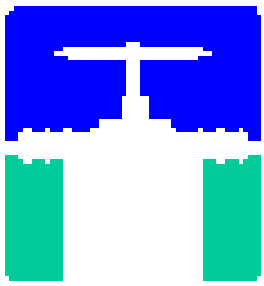

INGAA FOUNDATION PIPE QUALITY SUMMIT

June 11, 2009
Houston JW Marriott, Houston, TX

Agenda

7:30 a.m. - Breakfast

8:00 a.m. - Introduction/Welcome - Terry Boss, INGAA

8:10 a.m. - Purpose of the Meeting/Review of Meeting Agenda - Dan Martin, El Paso, INGAA OS&E Chairman

A. Need to clearly understand and gain consensus on the issue(s) we need to address
    a. INGAA Foundation Workshop on Building Pipelines Better (3/25-26)
    b. PHMSA Construction Workshop (4/23) with focus on pipe quality
    c. Advisory Bulletin ABD-09-01
B. Develop possible resolutions for the issues
C. Define action items and make assignments
D. Overview of plans to keep PHMSA informed of results of our meeting

8:25 a.m. - Pipe Standards and Company Specifications - Larry Christmas, Panhandle Energy

A. Scope, strengths, limitations
B. Role of proprietary company specifications
    a. To supplement API 5L
    b. Dimensional, compositional, fracture control, traceability, handling, etc
C. API 5L, API 5L Monogram and API Q1
    a. Historical perspective
    b. Consensus organization and background
    c. Certification process
    d. Applicability (very broad)
    e. Base set of technical conditions from which to build (chemical, mechanical and dimensional)
        1. Performance based specification defining chemical and mechanical properties; quality based spec and not steel making procedures, etc.
    f. Full API compliance alone is not an adequate guarantee for successful project
        1. Certification and requalification processes are largely documentation driven (not manufacturing process driven)
        2. Limited criteria for pipe manufacturers regarding qualification of steel suppliers (Annex B - 44th Edition begins to address)
        3. Inspection and test frequencies are not statistically developed

9:10 a.m. - Break

9:25 a.m. - Pre-Award Pipe Activities - Steve Rapp, Spectra Energy

A. Qualification programs - Operators perspective
    a. Traceability
    b. Process capability and expertise
    c. Experience
    d. Procedural discipline
B. Preproduction activities
    a. Pre job meeting between pipeline operator, pipe manufacturer and steel producer (steel production manufacturing procedure specification (MPS) and inspection and testing plan (ITP))
        1. Define key inspection points
            a. centerline segregation, continuous casting intermixed regions
            b. plate/coil/body ultrasonic testing requirements
        2. Balance needed to understand key steelmaking control parameters vs. application of testing and inspection at key points
            a. casting and rolling parameters (e.g., rolling schedule, final temperatures and cooling methods)
            b. additional mechanical and chemical properties tests, based upon knowledge of patterns of property variability in the coils and plate based upon the steel making process, rolling and cooling temperatures
        3. Procedure review and communication for nonconforming materials
    b. Pre job meeting with pipe mill and coating applicator - project specific documents (MPS and ITP)
        1. Review purchase order requirements and exceptions
        2. Review of company specs
        3. Confirm inspection and test requirements
        4. Coordinate third party and purchaser surveillance activities
        5. Identify project documentation requirements
        6. Finalize and approve MPS and ITP

9:45 a.m. - Implications of Variances in Yield Strength Measurements Related to API Linepipe and Field Hydrotests - Mike Rosenfeld, Kiefner Associates

A. Sources
    a. Yield strength shift between skelp and pipe
    b. Test method - flattened strap vs. round bar
    c. Test location
    d. Bauschinger effect
B. Implications
    a. Standard API tensile tests nominally produce a low estimate of yield strength relative to full scale behavior
    b. Flattening practices may produce modest variations in yield strength values
    c. Degree of Bauschinger influence is microstructure dependent (typically 3-6 ksi)

10:00 a.m. - Hydrostatic Biaxial Stress Conditions During Field Hydrostatic Test - Mike Rosenfeld, Kiefner Associates

A. When should we expect yielding in an "ideal" pipeline, and how much?

10:30 a.m. - What ILI Tools are Available to Measure Expansion? - Tim Clarke, Boardwalk Pipelines

A. What should an operator request of the tool vendor?
B. How is the circumference measured?
C. How accurate are expansion measurements by ILI tool?

10:45 a.m. - Fitness Assessment of Expanded Pipe - How Much Expansion is Tolerable and Why? - Mark Hereth, P-PIC

A. How should fitness be assessed?
    a. 0.80 design factor (this is a higher standard)
    b. Pipe and coating considerations
    c. Evaluation of each of the 21 threats (B31.8S)
    d. Implications of evaluation - additional preventive and mitigative measures

11:00 a.m. - General Discussion - Jeryl Mohn, Panhandle Energy

A. Key points from presentations
B. Facilitate discussion of presentation topics

11:30 a.m. - Lunch Break

12:30 p.m. - Breakout Session - 8 Breakout Groups - Mark Hereth, P-PIC

A. Process in Break Out Groups
B. Time Management

2:30 p.m. - Break

2:45 p.m. - Work Group Summaries - Group Leads

4:15 p.m. - General Discussion - Mark Hereth, P-PIC

4:30 p.m. - Prioritize Action Items - Mark Hereth, P-PIC

A. Develop meeting summary
B. Develop key points for meeting with PHMSA on June 18

5:30 p.m. - Adjourn

Work Group Questions

Groups 1, 2 and 3 – Pipe Standards and Company Specifications – Todd Kedzie/Scott Mundy/Terry Boss

1. Is there an industry relationship between identified issues of API 5L and integrity of completed projects historically?
2. What particular elements need to be enhanced in API 5L or otherwise – steel supply qualifications, dimensions?
3. What particular elements should be included in Company Specifications?
4. Are there PHMSA specified conditions for line pipe that are not useful or effective?
5. What guidance can we provide to PHMSA on the issues above? What are the remaining gaps?
6. Other issues – time permitting

Groups 4, 5 and 6 - Quality Management – Blaine Metzger /Larry Christmas/John Zurcher

1. What approach should be applied by pipeline operators to qualify pipe mill operations?
2. What are the essential preproduction activities?
3. What approach should be applied by pipeline operators or mill surveillance?
4. What monitoring activities may be useful during skelp production?
5. Should monitoring activities be performed at the steel mills?
6. How do we get senior level management commitment to support these activities (pipeline operators and manufacturers)?
7. How do we meet the collective conditions in the PHMSA Advisory Bulletin?
8. What guidance can we provide to PHMSA on the issues above? What are the remaining gaps?
9. Other issues – time permitting

Group 7 - Pipe Yielding and Strain Behavior – Steve Rapp

1. Are mechanical test results adequate for forecasting pipe yield behavior?
2. What assumptions regarding strain hardening capacity are necessary to forecast yield behavior?
3. What tools are available to establish a correlation between pipe properties, test pressure and expansion results?
4. How do you estimate remaining strain capacity?
5. What guidance can we provide to PHMSA regarding pipe yielding and strain behavior? What are the remaining gaps?
6. Other issues – time permitting

Group 8 - Pipe Fitness Assessments – Mark Hereth

1. How do you reconcile the reduction in strain capacity associated with expanded pipe, with the obligation to meet a higher standard associated with 0.80 design factor?
2. What are the implications to individual threats (B31.8S) – Remaining strain to failure?
3. What are the changes needed for O&M practices?
4. What considerations should be given to coatings?
5. What guidance can we provide to PHMSA regarding pipe fitness assessment? What are the remaining gaps?
6. Other issues – time permitting