caustic material, metal or concrete corrosion problems.

Arrangements for acceptance testing with the Railroad scale test car will be made after conformation of the scale installation approval by the Structural Design Department.

Below is the **CN** policy on rail scale approval. Essentially they require:

**From Fairbanks:**

- A letter from **Fairbanks** stating; the scale meets all criteria of H-44, and the scale has been designed to comply with AAR Scale Handbook design guidelines for Cooper E-80 loading (PROVIDED BY FAIRBANKS ENGINEERING TO CN)
- Foundation and Setting Plan Drawings (PROVIDED BY FAIRBANKS ENGINEERING TO CN)

**From Customer:**

- A site plan of scale location depicting clearance to adjacent structures and property lines, also showing clearance to other tracks in the area (PROVIDED BY CUSTOMER TO CN)
- Soil bearing report (PROVIDED BY CUSTOMER TO CN)

From: Steve Bloemker

To: Fairbanks

Cn Rail has set requirements to install a rail scale. CN requires a letter that states the scale follows AAR scale handbook and handbook 44. We would like a set of foundation and scale prints and a site plan of where the scale will be installed. We also require a soil report.

Steve Bloemker  
Chief Scale Inspector  
(618) 533-3382 Office  
(618) 267-3888 Cell  
steve.bloemker@cn.ca



To: \_\_\_\_\_

Re: Waiver of Railroad Approval on a Fairbanks Scales Rail Scale

Date: \_\_\_\_\_

Fairbanks Scales has been informed that \_\_\_\_\_ does not intend to acquire Railroad Approval for the Fairbanks Rail Scale purchased under order number \_\_\_\_\_ and will install on your site. The scale provided on this order does meet all requirements set by Handbook 44. The scale does have a Certificate of Conformance and is approved for commercial use, and the scale design does meet all specifications required in the AAR Scale Handbook.

\_\_\_\_\_ takes full responsibility for any changes, scale modifications, or additional cost that the serving railroad may require to meet that Railroad's approval. \_\_\_\_\_ also relieves Fairbanks Scales from any liability for damages that could occur because the customer did not obtain rail approval. Under no circumstances shall Fairbanks Scales have any liability for damages, or bear any cost for changes to the scale or scale foundation that may be required by the serving Railroad.

Please sign your name and print your title in the spaces provided below if you agree to the terms above.

Regards,

Pat Dusang  
Director, Heavy Capacity Products  
Fairbanks Scales  
239 69<sup>th</sup> Avenue  
Meridian MS 39307

Phone 601-483-4311 ext. 104  
Fax 601-485-2733  
Email [Pdusang@fairbanks.com](mailto:Pdusang@fairbanks.com)

Agreed and Accepted as of the date first written above:

\_\_\_\_\_  
CUSTOMER SIGNATURE

\_\_\_\_\_  
CUSTOMER TITLE