



Agenda Item 2: WATRS Plus Project Implementation Issues

FAA NOTICE: WATRS PLUS OPERATIONAL POLICY AND PROCEDURES

(Presented by the United States)

SUMMARY
The FAA Notice containing operational policies and procedures for 50 NM lateral separation and a redesigned route structure is attached to this Working Paper.
ICAO Strategic Objectives: <i>A: Safety – Enhance global civil aviation safety</i> <i>D: Efficiency – Enhance the efficiency of aviation operations</i> <i>E: Continuity – Maintain the continuity of aviation operations</i>
Global Performance Indicators: <i>GPI-1 Flexible use of Airspace</i> <i>GPI-5 Performance Based Navigation</i> <i>GPI-6 Air Traffic Flow Management</i> <i>GPI-7 Dynamic and flexible ATS route management</i> <i>GPI-8 Collaborative airspace design and management</i>

1. Introduction

1. On 27 September 2007 the U.S. FAA finalized and distributed an advance copy of the U.S. FAA Notice containing operational policy and procedures for WATRS Plus Operations when 50 NM lateral separation and a redesigned route structure are implemented. The Notice, included in **Appendix** to this Working Paper, outlines project objectives, the control areas affected and policies and procedures to be implemented.

2. Suggested Action.

2.1 The Meeting is invited to:

- a) Review the WATRS Plus operational policies and procedures
- b) Advocate use of those policies and procedures by operators to plan and prepare for 50 NM lateral separation and a redesigned route structure in the Waters Plus Airspace.

APPENDIX

FAA Notice - Advance Copy

This FAA Notice is posted on the FAA WATRS Plus Webpage. See page 3 for address.

It is published formally in the Domestic/International NOTAM Book starting with the 25 Oct 2007 edition. It will be located in Part 3 (International), Section 2 (International Oceanic Airspace Notices). (http://www.faa.gov/airports/airtraffic/air_traffic/publications/notices/2007/NTAP07SEP27/PART3_SE_C2.cfm).

WATRS PLUS ROUTE STRUCTURE REDESIGN & SEPARATION REDUCTION

OPERATIONAL POLICY AND PROCEDURES

Introduction. On 5 June 2008, the FAA is planning to introduce a redesigned route structure and a reduced lateral separation standard on oceanic routes or areas in the WATRS Plus Control Areas (CTA).

Background. In 1998, lateral separation was reduced to 50 NM in conjunction with the introduction of Required Navigation Performance 10 (RNP 10) for aircraft operating in the North Pacific Route System. Since that time, application of 50 NM lateral separation and RNP 10 has been expanded throughout the Pacific Flight Information Regions (FIR) and other global oceanic airspace. The WATRS Plus initiative will apply the experience gained in those operations.

Key WATRS Plus Implementation Dates

10 April 2008	Navigation database and charting data published in National Flight Data Digest
5 May 2008	By 5 May 2008, operators capable of meeting the RNP 10 <u>minimum</u> requirement or
	<u>operator-option</u> RNP 4 should have:
	• Obtained authorization from the appropriate State (country) authority and... • Started annotating their ICAO flight plans in accordance with paragraph 7 of this notice.
	Also by 5 May 2008, operators <u>not</u> capable of obtaining RNP 10 or RNP 4 authorization by 5 June 2008 should start following the practices detailed in paragraph 4 (i.e., ICAO flight plan annotation and pilot report to ATC the lack of RNP 10 authorization).
	See paragraphs 4 and 5 below for further explanation.
5 June 2008, 0901 UTC	Planned effective date/time for implementation of WATRS Plus route structure redesign, 50 NM lateral separation and associated operational policies.

CTAs Affected.

- Route structure redesign and 50 NM lateral separation will be implemented in the following CTAs:
 - o the Atlantic portion of the Miami Oceanic CTA
 - o the San Juan CTA/FIR and
 - o the West Atlantic Route System (WATRS).
- New York Oceanic airspace outside of WATRS will be transition airspace. 50 NM lateral separation may be applied in this airspace between aircraft authorized RNP 10 or RNP 4.

Note: a current draft of the WATRS Plus route structure redesign chart is posted on the WATRS Plus Webpage. A chart showing the WATRS Plus CTAs is attached to this notice.

Project Objectives. The objectives of the WATRS Plus project are to:

- Reduce lateral separation on oceanic routes or areas from the existing 90 NM standard to 50 NM between aircraft authorized RNP 10 or RNP 4.
- Have a significant percentage of WATRS Plus operators obtain authorization for RNP 10 or RNP 4 from the appropriate State (country) authority.
- Accommodate operation of the small percentage of flights not projected to meet the RNP 10 minimum requirement. See paragraph below and paragraph 4 for further explanation.
- Redesign the WATRS Plus route structure to make approximately 40% more routes available to enhance operator access to time/fuel efficient routes and altitudes and to enhance en-route capacity.
- Harmonize the WATRS Plus route structure with that in the Caribbean and North Atlantic regions.

Proposal to Require, On Date To Be Determined, RNP 10 or RNP 4 Authorization Between Flight Level 290-410 (inclusive).

The FAA is planning to propose a change that would be effective on a date to be determined, but after the June 2008 project implementation date. The proposal will likely be to require RNP 10 or RNP 4 authorization for cruise operations on oceanic routes or areas in the WATRS Plus CTAs between

FL 290-410 (inclusive). RNP 10 and RNP 4 authorization requires equipage with at least two Long Range Navigation Systems (LRNS). The content of and effective date for the change is planned to be coordinated with the U.S. and international aviation community and will probably require a revision to FAA regulations.

Table of Contents. The following is a list of the major paragraphs that follow:

1. WATRS Plus Webpage: Policy, Procedures and Guidance For Operators and Regulators
2. Lateral Separation Standards To Be Applied
3. Operation On Routes Within the WATRS CTAs Not Requiring RNP 10 or RNP 4 Authorization
4. Provisions For Accommodation of NonRNP10 Aircraft (Aircraft Not Authorized RNP 10 or RNP 4)
5. Operator Action By 5 May 2008
6. RNP 10 or RNP 4 Authorization: Policy and Procedures for Aircraft and Operators
7. Flight Planning Requirements

8. Pilot and Dispatcher Procedures: Basic and In-flight Contingency Procedures
9. Flight Of Aircraft Previously Authorized RNP 10 Or RNP 4 With One Long-Range Navigation System Operational
10. Contacts For Questions
11. FAA Project Leads

Attachment WATRS Plus CTA Chart

OPERATIONAL POLICY AND PROCEDURES

1. WATRS Plus Webpage: Policy, Procedures and Guidance For Operators and Regulators.

Information on WATRS Plus plans, policies and procedures is posted on the “WATRS Plus Webpage”. The WATRS Plus Webpage is linked to the “Oceanic and Offshore Operations” Homepage at:

www.faa.gov/about/office_org/headquarters_offices/ato/service_units/enroute/oceanic/ or

www.faa.gov/ats/ato/130.htm (The address above is the permanent address).

The Webpage contains detailed guidance on operator and aircraft authorization for RNP 10 or RNP 4 including Job Aids with references to FAA and ICAO documents.

2. Lateral Separation Standards To Be Applied

- a. 50 NM lateral separation will be applied in the WATRS Plus CTAs between aircraft authorized RNP 10 or RNP 4 operating at any altitude above the floor of controlled airspace.
- b. 50 NM lateral separation may be applied in the New York Oceanic CTA/FIR outside of WATRS between aircraft authorized RNP 10 or RNP 4 operating at any altitude above the floor of controlled airspace.
- c. Within the WATRS Plus CTAs, the lateral separation standard applicable to NonRNP10 aircraft will be 90 NM.
- d. Policies for application of other lateral separation standards in airspace outside the WATRS Plus CTAs are not affected.

3. Operation On Routes Within the WATRS Plus CTAs Not Requiring RNP 10 or RNP 4 Authorization. Operation on certain routes that fall within the boundaries of WATRS Plus CTAs will not be affected by the introduction of RNP 10 and 50 NM lateral separation. Operation on the following routes will not be affected:

- a. Routes that are flown by reference to ICAO standard ground-based navigation aids (VOR, VOR/DME, NDB), such as the routes in the airspace between Florida and Puerto Rico.
- b. Routes that are located within radar and VHF coverage. New WATRS Plus route segments M201 between BAHAA and PAEPR and L453 between PAEPR and AZEZU will replace A761 between HANRI and ETOCA and R511 between ELTEE and AZEZU. **At and above FL 310**, the new route

segments are within radar and VHF coverage. Operations at and above FL 310 on these route segments will not require RNP 10 or RNP 4 authorization and will remain the same as those conducted on the existing A761 and R511 route segments.

c. Special Area Navigation (RNAV) routes located in the airspace between Florida and Puerto Rico. A new RNAV route structure is being developed to replace the current T-route structure in the June 2008 timeframe. The new routes are planned to be designated as “Y-routes”. Additional information will be provided as the plan progresses. These special RNAV routes are not part of the WATRS Plus route structure.

4. Provisions for Accommodation of NonRNP10 Aircraft (Aircraft Not Authorized RNP 10 or RNP 4). Operators of NonRNP10 aircraft should begin following the practices detailed in 4a and 4b below **by 5 May 2008** and **shall** follow them starting on **5 June 2008**.

a. Operators of NonRNP10 aircraft shall annotate ICAO flight plan Item 18 as follows:

“STS/NONRNP10” (no space between letters and numbers).

b. Pilots of NonRNP10 aircraft that are flight planned to operate or are operating **on WATRS Plus “L” and “M” routes** in the Atlantic portion of the Miami Oceanic CTA and the San Juan CTA/FIR shall report the lack of authorization by stating: “**Negative RNP 10**”. (These reports are **not required** in New York Oceanic airspace). They are **required**:

- in the Atlantic portion of the Miami Oceanic CTA and the San Juan CTA/FIR
 - o on initial call to ATC and...
 - o in read back of clearance to descend from FL 410 and above. (See paragraph 4e below).

c. Operators of NonRNP10 aircraft shall **not** annotate ICAO flight plan Item 18 (Other Information) with “NAV/RNP10” or “NAV/RNP4”, as shown in paragraph 7, if they have **not** obtained RNP 10 or RNP 4 authorization.

d. NonRNP10 operators/aircraft will be able to file any route at any altitude in WATRS Plus airspace. They will be cleared to operate on their preferred routes and altitudes as traffic permits. Aircraft that are authorized RNP 10 or RNP 4, however, will have a better opportunity of obtaining their preferred altitude and route because the 50 NM lateral separation standard will be applied to those aircraft. 50 NM lateral separation will not be applied to NonRNP10 aircraft.

e. NonRNP10 aircraft will retain the option of climbing to operate at altitudes above those where traffic is most dense (i.e., at/above FL 410). To minimize the chance of conflict with aircraft on adjacent routes, NonRNP10 aircraft should plan on completing their climb to or descent from higher FLs within radar coverage.

g. All aircraft can enhance their opportunity to be cleared on their preferred route and altitude if they operate at non-peak hours, approximately 0100 to 1100 UTC.

5. Operator Action By 5 May 2008. Operators capable of meeting RNP 10 or RNP 4 that operate on oceanic routes or areas in WATRS Plus CTAs between flight level (FL) 290-410, where competition for routes and altitudes is greatest, should have obtained authorization for RNP 10 or RNP 4 and started

annotating the ICAO flight plan in accordance with paragraph 7 **by 5 May 2008**. The FAA also recommends that operators flying on oceanic routes or areas above or below those FLs obtain RNP 10 or RNP 4 authority to enhance their operational flexibility. Having operators meet the RNP 10 minimum one month in advance of the implementation date will help the transition to the new route structure and separation standard on 5 June 2008.

6. RNP 10 or RNP 4 Authorization: Policy and Procedures For Aircraft and Operators

a. In accordance with ICAO guidance, RNP 10 and RNP 4 are the only navigation specifications (nav specs) applicable to oceanic and remote area operations. (See note below). Other RNAV and RNP nav specs are applicable to continental en route, terminal area and approach operations.

Note: “RNP navigation specification” (e.g., RNP 10) is the term adopted in the new ICAO Performance Based Navigation (PBN) Manual (Doc 9613). It replaces the term “RNP type”.

b. **Responsible State Authority (ICAO Guidance).** The following is ICAO guidance on the State authority responsible for authorizations such as RNP 10, RNP 4 and RVSM.

- International Commercial Operators. The State of Registry makes the determination that the aircraft meets the applicable RNP requirements. The State of Operator issues operating authority (e.g., Operations Specifications (OpSpecs)).
- International General Aviation (IGA) Operators. The State of Registry makes the determination that aircraft meets the applicable RNP requirements and issues operating authority (e.g., Letter of Authorization (LOA)).

c. **FAA Documents.** The guidance and direction of FAA Order 8400.12 (as amended) (RNP 10 Operational Approval) will be used to grant RNP 10 authorization to operators and aircraft for which the FAA is responsible. FAA Order 8400.33 (as amended) (Procedures For Obtaining Authorization For RNP 4 Oceanic/Remote Area Operations) will be used to authorize RNP 4. The FAA RNP 10 and RNP 4 orders are consistent with the ICAO PBN Manual guidance discussed below. FAA and ICAO documents are posted on the WATRS Plus Webpage.

d. **ICAO Performance Based Navigation (PBN) Manual (new Doc 9613).** In a letter to States dated 27 April 2007, ICAO urged States to use the *ICAO Performance Based Navigation (PBN) Manual* to establish approval policies and processes for RNP and RNAV operations. RNP 10 guidance is provided in Volume II, Part B; Chapter 1. RNP 4 guidance is in Volume II, Part C; Chapter 1. The ICAO State letter with Volume II attached is posted on the WATRS Plus Webpage.

e. **RNP 10 and RNP 4 Job Aids.** Operators and authorities should use the RNP 10 or RNP 4 Job Aids posted on the WATRS Plus Webpage. These Job Aids address the operational and airworthiness elements of aircraft and operator authorization and provide references to appropriate documents. One set of RNP 10 and RNP 4 Job Aids provides references to FAA documents and another set provides references to ICAO documents. The Job Aids provide a method for operators to develop and authorities to track the operator/aircraft program elements required for RNP 10 or RNP 4 authorization.

f. Requirement For Equipage With At Least Two Long-Range Navigation Systems (LRNS) Meeting RNP 10 or RNP 4 Standards. See “Acceptable Navigation System Configurations” in Section 2 of the WATRS Plus Webpage (Operator/Aircraft RNP 10 Authorization Policy/Procedures). RNP 10 and RNP 4 authorization require aircraft equipage with at least two LRNS with functionality and display adequate for the operation. The guidance referenced above provides a detailed discussion of acceptable aircraft LRNS configurations for operation in WATRS Plus oceanic airspace on/after 5 June 2008.

Note: see paragraph 8c for policy on LRNS failure or malfunction enroute.

g. RNP 10 Time Limit For INS or IRU Only Equipped Aircraft. Operators should review their Airplane Flight Manual (AFM), AFM Supplement or other appropriate documents and/or contact the airplane or avionics manufacturer to determine the RNP 10 time limit applicable to their aircraft. They will then need to determine its effect, if any, on their operation. Unless otherwise approved, the basic RNP 10 time limit is 6.2 hours between position updates for aircraft on which Inertial Navigation Systems (INS) or Inertial Reference Units (IRU) provide the only source of long range navigation. **Extended RNP 10 time limits of 10 hours and greater are already approved for many IRU systems.**

7. Flight Planning Requirements. Not later than 5 May 2008, operators should begin making ICAO flight plan annotations in accordance with this paragraph and paragraph 4, if applicable. On/after 5 June 2008, operators shall follow the practices detailed in this paragraph and paragraph 4, if applicable.

a. ICAO Flight Plan Requirement. ICAO flight plans shall be filed for operation on oceanic routes and areas in the WATRS Plus CTAs.

b. ICAO Flight Plan AFTN Addressing For Operations in the New York Oceanic CTA/FIR (including WATRS). All flights entering the New York Oceanic CTA/FIR shall address flight plans to **KZWYZOZX**. Flights entering the New York Oceanic CTA/FIR from domestic U.S. airspace or Bermuda shall address flight plans to both **KZWYZOZX** and **KZNYZQZX**. If operators do not address flight plans to **KZWYZOZX**, 50 NM lateral separation may not be applied to them.

c. To inform ATC and to key Ocean21 automation that they have obtained RNP 10 or RNP 4 authorization and are eligible for 50 NM lateral separation, operators shall:

(1) annotate ICAO Flight Plan Item 10 (Equipment) with the letters “R” and “Z” and...

(2) annotate Item 18 (Other Information) with, as appropriate, “NAV/RNP10” or “NAV/RNP4” **(no space between letters and numbers).**

d. 50 NM lateral separation will only be applied to operators/aircraft that annotate the ICAO flight plan in accordance with this policy.

e. Operators that have not obtained RNP 10 or RNP 4 authorization shall not annotate ICAO flight plan Item 18 (Other information) with “NAV/RNP10” or “NAV/RNP4”.

Note: on the ICAO Flight Plan, letter “R” indicates that the aircraft will maintain the appropriate RNP navigation specification for the entire flight through airspace where RNP is prescribed. Letter “Z” indicates that information explaining aircraft navigation and/or communication capability is found in Item 18.

8. Pilot and Dispatcher Procedures: Basic and In-flight Contingency Procedures

a. **General.** Operator applications/programs for RNP 10 or RNP 4 authorization must address operational and airworthiness policy and procedures related to WATRS Plus route structure redesign and 50 NM lateral separation implementation. The RNP 10 and RNP 4 Job Aids posted on the WATRS Webpage contain sections on pilot and, if applicable, dispatcher training/knowledge and on operations manuals or comparable operations documents. The Job Aids also provide references to source documents.

b. **Basic Pilot Procedures.** The RNP 10 and RNP 4 Job Aids contain references to pilot and, if applicable, dispatcher procedures contained in:

- FAA Order 8400.12A (RNP 10), Appendix 4 (Training Programs and Operating Practices and Procedures)
- FAA Order 8400.33 (RNP 4): paragraph 9 (Operational Requirements) and paragraph 10 (Training Programs, Operating Practices and Procedures)
- ICAO PBN Manual, Volume II, Part B, Chapter 1 (RNP 10): paragraphs 1.3.4, 1.3.5 and 1.3.6
- ICAO PBN Manual, Volume II, Part C, Chapter 1 (RNP 4): paragraphs 1.3.4, 1.3.5 and 1.3.6

c. **LRNS Failure or Malfunction After Entry Onto WATRS Plus Oceanic Routes or Areas.** The following is WATRS Plus CTA policy for LRNS failure or malfunction enroute:

(1) To conduct operations as an RNP 10 or RNP 4 operator/aircraft, at least two RNP 10 or RNP 4 authorized LRNSs shall be operational at entry on to oceanic route segments or areas in the WATRS Plus CTAs.

(2) After entry on to an oceanic route segment or area within the WATRS Plus CTAs, if an LRNS fails or malfunctions and only one LRNS remains operational, the pilot shall inform ATC. ATC will acknowledge and monitor the situation. The aircraft may continue on the cleared route provided that, in the pilot's judgment, the remaining LRNS will enable the aircraft to be navigated within approximately 10 NM of the cleared route centerline. If that is not the case, then paragraph (3) below applies.

(3) If, in the pilot's judgment, the aircraft cannot be navigated within approximately 10 NM of the cleared route centerline:

- i. the pilot shall advise ATC of the situation and coordinate a course of action
- ii. the pilot shall: consider the best option to maintain the safety of the operation (e.g., continuing on route or turning back); whenever possible obtain an ATC clearance before deviating from cleared route or flight level and keep ATC advised.
- iii. ATC will establish an alternative separation standard as soon as practicable, coordinate the safest course of action with the pilot and monitor the situation.
- iv. if coordination with ATC cannot be accomplished within a reasonable period of time, the pilot should consider climbing or descending 500 feet, broadcasting action on 121.5 and advising ATC as soon as possible.

d. **In-flight Contingency Procedures (e.g., Rapid Descent, Turn-back, Diversion).** In-flight contingency procedures for oceanic airspace now published in FAA Notices, posted on the WATRS Plus Website and published in ICAO Document 4444 must be emphasized in pilot training/knowledge programs. The published procedures are applicable to the WATRS Plus CTA reduction of lateral separation from 90 NM to 50 NM. The full text of the in-flight contingency procedures is published on the WATRS Plus Webpage under “Operating Policy” in Section 2.

e. **Special Emphasis: Maneuvering to Avoid Convective Weather in a 50 nm Separation Environment.** Pilots are required to maneuver (deviate) around convective weather on a regular basis in the course of WATRS Plus operations. Weather deviation procedures, therefore, must be emphasized in accordance with the following:

- Pilot training/knowledge programs and operations manuals or comparable operations documents must emphasize weather deviation procedures as published in FAA Notices and ICAO Document 4444 and posted under “**Operating Policy**” in Section 2 of the WATRS Plus Website. Weather deviation procedures are addressed in the RNP 10 and RNP 4 Job Aids.
- It is imperative that pilots keep ATC advised of their intentions during the initial weather avoidance maneuver and any subsequent maneuvers to avoid convective weather.
- Pilots must be aware of the provision to climb or descend 300 feet (depending on the direction of flight and direction of deviation from track) to mitigate the chance of conflict with other aircraft **when forced to deviate without a clearance.**
- It is recommended that, if equipped, the Airborne Collision Avoidance System (ACAS (TCAS)) be operational. ACAS provides a valuable tool to alert the pilot to the presence and proximity of nearby aircraft in weather deviation situations.

f. **Strategic Lateral Offset Procedures (SLOP).** Pilots should use SLOP procedures in the course of regular oceanic operations. SLOP procedures are published in FAA Notices, posted under “Operating Policy” in Section 2 of the WATRS Plus Webpage and published on ICAO Document 4444. SLOP is addressed in the RNP 10 and RNP 4 Job Aids.

g. **Pilot Report of NonRNP10 Status.** The pilot shall report the lack of RNP 10 or RNP 4 status in accordance with paragraph 4 above:

- when the operator/aircraft is not authorized RNP 10 or RNP 4
- when an operator/aircraft previously granted RNP 10 or RNP 4 authorization is operating with only one operational LRNS. See paragraph 9.

9. Flight Of Aircraft Previously Authorized RNP 10 Or RNP 4 With One Long-Range Navigation System Operational

a. To the maximum extent possible, operators that are authorized RNP 10 or RNP 4 should operate on WATRS Plus oceanic routes in compliance with those standards. If the situation warrants, however, operators may fly an aircraft on WATRS Plus oceanic routes with one LRNS operational. The intent of this policy is to allow an aircraft to be flown to a maintenance facility for repair. For U.S. operators conducting operations under Part 121, 125 or 135 of the Code of Federal Regulations, Operations

- A9 -

Specifications paragraph B054 (Class II (Oceanic) Navigation Using Single Long-Range Navigation System) applies.

b. **In this situation, operators shall follow the practices detailed in paragraph 4 (i.e., ICAO flight plan item 18 annotation and pilot report to ATC of aircraft NonRNP10 status).** The aircraft will be treated as NonRNP10 aircraft and appropriate lateral separation will be applied.

10. Contacts For Questions. If there are questions or requests, one of the following may be contacted and a response will be coordinated with the appropriate FAA subject matter expert, if necessary:

Roy Grimes	FAA Support. Flight Standards Specialist, CSSI, Inc.	+1 202-863-3692	RGrimes@cssiinc.com
Karen Chiodini	FAA Support. ATC Specialist, CSSI, Inc.	+1 202-863-3702	KChiodini@cssiinc.com
Scott Luka	Oceanic and Offshore Operations	+1 202-493-5495	Scott.Luka@faa.gov;
Roger Greenawalt	FAA Support. CSSI, Inc.	+1 202-863-7418	Rgreenawalt@cssiinc.com

11. FAA Project Leads. The FAA project leads are:

David Maynard (Project Lead)	Manager, Oceanic and Offshore Operations (AJE-32)	+1 202-267-3448	David.Maynard@faa.gov
Madison Walton	Flight Standards Service, Flight Technologies & Procedures Division (AFS-400)	+1 202-385-4596	Madison.Walton@faa.gov
Dale Livingston	ATO Separation Standards Analysis Group (AJP-7141)	+1 609-485-4163	Dale.Livingston@faa.gov

(AJE-32, 9/27/07)

- END -