



International Civil Aviation Organization

CAR/SAM Regional Planning and Implementation Group (GREPECAS)

**Fifth Meeting of the Air Traffic Management / Communications, Navigation and Surveillance Subgroup (ATM/CNS/SG/5) - ATM Committee**

Lima, Peru, 13-17 November 2006

ATM/COMM/5 - WP/13

16/10/06

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**Agenda Item 7:**

**Other matters**

**WEST ATLANTIC ROUTE SYSTEM (WATRS) PLUS AIRSPACE REDESIGN AND SEPARATION REDUCTION INITIATIVE**

(Presented by United States of America)

**SUMMARY**

The United States has begun to coordinate plans and requirements to implement an airspace redesign and lateral separation reduction in the West Atlantic Route System including the Miami Oceanic airspace and the San Juan Flight Information Region (FIR) airspace (now identified as WATRS-Plus airspace). This initiative can enhance airspace capacity, air traffic control (ATC) flexibility and aircraft operating efficiency. This paper provides details on tasks to be accomplished, a draft airspace redesign chart and discussion of operational requirements under development.

**1. Introduction**

1.1 The West Atlantic Route System (WATRS) was redesigned in 1995 to provide more efficient operations. This revision eliminated many restrictive routing requirements, and prepared the airspace for the introduction of Reduced Vertical Separation Minima. We now see the opportunity to further enhance WATRS operations by implementing a reduced lateral separation minimum and redesigning the route system to increase both capacity and operating efficiency. Improvements to aircraft navigation and ground ATC capability including the use of the Ocean21 automation system at New York Center, enable us to pursue this opportunity. We have designated this effort as the “WATRS-Plus<sup>1</sup> Airspace Redesign and Separation Reduction Initiative” (WATRS-Plus airspace is depicted in **Appendix A**).

1.2 To progress international coordination, the Federal Aviation Administration (FAA) is working with the International Civil Aviation Organization (ICAO) North American, Central American, and Caribbean (NACC) Regional Office and with the ICAO European and North Atlantic (EUR/NAT) Office to provide inputs to the appropriate North Atlantic (NAT), Caribbean (CAR), and South America (SAM) working groups and to revise the appropriate ICAO documents. In addition, the NACC and the FAA convened a NAT/CAR ATS Routes Group meeting in September 2006 to progress work on this initiative and have coordinated to establish a Routes Working Group for this project.

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<sup>1</sup> WATRS Plus refers to the designated route system and surrounding FAA-controlled airspace.

1.3 The initial meeting of the NAT/CAR ATS Routes Working Group was held on 19-21 September, 2006 in Miami, Florida. The meeting was attended by technical and operational representatives from four CAR States, the International Air Transport Association (IATA), five major operators, the U.S. Air Transport Association, the National Business Aviation Association, IFATCA and the U.S. Department of Defense. The group reviewed basic program plans and requirements, reviewed and re-worked a draft airspace redesign chart and conducted discussions to harmonize the redesign plan with adjoining ATS route structures.

1.3.1 During the meeting, the group reviewed project progress to date, provided inputs concerning supporting tasks and events, discussed operator and aircraft Required Navigation Performance 10 (RNP 10) requirements, developed airspace redesign chart draft 060921 (see **Appendix B**) and identified ATS provider/airspace operator issues to be addressed. The group reached the following basic agreements:

- a) The United States will submit a WATRS-Plus Action Plan to ICAO/NACC after internal coordination and will progress work on the project through coordination with affected States, Air Traffic Service Providers (ATSP), and airspace operators;
- b) ICAO/NACC will conduct international coordination as needed; and
- c) information dissemination including an action plan with timelines is vital to success of the WATRS-Plus project.

Note: Draft redesign chart 060921 will require further coordination. For example, route “Q” will probably not be anchored at BETIR as is shown on the current draft.

1.3.2 In addition, the United States took the action to coordinate with ATSPs that were unable to attend the Miami meeting. This action and others are documented in the list of tasks and action items included in the meeting report.

1.3.3 Working papers from the meeting are posted on the NACC Office Website ([www.icao.int/nacc](http://www.icao.int/nacc)) under “Meetings”. Presentations given at the meeting can be found at: [www.faa.gov/ats/ato/natcar\\_wg.htm](http://www.faa.gov/ats/ato/natcar_wg.htm)

## 2. Program Overview

2.1 The United States announced the WATRS-Plus Airspace Redesign and Separation Reduction Initiative at the Twelfth Meeting/Workshop of ATM Authorities and Planners in the CAR/SAM Regions (AP/ATM/12) in Lima, Peru, at the North Atlantic Implementation Management Group (NAT/IMG) in May 2006, and in June 2006 at the North Atlantic System Planning Group (NAT/SPG) in Paris. The initiative is led by the United States (FAA Oceanic Separation Reduction Working Group - OSRWG), which is chaired by FAA’s Oceanic Standards office.

2.2 The project has the following major objectives:

- a) Reduce lateral separation from 90 nm to 50 nm for aircraft/operators approved for RNP 10 or better;
- b) have WATRS-Plus operators obtain operational approval for RNP 10 or better from the appropriate State authority;
- c) redesign WATRS-Plus airspace to enable more efficient operations and enhance enroute efficiency/capacity; and
- d) harmonize WATRS-Plus transition to/from Caribbean and North Atlantic Regions' airspace and/or route structures.

2.3 **Target Implementation Date.** The United States plans to announce the target implementation date later this year after a final review of all technical and operational factors affecting the implementation schedule. In consideration of various implementation issues, the United States is now considering an implementation date in June 2008.

2.4 **United States - FAA Center Participation.** The following FAA centers are participating in the project: New York, San Juan, Miami, Jacksonville and Washington Centers.

2.5 **ICAO and International Group Coordination.** As noted above, in coordination with the ICAO NACC and EUR/NAT offices, the United States will provide inputs, updates and obtain feedback from the appropriate ICAO groups.

2.6 **Industry Coordination.** As the project progresses, the United States will continue to coordinate with the appropriate national and international industry groups and operators.

2.7 **Key Tasks.** The following are key tasks that the United States has identified to date to progress the project to implementation:

- a) Establish a concept of operations (see draft WATRS-Plus Concept of Operations at **Appendix C**);
- b) assess United States rulemaking requirements;
- c) publish and coordinate aircraft/operator authorization requirements/documents for use by United States and international operators as well as State aviation authorities;
- d) conduct airspace analysis, redesign, and ATC simulations;
- e) address impacts to ATC automation and make modifications, as needed;
- f) conduct operator information and education programs as needed;

- g) coordinate program requirements and issues with adjoining ATSPs, other State regulators, and ICAO;
- h) conduct safety analysis to support document revisions and implementation decision making;
- i) revise appropriate ICAO and FAA documents;
- j) educate FAA Flight Standards Field Offices and Inspectors;
- k) complete necessary FAA ATC Center actions; and
- l) track and assess operator/aircraft fleet readiness for reduced lateral separation to be applied.

### **3. Concept of Operations**

3.1 A draft “WATRS-Plus Concept of Operations” is posted at Appendix C. This draft was reviewed at the ATS Routes Working Group in Miami. The draft proposes: vertical and horizontal boundaries of WATRS-Plus Airspace; operational policies for transition airspace and application of lateral separation standards; operator/aircraft requirements for RNP 10 and timeframes for implementation target dates.

3.2 The draft document states that RNP 10 will be the minimum operator/aircraft navigation requirement for 50 nm lateral separation to be applied. An FAA survey of equipage for aircraft operating in WATRS airspace has indicated that a significant majority of the aircraft will meet RNP 10 technical requirements without modification.

3.2.1 The following are the basic operator and aircraft requirements for RNP 10:

- a) Operators/aircraft must meet the authorization criteria published in ICAO Doc 9613 (Manual on RNP), Appendix E or FAA Order 8400.12A (RNP 10 Operational Approval) (as amended);
- b) aircraft must be equipped with two operational Long-Range Navigation Systems (LRNS) meeting RNP 10 standards; and
- c) there is a 6.2 hour time limit between position updates for aircraft on which Inertial Navigation System (INS) or Inertial Reference Unit (IRU) serve as the only LRNS, unless an extended time limit has been approved. (Extended RNP 10 time limits of 10 hours & greater have been approved for many IRU systems. The RNP 10 time limit should only be an issue in WATRS-Plus airspace for INS only equipped aircraft on westbound flights entering the airspace from Europe, Africa and the Mid-East).

3.2.2 Aircraft that do not have RNP 10 approval or better can file Flight Plan in WATRS-Plus airspace at any altitude, however, the FAA anticipates that aircraft approved for RNP 10 may have a better likelihood of obtaining their preferred route and altitude. The FAA is conducting investigation, including traffic simulation with the purpose to establish appropriate measures to accommodate non-RNP 10 approved aircraft.

#### **4. Significant Near Term Actions**

4.1 The following are United States priority efforts for the remainder of this year:

- a) Coordinate the initial version of the Action Plan for implementation;
- b) progress and continue to coordinate the Concept of Operations document;
- c) progress studies and simulations to validate policies and procedures to accommodate a small percentage of non-RNP 10 aircraft; and
- d) finalize and announce target implementation date and basic operator/aircraft requirements for implementation of the airspace redesign, reduced lateral separation and RNP 10.

#### **5. Actions Suggested:**

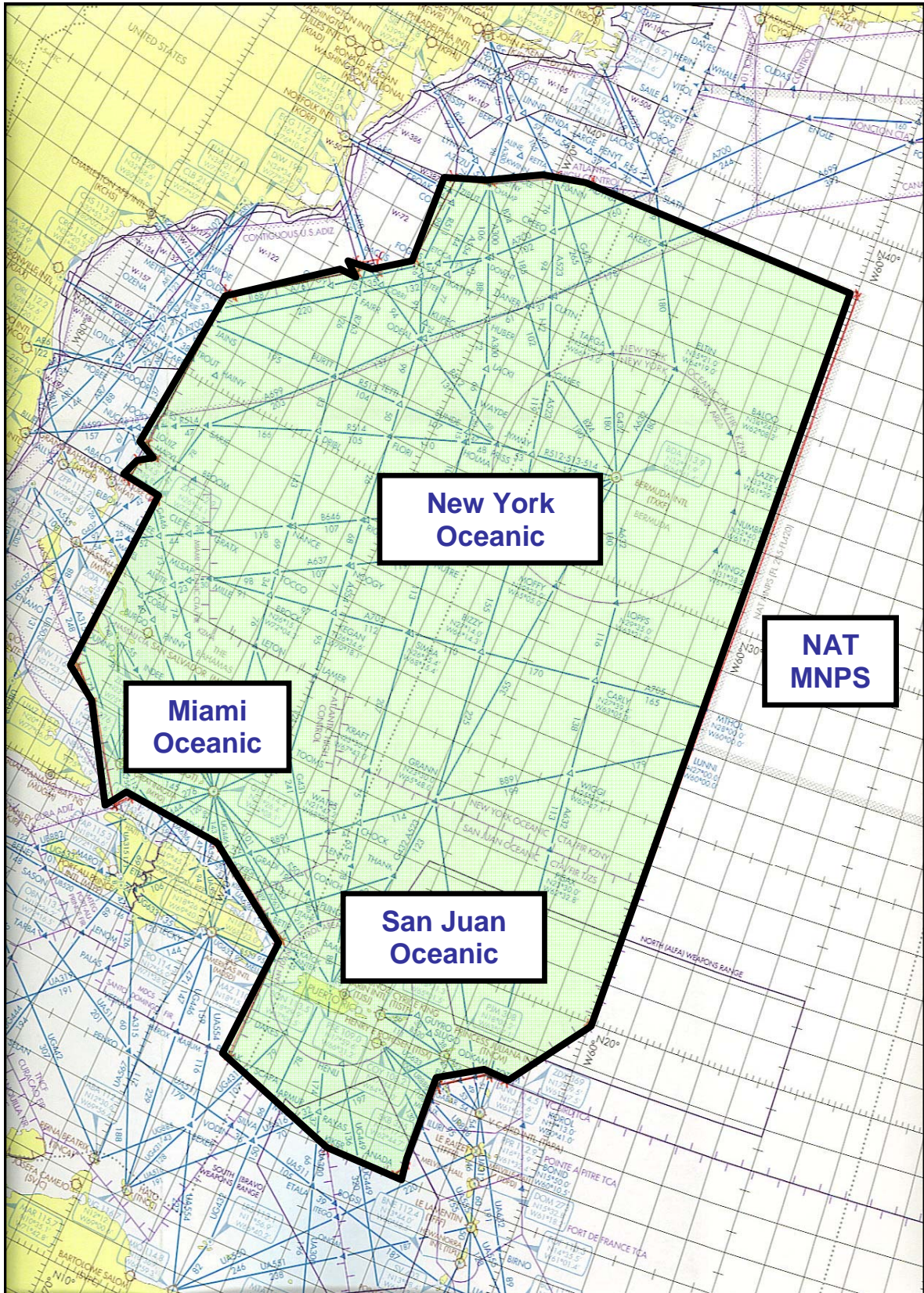
5.1 The meeting is invited to:

- a) review the information in this paper and provide comment on plans and issues related to the WATRS-Plus airspace redesign and separation reduction, and
- b) identify any issues that may delay the new target implementation date of June 2008.

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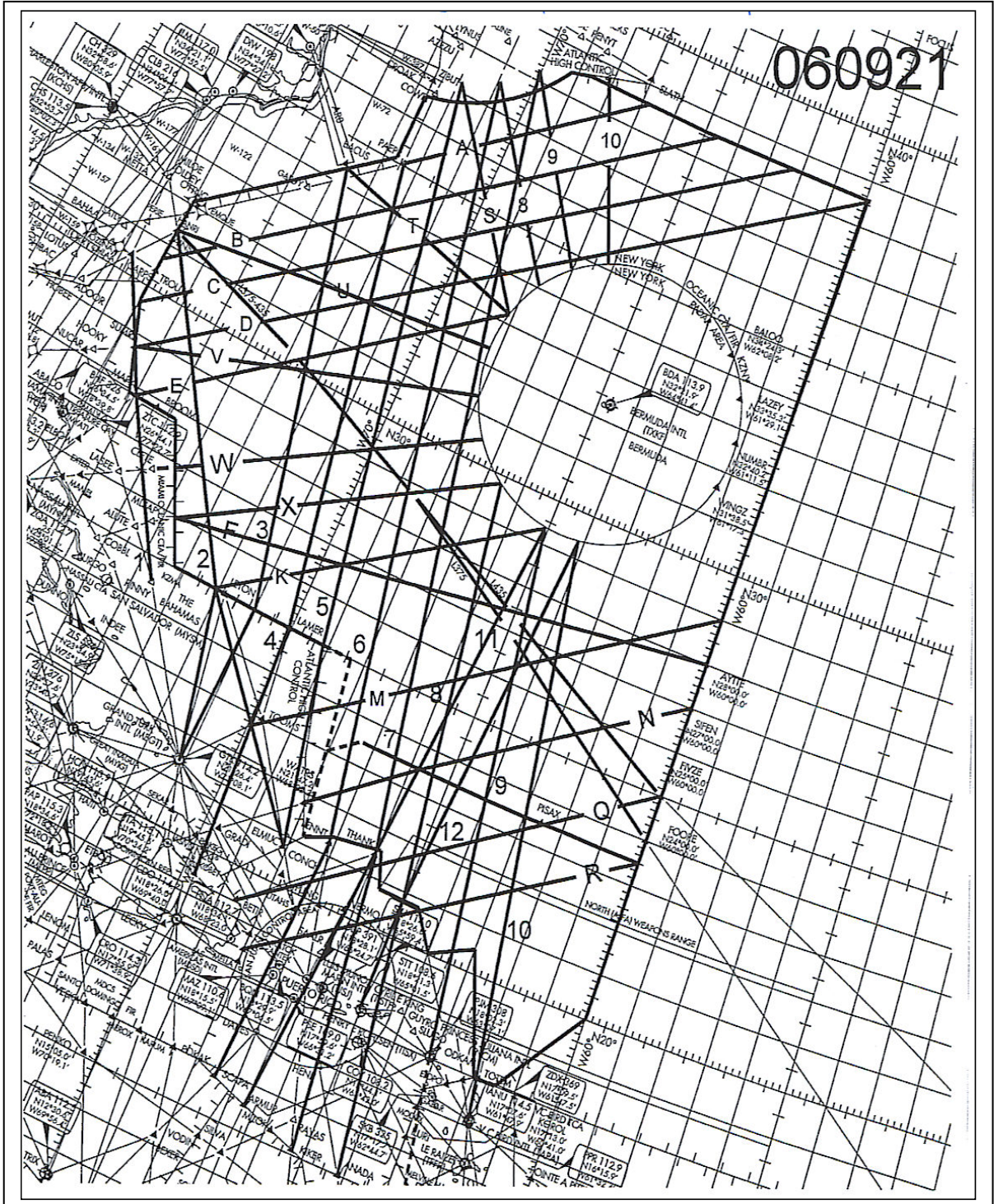
APPENDIX A

WATRS-PLUS AIRSPACE BOUNDARY CHART



APPENDIX B

AIRSPACE REDESIGN CHART DRAFT 060921



## APPENDIX C

### FAA Draft WATRS-Plus Concept of Operations

#### 1. Vertical and horizontal boundaries of airspace

a. Horizontal Boundary. The coordinates defining the horizontal boundary of WATRS airspace are published in ICAO Doc 7030, NAT and CAR Supplementary Procedures and on the WATRS-Plus Webpage ([www.faa.gov/ats/ato/xxxx.htm](http://www.faa.gov/ats/ato/xxxx.htm)). “Plus” refers to airspace in Miami Oceanic, New York Oceanic and the San Juan FIR through which fixed ATS routes transit to WATRS. A chart depicting the WATRS-Plus boundaries is published on the WATRS-Plus Webpage.

b. Vertical Boundary. WATRS-Plus airspace extends from the floor of controlled airspace to FL \_\_\_\_\_TBD.

#### 2. Transition airspace

a. Transition airspace is defined as airspace adjoining WATRS-Plus airspace where 50 nm lateral separation may be applied between aircraft approved to RNP 10 or better that are in transit to or from WATRS-Plus airspace.

b. The following areas are considered transition airspace: TBD

#### 3. Lateral separation standard(s) to be applied

a. 50 nm Lateral Separation.

(1) WATRS Plus Airspace. 50 nm lateral separation will be applied between aircraft pairs approved for RNP 10 or better regardless of their altitude in WATRS-Plus airspace.

(2) Transition airspace. 50 nm lateral separation may be applied between aircraft approved to RNP 10 or better that are in transit to or from WATRS-Plus airspace.

b. 90 nm Lateral Separation. 90 nm lateral separation will be applied whenever one or both aircraft in a pair are not authorized RNP 10.

c. Operator Filing Requirement. Operator/aircraft that are approved RNP 10 (or better) that file an **oceanic route** that falls within WATRS-Plus airspace boundaries must file a flight plan equipment suffix that shows that capacity. Operators must file the flight plan equipment suffix on their (ICAO) flight plan that correctly indicates their approved navigation capability.

#### **4. Provisions for accommodating aircraft not meeting RNP 10 or better**

a. Aircraft that do not have RNP 10 approval or better can file in WATRS-Plus airspace at any altitude, however, the FAA anticipates that aircraft approved for RNP 10 may have a better likelihood of obtaining their preferred route and altitude. The FAA is conducting investigation, including traffic simulation with the purpose to establish appropriate measures to accommodate non-RNP 10 approved aircraft.

#### **5. Aircraft Population RNP 10 Authorization Objective**

a. Implementation Objective: Percentage of Flights Authorized RNP 10 or better. The WATRS-Plus Task Force will progress its work with the objective of having approximately **85% of flights** in WATRS-Plus airspace approved for RNP 10 or better by one month prior to the project implementation date.

b. RNP 10 or Better Compliance To the Maximum Extent Possible. The WATRS Plus Task Force will advocate that all operators/aircraft that fly in WATRS-Plus airspace obtain RNP 10 or better approval.

#### **6. Concept for use of Ocean21 in New York Oceanic Airspace**

a. Ocean21 will provide the New York Oceanic air traffic controller with a set of automated tools to assist in assuring that the correct separation is applied between aircraft with a mix of navigation capabilities (i.e., RNP 10 or better, non-RNP 10). Automated tools will include: automated conflict prediction and reporting (CPAR), graphic dynamic situation display to the controller and interactive electronic flight strips, aircraft labels and aircraft position symbols.

#### **7. Concept for use of fixed tracks or routes**

a) Fixed tracks will be planned based on a 50 nm lateral separation minima.

#### **8. Concept for transfer of control to adjoining FIR's**

a. Transfer of Flights into non-U.S. Controlled NAT MNPS Airspace. New York Center will provide currently established (60 nm) lateral separation minima when transferring aircraft transiting to non-US controlled NAT MNPS airspace.

b. Transfer to Other Oceanic FIRs. Aircraft transiting FAA controlled airspace to other Oceanic FIRs will be transferred with the applicable separation standard per regional documentation.

c. Transition airspace. TBD

## 9. Flight Plan Equipment Suffix Requirements

a. ICAO Flight Plans. To inform ATC and to key Ocean21 automation that they have RNP 10 or better authorization and are eligible for 50 nm separation, operators must annotate item 10 (Communication, Navigation and Approach Equipment) of the ICAO Flight Plan with the appropriate equipment suffix.

Note 1: The ICAO Flight Plan, letter “R” currently indicates that the aircraft will maintain the appropriate RNP type for the entire flight through airspace where the RNP type is applied.

Note 2: The ICAO Flight Plan Study Group is reviewing flight plan policies including aircraft equipment suffixes. The WATRS-Plus Task Force will maintain contact with the appropriate FAA and ICAO organizations to track pertinent ICAO flight plan change developments.

## 10. Aircraft/operator authorization requirements (equipage, RNP 10 authorization documents)

a. For 50 nm lateral separation to be applied, operators will be required to obtain RNP 10 or better approval from the appropriate State authority.

b. Guidance To Be Used. ICAO Document 9613, FAA Order 8400.12 (as amended) and FAA Order 8400.33 will be used as guidance for States and operators.

Note: ICAO Doc 9613 is in the process of being incorporated into the ICAO Performance Based Navigation Manual.

## 11. Target Dates:

a. Implementation Decision Date: calendar date, 3 months prior to target implementation date.

b. Operator/aircraft RNP 10 or better Approval Date: AIRAC date, 1 month prior to target implementation date.

c. Target Implementation Date: AIRAC date, when the new 50 nm lateral separation standard and airspace redesign will be applied. Currently planned for June 2008.