

Update on Nuclear Test Personnel Review (NTPR) Program

***Veterans' Advisory Board on Dose
Reconstruction***

Dr. Paul K. Blake

3:00 PM – 3:30 PM

June 8, 2006





Briefing Outline

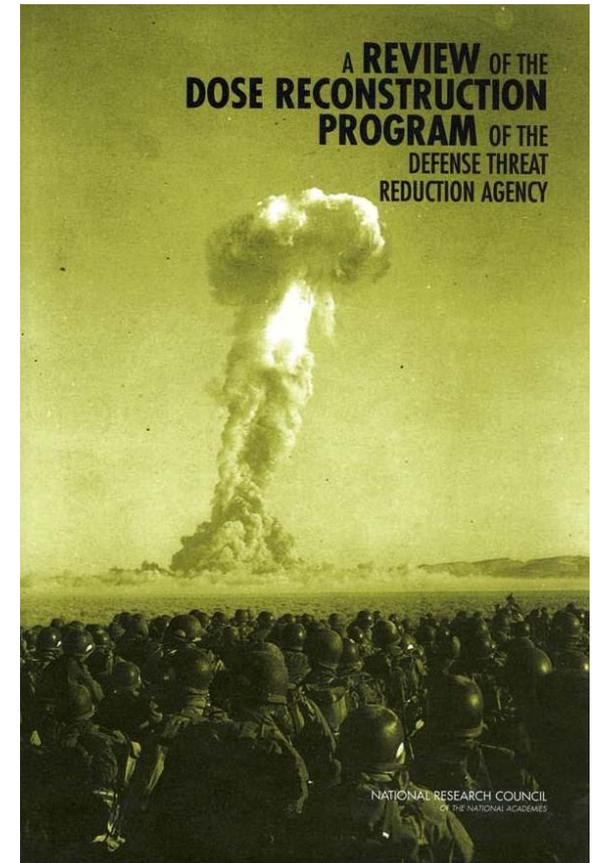
- Program Status
 - Update on Report to Congress
 - Point Paper on Skin Cancer
 - The Road Ahead
-
- Projected Briefing Time: 25 minutes





NRC-2003

- In May 2003, the National Research Council (NRC) released, “A Review of the Dose Reconstruction Program of the Defense Threat Reduction Agency” (DTRA).
- This had a major impact on the NTPR program.
- A brief summary follows on NTPR program status since NRC 2003.





NRC-2003 Impact

- The NRC study recommendations resulted in a revision to NTPR procedures. No dose reconstructions were performed for approximately six months (May – Oct 2003) while these procedures were being formulated.
- In addition, during the last quarter of 2003, the Department of Veterans Affairs (VA) returned over 1,200 dose reconstruction cases to DTRA.
- This created a backlog of dose reconstruction cases that is proving particularly challenging to reduce!

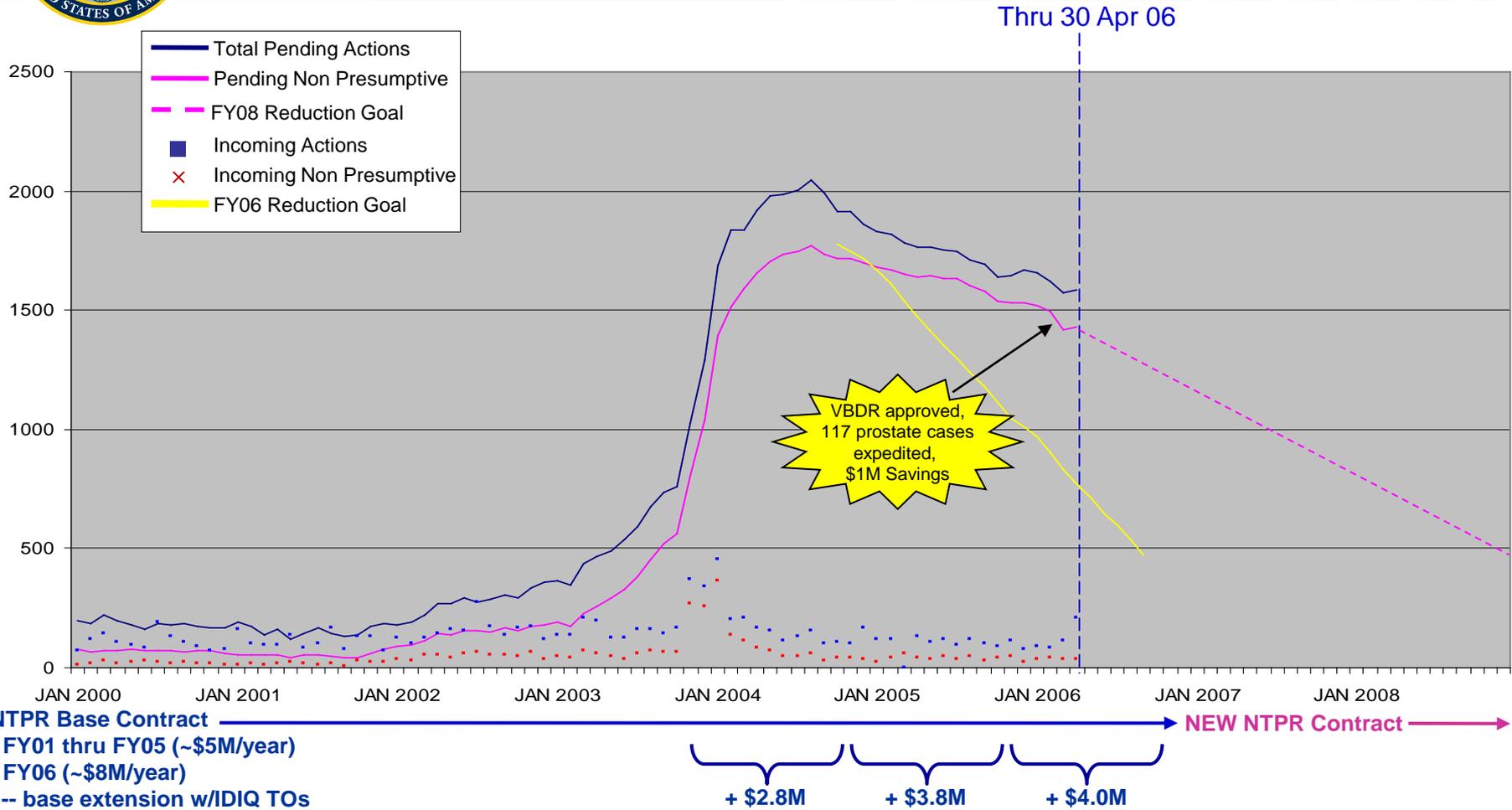


NRC-2003 Impact

- In Dec 2003, PL 108-183 was signed. Sec 601 required:
 - VA/DoD conduct a review of the Department of Defense (DoD)'s Dose Reconstruction Program
 - Establish an Advisory Board
- Consequently:
 - Jun 2004 – A joint report was released to Congress
 - Nov 2004 – Veterans' Advisory Board on Dose Reconstruction (VBDR) chartered



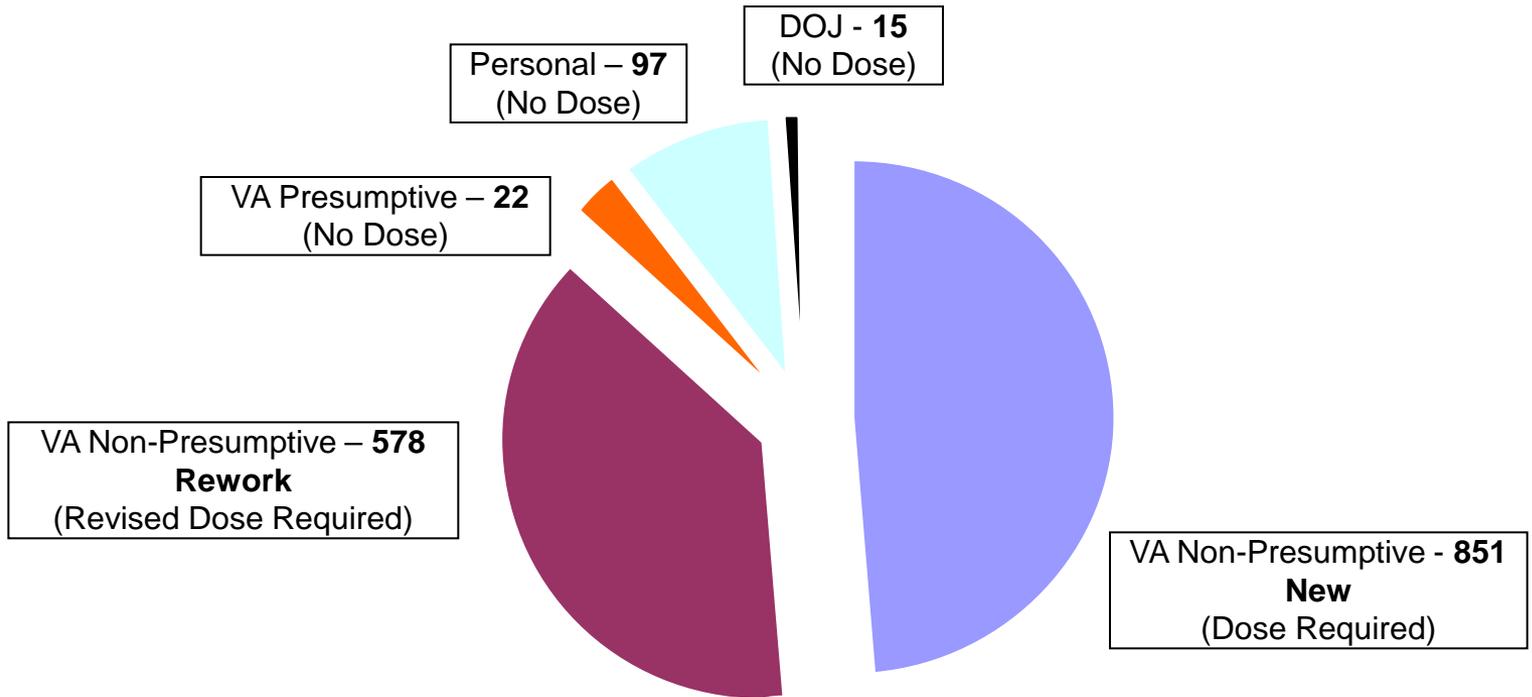
NRC-2003 Impact





NRC-2003 Impact Pending Workload - By Cases

Total Pending Cases – **1563**
Total Non-Presumptive Cases - **1429**
(as of 30 Apr 2006)

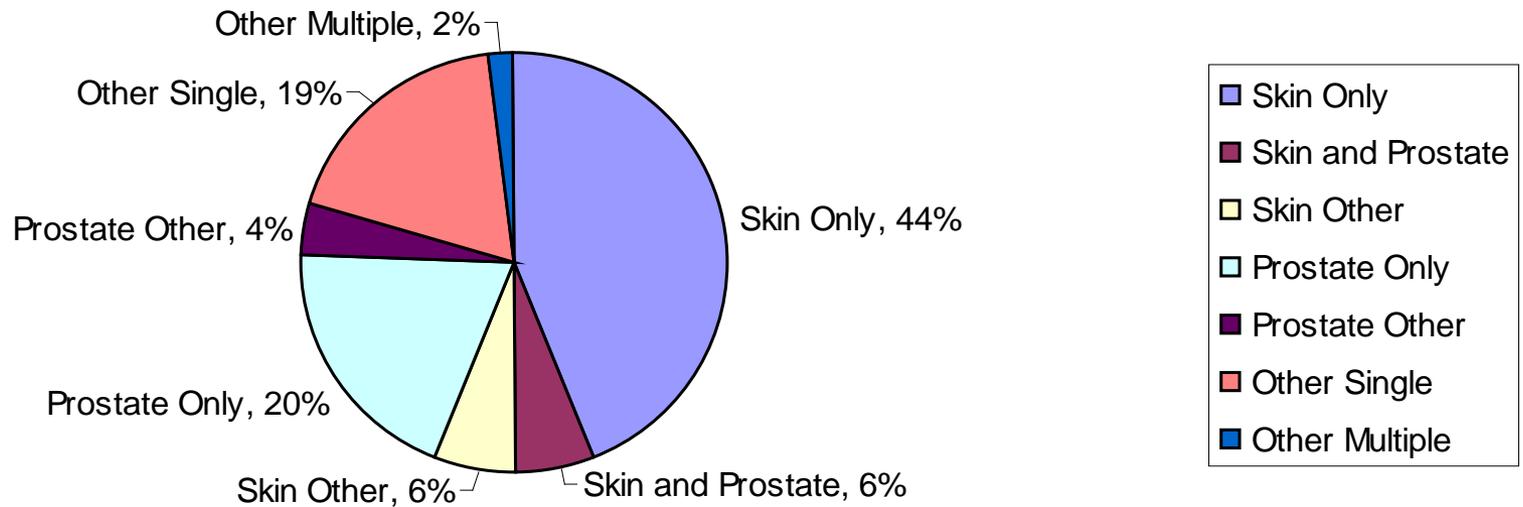




NRC-2003 Impact

Pending Workload - By Disease

Disease Distribution - April 2006





Report to Congress

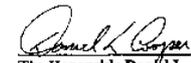
- Constitutes a review of missions, procedures, and administration pertaining to the NTPR Program.
- Presents 23 findings and summarizes DTRA and VA action plans
- Action plans were expected to be completed within two years. The VBDR was previously briefed on some of these findings on 17 Aug 2005.

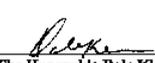
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RADIATION DOSE RECONSTRUCTION PROGRAM OF THE DEPARTMENT OF DEFENSE (DoD) REPORT TO CONGRESS

Submitted on JUN 3 2004 to the 108th United States Congress by the Department of Defense and the Department of Veterans Affairs in accord with the requirements of Public Law 108-183

For the Department of Veterans Affairs: For the Department of Defense:


The Honorable Daniel L. Cooper
Under Secretary for Benefits


The Honorable Dale Klein
Assistant to the Secretary of Defense for Nuclear and Chemical and Biological Defense Programs



Report To Congress – Summary

- Findings 1-4: Inter-Agency Actions to Improve Claims Procedures
- Findings 5-14: DTRA Actions to Improve NTPR Program Procedures
- Findings 15-18: Inter-Agency Actions to Improve Communications
- Findings 19-23: Advisory Board Requirements and Functions



5 - Finding

- Finding - Inadequate and inconsistent application of benefit of the doubt in exposure scenarios.
- Actions already taken - Scenario of Participation and Radiation Exposure (SPARE) was successfully implemented.
- Plan – Introduce probability distributions in dose reconstructions.



5 - Status

- Use of probability distributions in dose reconstruction does not fall under SPARE development. Instead, these distributions may be used in the Radiation Dose Assessment (RDA) procedure. Consequently, this concept is not of concern for this finding.
- DTRA considers this action item **closed**.



6 - Finding

- Finding - Several pathways frequently neglected in exposure scenarios:
 - contamination resuspended by shock wave
 - dermal exposure from skin contamination
 - exposure from ingestion of contaminated materials
- Actions already taken – DTRA revised its procedures to ensure that these pathways are considered.



6 - Status

- NTPR is in the process of publishing technical reports, which should result in scientifically defensible policy:

| DTRA Draft Release Date | Peer-Review Target Feedback Date | DTRA Target Publish Date | DTRA Contract Author | Title |
|-------------------------|----------------------------------|--------------------------|----------------------|---|
| Feb-06 | Apr-06 | May-06 | SENES | "Screening Doses for Induction of Cancers Calculated with Interactive Radioepidemiological Program (IREP)" |
| Mar-06 | May-06 | Jun-06 | SENES | "Bounding Analysis of Effects of Fractionation of Radionuclides in Fallout on Estimation of Doses to Atomic Veterans" |
| Apr-06 | Jun-06 | Jul-06 | SAIC | Revision of "FIIDOS - A Computer Code for the Computation of Fallout Inhalation and Ingestion Dose to Organs" |
| May-06 | Jul-06 | Aug-06 | SENES | "Evaluation of Inhalation Doses in High-Resuspension Scenarios at Nevada Test Site" |
| Jun-06 | Aug-06 | Sep-06 | SAIC | "Special Study: Exposures to Old Fallout Fields for Desert Rock Trainees at Nevada Test Site through 1955" |
| Jul-06 | Sep-06 | Oct-06 | SENES | "Skin Doses From Dermal Contamination" |
| Aug-06 | Oct-06 | Nov-06 | SENES | "Considerations on Estimating Upper Bounds of Neutron Dose Equivalents to Atomic Veterans" |



7 – Finding & Status

- Finding - External gamma dose upper bounds often underestimated substantially.
- Actions already taken - DTRA issued interim guidance (Jul 2003) – “3x adjustment factor” for external gamma and beta dose upper bounds. The factor has since been incorporated in NTPR Policy & Guidance Manual.
- Status – This is a difficult but important issue to address. DTRA will develop a workable action plan and present it at the next VBDR meeting.



8 - Finding & Status

- Finding - Estimates of internal dose are intended to be “high- sided,” but may not always be so.
- Status – An interim “10X adjustment factor” was instituted in July 2003. The NTPR team is developing models and performing uncertainty analyses to address adequacy of the adjustment factor.



9 - Finding & Status

- Finding - The upper bound on neutron dose component was always underestimated.
- Status – An interim “6X adjustment factor” was instituted in July 2003. The NTPR team is in the process of revising a draft technical report (see “Status – 6”), which should result in scientifically defensible policy.



10 – Finding & Status

- Finding - VA adds upper bound estimate of the external dose to reported “high-sided” inhalation dose and/or beta skin dose.
- Status – VA’s decision to use the Interactive RadioEpidemiology Program exclusively has minimized this issue. However, DTRA will report at a future VBDR meeting how it has tested its dose models against realistic data sets.



11 – Finding & Status

- Finding - Correlations are not often properly accounted for when combining various doses to arrive at a total organ dose.
- Actions to date – The NTPR team has initiated an investigation of correlations between different exposure pathways:
 - Prompt neutron & gamma doses
 - Residual gamma & beta doses
 - Internal doses from different radionuclides
- Status – We also plan on investigating correlations from the same exposure pathway. For example, summation of multiple film badge readings, based on the bias factors and random uncertainties at each test series, presented in the NRC (1989) report on “Film Badge Dosimetry in Atmospheric Nuclear Tests.”



12 – Finding & Status

- Finding - DTRA's specific methodology for reconstruction doses is often poorly documented or not documented at all.
- Status – Although significant progress has been made (e.g. the NTPR Policy & Guidance manual, and standardized SPARE, RDA, MathCad, & Excel templates), this is an ongoing activity, which will continue to require significant investment in time and money by the NTPR team.



13 – Finding & Status

- Finding - DTRA must develop, implement, and maintain an auditable documentation system.
- Status – DTRA has implemented version control for its documentation and software. We are currently revising our MathCad template structure, as per input provided by VBDR SC1 during its onsite review on 3-4 May 2006.



14 – Finding & Status

- Finding - DTRA needs to develop a comprehensive quality management system that encompasses all aspects of the dose reconstruction program.
- Status – The NTPR team has drafted a Quality Assurance (QA) manual to supplement its existing NTPR Policy & Guidance manual. This QA manual has been forwarded to VBDR SC3 for comment.



Skin Cancer Point Paper

- In response to the VBDR's request (at our last meeting – Jan 2006), DTRA has prepared a point paper entitled, "Analysis of Service Connection for Radiation-Induced Skin Cancer in Veteran Compensation Claims."
 - The paper introduces background and discussion material, and concludes with three recommendations for the VBDR's consideration.



Skin Cancer Point Paper

- Background – DTRA currently has a backlog of 789 skin RDAs. Projected incoming skin RDAs is 160/yr.
- Uncertainty – The uncertainty associated with DTRA's skin RDAs is potentially significant.
- Screening Doses – For some veteran scenarios, basal cell carcinoma and malignant melanoma screening doses are smaller than DTRA's RDA upper bound doses. The associated VA claims are likely to be successful.



Skin Cancer Point Paper

- Level of Effort – DTRA currently expends approximately 98 person-hours, with an associated cost ranging from \$9-15,000, to complete one non-Hiroshima/Nagasaki (H/N) skin RDA.
- Conclusion – DTRA's costs to perform non-H/N skin RDAs are likely to exceed the costs of any benefits provided to affected veterans.



Skin Cancer Point Paper

- Recommendation 1 – Eliminate requirement to perform all non-H/N basal cell carcinoma & malignant melanoma RDAs, by establishing internal VA policy to grant service connection without regard to skin dose.
- Recommendation 2 - Eliminate requirement to perform all non-H/N squamous cell carcinoma RDAs, by establishing internal VA policy to grant service connection without regard to skin dose.



Skin Cancer Point Paper

- Recommendation 3 – Implement various efficiency measures that enable DTRA to perform expedited processing, provide worst-case (maximum) skin doses to VA, and discontinue central dose estimates for skin RDAs.



Skin Cancer Point Paper

- The first recommendation focuses on the “science” of screening doses.
- The second recommendation focuses on the “budget” of DTRA & VA.
- The third recommendation can be performed by DTRA independently of the VA.
- Endorsement of any of these recommendations will assist DTRA in reducing its current backlog and help speed answers to the VA and our aging veterans.



The Road Ahead

- The backlog of dose reconstruction cases at DTRA continues to be extremely troubling. This backlog is not fair to our veterans and is proving very expensive and time consuming to reduce.
- It is our hope that the VBDR and VA will consider endorsing DTRA's point paper recommendations, which should result in a more rapid backlog reduction.