March 30, 2007

Mr. Nicholas Sabatini
Associate Administrator for Aviation Safety
Federal Aviation Administration
800 Independence Avenue
Washington, DC 20591

Dear Nick:

The Performance based operations Aviation Rulemaking Committee is pleased to forward to you its recommendation regarding the avoidance of complexity and adverse interaction when both basic RNP and RNP SAAAR operations are to be conducted together at a single location. An investigation was conducted to evaluate the potential for adverse interaction between the two types of operations, which resulted in a single simplifying recommendation.

- The PARC recommends that AFS assure that for airports and runways where RNP SAAAR can provide an advantage (benefit) over basic RNP, that both be used, and that they share a common lateral path unless separate lateral paths would provide improvement in HAT of more than 50' or improvement in visibility of more than ¼ SM to either of the procedures as compared to the common path.

The details of the reasoning and analysis behind this recommendation were developed by Mike Cramer and his action team, and may be found in the attachment.

Sincerely,

Dave Nakamura
Chairman, PARC

Cc: J. McGraw
J. Williams
M. Cramer

RNP OPERATIONAL COMPARISON: BASIC to SAAAR

A question has been raised regarding the interplay of RNP SAAAR criteria and the proposed basic RNP criteria. Any interaction between the two that might occur when operations of both types are being conducted simultaneously at the same runway at the same airport needs to be understood to be sure that they are complementary at the operational level. To study this possibility, differences between the criteria will be summarized, and their qualitative impact on the RNP SAAAR benefit scenarios assessed. A summary presentation was made at the PARC face-to-face meeting January 18, 2007, and this paper presents the results.

At the criteria level, there are very few differences between SAAAR and Basic RNP, and the differences reflect the less demanding aircraft and operational requirements in the approval for aircraft to use the basic procedures. The differences are summarized by approach segment and criteria area in Table 1 below.

Table 1 Basic / SAAAR Criteria Comparison

Criteria Area	Flight Segment					
	Initial & Intermediate		Final		Missed Approach	
	Basic	SAAAR	Basic	SAAAR	Basic	SAAAR
Minimum RNP	1.0	0.1	0.3	0.1	1.0	0.1
OEA ½ Width & Construction	3xRNP	2xRNP	3xRNP	2xRNP	3xRNP	2xRNP
					8260.38	8260.38
						Telescope
						RNP 1.0
OCS Height			RNAV	VEB	200/300/up to 425	200/up to 425

As can be seen from the table, there are three areas of difference, with lateral route width (95% and the containment) areas allowed to be much smaller for SAAAR affecting all segments of the approach. This can be used to exclude obstacles and / or other routes from affecting the feasibility or minimums in particular locations. The height of the obstacle clearance surface can be different, but they are coincident for RNP SAAAR (VEB) using RNP 0.3 in the final segment and they are same in the missed approach segment since they use the same climb gradients.

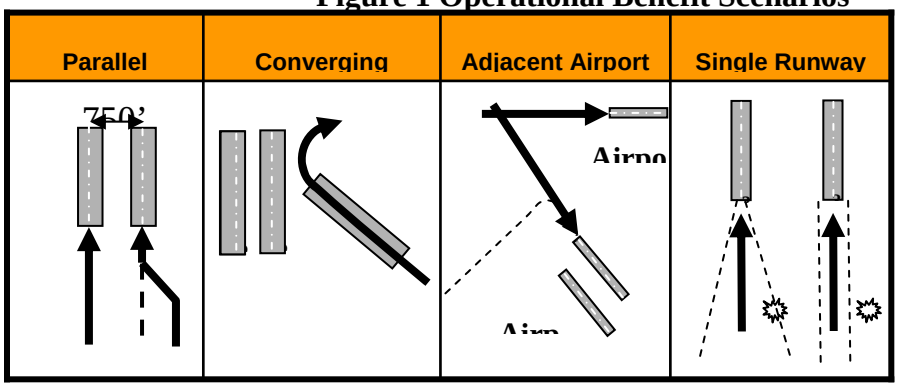
Note also that SAAAR has the ability to continue the final approach RNP value into the missed approach (telescope option) for distances that reflect IRU performance, enabling lateral exclusion of obstacles in the miss in some cases.

If we look at the operational scenarios upon which we have based the RNP SAAAR benefits case as we developed the criteria, evaluating the criteria differences impact on

each scenario, a pattern emerges. The criteria differences may induce procedure designers to design different lateral tracks for basic and SAAAR in some airports.

Referring to Figure 1, the table below it identifies the impact that the criteria differences can have on each of the types of operation.

Figure 1 Operational Benefit Scenarios



Minimum RNP	Minimums	Feasibility	Feasibility	Minimums
OEA Construction	Minimums; Path	Feasibility	Feasibility	Minimums; Path
OCS Height	Minimums	Minimums	Minimums	Minimums

Looking first at parallel operations, we see that each of the criteria areas of difference can have an impact on minimums. The smaller RNP values and narrower OEA for SAAAR can be used bring the tracks closer together and / or exclude controlling obstacles, thus lowering minimums relative to basic criteria. The OCS height for smaller RNP values also contributes to the ability to lower minimums. However, as with all of the applications, the wider OEA of the basic criteria, when it cannot exclude obstacles, could induce the designer to relocate the path to exclude the obstacle, thus producing procedures for basic and SAAAR that do not share a lateral path.

For converging and adjacent operations, the narrower lateral path possibility of SAAAR is really the enabling feature, thus the lateral width controls the feasibility of even having a procedure in these applications. In some cases basic will not even enable the procedure, where SAAAR will, which leads to no conflict in those cases. It is unlikely that any relocation of the path for basic would allow it to enable a procedure.

For single runway access, much the same observations can be made as for closely spaced parallel operations; there will be instances where relocation of the path for basic could enable it, but cause operational conflict (different paths) with SAAAR being used at the same time.

RECOMMENDATION:

Based on this qualitative analysis, PARC recommends that AFS assure that for airports and runways where RNP SAAAR can provide an advantage (benefit) over basic RNP, that both be used, and that they share a common lateral path unless separate lateral paths would provide improvement in HAT of more than 50’ or improvement in visibility of more than ¼ SM to either of the procedures as compared to the common path.