

IMPLEMENTING A NATIONALLY ACCREDITED TRAINING SYSTEM FOR MARINE POLLUTION RESPONSE

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ABSTRACT 299985:

Australia's National Plan for Maritime Environmental Emergencies ('the National Plan') is the national strategy for preparing, responding and recovering from marine pollution incidents. A core activity of the National Plan arrangements is the training and ongoing development of marine pollution response personnel.

The Australian Maritime Safety Authority (AMSA) has fundamentally restructured the way in which marine pollution training is developed and delivered within the National Plan. While remaining consistent with international frameworks, AMSA has integrated marine pollution training into Australia's vocational education system. Such an approach has enabled the alignment of training, particularly at the management level, with mainstream emergency services, a multi-disciplinary approach to the development and delivery of training courses, the formal and documented assessment of response personnel to confirm competence, the issuance of nationally recognised and transferable qualifications and the incorporation of a continual improvement as a fundamental principle of the national training program.

This paper discusses the reasons for the restructure of the training program, the challenges and benefits of integrating marine pollution training into the vocational educational systems and the future opportunities for training within Australia.

INTRODUCTION:

The National Plan for Maritime Environmental Emergencies ('the National Plan') is the Australian strategy for preparing for, responding to and recovering from marine pollution incidents. The National Plan is an integrated government and industry response arrangement and sets out the responsibilities of the Australian Commonwealth, state and territory governments and the port, petroleum and chemical industries in relation to the management of marine casualty and marine pollution incidents. The Australian Maritime Safety Authority (AMSA) is responsible for the management of the National Plan.

One of the outcomes sought by the National Plan is to achieve a consistent approach to preparing for marine pollution incidents to enable the inter-operability response personnel across Australia, regardless of sector. This approach is applied to training with AMSA

responsible for the delivery of incident management training across Australia and the setting of standards for operational training delivered by the state and Northern Territory governments.

Since 2010, AMSA has restructured the way in which marine pollution training is delivered within Australia. Fundamental to this approach is the integration of National Plan training into the Australian education system to enable the delivery of competency based, transferable and accredited qualifications for response personnel.

This approach followed a review of training delivered by AMSA which identified a number of areas where the marine pollution response training no longer applied best practice within a vocational education sector. This also aligned with demand from stakeholders to demonstrate the efficacy of response personnel and to provide response personnel with transferable and accredited qualifications for the time invested in the training.

This paper discusses the process that AMSA has undertaken to implement the new training approach and outlines the successes and challenges that have been resulted.

Petroleum Industry Training

The Australian Marine Oil Spill Centre (AMOSC) is the major provider of oil spill response training for the petroleum industry in Australia. AMOSC training is based on the International Maritime Organization OPRC Model Training (Field Responder, Supervisor and On Scene Commander) and designed to meet the specific requirements of the petroleum industry.

AMOSC is currently working to integrate petroleum industry training with the Australian education system in a similar process to that described within this paper. This paper does not address developments within the Australian petroleum sector.

VOCATIONAL EDUCATION IN AUSTRALIA:

The Regulatory Setting

The Australian Qualifications Framework (AQF) regulates the issuance of all formal educational qualifications within Australia. The AQF covers secondary schooling, vocational education and higher education and defines the knowledge and skills required to attain each of the ten levels of qualification (e.g. higher school certificate, vocational certificate or apprenticeships, or bachelor degrees etc).

The AQF refers to a program of learning that leads to the award of a qualification and is documented within a curriculum (secondary schools and universities) or training package (vocational providers). Under this approach the outcome is the regulated component, with educators and training providers having the flexibility in how the individual courses are delivered – classroom, workplace, online or distance. The onus on training providers is to ensure that they have a robust and documented process of student assessment to ensure that the requirements of the qualifications are achieved.

Vocational training is further regulated by the Vocational Education and Training Quality Framework (VQF) which sets out the standards for Registered Training Organisations (RTO), delivering training under the AQF. Each RTO is required to meet a range of regulatory requirements, including standards of record keeping and documentation,

continual improvement, employment of qualified instructors and student support. The regulator for the vocational sector regularly audits each RTO to ensure that the quality and standards of training courses are maintained.

Competency Based Training in Australia

Vocational education in Australia applies a competency based approach to learning which is focused on the development of concrete skills rather than abstract concepts. Training providers teach to an underlying Unit of Competence (UOC) which details the knowledge and skills required of the student to be able to work effectively within a specified industry (Table 1).

TABLE 1 – COMPOSITION OF A UNIT OF COMPETENCY

| ELEMENT | DESCRIPTION |
|----------------------------|---|
| Unit Title and Description | A short statement of the competency covered by the unit expressed as an outcome. The description expands on the title and states the broad application of skills and knowledge in the workplace. |
| Element of Competency | The key activities or elements of the work covered by the unit. |
| Performance Criteria | The standards of performance which need to be achieved in order to be deemed competent. These are used by assessors to judge whether the combined unit and elements have been performed to the required standard. |
| Range of Variables | Specifies the range of contexts and conditions to which the performance criteria apply. |
| Evidence Guide | Guides the interpretation and assessment of the unit of competency, including the aspects which need to be emphasised in assessment, relationships to other units, and the required evidence of competency |

The focus of competency based training on the application of the students skills and knowledge enables a flexible individual approach to training. Trainers have the ability to modify how subjects are taught and assessed to meet the individual needs of the student, as long as the process is documented and the learning outcomes achieved.

In attaining a qualification, students can ‘skip’ modules if they can demonstrate that prior learning or work experience has already enabled them to meet the requirements of the Unit of Competency. This is referred to a Recognition of Prior Learning (RPL) and each RTO is required to set out how such learning will be assessed as part of the delivery of a training program.

DRIVERS FOR CHANGE IN NATIONAL PLAN TRAINING:

Training has formed part of the National Plan since its inception. Prior to 2010, National Plan training was based on the International Maritime Organization’s (IMO) model courses, modified for the Australian context. Essentially three courses were delivered under this program (Table 1).

TABLE 1 – NATIONAL PLAN TRAINING PROGRAM PRIOR TO 2010

2014 INTERNATIONAL OIL SPILL CONFERENCE

| COURSE | PURPOSE | RESPONSIBILITY |
|---|--|--|
| Marine Pollution Controller Workshop | To provide Marine Pollution Controllers and Industry Advisers with an awareness of issues which need to be addressed during a major marine pollution incident. | Australian Maritime Safety Authority |
| Oil Spill Management Course | To provide participants with knowledge of marine pollution response management issues to enable them to perform roles as members of Incident Management Teams. | Australian Maritime Safety Authority |
| Oil Spill Operations Course | To provide participants with knowledge of oil spill response equipment and techniques. | State Governments and Northern Territory |

While this approach provided an essentially sound approach to the development of response personnel, a review of the program identified a number of challenges which were impacting upon the long term sustainability of the program, including:

- Course curriculum – the training was primarily content driven with lecture based delivery. This resulted in a wide range of topics being addressed within any single course, but none of these topics being covered in anything more than introductory detail.
- Overlap of content – the pathway from each level of training was not clearly defined. As a result each course tended to cover the same topics in a similar way. This led to inefficient use of the limited time available for students to attend training courses.
- Training did not provide evidence of competence – there was no assessment of the students to determine whether they understood and more importantly could apply the learning from the course. As a result it was difficult to measure whether the courses were effective, whether the responders were actually able to undertake their roles safely and effectively and whether employers were getting value for the resources invested in the training.
- Accreditation and transferability – the training did not conform to national standards and therefore was only recognised with the narrow confines of the National Plan. This was despite skills being taught, such as incident management, had wider application across the industry sectors from which response personnel are drawn, e.g. port authorities manages a range of security and emergency incidents including fires, chemical incidents etc, wildlife agencies manage marine mammal stranding, wildfires etc.
- Alignment with the Australian Emergency Management Arrangements – the training had not evolved in line with the ‘all hazards all agencies’ doctrine being

implemented by Australian governments. In particular the National Plan training was not consistent with the majority of emergency services that now have a high level of involvement in Australian marine pollution response operations.

In consideration of these issues it was considered that continuing the historical approach to training presented a number of risks to the National Plan and its stakeholders, including:

- Lack of nationally consistent approach as individual jurisdictions further aligned their marine pollution response activities with mainstream emergency service agencies.
- An inability to demonstrate a duty of care in the circumstance of a fatality or injury in a response operation. Employers would be unable to demonstrate that the individuals involved were competent to operate the response equipment.
- An inability to demonstrate that key decision makers were competent to fulfil senior management roles, e.g. Incident Controller. This issue has continually arisen in Royal Commissions in Australia to fire and flood events.

REDEVELOPMENT OF THE NATIONAL PLAN TRAINING PROGRAM:

In 2010, the National Plan Management Committee, the national stakeholder group overseeing the National Plan arrangements, agreed to transition to a training program accredited within the national education system and utilising competency based training principles. The objectives of the program were to:

- Provide a consistent approach to marine pollution response training across Australia.
- Ensure response personnel have the necessary skills and knowledge to manage and conduct response operations.
- Provide formal and nationally recognised qualifications.
- Provide a clear pathway for the ongoing development of oil spill response personnel in Australia.
- Integrate marine pollution response training with emergency services training where appropriate.
- Increase the range of options and providers of marine pollution response training.

The transition to a vocational education approach to marine pollution training is a complex undertaking. Not only is there a need to clearly define what outcomes are required of the training and meet the requirements of the regulatory framework, it is necessary to ensure that the stakeholders to the process, i.e. the agencies and individuals relying upon the training, are effectively engaged. The work undertaken by AMSA has involved a number of steps which are described below.

Evaluating requirements

The first stage of the program was to determine the training needs and education approach for the National Plan. This involved a needs analysis and scoping exercise to determine the skills required by responders to perform various response functions, evaluating options for the delivery of the training – both accredited and non-accredited – and consideration of skills maintenance.

The major outcome of the needs analysis was that while the IMO Model Course structure of operational, management and senior management training remained applicable, there was a need to further breakdown these levels to focus on specific response functions. Broadly it

was decided to focus on the operational and incident management functions, with specific courses developed on the following:

- Operational functions – individual courses for shoreline operations, marine operations and aviation.
- Incident management – individual courses for incident management for oil spill response and the specific functional roles of incident control, planning, operations and logistics.

Two delivery options were considered for the training programs - the development of standalone accredited courses or the development of courses around existing units of competency. The major difference between the two options is one of flexibility rather than learning outcomes. The second option was implemented for the National Plan training on the basis of:

- Increased flexibility to change content and training approach to meet changing requirements.
- The issued qualifications are transferable, enabling the skills learned by the students to be used across industries.

The Public Safety Training Package ('the Training Package') specifies nationally endorsed units of competency, qualifications and assessment guideline for emergency management in Australia. The competencies within the training package are based on the incident control system and aligned directly with the incident management structures employed by the National Plan. The adoption of the competencies from the Training Package provided clear direction for the development of training materials and also assisted with achieving the objective of aligning training with the wider emergency management community.

Developing Units of Competency for Marine Pollution Response

While the Training Package provided clear direction for training in generic incident management, an analysis of training needs identified three areas which were not adequately addressed by existing competencies – decision making strategies for oil spill response, operations of oil spill equipment and shoreline response operations. AMSA developed units of competency to underpin the teaching of these skill sets.

The development of a unit of competency is a rigorous process and requires the final approval of the regulator. The development process is conducted in the context of the Training Package as a whole and follows a standard process (National Skills Standards Council, 2012):

- Identification of a training need that cannot already be met through an existing unit of competence or training package. Given marine pollution response training had not been accredited under the national education system, there was a readily identifiable gap that needed to be addressed for the delivery of the national training program. This need analysis was confirmed by the relevant Industry Skills Council.
- Establishment of a technical working group to develop the unit of competency. AMSA formed a series of working groups comprising subject matter experts and education professionals to develop the units of competence.
- National and industry consultation on the draft unit of competence. AMSA undertook a consultation process with National Plan stakeholders to review the

draft units of competence. The commentary was collated and units amended to reflect the stakeholder feedback.

- Submission, validation and endorsement of the unit of competence. Each unit is submitted for approval by the Industry Skills Council. The Council conducts a validation process to confirm that the units meet the requirements of the industry. Once validated, the units are endorsed and all stakeholders notified of their availability.

In total AMSA developed six units of competency to address the three training gaps.

Developing a marine pollution response training curriculum

The National Plan training program combines several approaches to developing and maintaining the skills of responders. The curriculum incorporates accredited and non-accredited training, online learning and face-to-face teaching, and the use of exercises and workshops to build upon the learning from courses. The National Plan program is described in Table 3.

TABLE 3 – OVERVIEW OF THE NATIONAL PLAN TRAINING PROGRAM

| COURSE | PURPOSE | UNDERPINNING UNIT OF COMPETENCE |
|---|---|---|
| Introductory Training | | |
| Online Training Modules* | To provide response personnel with a basic understanding of oil and chemical spill response operations. | <ul style="list-style-type: none"> • Nil |
| Introduction to the Australian Inter-Service Incident Management System | To provide response personnel with an introductory understanding of the implementation of the Incident Control System. | <ul style="list-style-type: none"> • Accredited course |
| Operational Training | | |
| Marine operations - basic | To train response personnel in the operational deployment of basic oil spill response equipment, e.g. general purpose boom, small skimmer, temporary storage. | <ul style="list-style-type: none"> • Use basic equipment for oil spill response |
| Marine operations advanced | To train response personnel in the operational deployment of advanced oil spill response equipment, e.g. offshore boom, shoreline boom, sweeps, large skimmers, oil recovery vessels. | <ul style="list-style-type: none"> • Use advanced equipment for oil spill response |
| Shoreline response operations | To train response personnel in the conduct of shoreline assessment and clean-up operations. | <ul style="list-style-type: none"> • Apply health and safety risk controls when working on oiled shorelines • Apply oiled shoreline |

| | | |
|-----------------------------------|--|---|
| | | <p>assessment strategies in an oil spill response</p> <ul style="list-style-type: none"> • Lead a team in oiled shoreline clean-up |
| Aerial Observation | To train response personnel to plan aviation operations, collect and communicate incident information. | <ul style="list-style-type: none"> • Navigating from an aircraft • Planning aircraft operations • Obtaining incident information • Working safely around aircraft |
| Air Attack Operations | To train response personnel to direct aerial dispersant spray operations. | <ul style="list-style-type: none"> • Developing and managing air attack strategies |
| Incident Management | | |
| Incident Management Team | To train response personnel on the implementation of an incident management team and marine pollution response strategies. | <ul style="list-style-type: none"> • Decision making strategies in an oil spill response • Briefings and debriefings • Lead, manage and develop teams |
| Incident Controller | To train response personnel to perform the role of incident controller in significant marine pollution incidents. | <ul style="list-style-type: none"> • Manage a crisis • Control a Level 2 incident • Control a Level 3 incident |
| Planning | To train response personnel in the conduct of a planning team during response operations. | <ul style="list-style-type: none"> • Manage information • Manage planning for a Level 2 incident |
| Operations | To train response personnel in the management of response operations. | <ul style="list-style-type: none"> • Manage operations for a Level 2 incident • Manage operations for a Level 3 incident |
| Logistics | To train response personnel in the management of logistics in response operations. | <ul style="list-style-type: none"> • Apply knowledge of logistics • Manage physical resources • Manage logistics for a level 2 incident • Operate communication systems and equipment |
| Supporting Workshops | | |
| Environment and Science Workshop* | To improve the knowledge and skills of environmental, scientific and technical personnel. | <ul style="list-style-type: none"> • Nil |

| | | |
|---------------------------------------|---|-------|
| Incident Controller Workshop* | To build upon the skills and knowledge of incident controllers. | • Nil |
| Marine Pollution Controller Workshop* | To bring together senior executives together to examine areas of interest relating to multi-agency arrangements. | • Nil |
| National Response Team Training* | To ensure that the skills of the National Response Team are being maintained through controlled deployment exercises. | • Nil |

* These courses and workshops are non-accredited training.

A common theme from the review of the previous training program was that course content tended to be repetitive between courses. The outcome was that a substantial amount of time was spent of each course which should have been foundation learning. This was inefficient where students are relatively time poor and indicative that the training program as whole not considering learning pathways.

AMSA identified two pathways for delivery of foundation learning:

- The development of online learning modules that could be completed in the student's workplace. The four online modules provide basic information about the National Plan, oil and chemical spill response and health and safety. The modules are not formally assessed, though there are multiple choice questions at the end of each section to reinforce learning. A certificate of completion is issued to the student.
- Encouraging students to complete the two-day Introduction to the Australian Inter-Service Incident Management System Course. These courses provide an introduction to the incident control system employed by the National Plan and are delivered widely across the emergency management industry.

The development of the individual courses has followed a standard approach:

- A mapping exercise to identify what content needs to be delivered to meet the specific requirements of each unit of competency.
- Development of a course delivery strategy and materials identifying how each part of the course would be presented to the student. A focus of the training is provision of opportunity for students to demonstrate their application of the skills being taught. Exercises and other practical lessons form a significant component of each course.
- Development of an assessment strategy and assessment materials. The assessment strategy needs to demonstrate that each student had appropriate opportunity to be evaluated against the performance criteria for the unit of competency.
- Third party evaluation of the course materials and assessment strategy to ensure that it meets the requirements of the unit of competence and regulatory standards.
- A process of critical evaluation and continual improvement of the course delivery from the initial pilot course, through the ongoing delivery of the program. An important component of operating within a regulated education environment is the demonstration of continuous improvement based on participant feedback and regular course review against industry requirements.

This development of a course through this process requires a commitment of time and resources. While AMSA was delivering incident management training within 12 months of the decision to transition to an accredited system, it has taken a further 18 months to have mature products. This investment is being returned by the improved outcomes and quality of training.

The accredited training courses are supported by a number of workshops and exercises which are focused on the maintenance of skills. This is an important component of the training program in that opportunities need to be provided to practice skills learned at the courses and also expand knowledge and experiences in key functional areas.

To this end skills maintenance is provided through the delivery of National Response Team (NRT) training, which provides opportunities for members of the NRT to practice with equipment on an annual basis under the direction of experienced instructors, as well as building team-working within the NRT as a whole. Similar training exercises are undertaken by State agencies for their own personnel.

AMSA also uses workshops for knowledge transfer through the delivery of workshops for environment and science coordinators, incident controllers and marine pollution controllers. The intent of the workshops is to transfer experience between participants, develop and maintain working relationships between stakeholders and provide opportunities for complex issues facing each of these areas to be worked through.

Delivery of the training program

The redesign of the training program has not only led to changes to the courses, but also to the way in which the program is delivered as a whole. These changes have included:

- Recruitment and staffing – Under the previous training system, recruitment for training focused primarily on maritime skills, with staff expected to build training qualifications and experience on the job. Operating within a regulated education system has required recruitment to focus directly on education professionals to manage the system, supported by subject matter experts from within AMSA and also contractors. Additionally the staffing numbers have been increased to manage the increased workload necessary to meet regulatory requirements.
- External delivery providers – Previously AMSA personnel, supported by other National Plan stakeholders delivered the training courses. However all training is contracted to external contractors to provide. This serves two broad purposes; firstly, the continuity of training is maintained through periods of business disruption, such as pollution incidents; and secondly, the training is contracted to specialists to deliver the particular subject matter. With regards to the second point, the majority of the incident management training is provided by emergency management specialists, enabling students to gain a broader appreciation of techniques, rather than a narrow marine pollution perspective. Operational training is however delivered by marine pollution specialists.
- Residential training – All of the incident management training is delivered as residential courses at the Australian Emergency Management Institute which is designed for the delivery of emergency management training and has the available facilities to support the range of ‘break out’ sessions and exercises required by the training. Additionally, by providing a residential option, students are able to interact and complete a significant component of the assessment required by the courses.

- Documentation and systems – Working within a regulated environment has required AMSA to develop and maintain comprehensive record keeping and documentation systems. This includes student records, assessments and communications, document control, complaints procedures and change management. While burdensome, such a system does impose necessary discipline in the management of the training program.

Role of the AMSA Registered Training Organisation

The successful implementation of the training program has been highly dependent upon AMSA already being a Registered Training Organisation at the time of the development training program. This structure resulted from AMSA's internal development and qualification of search and rescue officers for the Australian Rescue Coordination Centre. It was a relatively straightforward process to extend the scope of the RTO to include the qualifications required by the National Plan training program.

Being an RTO, also enabled AMSA to provide this service to National Plan stakeholders to enable them to deliver accredited training. This has delivered two central benefits:

- The maintenance of an RTO requires significant resources to be effective. By providing the RTO, AMSA was able to provide a more efficient and cost effective process for the delivery of training by stakeholders.
- Having a single RTO oversight all accredited training means that consistent outcomes are being delivered nationally. This improves the inter-operability of response personnel across Australia.

LEARNING AND FUTURE DIRECTIONS:

The progression to an accredited system of training has not been without challenges. The development process has been a learning experience and AMSA has had to address a number of issues over the life of the project, including:

- Change management – The management of student expectations from the training is an area which needed greater focus in the initial development phase. There is no doubt that some students found the requirement to demonstrate their competence against defined criteria confronting. This is a common issue with adult vocational education training in general, where the students find difficulties with assessment given the considerable time for some since they last undertook formal education. AMSA has needed to be responsive to these concerns and has since invested considerable time to assist students with the transition to fully assessed training.
- Resourcing – The resource demands of managing a regulated system of training cannot be over-estimated. AMSA has had to increase the resourcing of the training program to enable regulatory requirements and quality standards to be achieved and maintained.

The National Plan training program is not viewed as static. AMSA is working to further improve the student outcomes from the training program as a whole. Areas identified for further work include:

- Consideration of accreditation pathways for Incident Controllers beyond the assessment of competence. AMSA views the successful completion of an individual course as the 'entry point' to being able to perform that task in a marine pollution incident. It is intended to look at further development and

accreditation process for key functional positions, commencing with Incident Controllers, to ensure that personnel are capable of performing these roles. This is viewed by AMSA as not only improving the efficacy of the operation, but also protecting the interests of the individuals, by ensuring they are fully prepared to manage the high stress and tempo environment they may be appointed to manage.

- Undertaking an industry review of the training and in particular ensuring that the underpinning units of competence remain relevant. This is part of the quality control and continual improvement required of working in the regulated environment. More importantly it is AMSA's intent to ensure that the training is contemporary and relevant.
- Further focus on maintenance and skills through regular exercises and training. It must be recognised that the skills learned on a course can be lost quickly without regular maintenance of those skills. AMSA through the use of exercises and NRT training are seeking to further develop the individuals who have undertaken National Plan training.

CONCLUSION:

Contemporary incident management practice in Australia is centred on the necessity of interoperability and partnerships. While inter-operability between National Plan stakeholders has been the norm for a considerable period of time, the ability to effectively integrate other emergency services has been less successful. The National Plan training program in aligning with the standards and systems of mainstream emergency services has completed a major step in achieving such practice for marine pollution response.

Working within the national education system allows the National Plan training program to provide AMSA and other stakeholders with a level of assurance that the significant resources applied to training are delivering response personnel that can perform the tasks required in a marine pollution incident to an appropriate level. Further to this, in an industry subjected to considerable community and government scrutiny, training within a regulated environment means that continuous improvement is a permanent requirement of the training system.

The National Plan training system provides its stakeholders with an accountable and transparent system, with clear standards and measurable outcomes. This provides a level of confidence that response personnel in Australia can demonstrate they have the skills to successfully work within a marine pollution response operation.

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