Idaho National Laboratory

INL ALARA Committee

ATR Complex 2009 Quarterly Report

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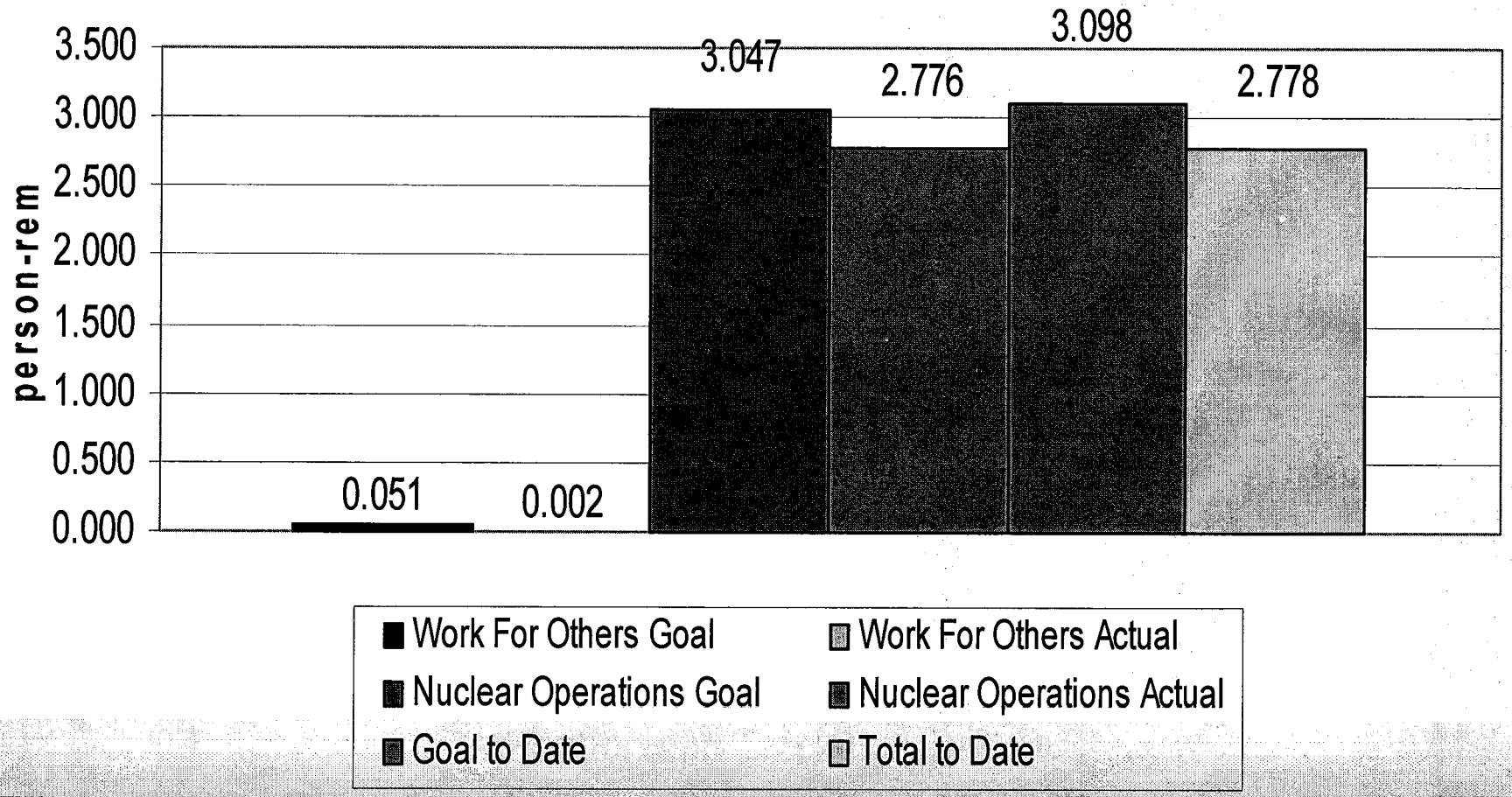
ATR Complex CY-2009 2nd Quarter Dose Distribution and Tracking (Rev. 1)



Highest Exposed Individual (CYTD through July)– 252 mrem ED, 230 mrem TLD (BEA RCT Supporting ATR)

Highest Neutron Dose – 28 mrem

No individuals expected to need extensions above the ACL

Revising Quarterly estimates to adjust for changes in work scope.

Quarterly Adjustments	Net Change in Estimate (mrem)	New Estimate (mrem)
1st	-63	2925
2nd	-357	3098
3rd	-1641	5273
4th	-503	2085

Area Affected by Goal Adjustment	Reason for adjustment	Net change in estimate (mrem)
ATR Complex R&D Labs	Lower RCT dose due to reduced footprint of labs and minimal exposure to neutron radiation.	-25
	Lower dose for routine laboratory operations due to reduced footprint of labs.	-75
ATR Complex Hot Cell	Facility turned over to CWI in early August 2009	-80
ATR Complex Experiment Programs	Dry Transfer Cubicle activation and testing completed for less than 10% of projected dose.	-100
	AGR-1 experiment removal expected in October/November, but no sizing or shipment until 2010.	-215
	TMIST sizing and shipment completed for the year, design and procedures worked to reduce exposure far below initial projections.	-500
ATR Operations	Reduction in work scope for M-85 heat exchanger divider plate due to inspections not requiring removal of the heat exchanger bottom head.	-950
	Door-51 Seal replacement deferred to 2010	-120
	Outage 146A-1 Rescheduled for 2010	-499
	Total Adjustment	-2564

ALARA Successes

Work was stopped in November 2008 while attempting to replace the rotary seal on the west safety rod drive. Initial attempts to replace the seal resulted in significant leakage past the inflatable seal (used as a temporary seal during maintenance) and inability to perform the desired maintenance without contamination of workers and significant contamination spread.

- *During the first few outages in 2009, a system evaluation was conducted to determine if the inflatable seal was degraded or damaged, or if blockages in the air line were preventing proper operation of the seal. (analyze and mitigate the hazard, verify engineered controls)*
  - *Equipment malfunctions (regulator) and minor blockages (filters) were found in the air lines that supply the inflatable seal.*
- *A glove box and special tools were fabricated to fully enclose the rod drive during the next attempt at seal replacement. (engineered control anticipating previous leak rates)*
- *Work was scheduled when the reactor water level was lowered to the outlet pipes (5-6 feet below the lower drain), to reduce head pressure on the reactor side of the inflatable seal. (reduce the hazard)*

As a result of this evaluation, dose for the job was cut in half and the fabricated glove-box was not needed, because the inflatable seal worked as designed during the second attempt at seal replacement.

ALARA Successes

950 mrem avoided (for now) by taking a more detailed inspection of the M-85 heat exchanger. Expect ≤ 50 mrem over each of the next few years vs. immediate repair.

600 mrem reduction due to engineering controls associated with activation of the Dry Transfer Cubicle and sizing of the TMIST-1 Experiment. These controls will aid in further reductions as additional tests are processed.