Positive Train Control (PTC) Full Working Group
July 8 & 9, 2003 - Chicago, Illinois

July 8: Full Working Group Meeting convened at 8 a.m.

Note 1: The minutes and all of the meeting presentations will be posted on the Volpe Website at: http://imsserver.volpe.dot.gov. There are no user ID's or passwords required.

Note 2: If you connect through the FRA Website, rather than going directly to the Volpe Website, your User Name and User ID will be the first letter of your first name and all of your last name.

Filenames and their association with the presenters are as follows:

	Presenter & Organization	Filename (all Adobe PDF format)
1	Frank Roskind, FRA	Roskind.pdf
2	Rich McCord, FRA	McCord ART July 03.ppt
3	Tom Raslear, FRA	Raslear HF Status July 03.ppt
5	Alan Polivka, TTCI Craig Shier, Lockheed Martin Bill Moore-Ede, CAMAC Howard Moody, AAR	Polvika July 03.ppt
6	Denise Lyle, AAR-CSX	CBTM Presentation_7-9-03.ppt

• Cindy Gross called to order the Full Working Group at 8 a.m. with a safety briefing.

• Ted Bundy made an announcement that a sign-in sheet will be passed around the meeting room listing each person's name and e-mail address. Please make any changes to your e-mail address. Mr. Bundy asked the Full Working Group to accept the minutes of the March 2003 meeting. There were no changes to the minutes and the group voted to accept the minutes as published.

• Frank Roskind gave the working group a briefing on the history of the RISK 2 team's mission. He said the team had disagreements about what factors needed to be analyzed and how. Different points of view could not be resolved by reference to the data initially presented, apparently becaues there were anomalies in the traffic flows. FRA retained ZetaTech as a contractor to assist in reviewing and improving the quality of data on the network. ZetaTech worked with the Volpe Center assembling the data and getting it into a usable format. The remainder of Frank's briefing is included in a handout, which is linked to these minutes at the Volpe website. Frank then made a PowerPoint presentation, which is also linked to the minutes.

- James Stem asked Frank if the formulas used by RISK2 is "enforceable" by FRA. Frank replied that he believed the formulas were enforceable.

- The AAR group caucused from about 9 to 10 a.m.

- When the meeting reconvened, Howard Moody requested FRA to answer the question "how the hand-out with rough draft language" summarizing the RISK2 team's work is going to be used. In other words, how would FRA use this language when working on a petition from a supplier or railroad for approval of all or part of a PTC system. Frank Roskind replied using a couple of hypothetical submissions, saying for instance, if a railroad petitions and uses a low density train number, but FRA's field investigation shows that there is a significant increase in traffic, then FRA would expect improvements equivalent to CTC would be used to mitigate risk.

- Grady Cothen responded that FRA didn't intend to impede progress, and that Howard had raised a couple of points with his hypothetical scenarios [reported in detail below]. Grady said that FRA would want the railroad to be realistic about the project including making certain that it was going to be fully funded. Grady referenced the existing criteria in Part 235, and said that FRA would like for AAR to submit some realistic hypothetical base cases to FRA for review and response.

- Gerry Sniffen (NS) requested that Frank Roskind clarify when the formula applied. Does it only apply when the railroad is considering installing a processor based control system? Frank replied that was correct.

- Frank Roskind explained what is measured are total societal costs versus train miles, as exposure in the risk metric. However, passenger trains were included separately for consideration of that exposure For risk involving all train-miles total societal cost is a good measure, but where the exposure is measured in passenger-miles, the measure of consequences should be limited to the unique attributes of passenger trains, hence FRA want to use societal cost of passenger injuries and fatalities.

- Robin Buxton expressed concerns about density levels as referenced in FRA draft language hand out. Frank explained that railroads should be aware of daily train counts, and that railroads must take steps to reduce risk factor.

- Cindy Gross distributed a sheet of paper with the following language for the group's consideration.

– If no system is required by Part 236 and the **maximum authorized speed is doubled to a speed of at least 40 mph;**
– or the **density is increased by at least 5 trains per day in excess of 15 (within the first three years from the time of submission of a base case) or 20 trains per day after the first three years after submission of a base case;**
The alternate base case is the minimum system authorized by Part 236. *Or, an addition or increased of passenger service more than four trains per day is added, then the alternate base case would be CTC.

- Cindy Gross distributed a Passenger Risk Metric and asked if there were concerns with anything in the document. Bob Kollmar (ATK) asked about the last sentence in the first paragraph,

referencing a risk metric that measured fatalities only. FRA explained that this was in the NPRM, and the group wanted to keep the sentence.

- Voting members approved the Passenger Risk Metric language as distributed, and used it for discussion purposes later in the day.

- Rich McCord updated members about the accident review team regarding 1998-2001 incidents. His presentation is linked to these minutes at the Volpe website.

- Doug Horstmann (BLE) asked if the slides in McCord's presentation meant that we were authorizing PTC systems that didn't meet the three core features the working group agreed on many years ago. Grady Cothen explained the ART's work was for a Congressional request for cost benefit study for PTC core functions. Grady said it was all a matter of nomenclature, and who wouldn't agree that an accident of reduction of 80 percent wasn't a good thing. Doug said he didn't disagree with that, but that it seemed to be a matter of migrating toward the three core features rather than having all three features on any PTC system.

- Tim DePaepe said that you don't design a system to catch 90 percent of the problems; they were designed to catch all of the problems. He said he thought the intent was to ensure all three core features were included, and it bothered him and his organization that we now seemed to be saying "do two of the three features", and we'll deal with the roadway worker protection feature later. He said he was very disappointed.

- Grady Cothen said he'd though FRA should commend some railroads for taking new technological approaches to roadway worker protection, and he commended the BNSF for doing something about roadway worker protection as a separate processor based system.

- Tom Raslear provided an update on human factor PTC projects conducted by Volpe and FRA. The presentation is linked to the minutes at the Volpe website. He said the Human Factor Team establishes methods for PTC evaluations to provide advice on workload transition projects, selection of PTC systems, usability, types of products.. Frank Rosklind questioned railroads' participation in human factor projects. Howard Moody questioned whom from the railroads receives the human factor information and names of representatives from railroads. Mr. Moody requested that Tom Raslear send him the human factor information.

- John Vogler said that the human factor report didn't include anything particular to maintenance. Tom Raslear said the contractors decided to include only four topics, and none of them had a relationship to maintenance. One of the intentions was just to get the report out so others could use the format and criteria. John LaForce said he could be the APTA representative as long as most of the meetings were held on the east coast.

- Cindy Gross distributed draft rule text 236.909(c)(3) and suggested members review the terminology. Robin Buxton questioned the words "planned coincident"and Cothen recommended a comma be inserted into text.

• **Draft Rule Text: 236.909(e)(3)**

(3) If changes in the physical or operating conditions on the railroad are planned coincident with introduction of or within the expected life cycle of the product subject to review under this subpart, the previous condition shall be adjusted to reflect any associated impact on risk. In particular, the previous condition must be adjusted for assumed implementation of systems necessary to support higher train speeds as specified in §236.0, as well as track and other changes required to support projected increases in train operations. If the current system would not be adequate under §236.0 for the proposed operation, then the adjusted previous condition would be the minimum system required under §236.0. A traffic control system will be the adjusted previous condition in the event of:

(a) An increase in the maximum authorized speed that doubles the speed, or more and which results in a speed limit of at least 40 mph; or

(b) An increase in the annual average daily train density of five trains or more per day

(i) to a density in excess of 15 trains per day within the first three years after submission of the risk assessment; or

(ii) to a density in excess of 20 trains per day after the first three years after submission of the risk assessment: or

c) An increase in the annual average daily passenger train density of more than four trains per day.

• Howard Moody questioned if the rule applies **only** to processor based systems? Frank Roskind responded with yes.

• Howard Moody and Gerry Sniffen (NS) then gave examples in which railroads would decline to provide incremental safety enhancements over line segments if they had to meet the criteria established for CTC systems. Howard Moody said that no such railroads had contacted him, but he really thought this could put regional railroads in a bind.

• Grady Cothen said that he understood the point, and it may be possible to get the group to come up, after all this time, with criteria that better suited everyone's concerns, but that frankly, FRA was running out of time.

• Howard Moody said that he was really concerned with some of the smaller regional railroads, because this rule would really put them into a bind if they wanted to increase traffic and use incrementally enhanced technology to do it.

• Frank Roskind replied that FRA wanted to ensure that the operations were safe, and if someone were changing their operations to increase traffic to the threshold levels, FRA would expect them to use that criteria. Howard Moody said that there were no threshold levels now for dark territory, so establishing thresholds for processor based systems could result in the railroads increasing traffic without investing in the technology.

- Grady Cothen said that he didn't know if there was a shortline/regional issue here or not. FRA has not been approached by the ASLRRA about this. He said FRA certainly doesn't want to do anything that would jeopardize safety, but that he didn't think FRA was discouraging use of technology by the proposed language. Grady added that if, at a later time, it turned out that FRA was discouraging technology, then FRA would deal with the issue.

- Issues raised by Howard Moody:
  1. Decommissioning of signal systems as a part of the petition
  2. Migration path from today's presentation
     A. Look at the total migration and not stopping at some point in between
     B. Give them specific examples and for discontinuance of signals.
     C. Want examples – look at cost/benefit for both
  3. Scenarios:
     A. What happens if I am running at 45 MPH and over 20 trains today? Am I required to put in CTC? No only applies if you are going to put in a new system
     B. Migration on a specific line is not better than CTC but overall system is improved at all times. No issue
     C. Migration on a line as a system but performance is in between CTC and Dark on that line or a discontinuance where the safety does not meet the threshold. How long a period of "in between" performance will the FRA tolerate?
     D. What happens when I extend the territory or modify the territory to remove track circuits? Can I include this modification in the overall safety performance of the system or am I limited to the threshold as applied to that line?
     E. What happens on a small or regional railroad that is all dark? If they want to increase traffic, are they forbidden to put in a system that performs between CTC and Dark territory and thus be inclined not to do anything?
     F. We are at a bit of an impasse. Representative territory-what does the system have to look like. Like the language –least favorable means comprehensive

- Howard Moody asked if Grady was concerned with the same issue he was: Concern that people will dismiss making an investment because they see this rule language as a thinwire. Grady responded by saying that he thought railroads would go forward if they were going to increase traffic on the line, because they wanted a robust operation and FRA wanted the safety aspects to be as beneficial as the operating benefits.

- Denise Lyle said that CSX was now running 24 trains a day over the Spartenburg (SC) line, and could increase it anytime they wanted to, whether or not they invested in the CBTM system. Grady said she was talking to safety regulators, and FRA's question would be why are they doing that?

- Moody questioned deferring investments to improving safety.

- Frank referenced a chart that illustrated railroad segments with dark territory operations of 20 trains or more per day. Tim DePaepe said that FRA already treats shortlines and regionals differently, and gives great consideration to their finances, etc. He said he had concerns with a couple of Class 2's right now, because they never invested in anything, and lied through their teeth at every opportunity. Howard Moody said he disagreed, and Tim said he knew that.

- Grady Cothen explained the FRA's waiver application process, issue public notice to consistent with safety and in the public interest.

- Bob McCown questioned the appropriate language to proceed with rule making. Mr. Moody questioned unplanned consequences to meet safety threshold.

- FRA decided to move past this issue, as it was apparent there were philosophical differences that would not be resolved through further discussion.

- Frank Roskind introduced the following document:

Language recommended by Risk2 group on generalizability:
It is permissible to generalize a model. In reviewing a model which has been generalized FRA will consider whether the railroad has analyzed the system where the comparison is likely to be the least favorable, (e.g. the new system as an overlay in dark territory, compared to that territory with CTC, if the new system is to be used to replace CTC, or where CTC might be expected), has analyzed all unique elements of the system, and has analyzed key variables, which include but are not limited to:

- Operational rulebook including any timetable special instructions, yard limit rules, flagging rules, to the extent they differ and are applicable to the subdivisions being considered. This is especially important when generalizing from one railroad to a second, or between subdivisions of a railroad, which incorporate different methods of operation.
- Terrain (curvature and grade)
- Radio coverage, especially if affected by different terrain
- Number of train moves including turnaround locals and foreign traffic
- Train weight
- Train lengths
- Speed
- Complexity of Operation
- Relevant signal & train control safety critical appliances
- Other conditions that relate to risk assessment especially those that cause changes in key assumptions in the risk assessment

In reviewing a generalized assessment FRA will consider whether the system has actually been deployed, and how well actual operating experience conforms to model predictions. FRA will give tighter scrutiny to models attempting to generalize where there is no actual operating experience, and will expect more convincing data to show with a high degree of confidence that the proposed system will be at least as safe as what it would replace.

- Bob McCown discussed creating a general case for the generalzability process. He said he didn't think it was possible to get to the point where a railroad could automatically add the processor based system without doing this kind of analysis, at least not for a good while. Dr. Giras explained the least favorable factors versus a comprehensive listing. He also didn't think a railroad could automatically make assumptions. Howard Moody said he agreed to this. Dr. Giras then suggested adding "relevant signal & train control safety critical appliances" to the list.

- Howard Moody wanted to take the term "least favorable" out of the proposed language, and use the word "comprehensive" instead. Frank Roskind said he was inclined to leave it in. Rick Inclima (BMWE) said he got a bit confused by the term "least favorable" also, but liked it better than the term "comprehensive". Dr. Giras said that the list wasn't all inclusive, and that he thought everyone knew that.

- The group voted to include the term "relevant signal & train control safety critical appliances" to the list.

- Howard Moody requested final document be reviewed by the working group, for knowledge on text that is included in the rule.

- Grade Cothen introduced the following Suggested Comments for discussion. There was no group discussion, and Grady advised that items 1, 3, and 4 represented the items that would be most relevant for the RSAC report.

Suggested Content of PTC Working Group Report to the Railroad Safety Advisory Committee:

1) Table reporting conclusions from review of comments (from San Antonio notes, revised as to form 7/7/03, with any corrections).

2) Recommendation for resolution of "adjusted base case" issue.

3) Recommendation for additional preamble language on the "generalization" issue (extrapolation of risk assessment findings) from Risk2 team. [Add: Relevant signal & train control safety critical appliances]

4) Corrected language for performance standard passenger service metric (societal cost of passenger fatalities and injuries divided by passenger miles).

The Working Group has been advised of, but does not necessarily concur with, the following:

FRA will resolve remaining issues based on its best judgment taking into consideration all information in the docket.

FRA has reported that it is seeking means of reducing burdens related to products that comply with Subparts A-H and Appendix C.

FRA has reported that, in view of the open issues related to validation of risk assessment methods, FRA will delete language in the definition of "high degree of confidence" related to a "reasonable decision maker." The railroad will remain responsible for making the performance standard finding in the first instance. However, in any case where a PSP is taken for review and approval, FRA will apply its own judgment (de novo) as to whether the performance standard has been met.

FRA has reported that the term "(remote)" will be deleted from the definition of "high degree of confidence" in response to the comment that the term has a quantitative meaning within certain reference standards; and FRA does not wish to discourage use of any useful standard.

- Tim Depaepe requested a 15 minute labor caucus to discuss the generalization.

- Grady Cothen introduced the table (matrix) beginning on page 8 to the working group, which is an extrapolation of the agreements reached at the PTC Working Group meeting in San Antonio in December 2001, and that he and Sean Crain had cleaned it up a little bit. Grady explained that the "Resolution" column either represented the agreements reached, or what FRA has done for those issues where resolution or recommendations weren't achieved. He said there were no substantive changes made. The group was asked to review the table, and, ***for those members who were at the San Antonio meeting***, to provide comments regarding what they believed were factual errors to Sean Crain (sean.crain@fra.dot.gov) no later than July 18, 2003.

NEW ISSUES RAISED BY COMMENTS TO PTC NPRM
FRA - 12/4/01
Revised 7/7/03 for clarity and brevity – suggested form of presentation to full RSAC

NPRM SECTION	COMMENT	RESOLUTION
209.11	1-All safety info should be made available and public (GRS)	FRA will resolve in accordance with DOT policy. (See handout on "Trade Secrets Act")
	2-FRA should confirm confidential treatment of info so submitted (GETS-GS)	
	3-FRA should provide example of non-FOIA exempt material (GETS–GS).	

NPRM SECTION	COMMENT	RESOLUTION
236.18	1May require more than 24 months to comply for products already being designed (GETSGS)	*Working Group Consensus* §236.18 Software Management Control Plan. (a) Within 6 months of (date 60 days after publication of final rule) each railroad shall develop and adopt a software management control plan for signal and train control systems. Railroads commencing operations after (date 60 days after publication of final rule) shall adopt a software management control plan for signal and train control systems prior to commencing operations. (b) Within 30 months of the completion of the software management control plan each railroad shall have fully implemented such plan. ©) For purposes of this section, "software management control plan" means a plan designed to ensure that the proper and intended software version for each specific site and location is documented (mapped) and maintained through the life cycle of the system. The plan must further describe how the proper software configuration is to be identified and confirmed in the event of replacement, modification, or disarrangement of any part of the system.

NPRM SECTION	COMMENT	RESOLUTION
	2-Seek guidance on delineation of duties under this section between RR's and suppliers? (SAFETRAN, ALSTOM, GETS, PATH)	Railroads are responsible.
	3-Software mgmt. Plan should identify processes for ensuring proper configuration, not actual testing procedures, which are product-specific (AAR)	Change last sentence to read: ***"The plan must further describe how the proper software configuration is to be identified and confirmed in the event of replacement, modification, or disarrangement of any part of the system."***
236.903	1- Suggest def. of "train control" to exclude systems which provide engineer proper speed for maximum fuel economy (AAR), also need to differentiate from alerters, EOTs, etc. (GETS) suggests "train control" def. define relation w/locomotive-borne train control systems.	FRA will review all other applicable regulations, and try to clarify this to ensure FRA intent, which is to ensure that all safety critical components, including other components that can have an impact on the safety critical ones, are covered. Provided other locomotive systems are kept separate from the safety critical systems, they would remain non-regulated ***from a Part 236 perspective.*** ***May use the term "Safety Relevant" or "Safety Critical" to provide clarity. Labor's recommended definition: Train Control is a part of a system interlinked from wayside to track vehicle that automatically warns and enforces against violation of track speeds and authority limits.***
	2-Suggest better development of "safety critical" def. (GETS)	FRA to resolve.
	3-Suggest def. of "application software" (BM)	No group recommendations for a definition

NPRM SECTION	COMMENT	RESOLUTION
236.905	1-Par. (b)(1)(iv): Propose refining safety assessment language: "The identification of the complete safety assessment process used to identify and address all safety concerns at all stages of product development." (ALSTOM)	This was an attempt by ALSTOM to help clarify the language of the rule. FRA to consider.
	2- Par. (b)(1)(ii): Can RSPP refer to a recognized risk assessment standard, rather than give complete description? (BAH) And will FRA keep published list of recognized standards? (ALSTOM)	FRA to resolve.
	3- Par. (b)(2): Must publish in PSP suppliers' internal safety assessment standards and procedures? (GETS-GS)	Yes, the standards have to be available for inspection, and, if a 3rd party is involved in the assessment, would have to be made available to them (supplier could specify non-disclosure in contract with 3rd party). *Recommended Change:* ***"The RSPP must require that references to any non-published standards be included in the PSP."***
	4- Suggest FRA develop sample documents (RSPP, PSP) (BAH)	FRA to resolve.
236.907	1- Which PSP tasks to be performed by supplier and which to be performed by RR? (SAFETRAN, GETS-GS). If so, can FRA qualify supplier portion of PSP data only once, for use thereafter on different applications? (LIRR)	It is understood that elements of a PSP may be "portable" if conditions warrant. Subject to case-by-case review for appropriateness.

NPRM SECTION	COMMENT	RESOLUTION
	2- Par (a)(2) - is there any case where such info should not be required (i.e., abbreviated risk assessment)? (ALSTOM)	Example ALSTOM gives is an interlocking controller, where gross tonnage wouldn't apply. Final rule should clarify or give example that if type of train, gross tonnage, etc., was **not** applicable, then a statement to that effect would be sufficient.
	3- Par. (a)(2): Suggest PSP include description of any changes in RR operation due to implementation of system (ALSTOM)	Comment discussed and withdrawn.
	4- Par. (a)(6): hazard log and hazard mitigation analysis should be required in one document (BAH)	Group has no comments, recommends no change action be taken. May be considered in future rulemaking.
	5- Par. (a)(6): Threshold limits in hazard log essentially same as quantitative risk assessment? Propose MIL-STD-882 classifications. (GETS-GS)	FRA to resolve..
	6- Par. (a)(15): suggest refining concept of "security" (BAH); do we really mean "formal method" (used in preamble)?	FRA is concerned about security in all dimensions, and the PSP should take that into account. (The concern is more acute since September 11th.) Labor concurs. Final rule preamble will consider this comment.
	7- What, if any, burdens to be relieved if system/product already in place on another line/RR? (LIRR, NICTD)	FRA has noted concept of product "portability," which would be based on the specific cirucmstances of the initial application(s) and the subsequent application.

NPRM SECTION	COMMENT	RESOLUTION
236.909	1- "High degree of confidence" is too subjective a standard (ALSTOM); may be inappropriate standard for subsystem/component-level calculations (FRA); ***FRA, upon review of this comment, felt that it might not be wise to apply this requirement to Appendix B. It would remain as is (applicable) for the other sections of the rule.***	Language to remain as proposed. [FRA noted this also a technical drafting issue, and it applies at the system level. If we're at the subsystem or component level, this definition doesn't work. The same concept should apply regarding the outcome we want, the wording needs some work to apply to the component or subsystem level.]
	2- What level of proof required for abbreviated risk assessment? (BAH)	Leave as is. No action necessary.
	3- Allow RR's flexibility in risk parameters as appropriate (i.e., use "train-miles" or "trainhours" for exposure or MIL-STD-882 levels for severity)? (BAH, GETS-GS)	No change recommended.
	4- Previous condition calculations should be updated to existing hard-wired logic technology and off-the-shelf signal equipment (BF)	No recommendation for change from the non-governmental parties.
	5- Suggest exempting from performance standard products designed using traditional Appx. C principles (shown by PHA) (GETS)	FRA to resolve.
	6- Par. (b): Administrative appeals procedure unnecessary (BRS)	This is labor concurrence with FRA's position as stated in the NPRM. No action needed.

NPRM SECTION	COMMENT	RESOLUTION
236.909(d) (new)	Says "is greater than"	Should say "is greater than or equal to"
236.911	1- What about product modifications "caused by implementation details"? (PHW)	*FRA to resolve (see **236.909 (5), as they are related.)***
	2- Should exclude products with proven track record in light-rail/transit industry (ALSTOM)	FRA to resolve.
	3- Should not grandfather existing solid state equipment (BRS)	FRA to resolve.
236.913	1- Par. (a): For signal systems, owning RR should be required to submit PSP; for train control systems, all RR's operating over trackage should be required to submit joint PSP.	FRA will clarify this to permit "portability" where it applies (locomotive systems, etc.), and Joint Filings where they are necessary (train control compatibility for host/tenant or shared ownership operations). FRA will review methods of operation and 235 as necessary when clarifying the language.
	2- Propose allowing conditional FRA approval pending results of non-critical data OR shorter FRA response periods for less complex products/changes (GETS-GS)	FRA suggests: In making the filing, the railroads would indicate there is a business relevant date for which the request is required, so that FRA would know that more immediate action is needed. FRA doesn't intend to take 180 days in all cases.
	3- PSP reporting provisions pre-empt Form D's? Or in addition to? (BAH)	Group doesn't understand what the reference to Form D means. No action taken.

NPRM SECTION	COMMENT	RESOLUTION
	4- 3rd party audits should only be required once for each product, no matter where implemented. (LIRR)	Addressed earlier. Okay, as long as it's not territory specific.
	5- For early FRA involvement, how will FRA protect proprietary data at early stages? (BM, PATH)	To the extent permitted, FRA will protect data under the auspices of the Trade Secrets Act.
236.917	1- Par. (b)(2)- Rule should retain flexibility in risk management methodology; may want to consider instances where severity in any given incident was higher than expected (FRA)	FRA to resolve.
236.923 ***also 236.910***	1 - Propose to allow electronic recordkeeping of training records (AAR) ***910 requires RRS-1 to approve electronic recordkeeping. AAR thinks the requirements are in conflict with the Paperwork Elimination Act.***	FRA wants to make electronic recordkeeping possible where it can. Experience has shown that some are generated in defective or not usable. In areas where FRA thinks there may be problems, we will require a review process, to ensure they are responsive to the regulations. FRA will review the EPA plan in resolving this.
	2 - Should not require training of direct supervisors (AAR)	This is driven by the task analysis that would be performed for each job classification. Supervisors may or may not need training identical to those they supervise, depending on what their duties and authorities are. FRA will work on the phrase "the curriculum", probably removing "the" and inserting "a" instead.

NPRM SECTION	COMMENT	RESOLUTION
	3 - RR should maintain records of its own employees only (AAR)	The rule can be drafted to hold both the railroads and their contractors accountable. If the railroad's contractor(s) provide FRA with reasonable access to the records, then the provisions would be satisfied. If reasonable access weren't given, or the records were not in compliance, then the railroad and the contractor could both be held accountable for the non-compliance. The rule should also permit an expeditious method of qualifying supplier personnel who may troubleshoot or be involved with installations.
	4 - Training should be product-specific (LIRR)	This should be driven by task analysis.
	5- RR training should not include supplier personnel, etc. (PATH)	See item 3, above.
	6- RW training should include procedures during abnormal operations (BAH)	Reference Page 42392, section 236.925 (b) or ©); language should be in parallel.
APPX B	1- Par. ©)- May be unable to get previous condition data for previous systems (MTTHEs); should be stressed that quantitative data is not required here; (GETS, GETS-DVH)	Comment discussed and withdrawn.

NPRM SECTION	COMMENT	RESOLUTION
APPX C	1- FRA to maintain/provide most recent edition of approved validation standards? (BF)	FRA proposed that the PTC Working Group form a small team to redraft Appendices C and D. Team submitted their recommendations on 12/06/01, and consensus was reached within the working group. (Resolution attached.)*
	2- Par. (b)(1): "safety of the product in the normal operating modes must not depend on the correctness of actions or procedures used by operating personnel." This statement impossible to comply with. (AAR); GETS proposes: "the safety of the product performing vital functions in the normal operating modes must not solely depend upon the correctness of actions or procedures used by operating personnel."	FRA proposed that the PTC Working Group form a small team to redraft Appendices C and D. Team submitted their recommendations on 12/06/01, and consensus was reached within the working group. (Resolution attached.)*
	3- Par. (b)(2): "product must be shown to be free of unsafe systematic failure." Impossible to comply with. (AAR); possibly reword as: "known unsafe systematic failure modes."	FRA proposed that the PTC Working Group form a small team to redraft Appendices C and D. Team submitted their recommendations on 12/06/01, and consensus was reached within the working group. (Resolution attached.)*
	4- Par. (b)(3)(I): Transient failures-mandating automatic restarting may not be possible (AAR); may not be desirable in every case, depending on source/cause of failure (GETSGS)	FRA proposed that the PTC Working Group form a small team to redraft Appendices C and D. Team submitted their recommendations on 12/06/01, and consensus was reached within the working group. (Resolution attached.)*

NPRM SECTION	COMMENT	RESOLUTION
	5- Par. (b)(3)(ii): Single point failures- may be impossible to detect all of them; propose limited to 'known' failures (AAR)	FRA proposed that the PTC Working Group form a small team to redraft Appendices C and D. Team submitted their recommendations on 12/06/01, and consensus was reached within the working group. (Resolution attached.)*
	6- Par. (b)(1): "unacceptable or undesirable": refers to MIL-STD-882c? Should also include system safety precedence here (or SILs) rather than specify elimination of certain hazards (BAH)	FRA proposed that the PTC Working Group form a small team to redraft Appendices C and D. Team submitted their recommendations on 12/06/01, and consensus was reached within the working group. (Resolution attached.)*
	7- Par. (b)(1): limit analysis of locomotiveborne controls to vital functions only (GETSGS)	FRA proposed that the PTC Working Group form a small team to redraft Appendices C and D. Team submitted their recommendations on 12/06/01, and consensus was reached within the working group. (Resolution attached.)*
	8- Suggest updating Appx. C to include manufacturer best practices (i.e., Par. (b)(2): error-free coding?) (SAFETRAN)	FRA proposed that the PTC Working Group form a small team to redraft Appendices C and D. Team submitted their recommendations on 12/06/01, and consensus was reached within the working group. (Resolution attached.)*

NPRM SECTION	COMMENT	RESOLUTION
Appx. D	1- How to define "technically competent" w/r/t 3rd party review? (ALSTOM)	Comment discussed and withdrawn.
Appx. E	1- Par. (c)(1)(ii): "reasons for such actions": this could cause unnecessary delay. (GE)	GE says the same thing that the team did with Appendix C during the meeting would work here. Labor - some things must be explained to the operator, others may not need explanation. Intent is to strike a balance, during design, of what an operator needs to know, and what would be clutter. FRA will look at the language, and see if it can be further clarified.
	2- Par. (d)(1)(vii): could cause delays in case of emergency. (GE)	GE thinks same action as above would help this. Labor - ***Group needs to understand that the operator NOT paying attention to the HMI would cause delays.***
Paperwork Reduction	1- FRA should reevaluate figures using industry input (GETS-GS)	FRA takes the point that the costs may be too low. Robert Brogan (RRS-20) will be working on this.
GENERAL/ OTHER	1- Could consider other alternatives to performance standard.	No action by working group.
	2- Suggest future products be exempt from Subpart H if they are constructed using established/proven principles, techniques, and/or methods substantially similar to those used to implement existing products/systems that are already exempt from subpart H. (GETS-GS)	FRA to resolve.

NPRM SECTION	COMMENT	RESOLUTION
	3- Suggest exempting from performance standard when safety improvement is "selfevident"(GETS-GS)	Same as above.
	4- Consider establishing baseline MTTHEs for 3 PTC core functions.	Comment discussed and withdrawn.
236.905 (b)(2) (new)	***Review to determine if correct reference is to Appendix D, rather than C. Could be a typo.***	***FRA will review.***

* All of the recommended revisions were to Appendix C. [Will provide Attachment 4 to Minutes of 12/ 4-12/6/01, which was the report of the task force.}

- Bob McCown provided an update on the PTC funding from the Research and Development program. In addition to the funding for the NAJPTC and some other projects, they have started funding for locomotive modularity. Bob said he didn't think we could achieve true compatibility and interoperability across systems until the modularity issue was resolved.

- Cindy Gross addressed forming a subgroup to address roadway worker best practices. Bob Kollmar volunteered to work on the task force. Other volunteers were Tim DePaepe, Rick Inclima and Robin Buxton. Bob Harvey said that BLE would want a representative on the group, but asked if FRA had considered getting people together to look at what had been going on in the current PTC projects. Grady Cothen advised FRA would ask George Gavalla if it would be okay to start such a group. Rick Inclima said he thought this was a good idea, but that he also thought this was a separate issue from the PTC issue regarding protection of roadway workers. Gerry Sniffen said he thought that mandate was too broad, and that this would require a new RSAC group.

- Rick Inclima said he thought a team should be formed from the current PTC working group, operating within the confines of PTC technology. Grady said FRA would support a team to operate within the confines of new signal & train control technologies, and that FRA would have to consider who they wanted to represent FRA on the team.

- Denise Lyle asked what the expected outcomes from such a team would be. Grady said that, to him, it would be to study the strengths and weaknesses of the various train control systems and their interaction with current operating rules and practices (looking at a best practices approach). He said that would be valuable to FRA when reviewing requests that would come in for new systems.

- Cindy Gross asked if the working group would vote to form the task team. The group agreed to do so. Volunteers from those present were: Rick Inclima, Tim DePaepe, Bob Kollmar, and Dr. Ted Giras. ***Ed. Note: Chris Schulte will be the FRA Team Leader for this team. The BLE advised they would also select someone to participate.***

Meeting adjourned for the day at 5 p.m.

July 9 - meeting reconvened at 8:00 a.m.

- Alan Polivka et. al., gave an update briefing on the NAJPTC project. His presentation is linked to these minutes at the Volpe website. Other presenters included Craig Shier, Bill Moore Ede, and Howard Moody.

- Fred Gamst asked how the "peer review" portion of the project was handled, specifically how were the people selected for the review. Craig Shier said that it wasn't a blinded peer review in accordance with the criteria Fred was suggesting, but that the prime contractor (Lockheed Martin) had no input into the selection process. Dr. Ted Giras elaborated somewhat on this, indicating that it was not practical to for the peer review process to be blinded in this situation. Tim DePaepe said that labor had tried to get involved in this, but had very little success.

- Dr. Mokkapati said that, as a representative of the supplier, they had concerns about the failure rates used in the model for base case evaluation.

- James Stem asked about the decision to change the IDOT PTC design to eliminate protection for roadway workers. Alan Polivka said that was a misunderstanding; the protection for roadway workers is still in the design and has not changed. He said funding for build 2 has been appropriated by Congress and they are basically waiting for the Governor of Illinois to sign off on it.

- James Stem then asked about two non-equipped sidings, and how will the train movements be handled there. Bill Moore Ede said that this meant that the trains would have to move through the sidings at 20 mph rather than 40, and that enforcement would be in place for the 20 mph speed restriction as well as the authority limits. James Stem said that he wouldn't comment further, because labor may have gotten incomplete information on this aspect.

- Doug Horstmann asked if there was a way to test under extreme weather conditions such as thunderstorms. Alan Polivka said that they were using ATCS Environment spec 110, which requires lab testing under extreme conditions. They have experienced heavy rain during field trials, but no other extreme weather conditions.

- Frank Roskind asked how they were handling "dry run" tests, as this could impact failure rate predictions. Alan Polivka said that they logged problem reports for all failures, whether encountered during formal, dry run or lab testing, and address them all basically the same way in terms of corrective action. Ted Giras elaborated that failures detected during these tests fall into the infant mortality category (referring to the classical "bathtub curve") and generally should not be used in predicting operational failure rates.

- As part of the NAJPTC briefing, Howard Moody and Bill Moore Ede addressed the roadway worker protection functionality. Rick Inclima asked whether enforcement took place on locomotives under the "Joint Track and Time" authority used by UP. Bill Moore Ede said there was nothing in the system design to determine the locations of roadway workers (essentially the enforcement is in regard to violations of restricted speed). PTC displays restricted speed on the locomotives, and enforces 20 mph. Doug Horstmann asked to clarify if both ends of the track and time limits were enforced, and Bill Moore Ede said that was correct. PTC trains can't enter the limits from either end without authority.

- Bob Kollmar said he didn't think Rick Inclima's issues were being addressed as well as is possible. He said there are ways to preclude a locomotive from penetrating an absolute limit (such as issuing a new Form A to stop trains at a certain location specified by the person in charge of the roadway workers). Alan Polivka said the current PTC design is indeed capable of providing this protection. Rick Inclima said that if it's possible to provide this further protection, why wasn't it being done? He said his concern is that the design hasn't yet met the criteria of the core feature that requires protection of roadway workers operating within the limits of their authority. Bill Moore Ede said that if the roadway worker requests and is issued a Form A, then the protection does occur. He said that a roadway worker could issue a temporary speed restriction of "O" (zero) mph, and those locations would receive absolute protection against train penetration. Rick Inclima further elaborated on this, saying that it's the dispatcher that has the authority to grant this; roadway workers can only request this absolute protection.

- Bob Kollmar said that the ATK ITCS system enforces absolute protection when it's established by a zero speed temporary speed restriction, and that the limits of the authority can be rolled-up by the worker as he/she progresses along the authority limits. He said this is done on a daily basis. Tim DePaepe said that if the railroads can provide the absolute protection, why aren't they? Alan Polivka said "Nobody's saying they won't". Howard Moody said that it's up to the railroads to do this, but that the NAJPTC system would enforce the limits just as ITCS does if the dispatcher issues this kind of protection authority. Both Howard Moody and Alan Polivka said they would recommend this to the UP Railroad, but it's ultimately up to UP whether or not they implement the rules and operating procedures to do this.

- Bob Kollmar said one other thing could be done. He said that ATK is a joint signatory to the IDOT PTC Product Safety Plan (PSP) and ATK will be a prime operator over the territory. He said that ATK would take the position, in writing, that this absolute protection will be provided to roadway workers.

- Rick Inclima gave a scenario in which a locomotive engineer both failed to contact the EIC approaching Form B limits, then acknowledged that he was approaching the limits and still hadn't contacted the EIC. He asked if the system would enforce a stop. Bill Moore Ede said that under these circumstances (the train crew was violating two rules), the system wouldn't enforce a stop, but that he defied Rick to design a system that totally eliminated human failure. Bob Harvey said that he had never heard of a situation where an engineer would totally ignore the requirement to stop when he hadn't met the conditions of a Form B.

- Rick Inclima wanted a clarification on this scenario, asking whether the system would enforce a restricted speed of 20 mph if the engineer acknowledged the warning that he/she was approaching the Form B limits. The answer was no, it wouldn't, because the current rules permit a speed higher than restricted speed under some circumstances. Bob Kollmar asked if a speed of zero would be enforced, and the answer was the system will do that if the dispatcher had issued such a temporary speed order. Both Inclima and Howard Moody agreed that this was an operating rule issue, and Howard and Alan Polivka said that all they could do is suggest that the railroad do this for PTC. Alan Polivka said that the current contract didn't provide for a portable terminal device for the roadway workers, but that this is something that will now be developed on a new FRA-AAR grant project that has just been initiated under his management. When that's done, then PTC could have the ability to stop the train in this scenario because the EIC would be the one who would provide an "acknowledgment". Alan Polivka said he is about to start developing the requirements for the EIC terminal and he requested input from anyone having interest in affecting those requirements. Anyone having specific recommendations for EIC Portable Terminal functionality should provide them in a prioritized list to Alan Polivka by July 31, 2003.

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- Rick Inclima said that he had been discussing this same issue for all of the years the PTC group had been meeting, and that this wasn't what his organization had signed up for.

A break was called from 9:55 to 10:20 a.m.

- Bob McCown indicated that CSX has agreed to spearhead the EIC (Employee in Charge) terminal project.

- Rick Inclima wanted to restate for the record that he doesn't believe the NAJPTC project meets the core feature for roadway worker, and this hasn't been addressed to the satisfaction of the people that he represents.

- Frank Roskind said that he thought it was time to take another look at operating rules, because some of them could be changed, and some eliminated, as they pertain to PTC systems. A PTC team had been formed to work on operating rule criteria in the past, with little in the way of positive outcome.

- Bob Kollmar said that he's very outspoken on the issue of roadway worker protection, and that ATK will argue this out with UP regarding the NAJPTC project. His view is that until the EIC of a protected area releases his trains, he wants the trains to stop.

- Tim DePaepe said he could tell of several times when roadway workers had been killed, and none of the fatalities had resulted from malicious acts by engineers. He said that the design prevents operating rule violations that can result in train to train collisions, but hasn't appropriately addressed rule violations that can let a train into work limits.

- Bob Harvey talked of instances where roadway workers are outside the limits of their authority, and he thinks the team that's going to look at roadway worker protection needs to include this in their deliberations. He also spoke on the training requirements for roadway workers, and that any EIC interface needs to look at the unintended consequences of new hazards that may be introduced (EIC stopping a train when verbal communication would be a better option).

- Denise Lyle provided an update on the CSX CBTM system. The Volpe website will include a link referencing this presentation.

- Bill Petit suggested the following changes to 236.909(d)
  Existing Wording (stays as is) An abbreviated risk assessment demonstrates that the resulting MTTHE for the proposed product is greater than the MTTHE for the products or methods performing the same function in the previous condition.

  Additional Wording
  Alternatively, the MTTHE for the proposed product must be equal to or greater than the MTTHE prescribed in AREMA Manual Part 17.3.5 (2004) (Recommended Procedure for Hazard Identification and Management of Vital electronic/Software-Based Equipment Used in Signal and Train Control Applications), provided that those products are developed in accordance with AREMA MP 17.3.1 (2004)(Recommended Safety Assurance Program for Electronic/Software Based Products Used in Vital Signal Applications), AREMA MP 17.3.3 (2004)(Recommended Practice for Hardware Analysis for Vital Electronic/Software-Based Equipment Used in Signal and Train Control Applications), AREMA MP 17.3.5 (2004) and in accordance with Appendix C of this subpart.

  Existing Wording then continues from here.

- Cindy Gross asked the working group if they would approve Mr. Petit's recommended changes. Tim DePaepe said that he would like to cross-reference the language with the source documents before any agreement was reached.

- Ted Bundy established potential meeting dates to review cost benefits, if FRA believed a meeting was required. The meeting will be held on December 16 and 17. Some in the group recommended it be at the Sawgrass, near Jacksonville, Florida.

- **Meeting adjourned at 11:05 a.m.**

Attendance List

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