LMTCE-WIPT

NAVAIR Environmental Program

The NAVAIR Regulatory Impact Summary Consolidation (RISC) Initiative

A product of the
Lead Maintenance Technology
Center for the Environment (LMTCE)
Working Integrated Product Team (WIPT)
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NAVAIR

The NAVAIR Regulatory Impact Summary Consolidation (RISC) Initiative is an effort to identify and quantify the potential impact on the Naval aviation community of a specific environmental safety and health (ESH) regulatory issue using an integrated set of analytical tools currently under development. The intended purpose of each RISC case study is to project the expected impacts on the Naval aviation community of a proposed or forecasted legislative or regulatory issue. Each case study also demonstrates the interoperability of four automated analytical tools currently under development by the Lead Maintenance Technology Center for the Environment (LMTCE) Working Integrated Product Team (WIPT). The tools included in the RISC initiative are the NAVAIR Compliance Calendar, the Hazardous Materials Authorized Use List (HMAUL) Analysis Tool (HAT), the Environmental Systems Allocation (ESA) Program, and InfoBase. This fact sheet contains the results of two case studies including a reduction in worker exposure to hexavalent chromium as proposed by the Occupational Safety and Health Administration (OSHA) and Proposed Rule 4662 on organic solvent degreasing operations from the San Joaquin Valley Unified Air Pollution Control District.

Assessing Impacts & The Interoperability Of Existing Analytical Tools

The RISC initiative seeks to identify and quantify the impact of pending changes to environmental regulations on the Naval Aviation community. We also intend to demonstrate the interoperability of four analytical tools under development by the LMTCE WIPT. We have established the following specific goals for the RISC initiative:

- Develop our capacity to identify future ESH regulatory issues five or more years in advance and associate target impact dates with each pending regulatory issue.
- Quantify the impact on specific locations, weapon systems, and specifications within the Naval Aviation community.
- Examine how well existing projects and programs will mitigate the expected impact.

In particular, four tools were used in the following ways to achieve the integrated results included in the first RISC case studies.

The NAVAIR Compliance Calendar tracks proposed and forecasted regulations that may impact the Naval aviation community. The Calendar identifies regulations that will affect a variety of maintenance technologies including electroplating and surface finishing, paintings and coatings, paint stripping and coating removal. The Calendar also lists projects that may address these regulatory requirements and includes information on the year that each regulation is expected to have an impact and when each project is expected to begin. The Calendar identifies "the issue, when it happens, and an initial impact estimate."

The Hazardous Materials Authorized Use List (HMAUL) Analysis Tool (HAT) is a consolidated source of data from the Hazardous Materials Information System (HMIS) that ties together military specifications (mil-specs), national stock numbers (NSNs) and the General Series (GS) manuals. As part of the RISC initiative, the HAT is used to determine "who" and "what" is affected. The HAT identifies the mil-specs, NSNs and GS manuals that may be affected by the proposed or forecasted regulatory issue.

The Environmental Systems Allocation (ESA) Program provides insights into hazardous materials usage and hazardous waste generation at the operational (O) and intermediate (I) maintenance levels within the Naval aviation community. As part of the RISC initiative, the ESA program provides "how much" and "where" the proposed/forecasted issue may affect the Naval aviation community.

The *InfoBase* establishes active links between a targeted hazardous material with material call-outs in GS manuals identified as Federal specifications, mil-specs, and NSNs.

Case Studies

Together these four analytical tools provide an effective means for performing a comprehensive impact analysis. To demonstrate the capacity of these tools to perform a comprehensive impact analysis, the following two case studies were selected:

1. A reduction in worker exposure to hexavalent chromium as proposed by the Occupational Safety and Health (OSHA) Administration, and

2. Proposed Rule 4662 on organic solvent degreasing operations from the San Joaquin Valley Unified Air Pollution Control District.

Both of the issues addressed by these case studies were identified through the use of the NAVAIR Compliance Calendar. The objective of each of these case studies was to use the existing analysis tools to identify either the products containing compounds of chromate or the processes that involve organic-solvent degreasing operations to assess the ultimate impact on the Naval aviation community. In essence, each of these impact analyses determine "where" (in terms of GS manuals, actual sites, etc) and "how much" of these materials are used across the NAVAIR maintenance community.

Summary Of NAVAIR Analytical RISC Tools

	NAVAIR Compliance Calendar	HMAUL Analysis Tool (HAT)	Environmental Systems Allocation (ESA) Program	InfoBase
Users /Audience	■ Environmental Managers ■ ESH Coordinators ■ GS Manual CFAs ■ Principal Investigators of New Technology Projects	■ Environmental Managers ■ ESH Coordinators ■ GS Manual CFAs ■ Principal Investigators of New Technology Projects	■ ESH Coordinators ■ Program Managers - Air (PMAs) ■ Principal Investigators of New Technology Projects ■ Environmental Managers ■ GS Manual CFAs	■ GS Manual CFAs ■ Program Managers - Air (PMAs) ■ Principal Investigators of New Technology Projects ■ Environmental Managers
Functions	■ Forecasts impact of future/ pending ESH legislation and regulations	■ Identifies hazardous materials referenced in Type/Model/ Series Manuals, Mil-Specs & NSNs ■ Conducts Ad-Hoc HMIS queries (Conditions HMIS data for use in other tools)	■ Provides a central database for hazardous materials and hazardous waste data for Operational (O), Intermediate (I) & Depot (D) maintenance levels	■ Links ESH targets with the materials required in maintenance manuals ■ Is a tool for technical manual CFAs for administering materials and/or process replacements
Products	■ Electronic/Web System ■ Poster ■ Impact Report ■ Gap Analysis ■ Technology Transition Plan (TTP) Component	■ Distribute CDs ■ Impact Report Component ■ NAVAIR HMAUL ■ Distribute CDs with queried HMIS data ■ Technology Transition Plan (TTP) Component	■ Distribute CDs ■ Impact Report Component ■ HMMP Support ■ Impact Analysis Reports ■ Technology Transition Plan (TTP) Component (IA)	■ Distribute CDs ■ Single/consolidated TM HMAUL ■ Customized tool for manual CFA process review ■ Technology Transition Plan (TTP) component

RISC Case Study 1: Impact Analysis of OSHA's Proposed Reduction in Worker Exposure to Hexavalent Chromium

The RISC initiative included the following procedures to assess the potential impacts of OSHA's proposed reduction in worker exposure to hexavalent chromium:

1. IDENTIFY COMPOUNDS OF CHROMATE. From a master HMIS chemical list contained in the HAT, all products contained in HMIS with ingredients composed of a chromated compound were identified. This resulted in a list of chemical names and their CAS numbers.

2. IDENTIFY PRODUCTS CONTAINING COMPOUNDS OF CHROMATE. Using the CAS numbers generated in step 1 and HMIS data found using HAT, all products containing chromated compounds were identified. This resulted in a list of product names along with their associated NSNs, cage codes, and military specifications. A list of the specific chromated compounds contained in each product was also generated.

3. PERFORM ADDITIONAL ASSESSMENTS ON PRODUCTS. The list of products and associated NSN's and military specifications generated in step 2 formed the basis for assessing the impact of chromated compounds across the Naval aviation community. At this point, all materials in HMIS containing chromated compounds had been identified without determining their impact on NAVAIR. In order to determine the specific impact on NAVAIR, the following assessments were performed:

- GS Manuals Affected: The HAT was used to identify the GS manuals that specify the use of the products containing chromated compounds. (Please note that the HAT currently contains information for a limited number of GS manuals. Therefore, the list of manuals impacted is a superset of the manuals available in the HAT.)
- NAVAIR Environmental Research and Development Efforts: The HAT was used to identify several NAVAIR R&D projects that may target the reduction of the impact of the chrome-containing products.
- ESA Analysis: The ESA database was then used to provide data identifying how much of these products are used across NAVAIR. ESA also provides additional details on the usage by site, program, and work center. In addition to hazardous material use, chrome waste generation data was also determined.

4. CREATE A TARGET LIST OF MANUALS. Because most aviation maintenance materials containing chromated compounds are not explicitly named in the text of manuals, a "target list" specific to these compounds is required to facilitate the linking with mil-specs, Fed-specs and NSNs with the products identified in GS manuals.

Results Of Case Study 1

As a result of the integrated use of the four NAVAIR analytical tools, our first case study yielded the following results:

1. *Contribution from the NAVAIR Compliance Calendar*: OSHA is proposing a reduction in worker exposure to Hexavalent Chrome.

2. *Contribution from the HAT*: HAT identified 79 Chrome compounds and over 11,500 products/MSDSs containing Chromium in 8,996 NSNs. In addition, there were 358 "hits" spanning 14 GS manuals.

3. *Contribution from the ESA Program*: The ESA program identified 43 actual products containing Chromium (at NADEP North Island) for a total of 17,381 pounds of product. Out of these products, only 2,521 pounds were chrome compounds. As a result, there was 86,391 pounds of Chromium waste, which resulted in a waste disposal cost of over $86,200.

The RISC analysis demonstrates how pervasive Chromium is within Naval aviation maintenance requirements. There are two specific issues that must be addressed:

1. Dealing with the "up front" issues, such as worker exposure to Hexavalent Chrome, and

2. Managing the chrome waste streams which burden the Fleet.

The results and statistics of this case study provide insights into who, what, when, where, why and how NAVAIR is affected by this regulatory requirement. We have been able to demonstrate the potential impact of this regulation by identifying all the materials, specifications and manuals that require the use of Chrome. Fortunately, there happen to be several environmental technology development projects in the queue (across the NAVAIR R&D community) to address this issue. Among the relevant R&D initiatives are projects dealing with non-chromated primers, non-chromated conversion coatings, non-chrome sealants, and adhesives.

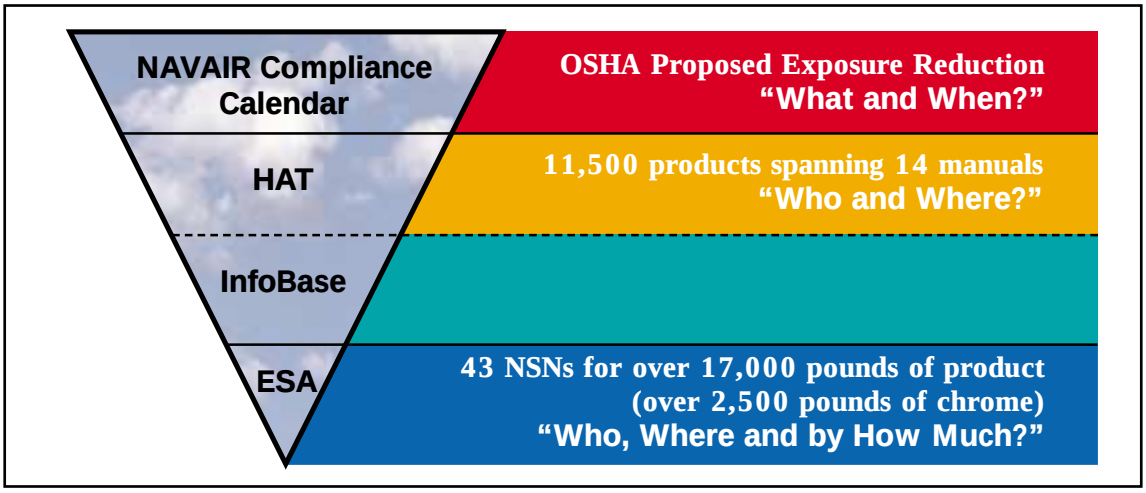
RISC CASE STUDY 2: Impact Analysis Of The San Joaquin Valley Unified Air Pollution Control District Proposed Rule 4662 - Organic Solvent Degreasing Operations

The objective of this case study was to use an integrated set of analytical tools to identify the potential impact of the proposed rule on the Naval aviation community. As a result, the NAVAIR Compliance Calendar identified P-D-680 as one of the military specifications that could be impacted by the proposed rule. The following provides an overview of the analytical tools and processes used to complete this case study:

1. IDENTIFY PRODUCTS: Using HMIS data in the HAT, all products associated with P-D-680 were identified. This resulted in a list of product names along with their associated NSNs and cage codes.

2. PERFORM ADDITIONAL ASSESSMENTS ON PRODUCTS. The list of products and associated NSNs/specifications generated in step 2 formed the basis for assessing the impact of P-D-680 across NAVAIR. At this point, all available P-D-680 products had been identified without determining their impact on NAVAIR. In order to determine the NAVAIR impact, the following assessments were performed:

   - GS Manuals Affected: The HAT was used to identify the GS manuals that specify the use of P-D-680 products. (Please note that the HAT currently contains information for a limited number of GS manuals. Therefore,



the list of manuals impacted is a superset of the manuals available in the HAT.)

- ESA Analysis: The ESA database was then used to provide data identifying how much of the P-D-680 products are used across NAVAIR. The ESA also provided additional detail on the usage of P-D-680 by site, program, and work center level.
- InfoBase Analysis: A summary was generated through a text search of all manuals currently included in the InfoBase. This search generated a list of all occurrences of "P-D-680" included in these manuals. To benefit hazardous materials management and analysis for technology and data managers, hyperlinks between product MSDSs and the text within each manual was established.

Results Of Case Study 2

As a result of the integrated use of the four NAVAIR analytical tools, our second case study yielded the following results:

1. Contributions from the NAVAIR Compliance Calendar: The Calendar identified that the San Joaquin Valley Unified Air Pollution Control District (APCD) issued Proposed Rule 4662 on Organic Solvent Degreasing Operations.

2. Contributions from the HAT: The HAT was able to generate a list of 190 products/NSNs and 117 “hits” spanning 9 General Series manuals that include P-D-680 as a consumable product.

3. Contributions from the InfoBase: The InfoBase was able to identify 271 text matches of “P-D-680” contained in 11 different General Series manuals.

4. Contributions from the ESA Program: The ESA Program was able to identify four actual products in use across five different field activities. Out of four of the field activities, over 25,000 pounds of P-D-680 was used. The majority of P-D-680 was used at the Operational (O) level (for a Naval Air Station (NAS)/Marine Corps Air Station (MCAS)).

Per the RISC analysis, this particular issue will impact Naval operations and affect operational readiness. For example, this proposed ruling is anticipated to take effect by the first quarter of 2001, followed by a grace period of 18 months. This means that if there is not a suitable replacement by the end of CY 2002 or beginning of CY 2003, over 130 F/A-18s will be affected at NAS Lemoore. However, there currently is an APPTech project in the queue addressing this issue. It is anticipated that there will be a suitable replacement available by the end of 2002.

The figure below demonstrates why NAVAIR needs to know who, what, where and how a compliance and/or ESH issue could affect Naval aviation. The statistics show how pervasive the use of P-D-680 products are across the NAVAIR community. The results of this case study can also shed some light on the magnitude of the effort that would be required to address the associated compliance issues. Again this is demonstrated by identifying all the required documents, processes, procedures and new or existing Pollution Prevention technology requirements.

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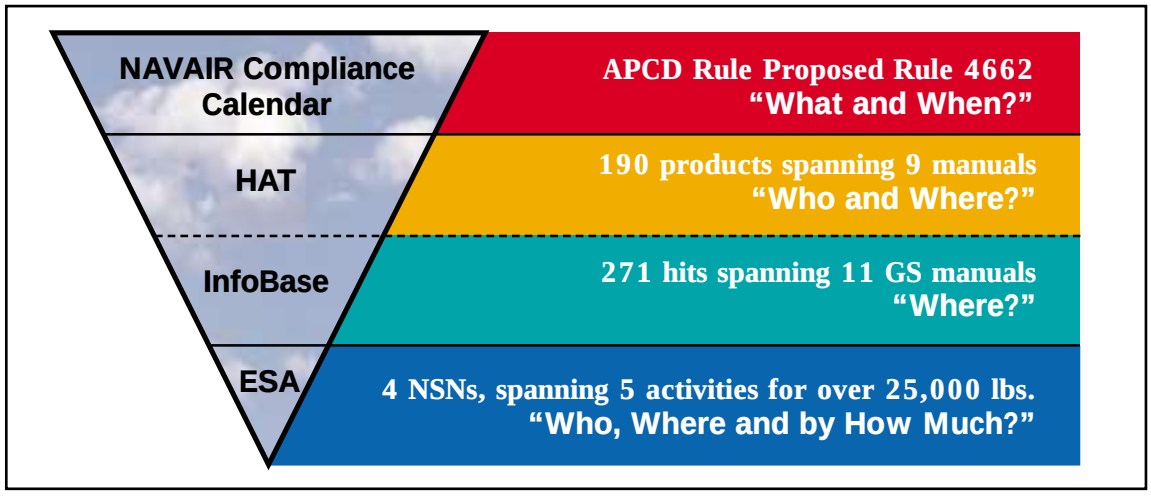

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