



**Sixth Meeting of CNS/MET Sub-Group of APANPIRG**

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**Agenda Item 14: Regional preparations for the MET Divisional Meeting (2002)**

**SUCCESSFUL IMPLEMENTATION OF QUALITY BASED REGULATORY OVERSIGHT**

(Presented by New Zealand)

**SUMMARY**

This paper describes the development, implementation and experience of a legislatively based State managed system to ensure the provision of quality meteorological services to domestic and international air navigation from certificated service suppliers regardless of their ownership status.

**1. Introduction**

1.1 Test Over the last few decades the whole manner in which the Government of New Zealand facilitates the provision of infrastructural services and how it meets international responsibilities has shifted from direct provision to the supervised outsourcing or commercial contracting of service suppliers. This has required major shifts in legislation and a conscious move to implement the concepts of quality management systems.

1.2 To a significant extent the civil aviation sector, including aviation meteorological services, has led many of the required management system changes because of its history and culture of safety, reliability and risk mitigation. The experience of implementing this change has shown that many of the foundation needs in the new oversight environment previously existed and, when integrated with quality management concepts, yielded a much-improved method of managing the provision of quality products and services.

**2. Legislative Background**

2.1 The New Zealand Civil Aviation Authority (CAA) exists to manage all civil aviation regulatory functions and to undertake activities that promote safety in civil aviation at a reasonable cost. The CAA and Director of Civil Aviation are charged with establishing safety and security standards relating to the entry of participants into the civil aviation system; monitoring the adherence of participants in the civil aviation system to these standards; exercising control over entry into the civil aviation system through the granting of aviation documents (licences, certificates etc.); and taking such action as may be appropriate in the public interest to enforce the provisions of the Civil Aviation Act and of regulations and rules made under the Act, including the carrying out of inspections and audits.

2.2 It is within this overall framework that the New Zealand Civil Aviation Rules have been developed and industry compliance with these Rules managed. While the Rules set out the specific requirements of applicants, Advisory Circulars (AC) set out acceptable means for complying with those requirements. New or alternative means can be accepted by the Director and subsequently included in the AC for each particular Rule.

2.3 Each Rule, in its broad requirements, integrates quality management concepts. There are also specific requirements to establish internal quality assurance procedures to ensure compliance with the Rule. No specific requirements are therefore needed for the use of, or certification to, particular externally defined quality management standards such as those set out by the International Standards Organisation. This approach also recognises that the ability of organisations to implement systematic and detailed quality management systems is tied to the size of the organisation. For example, an airline or regional service provider requires a more structured quality management system than a sole operator.

### 3. **Aviation Meteorological Organization Rule**

3.1 With a change in status of the old New Zealand Meteorological Service pending and the progressive deregulation of aviation being implemented, partly through the introduction of the Civil Aviation Act 1990, it was agreed by Government officials in 1990 that aviation meteorological services should be included in the scope of the Act.

3.2 A Rule to regulate the provision of aviation meteorological services was developed through 1990 – 1993 coming into force in February 1994 as *Civil Aviation Rule Part 174 – Aviation Meteorological Service Organisations* (the Rule). The Rule is made up of three sections; a General section setting out the applicability of the Rule; a Certification Requirements section setting out the standards and systems requirements; and a third section, Operating Requirements, setting out the requirements for continued compliance and certification.

3.3 Section 1 of the Rule sets out that no person shall provide a meteorological service except under the authority of, and in accordance with the provisions of, a meteorological service certificate issued pursuant to the Rule. It also states that the Director may grant a certificate authorising the provision of meteorological services varying from a single meteorological service to a range of meteorological services supported by a network of meteorological offices intended for interacting with the New Zealand air navigation system.

### 4. **Incorporation of International Standards and Required Practices**

4.1 In many respects the Rule puts a domestic legal framework around ICAO Annex 3 requirements. For example a certificate may be issued under the Rule for the provision of six types of meteorological service, the definition of which directly reflect ICAO Annex 3 and WMO Technical Publication 49; climatology, forecasting, information dissemination, meteorological briefing, meteorological reporting and meteorological watch services.

4.2 Other areas where there is a very clear link to ICAO and WMO requirements is through the acceptable means of compliance set out in AC 174. These include requirements for personnel qualification and capability, reporting sites, data input, product output, communications and facilities and verification, inspection, testing and calibration.

4.3 The incorporation of these standards and practices in the Rule effectively ensure that the supply of meteorological information is regulated using internationally accepted requirements as a minimum standard for both domestic and international operations.

### 5. **Quality Management Components**

5.1 Complementing the reflection of international standards and required practices in the Rule are requirements that effectively define a quality management system to be implemented by the certificate holder. In essence these requirements set out lines of internal and external responsibility.

5.2 An applicant is required to show how they will meet the requirements of the Rule with respect to:

- (a) Chief Executive responsibilities and senior persons management and operational responsibilities, particularly with respect to quality management and quality assurance.
- (b) Establishing procedures to ensure operational staff maintain recognised qualifications and capabilities for their respective roles.
- (c) Establishing procedures to ensure that all electronic data processing facilities used are of a nature to ensure the adequacy, accuracy, and timeliness of meteorological and related information.
- (d) The implementation of documentation systems for the management of all office and equipment manuals, procedures, technical standards and practices.
- (e) Procedures to ensure that all the necessary pre-release checks and measurements of meteorological information are carried out by competent persons.
- (f) Notification of meteorological office and facility status changes to service users and the Civil Aviation Authority.
- (g) The provision of relevant information for investigation authorities after an aviation sector accident or incident.
- (h) The recording, notification and rectification of all facility and production malfunctions and discovery of erroneous information.
- (i) The establishment of procedures to identify, collect, index, store, maintain and dispose of the records that are necessary for the supply of the meteorological services listed in their exposition.
- (j) The establishment of internal quality assurance procedures to ensure compliance with, and the adequacy of, the procedures and systems required by the Rule Part.

## **6. Exposition and Certification**

6.1 The Rule requires that an applicant for the grant of a meteorological service certificate shall provide the Director with an exposition that defines the organisation and demonstrates its means and methods for ensuring ongoing compliance with the Rule.

6.2 It is through the CAA assessment of this Exposition to form a view as to the applicant's procedural competence and CAA verification through in-depth entry audit and inspection of the organisation that a Certificate may be granted by the Director for up to 5 years. It then is the responsibility of the certificate holder to ensure that their Exposition is maintained and that they continue to meet the requirements of the Rule at all times.

6.3 The initial assessment of an applicant organisation is intended to establish very clearly whether the organisation has the resources, systems, and people to undertake the proposed operations to the standard required. The extent of the assessment is also related to the number of service types the applicant is proposing to provide. The applicant is expected to have quality management systems (as may be reflected in their certification under ISO or other such bodies). There are also particular facility and aviation infrastructure requirements set out in the rule that are specific to meteorological organisations.

## **7. Monitoring and Surveillance**

7.1 It is the policy of the CAA to audit all certificate holders annually. The extent of the audit depends on the level of confidence the CAA has in the particular certificate holder. This is determined by factors including the results of previous audits, the effectiveness of implementing remedial actions previously required and the number and significance of any aviation related concerns regarding the certificate holder. Any person may lodge an aviation related concern with the CAA. These concerns are investigated and, where necessary, remedial recommendations made for the certificate holder, other organisations or the CAA itself.

7.2 From time to time the CAA undertakes spot check programmes where specific aspects of the operations of a certificate holder are audited or inspected. Such a programme would be generated by the CAA's analysis of aviation safety data including information from audits and aviation related concerns. The ultimate sanction the CAA has is the withdrawal of a certificate. This would effectively stop the organisation from operating. For New Zealand domiciled certificate holders there is also the potential to prosecute reckless non-compliance under the various New Zealand offences regulations.

## **8. Parallel Requirements**

8.1 While the Rule requires all suppliers of meteorological information to aviation in New Zealand to be certificated, other Civil Aviation Rules set the requirements for aircraft operators to use that information.

8.2 The Rules covering the operation of large and medium aircraft require the planning, performing, and control of all flights to include the use of information from meteorological service organisations certificated under Rule 174 or, for operations originating outside New Zealand, from an aviation meteorological organisation as authorized by the State of registration. Similarly operators of helicopters and small aeroplanes when undertaking IFR operations are required to plan, perform, and control flights using information provided by an aviation meteorological service organisation certificated under the Rule.

8.3 The New Zealand Civil Aviation Authority has the overall responsibility to promote safety in civil aviation. It therefore takes the view that the supply and use of meteorological information to aviation operating to/from and within New Zealand must be equal to or exceed the requisite standards.

8.4 For all New Zealand registered air transport operators, meteorological information must be accessed and used as set out in the Civil Aviation Rules. The source of supply of such information must be certificated under Rule 174. For foreign registered domestic and outbound aircraft operations the CAA expects access and use of meteorological information to be undertaken on the same basis as it is for New Zealand registered operators.

## **9. Regulator Perspectives**

9.1 Any organisation or individual in any part of the world may apply to be certificated under New Zealand Rule 174 regardless of whether they intend to provide meteorological information to aircraft operators in New Zealand. The costs of assessing applicants for the possible grant of a certificate must be met by the applicant, as would the ongoing costs of monitoring and audit.

## **10. Meteorological Authority**

10.1 The Minister of Transport has designated the CAA as the Meteorological Authority pursuant to the Chicago Convention. The CAA therefore has the responsibility to ensure the requirements and overall intent of Annex 3 to the Convention are met.

10.2 To realise its Meteorological Authority obligations the CAA currently contracts Meteorological Service of New Zealand Ltd (MetService) to provide the services to international air navigation detailed in Annex 3 and associated documents. MetService currently fund this service provision through individual commercial contracts with both domestic and international airline operators. The New Zealand Government does not fund the operational provision of aviation meteorological information apart from the management aspect and some minor product support.

10.3 A significant part of the contract with MetService is the requirement to maintain certification under Rule 174. Monitoring MetService on the basis of this certificate ensures that the

meteorological services delivered meet or exceed ICAO/WMO standards. The requirements of Annex 3 are incorporated by reference in the contract. In this way any changes in international requirements are automatically covered. Additionally, the parties to the contract maintain a high level of liaison on both management and operational matters to ensure the continued provision of high quality services.

## 11. **Multiple Suppliers**

11.1 Through the means described above, the CAA regulates the supply of meteorological information domestically and ensures that New Zealand's international obligations are met. It is in a good position to evaluate any proposal and oversee the establishment of any new meteorological service organisations. Such proposals may simply be competing for domestic meteorological business or they may wish to be considered for supplying part or all of New Zealand's international meteorological obligations. In either case the CAA's quality management systems approach will ensure that services are supplied to a common and internationally recognised standard or better.

11.2 While such competition development is less likely in a small country like New Zealand, the quality management systems model used could be implemented in larger aviation regulatory environments to manage and regulate the growing commercialisation of aviation meteorology<sup>i</sup>.

## 12. **Experience**

12.1 New Zealand aviation meteorology has been operating successfully in the environment described above for over 6 years. There are a number of reasons for this success that are not necessarily bound by Rule or contract but nevertheless do form an integral part of a quality management systems approach:

- (a) The regulator, suppliers and other stakeholders have a clear understanding of their role, responsibilities and purpose, and that of the other parties;
- (b) There is a free flow of information concerning operations, developments and issues between the parties. This allows the speedy implementation of remedial action, prompt access to information, and rapid product development.
- (c) The environment is progressive, accepting that new knowledge and capabilities will spring from experience, and
- (d) Both the regulator and the service organisations understand that they are accountable to each other for their actions, either through regulatory mechanisms or through professional peer review.

## 14. **Action by the Meeting**

14.1 The meeting is invited to

- (a) Note the content, and
- (b) Exchange views on the various matters discussed in this paper.
- (c) Note that links can be found to the New Zealand Civil Aviation Rules and Advisory Circulars on the web site; [www.caa.govt.nz](http://www.caa.govt.nz)

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<sup>i</sup> There are currently two certificated meteorological service organisations operating in New Zealand. Rather than competing directly with each other they co-operate and complement each other's operations. This is due mainly to one organisation being certificated under the Meteorological Reporting and Information Dissemination categories of Rule Part 174 only.