## API-AGA JOINT COMMITTEE ON OIL AND GAS PIPELINE FIELD WELDING PRACTICES
### 2008 ANNUAL MEETING MINUTES
**JANUARY 23 and 24, 2008**
**Ft. Worth, Texas**

<table>
<thead>
<tr>
<th>Attending</th>
<th>Company</th>
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<tr>
<td>Bill Amend</td>
<td>Structural Integrity Assoc.</td>
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<td>Alex Afaganis</td>
<td>OSM Tubular Camrose</td>
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<td>Atinia Akeem Ahmed</td>
<td>Mega Oil Nigeria Limited</td>
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<td>Pierre-Yves Bakalemian</td>
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<td>Gery Bauman</td>
<td>U.S. Department of Transportation</td>
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<td>Alan Beckett</td>
<td>Alyeska Pipeline Service Company</td>
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<td>Matt Boring</td>
<td>Edison Welding Institute</td>
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<td>William A. Bruce</td>
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<td>James A. Cox</td>
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<td>David L. Culbertson</td>
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<td>Jeffry Deflaco</td>
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<td>Marshall L. Farley</td>
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<td>Global Industries</td>
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<td>Kinder Morgan Energy Partners, LP</td>
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<td>Bob Huntley</td>
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<td>Central NDT Inc.</td>
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<td>Bruce Reichert</td>
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<td>Geoff Rogers</td>
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<td>Sam Saha</td>
<td>U. S. Steel</td>
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<td>Perry Sheth</td>
<td>National Grid</td>
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<td>Welded Construction LP</td>
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<td>Mark Tinne</td>
<td>Lone Star Steel Company</td>
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<td>Jan Van Der Ent</td>
<td>Applus RTD</td>
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<td>Yong-Yi Wang</td>
<td>Engineering Mechanics Corp. of Columbus</td>
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<td>Lewis F. Warren</td>
<td>Welded Tube of Canada</td>
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<td>Steve Weinhold</td>
<td>Western Gas Resources, Inc.</td>
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<td>Gregory &amp; Cook Inc.</td>
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<td>Scott Witkowski</td>
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<td>C. P. (Chuck) Woodruff, Jr.</td>
<td>Seaone Maritime Corp.</td>
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2008 ANNUAL MAIN COMMITTEE MEETING MINUTES

1.0 OPENING SESSION – First Day (January 23, 2008)

1.1 The meeting called to order by the Chairman, Dave Culberston at 1:00 PM.

1.2 Dave Culbertson introduced Ed Baniak, our new API representative. Ed is a Senior Standards Associate with API.

1.3 Introductions

All committee members and visitors were welcomed and each introduced themselves. Dave Culbertson announced that Bruce Reichert with Tenaris was replacing Mark Tinne with Lone Star Steel as a Pipe Manufacturers representative.

1.4 The minutes of the 2007 annual Meeting held in Phoenix, Arizona on January 24 and 25 were approved.

1.5 The agenda for the 2008 meetings was approved.

1.6 The 20th Edition of API 1104 has been issued, but the approval from DOT has not occurred. Gery Bauman indicated that the 19th Edition is still in the regulations. PHMSA has no objections and he is projecting 90 days for approval. The earliest approval date by DOT is projected to be the second quarter of 2008. Gery Bauman will present the OPS update on Thursday.

1.7 Bill Bruce gave an update on the PRCI. The main item of interest is the pending award of funding for the API 1104 Users Guide.

1.8 There was a review of the Subcommittee rosters.

Fracture Mechanics Subcommittee: Yong-Yi Wang has replaced Robert Gatlin as Chairman. Much progress has been made in the last few years with the additions to Appendix A. Robert Gatlin was praised for his leadership as past Chair of this subcommittee.

General Interest Member Selection – Don Thorn, Chairman.

Maintenance Welding – Bill Bruce, Chairman.

Mechanized Welding – Don Thorn, Chairman.

Modifications, Interpretations and Policy – Wayne Klemcke absent but Ronnie Wise agreed to Chair for this session.

Nondestructive Testing – Chuck Woodruff and Tom Reeders will be Co-Chairmen.
Repair Welding Task Group – Robert Gatlin, Chairman. This task group was set up as a one time only group, but may be made into permanent subcommittee. Robert will meet with the task group and present changes to the Main Committee at the Thursday meeting.

Welding Procedures and Welder Qualification – Alan Holk, Chairman.

1.9 Subcommittee discussion items and assignments
Bob Wise is on Task Group on Line Pipe Dual Stenciling. Dual stenciling has been done for 40 years, but recently the group has been receiving questions as to whether it can be done. The issue is important now, because developing nations would like to have their steel pipe dual stenciled with their own country specifications. Jim Cox is heading a group within API 5L looking into this issue, but it has to be clarified before the next addition to API 5L.

1.10 Subcommittee meeting times were announced for 2:00 PM to 5:30 PM. Room assignments and locations for each subcommittee were announced.

2.0 Second Day Activities (Thursday January 24)

7:30 AM to 8:00 AM - Continental Breakfast
8:00 AM to Noon – Subcommittee Meetings
1:00 PM to 6:30 PM – Main Committee Meeting

2.1 Presentation I: Michael Moles – Olympus NDT
“Pipeline Girth Weld Inspections Using Ultrasonic Phased Array”

Compared with radiography, automated ultrasonic testing (AUT) is more reliable, faster, has better detection of critical Lack of Fusion defects in pipeline construction welds, and poses no safety hazard. The established pipeline AUT approach uses Zone Discrimination, which is tailored to the weld profile, and uses a combination of pulse echo, tandem probes and Time-Of-Flight Diffraction. The key features of pipeline AUT are linear scanning at high speed (4”/sec), rapid data analysis, and custom calibration blocks. Two key zone discrimination codes have been developed, one onshore and one offshore. Overall, AUT of pipelines has become an established technique globally, though different inspection techniques and custom requests are also common.

Phased arrays present major improvements over conventional multiprobe ultrasonics, in particular for offshore use. Probe pans are lighter and smaller, permitting less cutback; scans are quicker; phased arrays are considerably more flexible for changes in pipe dimensions or weld profiles, and for different scan patterns. Most important, phased arrays can perform “specials”, such as inspecting seamless pipe of variable wall thickness, clad pipes, thick and thin sections, and additional scans. This paper describes a typical phased array ultrasonic system (PipeWIZARD) for girth weld inspections, and some of the special applications.
2.2 Presentation II: Alex Afaganis – OSM Tubular Camrose

“API 5L 44th Edition Update”

2000
Initiated API 5L - ISO 3183 Harmonization project.

2004
ISO 3183 CD balloted with 686 comments to be resolved.

2005
ISO 3183 DIS balloted by SC5 to establish US TAG vote to ISO with 552 comments to be resolved.

2006
ISO 3183 FDIS balloted including adopt back by API as 44th edition of Spec 5L with many comments to be resolved.

Mar-07
ISO 3183 2nd edition published.

Mar/Apr-07

Apr/May-07
API 5L 44th edition (regional annex N & Monogramming annex O) balloted (1116) with 63 comments to be resolved including 6 negatives.

Jun-07
Addressed comments/negatives at API summer meetings between ISO 3183 and 5L 44th edition – all but two withdrawn:
– one philosophically disputing technical differences between ISO 3183
– one presenting issue with simultaneous use of 43rd & 44th editions due to later DOT adoption of 44th edition after API effective.

Aug-07
The MAG & TGLP chairs jointly made a proposal to API to extend effective date of 5L from typical 6 months to 12 months to allow manufacturers to switch their QA and manufacturing processes to the 44th edition requirements.

This was accepted by API.

Reasons for Extension

Manufacturer Issues
* Rewrite pipe tracking, marking and release computer systems;
* Specify/purchase/manufacture new gauges;
* Review/modify/purchase roll/die sets & marking systems; and
* Modify mechanical & hydro testing equipment & software, and
* Rewrite quality system documentation.

Operator Issues
* Backlog/in-process orders starting on 43rd finishing 44th edition;
* Mixed application of 43rd and 44th edition pipe; and
* Inventory availability of new edition during transition.

Sep-07
API 5L 44th edition 2nd ballot (1172) was completed with 26 comments and 2 negatives to be resolved. The negatives were regarding the simultaneous use of 43rd & 44th editions but were ultimately withdrawn based on potential quick DOT 49CFR adoption.
Final text of API 5L 44th edition finalized.
Oct-07

16-Oct-07
Manufacturers / API presentation to US DOT’s Pipeline Standards - Developing Organizations Coordinating Council requesting PHMSA/OPS adopt API 5L 44th edition in next rule change and consider an extended effective date to harmonize with API.

Jan-08
PHMSA/OPS plans to present API 5L 44th edition for rule change (49CFR) by Apr-08.
- If the proposed rule does not have a 1-Oct-08 effective date, there is a 30 day comment period which will allow for modification proposals to be again considered to harmonize the effective date with API.

2.3 Presentation III: Yong-Yi Wang – API 1104 Appendix A
“Practical Considerations of the of the Application of API 1104 Appendix A”

Overview of Presentation

- Workmanship vs. ECA
- When to use ECA
- ECA quiz
- Application of ECA
- Steps of ECA
- 19th vs. 20th Edition
- Samples of ECA

Workmanship vs. ECA

- Workmanship
  - Historically proven weld quality control measure
  - Has proven to produce high integrity welds over many years
  - Is based on what can be achieved by skilled welder using properly maintained equipment while executing properly qualified welding procedures.
  - Generally speaking, the defect tolerance is not specific to the materials being welded.
  - The defect tolerance is not related to the stress and strain levels being applied to the weld.

- ECA (Alternative weld defect acceptance criteria)
  - Based on fracture mechanics principles
  - Has been applied worldwide since mid-1980’s
  - Onshore large-scale application of ECA in the US has been behind offshore and other countries.
The defect acceptance criteria are specific to the materials being welded, welding processes, and stress and/or strain levels expected on the welds.
Considers both defect height and length.

When to Use ECA

- Confirm general requirements for ECA are met.
  - Maximum allowable stress and strain
  - Fatigue
  - Dynamic loading
  - Sustained loading (SCC)
- Select welding processes
- Consult essential variables
  - Group plate manufacturer, pipe mills, wall thickness, diameter, grade, etc., within the tolerance of essential variables
- Conduct weld procedure qualification tests
- Conduct pipeline stress analysis
- Develop initial defect acceptance criteria
- Revise initial defect acceptance criteria
- Develop final defect acceptance criteria
- Review the final acceptance criteria with welding engineers and NDT contractors
- Put in place quality control specifications

**ECA is more than the computation of allowable defect size!**

Weld Procedure Qualification Tests

- Different standards have different requirements.
- The requirements in the 20th edition of Appendix A are different from those in the 19th edition.
  - Specimen shape of cross-weld tensile test
  - Charpy tests and V-notch location
  - CTOD test notch location
  - Specifications for re-test of CTOD specimens

Pipeline Stress Analysis

- All phases of pipeline service
  - Construction
  - Commissioning
  - Service
- Construction
  - Stress from spans
  - Lowering stress (typically the highest stress)
  - HDD
- Commissioning
  - Hydrostatic test
- Service
- Temperature fluctuation
- Pressure fluctuation
- Ground movement

**Revise Initial Acceptance Criteria**

- NDT sizing accuracy
- Maximum allowable length
  - Consider reduction if it were to allow poor quality control
- Maximum allowable height
  - Reduction may be advisable for thick-walled pipes
- Defect accumulation
  - Total defect length allowed on a single girth weld
  - Number of repairs allowed on a single girth weld
  - Maximum allowed repair length

**Major Differences between 19th and 20th Edition**

- Changes in essential variables
- Mechanical test requirements
- Three options
  - Options 1 and 2 for onshore pipelines
  - Option 3 is used when fatigue is a major consideration.
  - Added plastic collapse criteria

**Summary Remarks**

- Making high-quality welds should be the priority, no matter what acceptance criteria are selected.
- ECA offer many advantages over workmanship.
- When used correctly, both safety and economics can be realized.
- Need to understand the input parameters that drive ECA and how these parameters are implemented in the field
  - Applied stress/strain
  - Toughness
- ECA has limitations.
- Workmanship may not be the right answer to some of the limitations.

2.4 **OPS/DOT Activities Report – Gery Bauman**

Website:
http://www.phmsa.dot.gov
http://primis.phmsa.dot.gov

**Introduction**

- The 19th edition of API 1104 is still recognized by Federal Regulations
- There are no reservations in adopting the 20th edition
- DC manpower, standards and priority issue.
PHMSA
- The 19th edition of API 1104 is still recognized by Federal Regulations
- There are no reservations in adopting the 20th edition
- DC manpower, standards and priority issue.

Enforcement Transparency
- PHMSA now posts compliance letters on the internet

Research and Development
- develop new technologies for leak detection and damage prevention
- 2) improve technology for pipeline operation, monitoring, and control
- 3) improving pipeline materials.
  - OPS is partnering with industry and can provide research funds.
  - Generally, research is funded on a cost share basis, up to 50%.

Inspections
- Operation and Maintenance Manual
- Operator Qualification Plans
- Integrity Management Plans
- Drug and Alcohol Prevention
- Public Awareness Plans
- Standard “Unit” Inspections
- New Construction Inspections
- Accident/Incident Investigations

Inspection Approach
- Use a Mix of Inspection Approaches
  - Look at Fundamentals
    - Standard Inspections
    - Operations and Maintenance Manual Reviews
  - Look at Risk and Continuous Improvement
    - Integrity Management
    - Operator Qualification
  - Next Step - Integrated Inspections (II)

Integrated Inspection
- Universal Truths
  - Congressional requirements have increased the number of regulations
  - PHMSA is charged with maintaining regulatory oversight
  - Yet resources haven’t grown to match the mandates
  - Coupled with no two operators are alike
  - PHMSA is developing an Integrated Inspection Program
Integrated Inspection (cont.)
• Performance is the goal – not compliance
• Prevention is the key strategy
  – Risk-based inspections offer the hope for a more effective, efficient, and rational inspection program
  – Risk-based enforcement adds emphasis as needed
• What is an Integrated Inspection?
  – Driven by both data and experience
  – Shaped to fit individual operators
• What’s happening with Integrated Inspections?
  – Internal HQ/Field Team well into design and development phase
  – 2008: continued development and pilot testing
  – 2009: training and full deployment
• What else is PHMSA working on?
  – Performance Evaluation Group refinements
  – Working on operational leading indicators
  – SMART Portal Development (relational data base)

Integrated Inspections - Tips
• Naturally an adversarial relationship.
• Be professional and courteous.
• Follow inspector’s lead on conversation.
• Know your plans and procedures.
• Argue or not? Pick your battles.
• Listen – may hear good ideas even if not a compliance issue. To reduce risk through the use of Best Practices is a goal.

80% Waivers
• 49 CFR Parts 192 and 195 set maximum allowable pressure to 72% SMYS
  • Special permission can be granted to operate at up to 80% SMYS
  • Steel savings
  • Horse Power Savings
  • Defers looping of gas pipelines

Terms of 80% waiver related to construction
• Specific minimum mechanical properties required for pipe
• Plate and pipe qualify control programs needed
• Field coating quality control program
• Special coatings required for trenchless installations
• Limit Compressor station discharge to 120º F and overpressure to 104 % MAOP (gas) 110% MOP (liquid)
• Notification of welding procedure development
• Minimum 36” depth or deeper due to farming activities
• Construction quality control program
• Corrosion interference control program needed AC & DC
• SCADA system & Remote control MLBVs
• Line of sight line markers except in agricultural areas
• As a condition in the waiver operators can request to use API 1104 20th edition Appendix A.
With a waiver comes added responsibilities (safety, industry) PHMSA encourages industry best practices - High Strength Pipe

- Keep root-hot, and fill-cap welding passes close together, quickly followed by NDT. – correct problems in their infancy.
- Use real-time feedback between NDT, contractor, inspector, and welder.
- Utilize skilled, knowledgeable, and experienced workers
- Provide training – tasks, construction procedures
- Insure all the details of the welding procedures are followed. Verify parameters as appropriate. (e.g. preheat, EC, interpass, speed of travel)
- Dedicated construction repair procedures (E 9018, GMAW, FCAW)
- Time MUT appropriately if delayed hydrogen cracking is a risk.
- Verify the manual ultrasonic technicians knowledge, skills, and abilities and include manual ultrasonic testing performance in the welding quality control program.
- Consider recording repair weld scans to improve oversight abilities.
- Verify and insure automatic ultrasonic testing technicians are accurately reporting the size and location of defects to be repaired.
- Develop In-service welding procedures for hot taps and sleeve repairs.

2.5 API Washington DC Office – Ed Baniak

New or Revised API Pipeline Standards
New or Revised API Pipeline Standards in Development
Joint API/ISO Standards
Other ISO Standards Published

Subcommittee Reports

2.6 Fracture Mechanics Subcommittee Report – Yong-Yi Wang, Chair

Summary
The Fracture Mechanics subcommittee had a full agenda over the allocated subcommittee time. The two focus areas of the meeting were: (1) working on the comments related to the 20th Edition of Appendix A July 2007 Errata, and (2) background and preliminary work plan for the creation of Appendix C (ECA for pipelines experiencing large longitudinal strains).
Comments Related to Appendix A, July 2007 Errata

The subcommittee examined 25 items related to Appendix A, 20th Edition. Three ballot items were approved by the sub-committee, all related to welding essential variables for weld procedure qualification.

**Essential Variable Item g Current**

"An increase in the time between the completion of the root bead and the start of the second bead."

*Proposed to change to*

"An increase in the time between the completion of root bead and the start of the second bead, except for the solid wire GMAW and GTAW processes for root pass."

*Rationale*

This essential variable has forced the delay in starting the second bead, sometime for days, after the completion of the root bead in weld procedure qualification. This delay is considered unnecessary when the root bead is completed by solid wire GMAW and GTAW processes. The change would make the procedure qualification more efficient without adverse effects on weld quality control.

**Essential variable Item m Current**

"A change in the requirements for pre-heat temperature"

*Propose to change to*

"A decrease in specified minimum pre-heat temperature."

*Rationale*

Only a decrease in the minimum pre-heat temperature could adversely impact weld property. The current language makes any change in pre-heat temperature an essential variable.

**Essential variable Item n Current**

"A change in the interpass temperature, if the interpass temperature is lower than the minimum interpass temperature recorded during the procedure qualification test, or if the interpass temperature is 45°F (25°C) higher than the maximum interpass temperature recorded during the procedure qualification test."

*Propose to change to*

"An increase in the maximum interpass temperature greater than 45°F (25°C) of the maximum interpass temperature recorded during the procedure qualification test. The minimum interpass temperature shall be no less than the minimum pre-heat temperature."
**Rationale**

The minimum “interpass” temperature should be the minimum pre-heat temperature. Therefore the original language about interpass temperature being lower than the minimum interpass temperature is unnecessary.

**Evaluation of Stacked Defects**

The fracture mechanics subcommittee was requested to develop language/procedures for the “evaluation of stacked defects in workmanship environment.” The subcommittee believed the question is addressed in Clause 9.2.6.1 c of the 20th Ed. The subcommittee was also of the opinion that if the evaluation of stacked defects beyond workmanship was expected, an ECA should be performed. It is difficult to justify an evaluation criterion based on ECA principles when the ECA qualification requirements are not met.

**Appendix C, ECA for Large Longitudinal Strain Applications**

A presentation was made by Yong-Yi Wang that summarized the need for Appendix C. The process of drafting Appendix C was expected to take at least 2-3 years. There is much ongoing work in North America and around the world. The subcommittee will need to address (1) the different approaches being used and (2) application-specific issues, such as spool-based offshore applications, new construction of onshore pipelines, and large strain environment for in-service pipelines.

A core group was formed to produce the draft structure of Appendix C in 6 months. The full subcommittee would meet then to discuss the draft structure. The core group consists of Doug Fairchild, Robert Gatlin, Bill Fazackerley, Bruce Reichert, and Yong-Yi Wang.

2.7 **Maintenance Welding Subcommittee – Bill Bruce, Chair**

The Maintenance Welding Sub-Committee was called to order at 8:00 AM on January 24, 2008. A total of 14 participants attended the meeting.

The following is a description of the significant items that were discussed:

**Procedure and Welder Qualification for Weld Deposition Repairs** – The majority of the meeting time was spent on revisions necessary for future editions of API 1104 to allow procedure and welder qualification for weld deposition repairs. A number of documents were reviewed, including the requirements in CSA Z662, ASME Section IX, and ASME PCC2. A further draft of information pertaining to welder qualification that was originally produced by Bill Amend following the January 2005 meeting, which was distributed prior to the meeting, was reviewed. The group agreed that the
goal of this meeting should be to come to a consensus on the methodology for procedure and welder qualification for weld deposition repairs, and then to develop the necessary revisions to Appendix B between now and the January 2009 meeting. The methodology for procedure qualification, welder qualification, and suggested in-service welding practices for weld deposition repair were discussed and agreed. Bill Amend and Matt Boring agreed to continue their work in this area with the goal of having the necessary revisions to Appendix B ready for review at the next meeting. It is understood that the 21st Edition of API 1104 is due to be published in 2010.

Branch and Fillet Weld Revisions – Planned revisions pertaining to the definition of a branch weld, and differentiation between branch and fillet welds for procedure qualification, were discussed. These revisions are being formulated by the Welding Procedure and Welder Qualification Subcommittee. Whatever revisions that are made in this regard to the main body of API 1104 will have a significant effect on Appendix B. It was agreed that details of the revisions to the main body were required prior to formulating revisions to Appendix B. Bill Bruce agreed to go through Appendix B to identify areas that will be affected. It was also noted that these revisions may result in the need for many users of API 1104 to requalify procedures and welders for branch connections if they choose to follow Appendix B. The current Figure 10 in API 1104 implies that a branch connection is a fillet weld. Even though a major change in joint design is an essential variable, it is thought that many users of API 1104 are using fillet weld procedures and welders for branch connections. The proposed revision will clearly differentiate between a fillet weld and a branch weld.

ASME In-Service Welding Activities – The final draft of an ASME Post-Construction Sub-Committee document pertaining to in-service welding (ASME PCC2), which had been distributed prior to the meeting, was discussed. No action is required other than to know of the existence of this document.

Other Discussion Items – A variety of other issues were discussed, which pertained mainly to the application Appendix B. These included HAZ hardness testing during procedure qualification and limits of acceptability, monitoring and control of heat input levels in the field using the run-out-ratio scheme, and the importance of close control of hydrogen levels for in-service welding using AWS EXX18-H4R electrodes packaged in small quantity, hermetically sealed containers.

The meeting was adjourned at approximately 12:05 PM.
2.8 Mechanized Welding – Don Thorn, Chair

There were no referrals to the subcommittee of Technical Inquiries from Modifications, Interpretations, and Policies Subcommittee.

A discussion was held with guests regarding the advancement of mechanized welding in the land based construction in recent years and the changes that have taken place with technology in the past several years.

A discussion occurred regarding allowable the mis-alignment of pipe ends of the same nominal wall thickness; opinions expressed was that this was a continuing issue of the difference in tolerances allowed within API 5L and API 1104. While opinion was that performance of a procedure weld for high-low conditions to determine test results was not required a demonstration of the ability to produce an acceptable weld and examine the weld for acceptance criteria was likely a good idea. This decision should rest with the Owner Companies.

2.9 General Interest Subcommittee – Don Thorn, Chair

This subcommittee did not meet this year as no items were open for consideration. The General Interest roster is full at this time. Current members from this group are:

Bob Huntley  Wayne Klemcke
Donald Stevens  Yong-Yi Wang

2.10 Modifications, Interpretations & Policy – Ronnie Wise, Acting Chair

The following inquiries were received and answered:

1104-I-0118-05
Subject: In-service welder qualification - Testing of Weld (appendix B)

1104-I-0112-05

1104-I-0123-06
Subject: Weld procedures, Section 5.4.2.4 of API 1104, 20th edition.

1104-I-0124-06
Subject: AUT evaluation sensitivity, Section 11.4.7.3 of API 1104, 19th edition.

1104-I-0418-06
Subject: Requirement of RT, Section 6.6.2, of API 1104, 19th edition.

1104-I-0530-06
Subject: Repair welding, Section 10.5.1 of API 1104, 20th edition.
1104-I-0602-06
Subject: Procedure welding qualification, of API 1104, 19th edition.

1104-I-0713-06
Subject: Manual Ultrasonic Weld Testing, Section 11.4.7.2 of API 1104, 19th edition.

It is our understanding that there are no other outstanding inquiries.

The answers are being passed to the Executive Board for their review.

Although all of the inquiries were answered in accordance with the 19th and 20th Edition, a couple of the inquiries have been passed to the NDT Subcommittee and the Weld Procedure and Welder Qualification Subcommittee. The issues contained in these inquiries may need to be addressed in future editions of API 1104.

2.11 Nondestructive Testing Subcommittee – Chuck Woodruff & Tom Reeder

The following issues were discussed:

a. Radiographic requirements for double wall exposures with double wall viewing (DWE/DWV) IQI sensitivity issues. A report was submitted by Tom Reeder via email and discussed by Dave Culbertson. An initial result of testing indicates that wire IQI selection should be based on 2 times the wall thickness instead of 1.

Elliptical Exposure Technique (DWE/DWV) w/single wall IQI Sensitivity:

Task group indicates that using an IQI based on single wall thickness with x-ray is ok however the same exposure with gamma is not unless smaller focal spot is used or film type changed.

The simple answer for this type of exposure is to select an IQI based on twice the wall thickness.

b. Proposed wording and illustrations describing acceptable wire IQI images, wire locations, and placement within the IQI packets.

Item returned to task group for final consideration and wording.

c. Consider revision of Section 11.4 to include separate sections for AUT and manual UT. – Chuck Woodruff. Task group now looking at merits and need for such breakout. Refining current wording is best solution.

Returned to task group for additional work.
d. Discussion on evaluation of stacked imperfections in a workmanship environment. –still need input from Fracture Mechanics Subcommittee on this issue.

Fracture Mechanics accepts the criteria for single flaw height of ¼ T (9.6.2.1b), however, criteria stacked flaws is still unresolved (9.6.2.1c).

New Business

Starts/Stops on RT images: We have enough information on existing defects that we do not feel that further definition is required.

Inquiries:
Two were presented and answered, returned to responsible Interpretation Subcommittee.

2.12 Welding Procedure & Welder Qualification – Alan Holk, Chair

This is a summary of items discussed by the Subcommittee. While the Subcommittee has agreed on some changes to be made, we are not proposing that any items be balloted for formal approval. The ballot proposals will be made in 2009.

1) Filler Metal Classifications

Updated Table 1. As examples:
Added AWS A5.23 Specification for Low Alloy Steel Electrodes and Fluxes for Submerged Arc Welding
Added the classification xx45 for low hydrogen downhill SMAW electrodes
Updated the GMAW listings

2) Dual Stencil Pipe Grades

The treatment of dual stenciled pipe was discussed for both welder qualification and procedure qualification. Wording will be proposed to clarify that such pipe can be treated as any of the stenciled grades as determined by the user.

3) Base Metal Strength Groupings

The 44th edition of API 5L contains several changes that affect API 1104.

The specified minimum strength of the various pipe grades is now based on the metric grade designation instead of the US common grade designation. This results in a slight increase in specified minimum yield strength (SMYS) for all of the grades. For example X42 pipe, which used to have a SMYS of 42,000 psi will have a SMYS of 42,100 psi. This changes it’s API 1104 material group from (a) to (b). Old X42 pipe is group (a) 42,000 and below,
while new X42 pipe is group (b) greater than 42,000 to less than 65,000. A proposal will be made to combine groups (a) and (b).

While the SMYS of each grade has increased slightly, the grade designation has not been changed. The pipe may continue to be welded with existing welding procedures however procedure qualification requires that the tensile tests meet or exceed the specified minimum tensile strength of the pipe. A note will be proposed to warn the users of the change the API 5L strength requirements.

The pipe grades will now include a symbol indicating the “delivery condition” – “R” for “as rolled, “N” for “normalized, etc. The API 1104 strength grouping require procedure qualification on each grade for SMYS of 65,000 psi and higher. Wording will be proposed so that a change in delivery condition will not require a separate qualification test.

4) Weld Types: Butt, Branch, Fillet

Definitions will be proposed for these weld types.

Sections 5 and 6 have been reviewed and changes will be proposed for using these three weld types. Appendix B will be reviewed with the Maintenance Welding Subcommittee.

5) Welder Qualification by Ultrasonics

Section 12 of API 1104 allows mechanized welding operators to be qualified destructively or nondestructively in accordance with Section 6. Section 6 currently limits nondestructive testing to radiography. Production mechanized welds are typically evaluated using ultrasonics. Wording will be proposed for Section 6 to allow nondestructive testing by ultrasonics.

6) Welder Qualification for Part of a Weld (root, fill, cap)

The weld repair work group was supposed to look at partial qualifications. They have not reported yet.

2.13 Repair Welding Task Group – Robert Gatlin

General discussions were conducted among the attendees regarding past experiences with welding repairs. Major points tabled during these discussions were:

Improvements to Section 10 will improve world wide appeal of our Standard

Any changes need to maintain flexibility for uses of the Standard in that we do not need to mandate strict requirement to projects that need no such requirements
A majority of the information could be modeled from existing owner company approach to qualifying and conducting weld repairs

The Task Group may look onto NDE issues for repair welds that can be passed to the NDT Procedures Subcommittee

Request proposed to the main Committee:
Does anyone see any reason that the Task Group should not work on improvements to Section 10 that can be proposed for future changes to our Standard?

2.14 New Business

a. The following are the Selection Committee Appointments: Marshall Farley (chair), Ronnie Wise, Bill Bruce.

b. Pam Michalski asked whether we have term limits. We are being asked to modify this.

c. Ed Baniak – Review of seam/weld failures. This is more of an API 5L issue, but any specific questions on these failures should be addressed to Ed at: baniake@api.org.

d. Pam Michalski felt that API 1104 have a liaison on API 5L to obtain reports on these issues. Jim Cox volunteered to give a liaison report from API 5L for issues impacting API 1104.

e. Meeting Date and Location for 2009

January 21-23, 2009
Grand Hyatt San Antonio
San Antonio, Texas

f. Meeting Adjourned

Respectfully Submitted,

Jim Ibarra
Secretary
API 1104