Questions and Answers on the National Bridge Inspection Standards 23 CFR 650 subpart C

(NBIS were published in December 14, 2004 *Federal Register*)

Implementation

QI-1 When did the revised National Bridge Inspection Standards (NBIS) take effect? (listed 6/21/05)

AI-1 The NBIS took affect on January 13, 2005, thirty days after publication in the *Federal Register* on December 14, 2004.

QI-2 Will the FHWA expect full compliance with the revised NBIS 30 days after publication in the *Federal Register*? (listed 6/21/05)

AI-2 The FHWA anticipates that the majority of States or Federal Agencies will be in compliance with the NBIS within the thirty-day period; however, we recognize that there may be situations where some items need to be implemented over a period of time. The expectation is that our Division Offices will work with the States to develop an acceptable implementation plan that identifies the specific items to be addressed and reasonable timeframes for full implementation. Likewise, when requested, the FHWA HQ Office of Bridge Technology will work with Federal Agencies to develop an acceptable implementation plan that identifies the specific items to be addressed and reasonable timeframes for full implementation. The FHWA expects that implementation plans will be developed by April 13, 2005 and that the plans will be fully implemented by January 13, 2006.

QI-3 How soon must a State or Federal Agency establish criteria for inspection level and frequency? (listed 6/21/05)

AI-3 The establishment of inspection level and frequency criteria for such inspections as underwater, scour critical, fracture critical members, complex, damage, in-depth and special inspections should in most cases already be in place. If the State or Federal Agency requires additional time, the FHWA Division Office should work with the State or Federal Agency to complete this requirement by April 13, 2005.

QI-4 How soon must a State or Federal Agency establish systematic quality control (QC) and quality assurance (QA) procedures? (listed 6/21/05)

AI-4 A plan to implement a systematic quality control and quality assurance procedure should be established by April 13, 2005. The State and/or Federal Agency should fully implement the quality control and quality assurance procedure by January 13, 2006. Examples of quality control/quality assurance procedures are available at the following link: http://www.fhwa.dot.gov/bridge/qcqa.htm

QI-5 How soon must a State or Federal Agency establish procedures to follow up on critical findings? (listed 6/21/05)

AI-5 For many years the FHWA has placed emphasis on the importance of having a procedure in place to track and follow up on critical findings. It is anticipated that most State and Federal Agencies already have an operational procedure. For those States and/or Federal Agencies that do not have a critical findings procedure, a plan to implement a procedure should be established by April 13, 2005. The State and/or Federal Agency should fully implement the critical finding procedures by January 13, 2006.

General Questions and Answers:

QG-1 Why were the FHWA bridge inspection program regulations developed and what is the history of the program? (listed 6/21/05)

AG-1 The FHWA bridge inspection program regulations were developed as a result of the Federal-Aid Highway Act of 1968 (sec. 26, Public Law 90-495, 82 Stat. 815, at 829) that required the Secretary of Transportation to establish national bridge inspection standards (NBIS). The primary purpose of the NBIS is to locate and evaluate existing bridge deficiencies to ensure the safety of the traveling public.

The 1968 Federal-Aid Highway Act directed the States to maintain an inventory of Federal-aid highway system bridges. The Federal-Aid Highway Act of 1970 (sec. 204, Public Law 91-605, 84 Stat. 1713, at 1741) limited the NBIS to bridges on the Federal-aid highway system. After the Surface Transportation Assistance Act of 1978 (STAA) (sec. 124, Public Law 95-599, 92 Stat. 2689, at 2702) was passed, NBIS requirements were extended to bridges greater than 20 feet on all public roads. The Surface Transportation and Uniform Relocation Assistance Act of 1987 (STURRA) (sec.125, Public Law 100-17, 101 Stat. 132, at 166) expanded bridge inspection programs to include special inspection procedures for fracture critical members and underwater inspection.

QG-2 Why revise the NBIS? (listed 6/21/05)

AG-2 To address perceived ambiguities in the NBIS that have been identified since the last update to the regulation in 1988. The revisions clarify the NBIS language that was vague or ambiguous; reorganize the NBIS into a more logical sequence; incorporate advances in inspection practices; and make the regulation easier to read and understand, not only by the inspector in the field, but also by those administering the highway bridge inspection programs at the State or Federal Agency level. The FHWA also brought into the NBIS important requirements that were previously in policy memorandums such as the scour plan of action and fractural critical inspection requirements. Additionally the new regulation incorporated several important inspection documents into the regulation through reference. See section 23 CFR 650.317

Section 650.301 Purpose

Q301-1 What is the purpose of the NBIS? (listed 6/21/05)

A301-1 The NBIS sets the national standards for the proper safety inspection and evaluation of all highway bridges in accordance with 23 U.S.C. 151.

Section 650.303 Applicability

Q303-1 What structures are covered by the NBIS? (listed 6/21/05)

A303-1 The NBIS regulations apply to all publicly owned highway bridges longer than twenty feet located on public roads. Railroad and pedestrian structures that do not carry highways are not covered by the NBIS regulations. Similarly, the NBIS does not apply to inspection of sign support structures, high mast lighting, retaining walls, noise barrier structures and overhead traffic signs. Tunnels, since they are not bridges, are not covered by the NBIS.

Q303-2 Does the NBIS apply to privately owned bridges? (listed 6/21/05)

A303-2 No. While 23 U.S.C. 151 states that the NBIS are for all highway bridges, the FHWA has no legal authority to require private bridge owners to inspect and maintain their bridges. However, the FHWA strongly encourages private bridge owners to follow the NBIS as the standard for inspecting their highway bridges. Where a privately owned bridge carries a public road, States should encourage the private bridge owner to inspect their bridge in accordance with the NBIS or reroute their public road.

Q303-3 Are some of the privately owned bridge inspection data kept in the National Bridge Inventory (NBI)? (listed 6/21/05)

A303-3 Yes. The National Bridge Inventory (NBI) lists roughly 2,200 privately owned highway bridges in some 41 States and Puerto Rico. However, the total number of privately owned bridges is unknown because the States are not required to report them to the FHWA.

Q303-4 Does the NBIS apply to public railroad bridges not carrying highway traffic? (listed 6/21/05)

A303-4 No. The NBIS only applies to bridges that carry highways.

Q303-5 Does the NBIS apply to tribally owned bridges? (listed 6/21/05)

A303-5 Indian tribes as sovereign nations, have a unique government-to-government relationship with the Federal Government. There is no explicit requirement in 23 U.S.C. 144 that requires inventory of tribally owned bridges. Likewise, there is no explicit requirement in 23 U.S.C. 151 that requires inspection of tribally owned bridges. Absent such clear language, the FHWA has no legal authority to require federally recognized Indian tribes to inventory tribally owned bridges or to comply with the NBIS. While the FHWA does not have the authority to compel the federally recognized Indian tribes to inspect tribally owned bridges, the FHWA strongly encourages that Indian tribes follow the NBIS, as the standard for inspecting tribally owned bridges, particularly those open to public travel. Indian tribes that do not inspect their bridges to the NBIS can open themselves to liability for deaths or injuries because of bridge failure. Additionally one of the requirements for participation in the Indian Reservation Road Bridge Program (IRRBP) and eligibility for Federal funding is for the bridge to be recorded in the NBI maintained by the FHWA (see 23 CFR 661.25). In order for this to occur the bridge has to be inspected according to the NBIS regardless of ownership.

Q303-6 Does the NBIS apply to federally owned bridges on roads that are used only by employees and not open to the general public? (listed 6/21/05)

A303-6 The FHWA recognizes that the NBIS does not apply to federally owned bridges on roads that are used only by employees and not open to the general public. These bridges and administratively used roads support behind-the-scenes operations, are used by employees engaged in official business, and are not open to the general public. While the NBIS does not apply to such bridges, these bridges need to be periodically inspected to assure the safety of employees, contractors, official visitors and the motoring public which may inadvertently use these facilities. The public looks at the transportation infrastructure as seamless and may not know that they have driven on an administratively used road. Furthermore, public authorities could be liable for injuries or death resulting from the use of bridges that are not properly and systematically inspected and maintained.

Section 650.305 Definitions

Q305-1 Why were definitions added to the regulation and placed in one section? (listed 6/21/05)

A305-1 The definitions add clarity to the regulation and provide a convenient reference for commonly used terms. The definitions were added to ensure that there is a common understanding of terms within the NBIS.

Q305-2 How many definitions were added to the NBIS? (listed 6/21/05)

A305-2 A total of 33 definitions are in the regulation, many of which were added to clarify language that was vague or ambiguous and added in response to comments during the rulemaking process. Only 3 definitions were carried over from the previous version.

Q305-3 What is a Public Road? (listed 6/21/05)

A305-3 A public road is defined in 23 U.S.C. 101(a)(27) as "any road or street under the jurisdiction of and maintained by a public authority and open to public travel."

Q305-4 What is a bridge? (listed 6/21/05)

A305-4 A bridge is defined in section 650.305 Definitions as "A structure including supports erected over a depression or an obstruction, such as water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet between under copings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes; it may also include multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening."

Section 650.307 Bridge Inspection Organization

Q307-1 What is the general intent of the Bridge Inspection Organization section? (listed 6/21/05)

A307-1 In general, this section is intended to clarify and describe bridge inspection program responsibilities, organizational requirements, and delegation requirements.

Q307-2 Who is responsible for the inspection of bridges that fall under the NBIS requirements in a State? (listed 6/21/05)

A307-2 The language of 23 U.S.C. 151 is clear that a State is ultimately responsible for the inspection of all public highway bridges within the State, except for those that are federally or tribally owned. The State may delegate bridge inspection bridge inspection policies and procedures, quality assurance and quality control, preparation and maintenance of a bridge inventory, bridge inspections, reports, load ratings and other requirements of these standards to smaller units of the State like a city or county. However, such delegation does not relieve the State transportation department or Federal Agency of any of its responsibilities. Because of the fundamental relationship established in Title 23 of the U.S. Code between the FHWA and a State, if the inspections by a city or county were not done in accordance with the NBIS, the FHWA could withhold Federal-aid highway funds from the State.

Q307-3 Who is responsible for the inspection of city and county owned bridges? (listed 6/21/05)

A307-3 Under the NBIS, FHWA holds the State responsible for the inspection of public highway bridges within the State, with the exception for those that are federally or tribally owned. Delegation of the NBIS functions to counties or cities is a State issue but does not relieve the State of its responsibility.

Q307-4 How are agreements between the State and Local Agencies concerning delegation of NBIS functions to be established? (listed 6/21/05)

A307-4 The State may follow its own policies for agreements. The FHWA encourages the States to use a formal means for delegating these activities. It is essential that all parties involved have a clear understanding what requirements are and are not being delegated.

Q307-5 Can counties use Federal-aid bridge funds to perform bridge inspections? (listed 10/05/06)

A307-5 Federal Bridge Funds (i.e., Highway Bridge Program (HBP) funds) may be spent on bridge inspection activities. The use and distribution of HBP funds within the State for publicly owned structures is at the State's discretion, with the proviso in Title 23 U.S.C. 144 that requires fifteen percent of the HBP funds be spent on off system bridges.

Q307-6 Who is responsible for inspecting and reporting of federally owned bridges? (listed 6/21/05)

A307-6 The Federal Agency that owns the structure is responsible.

Q307-7 Do the States have to inspect or report federally owned bridges? (listed 6/21/05)

A307-7 No - see section 23 CFR 650.315(a). We do not require that States collect or report the federally owned or tribally owned bridge information. The FHWA annually provides a copy to each State of all the inspection information that was submitted by Federal Agencies for each State. This is done so that the States may have a complete inventory and have access to Federal bridge data within the State.

Q307-8 Are Local Agencies required by the FHWA to have a Program Manager? (updated 10/19/10)

A307-8 No. Since the FHWA holds the State accountable for the inspection of all public highway bridges within the State, with the exception for those that are federally or tribally owned, the FHWA only requires the State to have a statewide Program Manager. The statewide Program Manager may delegate some, or all, of its functions to a local agency, but such delegation does not relieve the State transportation department of any of its responsibilities under the NBIS, including the requirement to have a bridge inspection organization with a qualified Program Manager. The statewide Program Manager is responsible to determine what qualifications are needed for the person at the local agency to manage the delegated functions.

Q307-9 May consultants be used to perform duties under the NBIS? (listed 6/21/05)

A307-9 The State, cities, counties and other agencies may use consultants for bridge inspection, reporting and load rating activities. The consultant must meet the qualification requirements for the activities they perform. Due to the fundamental relationship established in title 23 of the U.S. Code between the FHWA and a State DOT, the FHWA requires the State to have a statewide bridge inspection Program Manager (PM).

Q307-10 Can a consultant be delegated the functions of a Program Manager on behalf of a local agency?: (listed 02/28/08)

A307-10 Yes, but such delegation does not relieve the State transportation department of any of its responsibilities under the NBIS, including the requirement to have a bridge inspection organization with a qualified Program Manager. The decision to delegate specific functions rests with the statewide Program Manager.

Section 650.309 Qualifications of Personnel

Q309-1 What is the intent of the qualifications of personnel section? (listed 6/21/05)

A309-1 This section defines the minimum qualifications required for a Program Manager, a Team Leader, an underwater bridge inspector and the individual responsible for determining load ratings for bridges.

Q309-2 What is meant by bridge inspection experience? (listed 6/21/05)

A309-2 Active participation in bridge inspections in accordance with the NBIS, in either a field inspection, supervisory, or management role. See 23CFR305 "Bridge Inspection Experience"

Q309-3 Does all the required bridge inspection experience for a Team Leader have to be obtained through bridge safety inspections? (listed 6/21/05)

A309-3 Evaluating all of the factors that contribute to an individual's overall qualifications for performing bridge safety inspections can be complex. Extensive experience in the bridge inspection field should be the goal for all Program Managers and Team Leaders.

Desired Minimum Bridge Inspection Experience Level
The predominate amount, or more than fifty percent, should come from NBIS bridge safety inspection experience. Other experience in bridge design, bridge maintenance, or bridge construction may be used to provide the additional required experience.

Program Managers Approval:
There will be occasions where it is appropriate for the Program Manager to evaluate and approve a potential Team Leader's overall bridge inspection experience. The expectation is that these occasions will become more and more infrequent as States and Federal Agencies establish programs to eventually meet the desired minimum bridge inspection experience level as outlined above. (listed 6/21/05)

Evaluating NBIS Bridge Safety Inspection Experience
When an individual's NBIS bridge safety inspection experience is less than fifty percent, the State or Federal Program Manager may, in accordance with the evaluation of experience criteria below, review and approve an appropriately varied combination of NBIS bridge safety inspection, inspection associated with bridge design, bridge construction inspection, and bridge maintenance inspection experience to satisfy the fifty percent requirement. Since some NBIS bridge safety inspection experience is necessary to become familiar with inspection, safety, and data collection practices and procedures, NBIS bridge safety inspection experience shall be part of the experience required.

Evaluating Remaining Experience (non-predominate portion)
The remaining experience would preferably be obtained through other bridge design, bridge maintenance, and bridge construction activities. The State or Federal Program Manager may, in accordance with the evaluation of experience criteria below, approve for this remaining experience other activities that enable an individual to develop skills that are directly applicable to the leadership of a bridge safety inspection team

Special Cases: Federal Highway Concurrence Required
In special situations, the Program Manager may have a highly qualified individual with less than fifty percent of combined bridge inspection experience, or other remaining experience that is not directly bridge related. The State Program Manager, in concurrence with the local FHWA Division Office, or Federal Program Manager in concurrence with the FHWA Office of Bridge Technology, may determine that the individual meets the intent of the regulation and certify the individual as meeting the experience requirements of a Team Leader. This determination should be the exception, rather than the rule.

Evaluation of Experience Criteria:
When the State or Federal Program Manager evaluates an individual's actual experience for compliance with the experience requirements for a Team Leader, the following minimum criteria are to be considered:

1. The relevance of the individual's actual experience, i.e., has the other experience enabled the individual to develop the skills needed to properly lead a bridge safety inspection.
2. Exposure to the problems or deficiencies common in the types of bridges being inspected by the individual.
3. Complexity of the structures being inspected in comparison to the knowledge and skills of the individual gained through their prior experience.
4. The individual's understanding of the specific data collection needs and requirements.
5. Demonstrated ability, through some type of a formal certification program, to lead bridge safety inspections.
6. The level of oversight and supervision of the individual.

Q309-4 In meeting the requirements of a Team Leader or a Program Manager would education obtained at foreign universities be counted towards accreditation? (listed 6/21/05)

A309-4 The Accreditation Board for Engineering and Technology (ABET) evaluates institutions outside of the United States. The evaluation is not the same as accreditation; however, an ABET evaluation can result in an assessment of "substantial equivalency." The "substantial equivalency" determination implies reasonable confidence that the foreign institution's program has prepared its graduates to begin professional practice at the entry level. Information on the substantial equivalent programs, including a list of programs that have been assessed by ABET, is available at: http://www.abet.org/

Additionally, in 1989, several countries including the United States entered an international agreement known as the "Washington Accord" which recognizes the substantial equivalency of engineering programs accredited by these countries. The accord further recommends that graduates of accredited undergraduate programs in any of the signatory countries be recognized by the other countries as having met the requirements for entry into the practice of engineering. Additional information, including a list of signatory countries, may be obtained at: http://www.washingtonaccord.org/

In consideration of international engineering education programs, the regulation has been revised to reference the substantial equivalency options available through the ABET.

Q309-5 Why do all Team Leaders (TL) and Program Managers (PM) have to successfully complete comprehensive bridge inspection training? (listed 6/21/05)

A309-5 Comprehensive training provides an opportunity to:

1. Thoroughly familiarize participants with bridge inspection terminology and techniques along with data collection practices and procedures in order to ensure consistency and reliability of the bridge inspection program.
2. Keep up with changes in technology and practices, as well as perform a self-check. Is what I've been doing for the past several years consistent with what is being taught today?
3. Help us address the weaknesses in accuracy and reliability identified through our research and training experiences.
4. Share experiences and learn from other participants as well as become familiar with the kinds of problems others are having in the field.
5. Identify areas of inconsistent interpretation of policies and procedures.

For a Program Manager, there are additional reasons:

1. As the person responsible for the overall bridge inspection program within the State, it would be desirable to have completed the same level of training as those who are performing the necessary fieldwork.
2. To become familiar with and monitor the training that is being provided to inspection personnel, and is in a better position to identify additional training needs or areas for improvement.

Our ultimate goal is to make sure that all Program Managers and Team Leaders are well qualified to provide accurate and reliable information through both training and experience.

Q309-6 Do highly experienced individuals who are Professional Engineers and were actively serving as a Team Leader or Program Manager under the previous regulation need to meet the comprehensive training requirement? (listed 6/21/05)

A309-6 Yes; however, we have determined that Team Leaders and Program Managers may satisfy the intent of the comprehensive training requirements with a combination of extensive experience, training and their PE. Those individuals who:

1. Held these titles and were actively serving in this capacity prior to January13, 2005, and
2. Are registered Professional Engineers, and
3. Have extensive on-the-job training of 5 years or more involving direct field inspection of bridges, and
4. Successfully complete bridge inspection refresher training within a reasonable time period (say by January 2006).

In other words, the combination of professional engineering licensing requirements, prior on-the-job training, and refresher training would be considered equivalent to the comprehensive training as defined in the regulation. Obviously, those individuals who successfully completed formal comprehensive training under the previous regulation meet the new training requirements as well.

Since the States are responsible for overall compliance with the NBIS regulation, they must ultimately decide how the NBIS qualification requirements are to be addressed for all Team Leaders and Program Managers operating within their State. The criteria outlined above provide an option that FHWA considers acceptable.

Q309-7 How can underwater bridge inspection divers meet the qualification requirements of this new regulation? (listed 10/05/06)

A309-7 The intent of the regulation is to ensure that underwater bridge inspection divers have comprehensive training, which years of experience alone do not necessarily provide. There are several ways to satisfy the training requirements:

1. Underwater bridge inspection divers can take either NHI course #130055A, Safety Inspection of In-Service Bridges or NHI course #130091, Underwater Bridge Inspection. Course #130055A is a longer course that meets the requirements of comprehensive training to become a Team Leader, but generally only has a few hours on underwater bridge inspection. Course #130091, although not meeting the comprehensive training requirements to become a Team Leader, is three days long devoted to only underwater bridge inspection.
2. A State may develop their own comprehensive bridge inspection training, or underwater bridge inspection training course and provide it to the underwater bridge inspection divers. The training course would need to be approved by the FHWA Division office in consultation with the FHWA Office of Bridge Technology.
3. The State or Federal Agency Program Manager may review an underwater bridge inspection diver training history to verify that it covers the topics covered in a comprehensive bridge inspection training course or an underwater bridge inspection course. (Meaning that if an individual can document that he/she has received training throughout their career that covers the topics covered in either course, he/she meets the intent.) Approval by the Program Manager would need the concurrence from the FHWA Division Office in consultation with the FHWA Office of Bridge Technology. Whether a diver is a certified commercial diver or not would not be in itself sufficient to meet these bridge inspection training requirements.

Q309-8 May a State or Federal Agency develop it's own comprehensive bridge inspection training class instead of using the NHI training class #130055A? (listed 6/21/05, updated 5/18/09)

A309-8 Yes. The current comprehensive training course offered by the National Highway Institute is not the only option available. A few States have developed their own comprehensive training and certification programs. In recognition of the need to retain this flexibility, States and Federal organizations are permitted to develop their own "comprehensive bridge inspection training" programs subject to approval by the FHWA.

Q309-9 How do States or Federal Agencies obtain approval of alternate training classes? (listed 6/21/05)

A309-9 The local FHWA Division office, in consultation with the FHWA Headquarters Office of Bridge Technology will review and approve alternate training proposals from the States. The FHWA Headquarters Office of Bridge Technology will review and approve alternate training proposals from Federal Agencies. It is expected that alternate training proposals will include a complete copy of all slides, workbooks and other materials to be used in the training. An agenda showing the course schedule and duration of each topic should be part of the proposal. The FHWA will use the "comprehensive bridge inspection training" definition in the new regulation along with the Bridge Inspector's Reference Manual (BIRM) as criteria to apply when reviewing these programs.

Q309-10 What constitutes "successful completion" of training and is it based on the test scores received after each NHI course? (listed 6/21/05)

A309-10 Every NHI course now includes a test at the conclusion of the training in order to measure retention of the learning outcomes. The reason for the test has to do with NHI's response to State requests for endorsement of NHI courses by IACET (International Association for Continuing Education and Training). Apparently, NHI's name on training courses was not sufficient to ensure recognition by the States of the Continuing Education Unites (CEU's) received upon completion of each course. Endorsement by IACET requires attendance for 100 percent of the training and a final test with a minimum passing score of 70 percent. NHI keeps a database of course participants and information on pass/fail based on the 70 percent cutoff. Scores of 70 and above get CEU credit in the database. All participants who attend 100 percent of the training receive a certificate of attendance, but the certificates have been changed and no longer mention CEU credits.

Successful completion of bridge inspection training can be based on the same cutoff as used by NHI, or some alternate criteria established by the State

Section 650.311 Inspection Frequency

Q311-1 What is the intent of the inspection frequency section? (listed 6/21/05)

A311-1 This section defines the frequency of routine, underwater, fracture critical member, damage, in-depth and special inspections to assure the safety of the motoring public.

Q311-2 What is the procedure for requesting FHWA approval to inspect certain bridges at the 48-month frequency? (listed 6/21/05)

A311-2 States must submit their proposed 48-month inspection frequency policy to their FHWA Division Office, who in turn will forward the policy, along with the Division's recommendation, to the Director of the FHWA headquarters Office of Bridge Technology (HIBT) in Washington, D.C. for review and approval. Counties and Local Agencies must work through their State. Federal Agencies must submit their proposed 48-month inspection frequency policy directly to HIBT. Final approval of any policy must be obtained from HIBT. The requirements for a 48-month inspection frequency policy are described in the FHWA Technical Advisory T 5140.21 dated September 16, 1988. This document is available on-line at: http://www.fhwa.dot.gov/legsregs/directives/techadvs.htm

Along with the policy to be approved, there will generally be a requirement to submit a computer listing of the affected bridges along with bridge data pertaining to the States or Federal Agency proposed criteria. Once the 48-month inspection frequency policy is approved, the State or Federal Agency will be expected to add or remove bridges to the 48-month list based on the criteria that is defined in their approved policy. No further approval from the FHWA is required unless the State or Federal Agency wants to amend its policy.

Q311-3 How may a State obtain approval for increasing their underwater inspection frequency from 60 months to 72 months? (listed 6/21/05)

A311-3 State Program Managers now have an option to develop a 72-month underwater inspection frequency policy for their bridges needing an underwater inspection. States must submit their proposed 72-month inspection frequency policy to their FHWA Division Office, who will in turn forward the policy along with the Division's recommendation, to the Director of the FHWA headquarters Office of Bridge Technology (HIBT) in Washington D.C. for review and approval. Counties and Local Agencies must work through their State. Federal Agencies must submit their proposed 72-month underwater inspection frequency policy directly to HIBT. Final approval of any proposed policy must be obtained from HIBT. For States receiving approval, the FHWA Division office will monitor the 72-month underwater inspection frequency policy as part of the normal NBIS program review process. The State, working with the FHWA Division office, will use the policy to select structures, on case-by-case basis, eligible for the 72-month underwater inspection frequency.

Guidance for developing a 72-month underwater inspection frequency policy can be found the American Society of Civil Engineers (ASCE) Manuals and Reports on Engineering Practices number 101 titled "Underwater Investigations Standard Practice Manual" and the FHWA publication number FHWA-DP-80-1, titled "Underwater Inspection of Bridges." The following NBI rating attributes are also suggested.

The substructure should be in at least good to fair condition, NBI item 60 (substructure) should have a rating of 5 or better. If the substructure elements are unprotected steel or unwrapped wood and are in an aggressive environment such as salt water or fast currents they should not be considered for a 72-month inspection. The channel should be stable with NBI item 61 a 7 or better. The structure should not have stream stability or scour issues and should be a known foundation type. NBI item 113 should have a rating of 4, 5, 7, 8, or 9.

Q311-4 Is there any grace period in the required routine inspection cycle? (listed 6/21/05)

A311-4 The routine inspection frequency should not exceed 24 months unless FHWA approval is given for a 48-month routine cycle. We recognize that severe weather, concern for bridge inspector safety, concern for inspection quality, the need to optimize scheduling with other bridges, or other unique situations may be cause to adjust the scheduled inspection date. The adjusted date should not extend more than 30 days beyond the scheduled inspection date, and subsequent inspections should adhere to the previously established interval.

Section 650.313 Inspection Procedures

Q313-1 What is the intent of the inspection procedures section? (listed 6/21/05)

A313-1 This section defines procedures to be used in inspecting and rating highway bridges, quality control/quality assurance, as well as follow up on critical findings.

Q313-2 Does the Occupational Safety and Health Administration (OSHA) regulation apply when performing above and below water inspections according to the NBIS. (listed 6/21/05)

A313-2 Yes. OSHA regulations pertain to both underwater and above-water inspections, so any omission in this standard does not relieve inspectors of the requirement to follow OSHA regulations.

Q313-3 Does an inspector, that meets the requirements of a Team Leader, have to be on site during bridge inspections? (listed 6/21/05)

A313-3 Yes. During any bridge inspection that is either an initial, routine, in-depth, fracture critical member or underwater inspection, a Team Leader must be present. This is required for State, Local Agency, consultant or any other organization that inspect bridges under the NBIS.

Q313-4 Are there any bridge inspections that can be performed without a Team Leader on site? (listed 6/21/05)

A313-4 Special and Damage inspections do not require a Team Leader. These inspections do not meet the requirements of an initial, routine or any other inspection that requires a Team Leader. However, it is important to have individuals with expertise in the special or damaged items being inspected.

Q313-5 What is a Damage inspection? (listed 6/21/05)

A313-5 A damage inspection is defined in this regulation as "an unscheduled inspection to assess structural damage resulting from environmental factors or human actions."

Q313-6 What is a special inspection? (listed 6/21/05)

A313-6 A special inspection is defined in this regulation as "an inspection scheduled at the discretion of the bridge owner, used to monitor a particular known or suspected deficiency."

Q313-7 Who is allowed to perform a load rating calculation for a bridge? (listed 6/21/05)

A313-7 The person with overall responsibility for the load rating of a bridge must be a registered professional engineer. The professional engineer may supervise a process using non-registered professional engineers. See 23 CFR 650.309(c).

Q313-8 What methods, other than posting, can be used to 'restrict' a bridge when it cannot carry unrestricted legal loads? (listed 6/21/05)

A313-8 Structures that cannot carry legal loads must be posted. If conditions allow, it may be permissible to restrict an entire route to a low load-posted limit, but the limits must be visible at the beginning and all entrances to the route. An example would be a route where trucks are not allowed.

Q313-9 What methods, other than posting, can be used to 'restrict' a bridge when it cannot carry permit or routine permit loading? (listed 6/21/05)

A313-9 When restricting permit or routine permit loads from crossing specific bridges, States or Federal Agencies may elect to erect posting signs or to issue restrictions to the permit holders to keep them from traveling specific routes with permit load capacity problems.

Q313-10 What is a fracture critical member? (listed 6/21/05)

A313-10 A fracture critical member (FCM) is a steel member in tension, or with a tension element, whose failure would probably cause a portion of or the entire bridge to collapse.

Q313-11 What is meant by a fracture critical member (FCM) inspection? (listed 6/21/05)

A313-11 A FCM inspection must be at least a hands-on inspection of the fracture critical member or member component. The term hands-on means that the inspector must be close enough to place their hands on the fracture critical member or member component (tension area) being inspected. The inspection may also include non-destructive evaluation or non-destructive testing methods as determined by the Program Manager and outlined in the FCM inspection procedures.

Q313-12 How often must FCMs be inspected? (listed 6/21/05)

A313-12 Fracture critical members or member components must be inspected every 24 months or less in accordance with the fracture critical inspection criteria and procedures. Bridges with FCM are not eligible for a 48-month inspection frequency.

Q313-13 Does the FHWA have any material or guidance for the inspection of FCMs. (listed 6/21/05)

A313-13 Yes. The FCM inspections should be done in accordance with FHWA-IP-86-26, "Inspection of Fracture Critical Bridge Members." In addition the FHWA National Highway Institute has a three-day class on the inspection of FCMs. The URL to this NHI structures courses is supplied here. http://www.nhi.fhwa.dot.gov/training/course_detail.aspx?num=FHWA-NHI-130078&num=

Q313-14 Where in the inspection records are the location, frequency and procedures for fracture critical members and the four elements of underwater inspections described in 650.313(e)(1) and (2) to be recorded? (listed 6/21/05)

A313-14 The features of the FCM inspections and the underwater inspection elements should be shown in a listing or procedures manual, included in the inspection records, or maintained in an electronic database.

Q313-15 Does the FHWA expect a unique scour plan of action for each highway bridge? (listed 6/21/05)

A313-15 No, where applicable, the plan of action for some bridges may be the same or very similar. Additional information of scour plans of action is available at: http://www.fhwa.dot.gov/engineering/hydraulics/bridgehyd/poa.cfm

Q313-16 Will scour monitoring during and after flood events be the same for all highway bridges? (listed 6/21/05)

A313-16 The monitoring and assessment during and after flood events may be done using different levels of effort depending on the degree of risk. Monitoring is described in the FHWA guidance manuals, "Evaluating Scour at Bridges" (HEC-18) and "Bridge Scour and Stream Instability Countermeasures" (HEC-23). These publications can be found at: http://www.fhwa.dot.gov/engineering/hydraulics/library_sub.cfm?keyword=007

Q313-17 How often should the State notify the FHWA of critical findings? (listed 6/21/05)

A313-17 The period between notifications is to be agreed upon between the local FHWA division office and the State. As a guide, some States report every finding with very little delay (hours to a few days). Others have a standard cycle when a summary report is given to FHWA. In the absence of an existing defined reporting time period, a period of one to three months is recommended.

Q313-18 What is a critical finding? (listed 6/21/05)

A313-18 A broad definition for "critical finding" is provided in the regulation to allow flexibility to establish, with agreement of the FHWA, criteria and reporting procedures specific to a particular State or Federal Agency. The FHWA non-regulatory supplement in the Federal Aid Program Guide (FAPG) section 23 CFR 650C provided an example of an FHWA process for follow-up on critical findings that include criteria for critical findings. The section from the FAPG is repeated here for your convenience:

NON-REGULATORY SUPPLEMENT 23 CFR 650C (listed 6/21/05)

b. One FHWA process for follow-up might include the following components: A procedure where the State promptly submits to the Division office a copy of inspection reports or recommendations contained therein for all on-system and off-system bridges which meet the following criteria:

(1) Bridges with recommendations for immediate work on fracture critical members;

(2) Bridges with recommendations for immediate correction of scour or hydraulic problems;

(3) Bridges with condition ratings of 3 or less for the superstructure or substructure or appraisal ratings of 3 or less for waterway adequacy; and

(4) Bridges with recommendations for immediate work to prevent substantial reduction in the safe load capacity.

The URL to NON-REGULATORY SUPPLEMENT 23 CFR 650C is as follows: http://www.fhwa.dot.gov/legsregs/directives/fapg/0650csup.htm

Q313-19 Is there any guidance or examples to help bridge owners develop a Bridge Inspection QC/QA Program? (listed 11/03/05)

A313-19 Code of Federal Regulations 23 CFR 650.313(g) Quality Control and Quality Assurance requires each state to assure that systematic Quality Control (QC) and Quality Assurance (QA) procedures are being used to maintain a high degree of accuracy and consistency in their inspection program. The FHWA has developed a recommended framework for a bridge inspection QC/QA program to assist bridge owners in developing their QC / QA programs.

We also have a list of available resources related to Bridge Inspection QC/QA and a summary of commendable practices from state DOTs that currently have Bridge Inspection QC/QA procedures in place.

Section 650.315 Inventory

Q315-1 What is the intent of the inventory section? (listed 6/21/05)

A315-1 This section defines highway bridge inventory reporting requirements for the various inspection types required under the NBIS and deadlines for submission into the NBI.

Q315-2 Are States required to maintain an inventory of federally owned bridges in their State? (listed 6/21/05)

A315-2 We do not require that States collect, report or retain the Federal bridge information. The FHWA annually provides the State a copy of all the inspection information that was submitted by Federal Agencies for their State. This is done so that the States may have a complete inventory and access to Federal bridge data within the State.

Q315-3 What is the intent of requiring States and Federal Agencies to incorporate the latest inspection information or changes in bridge status into their databases within 90 days of the status change? What is the significance of the time period? (listed 6/21/05)

A315-3 Up to date information is vital to the program oversight, management and stewardship for the State and the FHWA. It is also important that the FHWA have current data because a) based on the data collected, funds are distributed for the HBRRP program, 23 USC 133, b) reports are made to Congress, and c) decisions are made by the FHWA regarding the bridge program. This necessitates adherence to a firm 90-day data entry period. The 90-day time period is consistent with the old regulation in that it allows a reasonable amount of time for completion of the inspection report and data entry. Longer timeframes could impact the program since data is collected only once a year by the FHWA.

Section 650.317 Reference manuals

Q317-1 Why was the section on reference manuals added to the NBIS? (listed 6/21/05)

A317-1 The AASHTO Manual was referred to in the former NBIS but not incorporated by reference. This manual is discussed in the NBIS, and provides good guidance for the inspection and evaluation of highway bridges, and for that reason was incorporated by reference.

Q317-2 The AASHTO Manual for Condition Evaluation of Bridges is included in the NBIS regulation through incorporation by reference. What does that mean? (listed 6/21/05)

A317-2 Incorporation by reference (IBR) is a technique used by Federal Agencies to include and make enforceable materials published elsewhere without republishing those materials in full text in the agencies' regulations. Most typically this technique is used by agencies to incorporate widely used industry-developed codes such as the National Fire Protection Code. The FHWA uses IBR extensively to incorporate documents such as AASHTO design standards into 23 CFR part 625 and to incorporate FHWA's Manual on Uniform Traffic Control Devices into 23 CFR part 655.

Q317-3 What if there is implied or conflicting language between the reference manuals and the NBIS? (listed 6/21/05)

A317-3 The NBIS takes precedence over any material contained in the reference manuals i.e. AASHTO manual and interim revisions. Where there may be implied or conflicting language between the documents, the nationwide direction provided by the NBIS will always govern.

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