1 – Background

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Appendix 1A : Activities and occupations associated with F-111 Deseal/Reseal programs

Activities and Occupations Associated with F-111 DSRS Program 1

Process	Process Detail	Duties
Chemical Deseal	Fit Deseal plumbing, sprinklers, spray nozzles, score/slash sealant Fill deseal rig with SR51, preheat SR51, SR51A circulation. Spot repair plumbing leaks. Spot checks Drain SR51 into storage tank or drums Fill rig with Alkali wash (ED500 and eater) Circulate then drain into dam Fill with fresh water, rinse and drain Clean out deseal rig (remove sealant sludge) Remove deseal plumbing and residue (water, loose sealant) Hand scrub with ED500 solution	Fitting (and defitting) Rig monitor Trade and independent inspectors
Water Pick	Fit blanking plates, protective tape Waterpick sealant Wash with ED500 solution Rinse with high pressure hose (fire hose)	Waterpick / hydrolaser operator Safety observer Runner
Hand clean with Mil-Spec	Clean with Mil-Spec, cheesecloth soft metal scrapers, bristle brushes and metal tools	Hand cleaner Trade and independent inspectors
Primer Application	Flush with PR148 and remove excess	General technicians and Inspectors
Barrier Application	Mix 2-part Epoxy (in sealant hut) Apply Epoxy barriers XA3598 with semco gun	Sealant quality control General technicians Inspectors
Sealant Application (two applications)	Mix sealant (A and B) Apply A sealant Apply B sealant	Sealant quality control General technicians Inspectors
Dispose of SR51	Transfer water to incinerator Transfer waste to dam and collect with tech blocks Incinerate tech blocks Monitor incinerator Clear blockages/breakdowns	General hands Boiler attendants

Appendix 1A continued…

Activities and Occupations Associated with F111 DSRS Program 2

Process	Process Detail	Duties
Water Pick	Fit blanking plates, protective tape Waterpick sealant Wash with ED500 solution, rinse with high-pressure hose (fire hose)	Waterpick / hydrolaser Operator Safety observer Runner
Hand clean with Mil-Spec	Clean with Mil-Spec, cheesecloth soft metal scrapers, bristle brushes and dental tools	Hand cleaner Trade and independent inspectors
Barrier application	Mix 2-part Epoxy (in sealant hut) Apply Epoxy barrier XA3598 with Semco gun	Sealant quality control General technicians Inspectors
Sealant application (2 coats)	Mix sealant (A and B)	Sealant quality control General technicians Inspectors

Activities and Occupations Associated with F-111 DSRS Spray Seal Program

Process	Process Detail	Duties
Alkali wash	Rinse with detergent wash with high-pressure hose with hot water	General technicians
Spot clean	Wipe down tank surfaces with Mil-Spec	General technicians
Primer application	Mix primer Apply primer with manoeuvrable pressure pot	Sprayer Observer Mixer General technician
Sealant application	Mix A sealant Mix B sealant Apply A sealant with air-assisted airless gun Apply B sealant with air-assisted airless gun Inspect and patch up	Sprayer Observer General technician Trade and independent inspectors

Appendix 1A continued…

Activities and Occupations Associated with F-111 DSRS Wing Program

Process	Process Detail	Duties
Water Pick	Remove sealant with waterpick / hydrolaser	Operator Observer
Seed Blasting	Remove sealant with walnut shell blaster	
Hand cleaning	Wash with ED500 Clean with Mil-Spec Remove by hand all remaining sealant	General technicians
Reseal wing	Flush with PR148 Mix 2-part Epoxy Apply Epoxy barrier Prime with EC1945 Brush coat Q4 sealant Apply sealant Q4 with Semco gun	General technician Trade and independent inspectors
Refit plank	Wipe down top-skin panel with Mil-Spec Wipe down top-skin panel with pR148 Mix PR1750 B sealant Apply PR1750 B sealant to top-skin panel Refasten panel while sealant is wet (6 hour time limit)	

Adapted from: Report of the Board of Inquiry into F-111 (Fuel Tank) Deseal/Reseal and Spray Seal Programs, Vol 2, Chapter 12, 2001.

Appendix 1B : Summary list of F-111 DSRS activities

De-fuelling fuel tanks
De-puddling fuel tanks
De-plumbing fuel tanks
Chemical de-sealing of fuel tanks
Removing sealant by the use of high pressure water pick
Removing sealant with walnut shell blaster
Scrubbing / smoothing of tank surface by hand
Applying high pressure detergent wash to tanks
Applying hot rinse to tanks
Application of Primer with manoeuvrable pressure pot
Mixing of Sealant
Cleaning mixing machines with detergent products
Cleaning mixing machines with MEK
Application of new sealant with air-assisted airless gun
Application of Epoxy Barrier (XA3598)
Application of new fillet sealant
Re-plumbing fuel tanks
Refitting wing planks
Leak testing
Inspection of tanks
Inspection with black light
Resealing of voids
Storage of chemicals
Cleaning of chemical storage facilities
Decanting or recanting of chemicals
Disposal of waste SR51 or Rinse Solution
Burning of waste SR51 or Rinse Solution
Pouring of solutions into drains
Transportation of sludge to remote areas for air drying
Collection of air-dried powder
Burning of air-dried powder
Absorption of SR51 by Tec Blocks
Disposal of SR51 soaked Tec Blocks

Appendix 1C : Terms of Reference

TERMS OF REFERENCE
HEALTH STUDY OF INDIVIDUALS INVOLVED IN THE F-111 DESEAL / RESEAL PROGRAM

1. This paper outlines the proposed research on the health of individuals involved in the deseal/reseal of the fuel tanks on the Royal Australian Air Force (RAAF) F-111 aircraft.

Background

2. In 1973, Australia received twenty-four F-111 C aircraft, later, Australia received some additional F-111 G aircraft from the United States that were surplus to American needs. The fuel tanks within all these aircraft were sealed chemically. With the passage of time, the sealant degenerated. It was necessary to remove the degenerated sealant, and replace it with new sealant.

3. The process of removal of degenerated sealant required that it be first treated chemically, and then removed physically, initially with water jets and with, final removal then being largely by hand-held tools. The individuals responsible for removing the degenerated sealant had to climb into the fuselage fuel tank. The wing tanks did not require entry. Although they wore protective clothing and had breathing apparatus, it has become apparent that individuals were potentially exposed to a variety of chemicals that were used in this process. Further, it is not clear that breathing apparatus was used in the early program.

4. It should be noted that there were three different programs. Although there were some similarities and common themes, each program involved different process. The first of these was in the early 1980's, the second program was in the late 1980's, and the final program was from 1996 until present. In addition, there was a program of desealing and resealing the wing fuel tanks. It is believed that the total number involved in all the programs is about eight hundred.

5. Several health concerns have been raised. It was noted that some involved in the programs suffered from neurological and psychological changes. There are anecdotal reports of an increase in incidence of multiple sclerosis. There have also been similar reports of an increase in malignant neoplasms, particularly neoplasms of the bowel.

Description of the Health Study

6. The successful tenderer will, working in conjunction with the Commonwealth Departments of Defence and Veterans' Affairs, and with members of the Australian Defence Force, undertake a health study of those involved in the deseal/reseal program. The health study will include:

- psychometric testing, aimed at assessing any measurable change in intellectual ability, presence of psychological illness and personality changes in the cohort and an assessment of alcohol use;
- the incidence of malignant disease of the cohort;
- the prevalence of multiple sclerosis of the cohort;
- the mortality experience of the cohort;
- the incidence of major congenital abnormality in the children of the cohort;
- the incidence of malignancy in the children of the cohort; and
- additional health related matters regarding environmental contaminants, occupational health and safety issues and the involvement of other than RAAF personnel in the program.

7. These measures of health will be also assessed in a comparison group of Defence personnel that were not involved in the deseal/reseal program. The Departments of Defence and Veterans' Affairs will assemble this group, with input from the successful tenderer.

8. The successful tenderer will be required to work in conjunction with a formal Board of Inquiry. The successful tenderer will be required to regularly update council assisting the Board of Inquiry, and possibly provide reports to the Board of Inquiry.

9. An independent Scientific Advisory Committee (SAC) will oversight the health study. The tenderer will be required to submit a protocol outlining in precise detail the research strategy. The SAC will be required to approve the protocol submitted by the tenderer and the tenderer must sign-off the final report. The tenderer will be required to provide the SAC with quarterly updates on the progress of the study. At the conclusion of the study, the tenderer will be required to produce a report to the Minister assisting the Minister for Defence and Minister for Veterans' Affairs, the Honourable Bruce Scott, the Chief of the Australian Defence Force, Admiral Chris Barrie, the Chief of Air Force, Air Marshal E J McCormack and the Director General Defence Health Service, Brigadier Wayne Ramsay. This report will require the specific endorsement of all members of the SAC.

10. The tenderer will also be required to seek publication in appropriate peer-reviewed journals of high standing, articles outlining the major findings of the research. It is envisaged that these articles will be co-authored by members of the SAC, and possibly by staff of the Departments of Veterans' Affairs and Defence, and possibly by members of the Australian Defence Force.

11. The tenderer may need to provide advice on methods and practices of occupational health within the deseal/reseal program, and on the applicability of lessons learnt in this program to other occupational settings. The tenderer will also make recommendations on the need for and nature of additional future research, although these recommendations should not be designed with an implied or explicit expectation that the tenderer will be asked to undertake this research.

12. The tenderer will also be required to regularly meet with and give an account of the progress of the research to the members of deseal-reseal cohort, or possibly a representative committee of the cohort.

13. The tenderer may recommend additional research directions and may be required to assist the Commonwealth in providing advice to appropriate authorities in the United States on the results of the study, and the relevance to populations in the United States of the Australian findings.

14. There is a variety of reasons why this study will need to be compiled in a timely fashion, however, any time-frames imposed will have regard to controls in areas such as data specifications, forms and other relevant information provided by the Commonwealth to the tenderer. To this end, the successful tenderer will be required to provide the Commonwealth with a detailed plan outlining the proposed study. The plan should include a series of measurable milestones against which demonstrable progress can be measured. The contract that the Commonwealth will draw up with the successful tenderer will make payment dependent on successful achievement of these milestones.

15. It will also be necessary for the tenderer to provide the Department of Veterans' Affairs, the Scientific Advisory Committee and the Board of Inquiry with a series of progress reports. Each progress report will include an outline of the health findings that the tenderer has discovered within the cohort. The highest priority is an estimation of cancer risk. If any particular malignancy is shown to have an elevated risk, the tenderer should provide a detailed discussion of the cost, benefit and risk associated with a prevention, screening or early treatment program for that particular cancer. The Commonwealth requires the cancer risk section of the health study to be completed within a few months of the signing of the contract with the successful tenderer.

16. A screening process to determine other illnesses or diseases that should receive priority attention during the course of the study will be the subject of consultation between the SAC and the tenderer.

Features of the Successful Tenderer

17. The successful tender will have:

- a proven ability to plan and execute epidemiological studies in a timely fashion, and a demonstrated ability to set down plans to implement such epidemiological studies. Such plans should contain detailed time frames for the implementation of the proposed study. The tenderer will need to have a demonstrated ability to adhere to such time-tables;
- strong academic qualifications, with members of the successful tender having an appropriate track record within such fields as epidemiology, occupational health or neurological epidemiology;
- an ability to implement a standardised health examination throughout South East Queensland, and possibly Australia;
- well developed marketing and communication skills.

18. It is envisaged that the successful tenderer may well need to draw in skills and expertise of individuals within several organisations.

19. The Australian Institute of Health and Welfare (AIHW) is responsible for maintaining the National Death Index, the Australian Clearing House for Cancer and the National Register of Birth Defects. As it will be necessary for the successful tenderer to make use of these registries, the Commonwealth will liaise with AIHW to ensure an appropriate level of access to the AIHW's facilities and services is available to the successful tenderer.

The Tender Process

20. Acting as a agent for the Commonwealth, the Department of Veterans' Affairs will request interested parties to submit an Expression of Interest. The groups or individuals who have submitted an Expression of Interest will be expected to provide a statement, outlining what they perceive to be the strengths of their proposed tender. Selected parties who have submitted an Expression of Interest will be invited to attend a one-day briefing in Brisbane. The seminar will consist of two parts. In the first part, general information will be provided to all those who have expressed interest in undertaking the study.

20 continued.…This will include background on the deseal/reseal program and a presentation from the Australian Institute of Health and Welfare, demonstrating to interested tenderers how they will make the registries available to the successful tenderer. During the second part, representatives of the Commonwealth will provide feedback to those who have expressed interest in undertaking the study on an individual basis. During this interview, the Commonwealth will provide information on what it is perceived is the weaknesses and strengths of the proposals concerned.

21. The Commonwealth reserves the right to request that some or all tenderers should consider forming joint tenders.

22. Following an assessment of the strengths and weaknesses of the various tenders, the Commonwealth will invite some or all of those who have expressed interest to submit a tender. Only those who have expressed interest will be eligible to be invited to tender for the study. The assessment of the merit of those who have expressed interest in undertaking the study will be made by the Commonwealth, with advice from the independent Scientific Advisory Committee (SAC).

23. Those who have been invited to tender will be required to submit a tender in writing by close of business on a particular day. Following this, each invited tenderer will be asked to supplement their written tender by an oral presentation.