DEFENSE THREAT REDUCTION AGENCY

DTRA

Making the World Safer

Update on Nuclear Test Personnel Review (NTPR) Program

Dr. Paul K. Blake

Veterans' Advisory Board on Dose Reconstruction

4:00 PM – 4:30 PM

12 Jan 2006

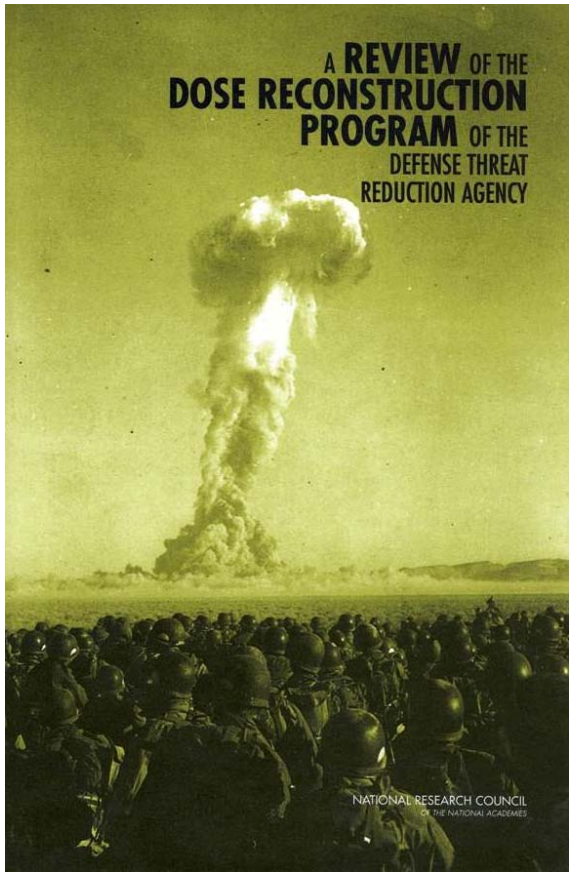
Briefing Outline

- Post NAS-2003 Status
- Prostate Dose Results
- Skin Dose Results
- Quality Assurance
- Veteran Communication Activity
- The Road Ahead

- Projected briefing time: 25 minutes

NAS-2003

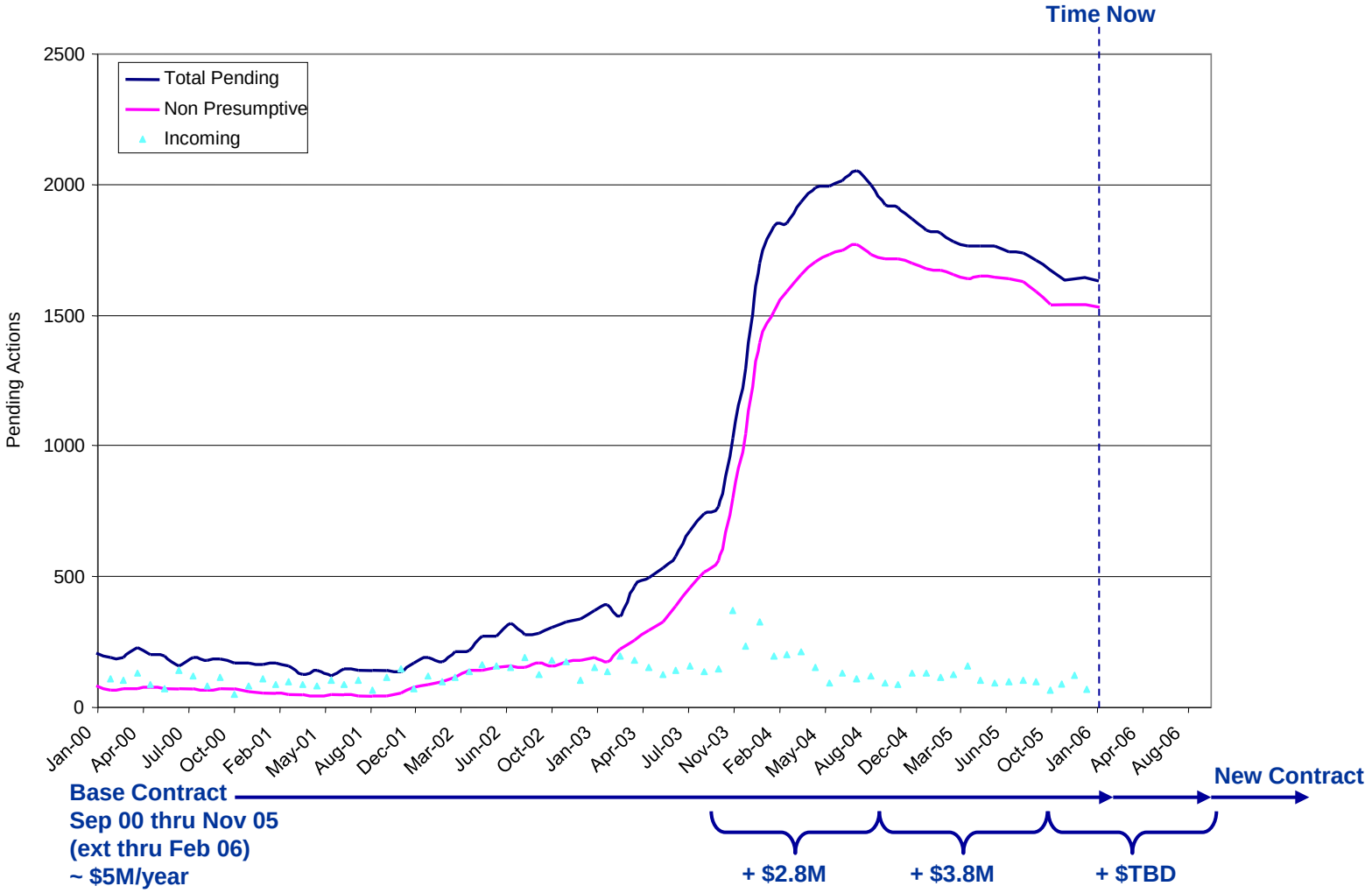
- In May 2003, the NAS/NRC released, “A Review of the Dose Reconstruction Program of DTRA.”
- This had a major impact on the NTPR program.
- A brief summary follows on NTPR program status since NAS 2003.



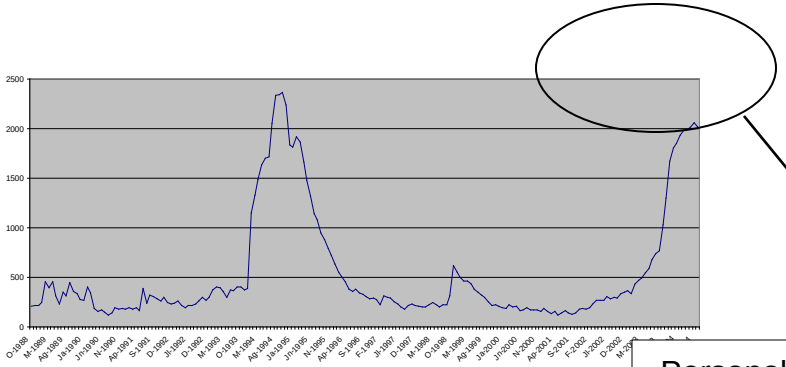
NAS-2003 Impact

- The NAS 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 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!

NAS-2003 Impact



Post NAS-2003 - Pending Workload - By Cases

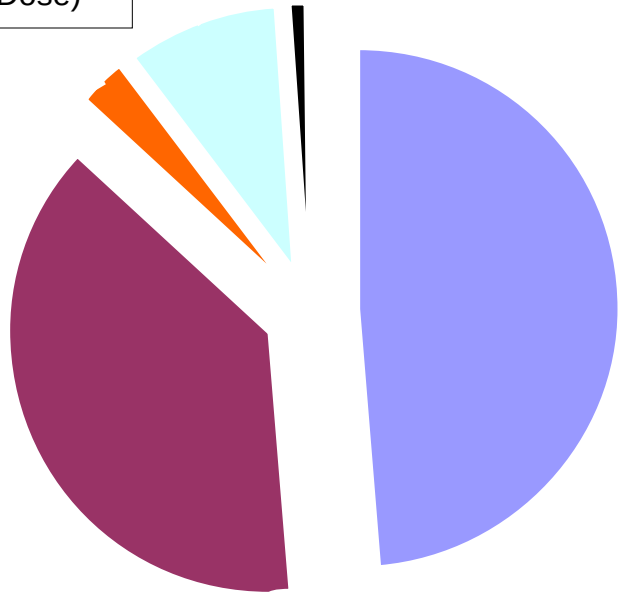


Total Pending Cases - **1643**
(as of 03 Jan 2006)

Personal - **65**
(No Dose)

DOJ - **10**
(No Dose)

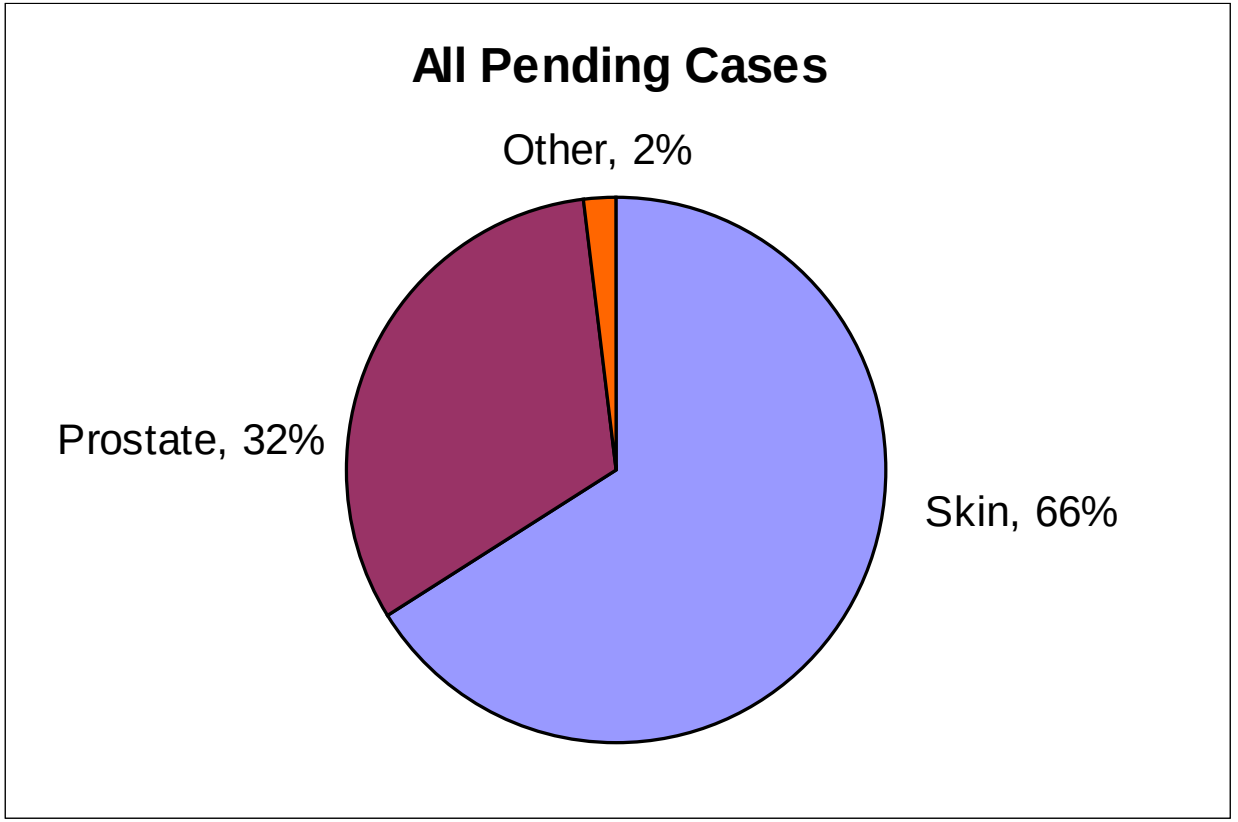
VA Presumptive - **38**
(No Dose)



VA Non-Presumptive - **803**
New
(Dose Required)

VA Non-Presumptive - **727**
Rework
(Revised Dose Required)

Post NAS-2003 - Pending Workload - By Disease



Prostate Dose Rework Results

- NTPR has completed 78 prostate dose reconstruction reworks since the NAS/NRC 2003 report. **In no case, did a reevaluation result in a significant change in prostate dose.**
- All of these doses (at the 95% Upper Bound) were significantly less than the Probability of Causation (PC) dose threshold (at the 99% Credibility Limit) used by the VA in making non-presumptive compensation determinations.

Prostate Dose Rework Results

"… the committee hopes that the veterans will understand that their radiation exposure probably did not cause their cancers in most cases and that reasonable changes in methods of dose reconstruction in response to this report are not likely to greatly increase their chance of a successful claim for compensation in most cases when a dose reconstruction is required."

Ref: NAS/NRC (2003) – the "Green" Book, pg. 13.

Prostate Dose Rework Breakout

	AVG (rem)	95% UB (rem)
Pre-2003	0.52	0.91
Post-2003	0.59	1.37
Largest Pre-2003 Value	4.1	5.9
Largest Post-2003 Value	4.1	9.0
PC at 99%		33
AVG:	Average Prostate Dose (rem)	
95% UB:	95% Upper Bound Dose (rem)	
PC at 99%:	Probability of Causation at 99% Credibility Limit	
PC Basis:	Exposure at 20 years, and diagnosis at 60 years	
	Reference (for PC): Table III.E.4 in "Green Book"	
Population Size: 32 - Non H&N Reworks		

Prostate Dose Rework Breakout

	AVG (rem)	95% UB (rem)
Pre-2003	N/A	< 1
Post-2003	0.28	0.68
Largest Pre-2003 Value	4.1	5.9
Largest Post-2003 Value	4.1	9.0
PC at 99%		33
AVG:	The Average Prostate Dose (rem)	
95% UB:	95% Upper Bound Dose (rem)	
PC at 99%:	Probability of Causation at 99% Credibility Limit	
PC Basis:	Exposure at 20 years, and diagnosis at 60 years	
	Reference (for PC):Table III.E.4 in "Green Book"	
Population Size: 78 - All Reworks		

Cost Benefit Analysis

- Approx. cost to perform post-NAS 2003 prostate dose reconstruction: $9k
- Outstanding prostate dose reworks: 128
- Approx. cost to complete prostate reworks: $9k * 128 = $1.15M
- **Conclusion**: This is an expensive process with no benefit to the veteran. It also slows DoD's dose reconstructions for all veterans who have the possibility of receiving compensation.
- Planned Course of Action: Immediately discontinue all outstanding prostate dose reworks.

DTRA Action Item

- The DTRA NTPR office is prepared to review the 128 remaining prostate dose reworks for any unusual circumstances that might cause a significant dose increase.

- If no unusual circumstances are found, the NTPR program can prepare correspondence for the VA (copy to the veteran) stating that DTRA stands by its previous prostate dose estimate but will provide revised upper bound estimates (as defined in the NTPR Policy & Guidance Manual), if this works to the veteran's favor.

NTPR Upper Bound Estimates

- In response to the "Green" book, the NTPR released interim guidance (on 16 Jul 2003) that included Upper Bound Estimating. This has since been added to the NTPR Policy and Guidance Manual:
  - Apply a factor of 3x the average value to external gamma doses
  - Apply a factor of 6x the average value to external neutron doses
  - Apply a factor of 10x to the internal dose estimate for scenarios not identified by the NAS/NRC report as highly uncertain

Skin Dose Rework Results

- NTPR has completed 349 skin dose reconstruction reworks since the NAS/NRC 2003 report. Some of these reworks exceed Probability of Causation (PC) dose threshold used by the VA in making non-presumptive compensation determinations.

- To date, the possibility of a rework (depending on skin color) exceeding the PC dose threshold is:

  - Basal Cell Carcinoma: 11%
  - Squamous Cell Carcinoma: 3%
  - Melanoma: 0%

Skin Dose Reevaluation Breakout

	BCC - AVG	BCC - 95%	SCC - AVG	SCC - 95%	M - AVG	M - 95%
Pre-2003	2.0	2.0	4.0	4.0	0.1	0.2
Post-2003	3.8	11.3	9.1	36.0	0.5	0.9
Largest Pre-2003 Value (rem)	18	18	51	51	0	0
Largest Post-2003 Value (rem)	133	372	133	594	1	4
PC at 99%		4 or 10		190 or 475		8 or 10
Population Size	110		71		5	
BCC:	Basal Cell Carcinoma (rem) - average or 95% upper bound					
SCC:	Squamous Cell Carcinoma (rem) - average or 95% upper bound					
M:	Melanoma (rem) - average or 95% upper bound					
PC at 99%:	Probability of Causation at 99% Credibility Limit for Black or White Skin (rem)					
PC Ref:	Table III.E.6 in "Green Book"					
Population: Non H&N Reworks						

Skin Dose Reevaluation Breakout

	BCC - AVG	BCC - 95%	SCC - AVG	SCC - 95%	M - AVG	M - 95%
Pre-2003	N/A	N/A	N/A	N/A	N/A	N/A
Post-2003	1.9	5.8	7.0	27.8	0.4	0.8
Largest Pre-2003 Value (rem)	18	18	51	51	0	0
Largest Post-2003 Value (rem)	133	372	133	594	2	4
PC at 99%		4 or 10		190 or 475		8 or 10
Population Size	243		92		14	
BCC:	Basal Cell Carcinoma (rem) - average or 95% upper bound					
SCC:	Squamous Cell Carcinoma (rem) - average or 95% upper bound					
M:	Melanoma (rem) - average or 95% upper bound					
PC at 99%:	Probability of Causation at 99% Credibility Limit for Black or White Skin (rem)					
PC Ref:	Table III.E.6 in "Green Book"					
Population: All Reworks						
Note:	Some pre-2003 H&N dose estimates did not include skin dose (hence - N/A)					

Cost Benefit Analysis

- Although skin dose reworks are expensive to perform, due to the uncertainty associated with beta dosimetry, it is possible that a rework can result in a VA non-presumptive compensation award.

- Decision: Continue to perform skin dose reworks.

Quality Assurance in 2005

- ISO Certification achieved for L-3 Titan NTPR Team May 2005. Valid for 3 years with annual surveillance visits.
- Continuous independent technical reviews of dose reconstruction procedures and technical basis documents performed by SENES Oak Ridge Inc.
- The DTRA NTPR program has also hosted reviews by VBDR Subcommittees: SC1 (Dose Reconstruction) and SC3 (Quality Management) and provided input to SC4 (Communications).

Quality Assurance in 2006

- The NTPR Policy & Guidance Manual has been modified (10 Jan 2006) to ensure consistency regarding radiation dose assessments.
  - This change supports a potential DTRA contract initiative (for Feb 2006) of bringing online multiple contract teams to perform radiation dose assessments.
  - It is envisioned that increased competition will eventually accelerate the NTPR backlog reduction effort and reduce the cost per dose assessment. However, it is critical that the government ensure consistent work product output.

Veteran Communication Activity in 2005

- 3741 total calls made by NTPR Program Communications and Outreach team
- The NTPR Case Manager conducted more than 1100 individual veteran contact calls
  - 20% were for administrative information
  - 30% were initial follow up calls
  - 50% were Scenario of Participation and Radiation Exposure (SPARE) follow-up calls

Veteran Communication Activity in 2005

- Finalized more than 500 individual veteran SPAREs
  - Approximately 70% of veterans responded in less than 30 days
  - Another 20% of veterans responded in less than 60 days
  - Approximately 88% of responding veterans agreed with the SPARE
  - Approximately 12% disagreed with comment and provided additional information for consideration and inclusion in the SPARE

Veteran Communication Activity in 2005

- Feedback from veterans or their survivors during the contact calls:
  - Veteran said the initial information he received (Operation Fact Sheets) with the Questionnaire was very helpful.
  - Veteran's widow appreciated the SPARE. First time anyone has ever given her such detail. She appreciated talking to an individual, not an automated system.
  - Veteran surprised by all the details in the SPARE, many of which he had forgotten.
  - Veteran said we did a superb job on his SPARE.
  - Veteran said he appreciated the contact call to make sure he received his SPARE.

The Road Ahead

- My number one priority is serving our veterans.
- At our next VBDR meeting, I will be reporting on the status of applicable DoD action items detailed in the DoD/VA 90 day report to Congress (PL 108-183, Sec 601(a)(3)).
- As always, I look forward to the VBDR's input and assistance in improving the DoD's NTPR program.