PC Algorithm Application

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www.stanforddosimetry.com

Goals/features

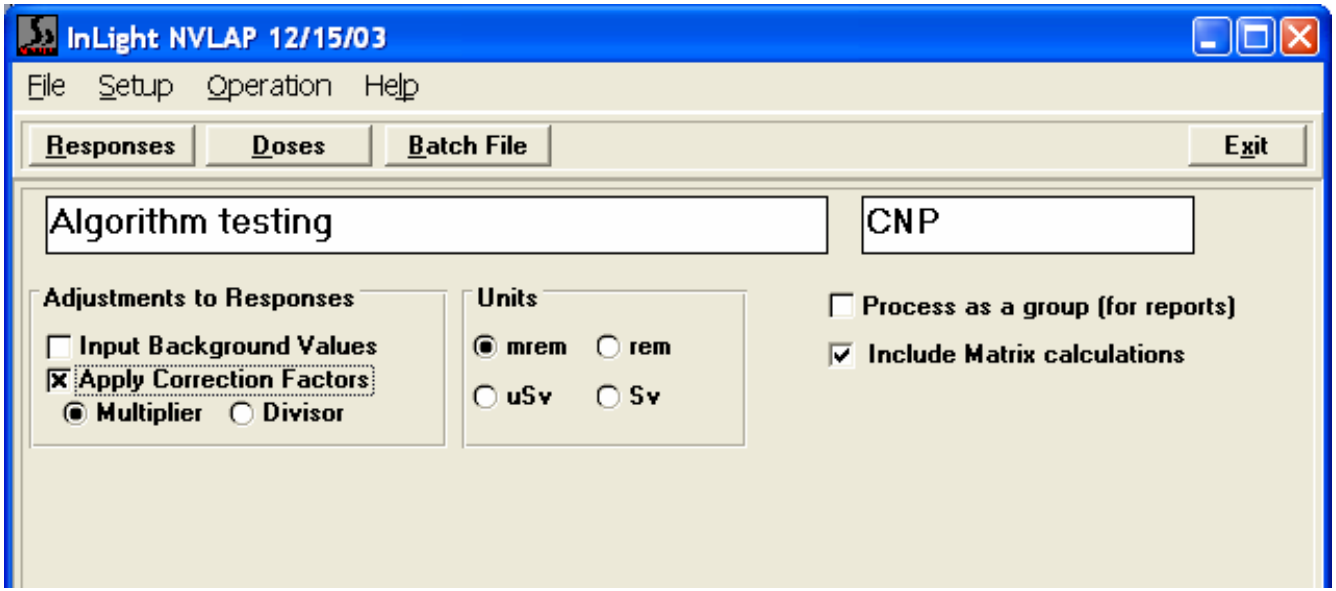
- Stand-alone PC based dose algorithm
- Calculate doses using standard algorithm
- Allow adjustments to element responses
- Perform “what-if” testing using simulated element responses
- Modular coding to allow efficient update of response matrix or algorithm design
- Formal reporting to printer and export to spreadsheet application.

General design

- Two modes of operation
  - Responses – input element responses (keyboard or file)
  - Doses – input doses and responses are estimated
- Matrix calculation
  - Specify fields to use for fit
  - Specify number of iterations
- Three reporting options including export to file
- On-line algorithm documentation

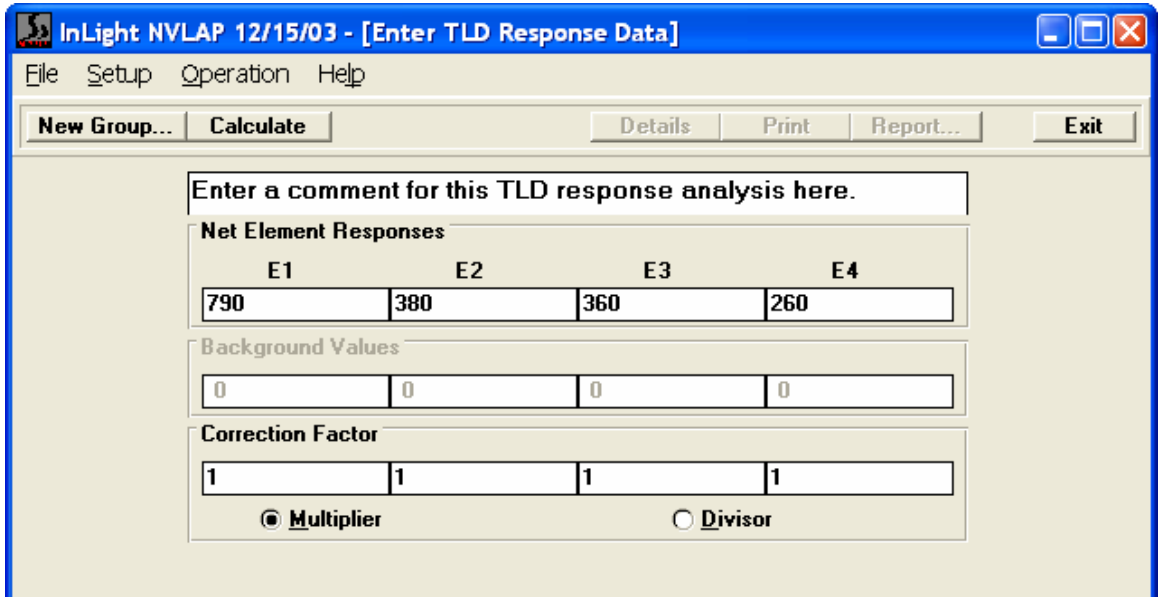
Options

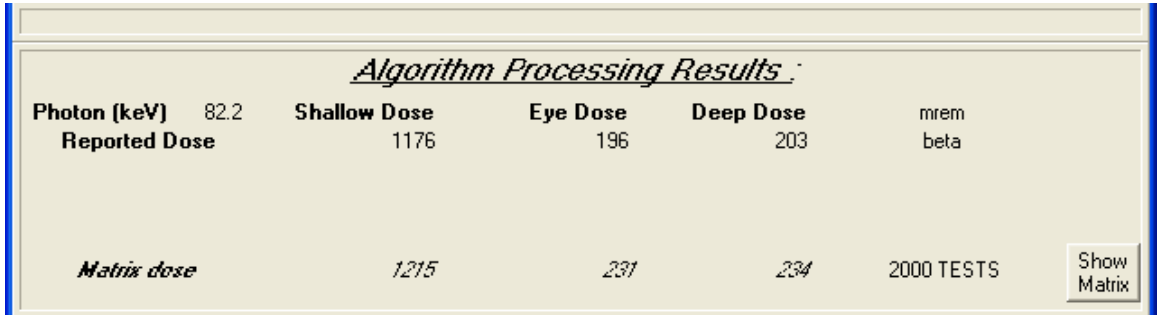
- Background subtraction
- Position-specific correction factors
- Units
- Matrix calculation



Responses mode

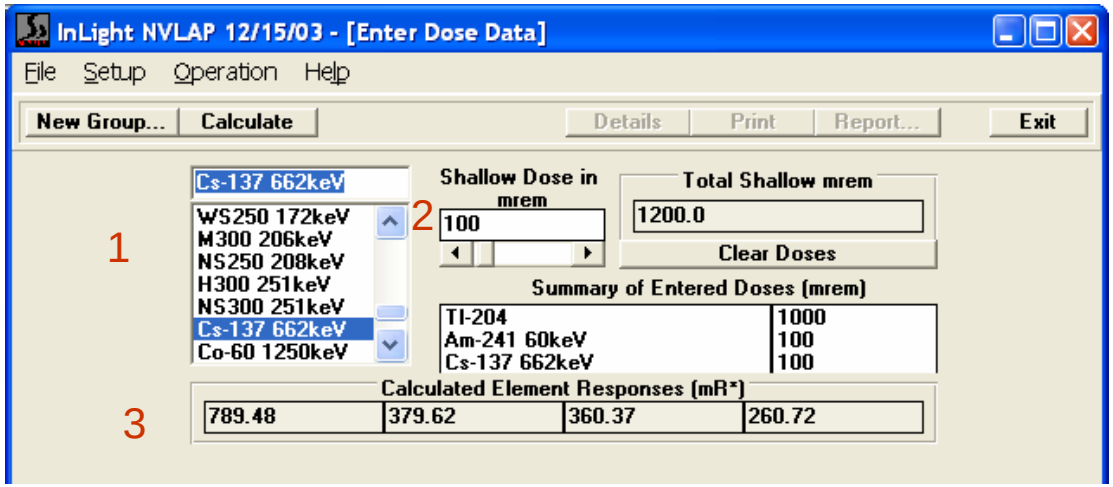
- Input element readings, with background and correction factors if desired.
- The dose is calculated using the standard algorithm.

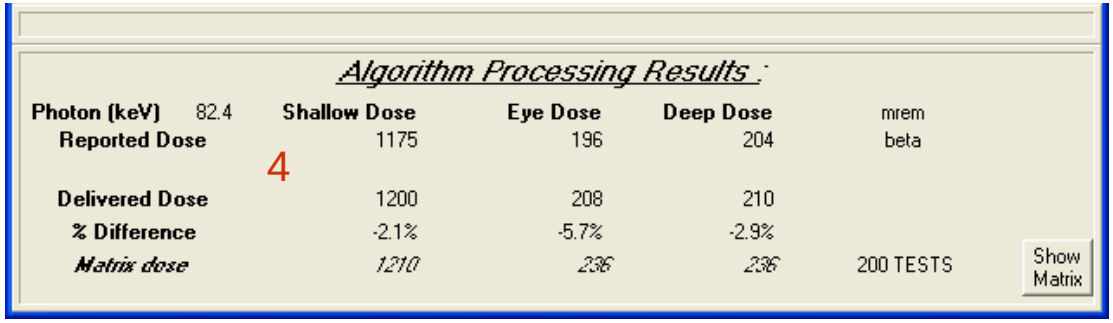




Doses mode –

Tests performance of algorithm under ideal conditions without the cost, time and added bias of irradiations.

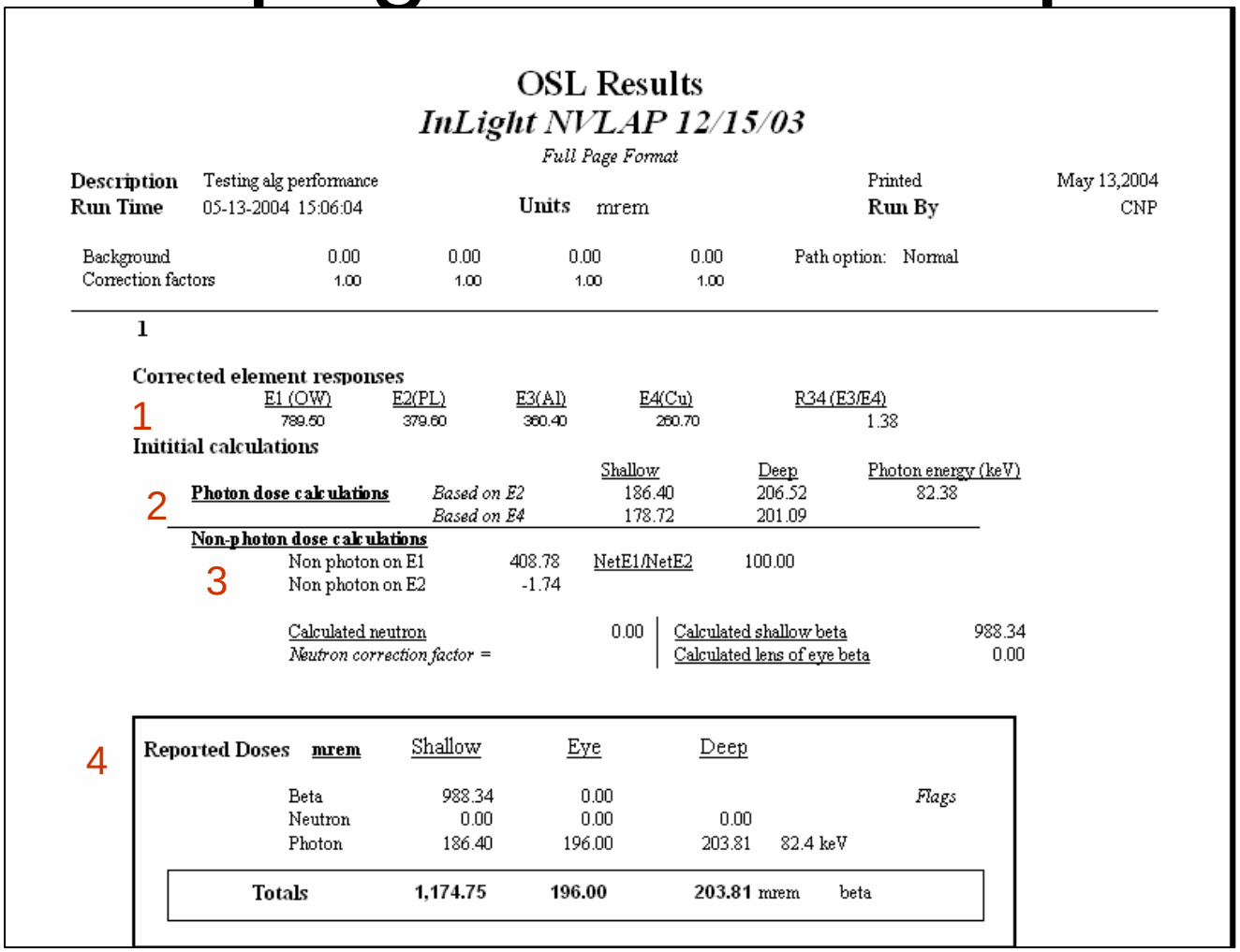




1. Select a field
2. Specify a dose level
3. Program calculates and sums responses based on inputs and response matrix
4. Doses are calculated as normal, with the percent difference displayed for each dose.

Any mixture can be input, in this case a large beta component with both x-ray and Cs photons added.

Full page detailed report



OSL Results

InLight NVLAP 12/15/03

Full Page Format

Description Testing alg performance — Printed May 13,2004

Run Time 05-13-2004 15:06:04 — **Units** mrem — **Run By** CNP

Background	0.00	0.00	0.00	0.00	Path option: Normal
Correction factors	1.00	1.00	1.00	1.00	

1

Corrected element responses

	E1 (OW)	E2(PL)	E3(Al)	E4(Cu)	R34 (E3/E4)
1	789.60	379.60	360.40	260.70	1.38

Inititial calculations

		Shallow	Deep	Photon energy (keV)
2 **Photon dose calculations**	*Based on E2*	186.40	206.52	82.38
	Based on E4	178.72	201.09	

Non-photon dose calculations

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Non photon on E1	408.78	NetE1/NetE2	100.00
Non photon on E2	-1.74		

Calculated neutron	0.00	Calculated shallow beta	988.34
Neutron correction factor =		Calculated lens of eye beta	0.00

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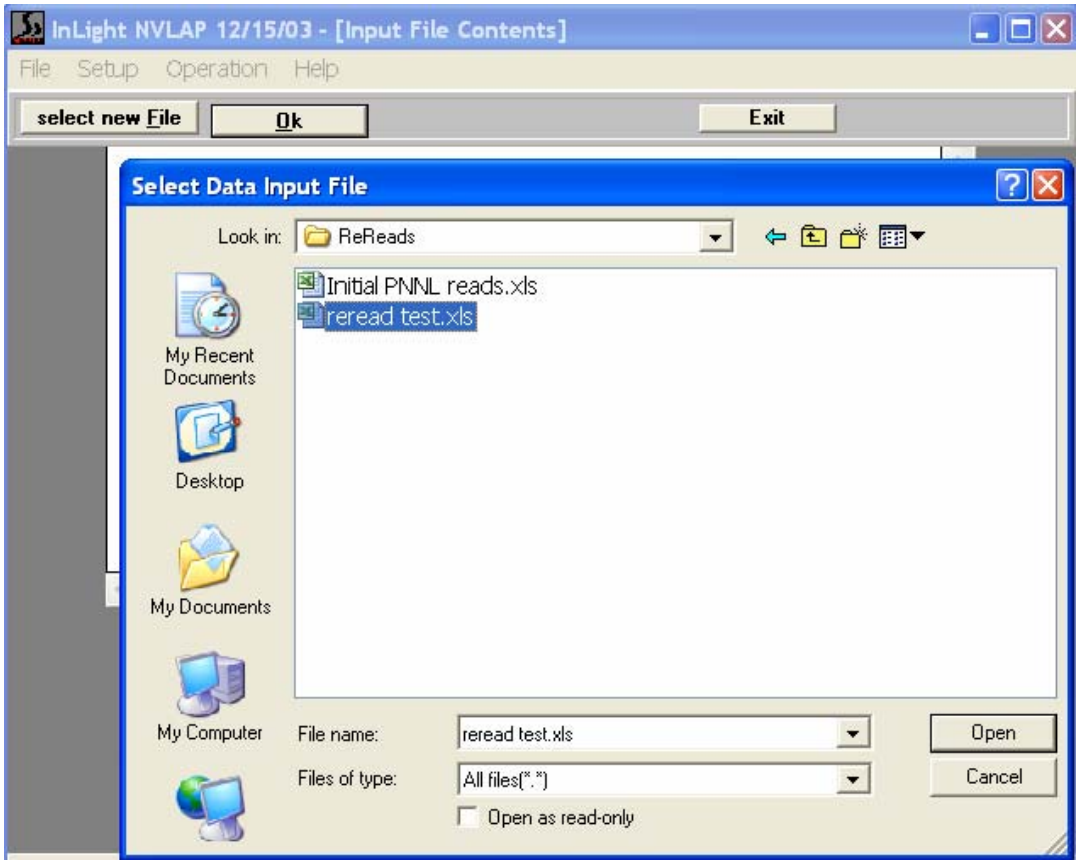
Reported Doses **mrem**	Shallow	Eye	Deep		
					Flags
Beta	988.34	0.00			
Neutron	0.00	0.00	0.00		
Photon	186.40	196.00	203.81	82.4 keV	
Totals	**1,174.75**	**196.00**	**203.81** mrem	beta	

Detailed report provides all of the interim calculations to allow troubleshooting results.

1. Corrected element responses
2. Photon dose estimates
3. Non-photon calculations
4. Final doses

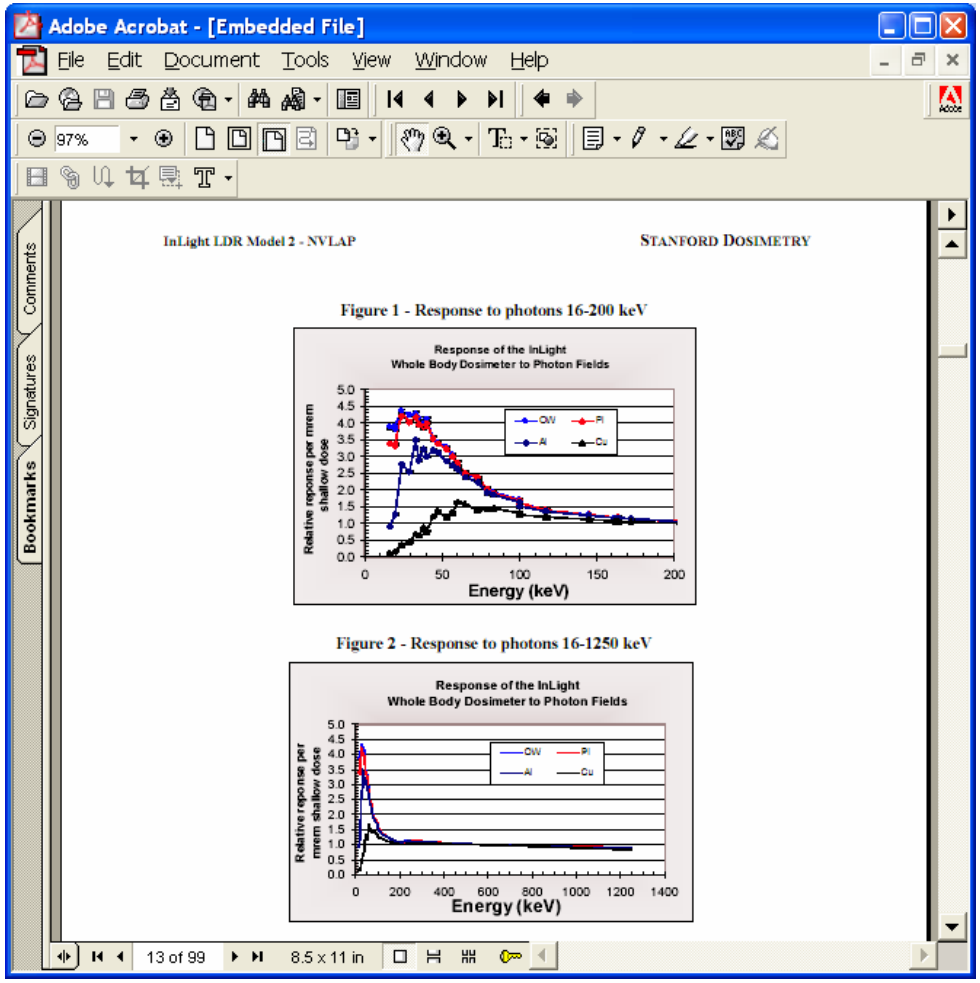
File input/output

- Spreadsheet files can be used for input, and results can be exported back to spreadsheet format.



On-line documentation

Full algorithm documentation with response tables, correction factors and flow charts is available through the help menu.



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