

## Memo

Date: October 18, 2004  
To: Distribution  
From: Peter Cirnigliaro  
Subject: Performance Indicators For C-A Department For The Third Quarter of CY04

The following quarterly performance indicators are distributed to all C-AD managers, supervisors and workers. If you have specific questions about the data, please contact Ray Karol, Ed Lessard or myself.

The collective dose (2.9 person-rem) indicated in Table 1 is for Q2CY04. For the year, the C-A Department is satisfying the ALARA goal of less than 11.75 person-rem.

The increase in the OSHA type deficiencies found during Tier I inspections, as seen in Table 2, is attributed to increased awareness of OSHA compliance requirements. Tier I team members have recently completed OSHA training.

Excellence in completing training requirements continues to be a reachable objective as shown in Table 3.

Six critiques of events at C-AD were performed in Q3CY04, see Table 4. There was one DOE reportable occurrence in Q3CY04, see Table 5. These events resulted in corrective actions associated with preventing injuries and electrical overloads, and improving work planning.

Table 1 also shows recordable injury data for CY04 to date. The FY04 Days Away and Restricted Time (DART) case rate has risen from 0.49 in FY03 to 1.6 per 100 FTEs in FY04. About \$81,000 in direct cost was attributed by Liberty Mutual Insurance Company for injuries in FY04. Total lost work injuries for all of FY04 were:

- Flash burn to eye from arc welding (1 day)
- Hernia pulling object from oven (22 days)
- Injured pinky in truck door (3 days lost, 12 days restricted)

Total restricted work injuries for FY04 were:

- Fall on freshly wet epoxy floor (7 days)
- Employee grabbed hot pipe and burned hand (1 day)
- Strained wrist from wiring for seven hours (5 days)

It is important to note that the FY04 DART rate of 1.6 was higher than our goal of less than 0.7, and is much higher than the FY05 goal of less than 0.5. However, the recent excellent work in the C-A Department to obtain OHSAS 18001 registration for the occupational safety and health (OSH) management system should lower the rate of injury in FY05 and beyond. Department management understands that establishing and operating an OSH management system does not necessarily result in immediate reduction of workplace injuries and illness; however, a gradual improvement in health and safety performance is expected.

In FY04, the C-A Department continued with legacy waste disposal and Building 912 beam line dismantling. The following legacy waste items were disposed of this year: depleted-uranium shield blocks, 2 neutrino horn strong-backs, 800 ft<sup>3</sup> of legacy steel and copper from beam-line disassembly, the Cockcroft-Walton assembly at Linac, and all the deuterium and hydrogen gas at Buildings 628 and 919. Replacement capacitors for one-third of the Linac PCB capacitors and all Building 912 PCB capacitors were purchased with the goal to have all PCB capacitors removed by 2007. In addition, an effort to remove legacy or unused chemicals at C-A Department was conducted and it resulted in 3,000 lbs. of chemicals removed to waste.

FY04 routine waste efforts within the C-A Department were kept within the BNL allocation numbers for normal operations. We were able to minimize wastes in some areas. For example, our sorting table saved 150 ft<sup>3</sup> of compactable radioactive waste, the decay-in-storage program saved about 100 ft<sup>3</sup> of radioactive waste, and 700 gallons of used oil is being burned at the steam plant.

TABLE 1, C-A DEPARTMENT PERFORMANCE INDICATORS

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	1-1-04 to 9-30-04
<u>Whole-Body Collective Dose (person-rem)</u> <sup>1</sup>	25	27	48	82	85	39	43.8	12.2	13.3	11.1	21.9	3.8	<b>2.9</b>
Skin and Clothing Contaminations	0	0	0	0	0	0	1	0	0	0	1	0	<b>0</b>
Internal Contamination	0	0	0	4	0	0	0	0	0	0	0	0	<b>0</b>
Radioactive/Hazardous Materials Overexposures	0	0	0	0	0	0	0	0	0	0	0	0	<b>0</b>
Days Away and Restricted Day Rate (# per 100 FTEs) <sup>2</sup>	2.9	2.2	1.5	2.1	1.2	1.2	3.4	2.2	0.8	0.23	1.16	0.49	<b>1.6</b>
1. Cases	11	8	5	7	4	4	12	8	4	1	5	2	<b>6</b>
2. Total Hours Worked in Year (1000s)	773	741	651	674	666	663	700	741	995	867	864	821	<b>776</b>
Recordable Injury/Illness Rate (# per 100 FTEs) <sup>2</sup>	5.4	4.1	4.9	4.2	2.4	3.3	4.8	3.0	1.2	1.61	2.08	1.21	<b>2.6</b>
1. Cases	21	15	16	14	8	11	17	11	6	7	9	5	<b>10</b>
First Aid Cases Excluding Athletic Injuries	-	-	-	-	-	-	-	-	17	16	19	12	<b>3</b>
Unplanned Safety Function Actuations	1	3	1	0	0	0	0	0	0	0	0	0	<b>0</b>
Violations of Operating Procedures	0	0	3	1	0	0	0	0	0	0	0	0	<b>0</b>
Unplanned Shutdowns	0	0	0	0	0	0	0	0	0	0	0	0	<b>0</b>
<u>Occurrences</u>	4	10	7	5	4	3	4	1	0	2	1	2	<b>4</b>
Occurrences With Open Corrective Actions	1	2	1	1	0	1	1	1	0	2	0	0	<b>0</b>
Environmental Related Occurrences	2	4	3	1	1	0	1	0	0	0	0	0	<b>0</b>
Solid Low-Level Waste Shipped													
1. Radioactive Waste (cu-ft)	6354	2089	1742	2543	7018	6642	1494	624	1642	2719	1624	2578	<b>1800</b>
2. Hazardous Waste (cu-ft)**	16	6.0	47	26	24	51	14.5	16.1	91.4	32.4	105	69.5	<b>100</b>
3. Mixed Waste (cu-ft)**	4	140	39	6.8	38	117	0	18.75	40.3	21.6	1400	53.2	<b>28</b>
4. Industrial Waste (cu-ft)**	-	-	-	-	-	-	-	179.4	220.4	445.5	42135	919.5	<b>620</b>

\*\* Assumes 64 lbs./ft<sup>3</sup>.

1- Dose shown lags one quarter year

2- Based upon 12-month rolling average

TABLE 2, C-A OSHA-TYPE DEFICIENCIES FOUND DURING TIER 1 INSPECTIONS

OSH Category	Definition of Category	Number of Deficiencies For 1998	Number of Deficiencies For 1999	Number of Deficiencies For 2000	Number of Deficiencies For 2001	Number of Deficiencies For 2002	Number of Deficiencies For 2003	Number of Deficiencies For 1-1-04 to 9-30-04
General Safety	Inadequate lighting, inadequate aisle-ways, trip hazards in walkway, load ratings not posted, missing floor or ceiling tiles, broken hardware on doors, windows or machines, exposed building insulation, overdue inspection on cranes, hoists and elevators, lack of toe-boards or improper railings.	154	89	170	56	51	56	<b>112</b>
Electrical Safety	Inadequate breaker panel labels, exposed conductors, missing grounds, GFCI not used where needed, knockouts missing on breaker boxes and disconnects, blocked breaker boxes or blocked disconnects.	82	60	96	61	78	70	<b>147</b>
Housekeeping	Poorly organized areas, excessive fire loading from boxes, plastic and packing materials or storage on top of cabinets.	37	22	41	25	25	21	<b>60</b>
Chemical Safety	Improper gas-cylinder storage, improperly labeled or unlabeled hazardous materials, improper storage of hazardous materials.	36	34	71	23	43	33	<b>31</b>
Fire Protection / Life Safety	Excessive storage of flammables, blocked exits, missing or non-functioning exit sign, damaged or broken fire protection / fire detection systems, or overdue extinguisher inspections.	73	38	16	20	41	49	<b>42</b>
Working Environment	Evidence of smoking or eating in work areas where prohibited, inadequate lighting or ventilation, heat stress, high noise and no posting or ear protection where required.	0	0	0	24	66	50	<b>39</b>
Radiation Safety	Survey instruments out of calibration, radiation barriers or other controls in poor condition or poorly maintained posting.	1	6	12	7	10	12	<b>5</b>
Personnel Protection	Broken machine guards, not wearing personal protective equipment when required; for example, lack of safety glasses.	31	25	36	10	12	12	<b>20</b>
Unsafe Practices	Using broken or damaged tools or ladders, parking in no-parking areas, going the wrong way down one-way streets, not wearing a TLD badge or dosimeter when required, climbing without fall protection, failure to tie down ladders, or using cable tray for climbing.	0	1	1	1	0	0	<b>0</b>
Outside & Grounds	Overgrown walkways, dilapidated or poorly maintained walkways and improper storage outdoors.	4	2	4	6	4	11	<b>20</b>
Other	Leaking containers or piping, improper air emissions, unlabeled sinks, unlabeled containers, improperly controlled satellite areas for waste.	1	4	2	5	13	5	<b>30</b>

TABLE 3,  
COMPLETION PERCENTAGE OF REQUIRED TRAINING FOR C-A EMPLOYEES

Time Period	Number of Requirements	Total Incomplete	Percent of Required Training Complete
Q4 CY 99	5236	1036	80
Q1 CY 00	4530	1233	73
Q2 CY 00	4757	913	81
Q3 CY 00	4754	241	95
Q4 CY 00	5174	531	90 (CY00 Average = 85%)
Q1 CY 01	5814	534	91
Q2 CY 01	5782	190	97
Q3 CY 01	5837	161	97
Q4 CY 01	6639	379	94 (CY01 Average = 95%)
Q1 CY 02	6859	236	97
Q2 CY 02	6980	148	97
Q3CY 02	7016	170	98
Q4CY 02	7196	233	97 (CY 02 Average = 97%)
Q1CY 03	7235	283	96
Q2CY03	7232	278	96
Q3CY03	7255	331	95
Q4CY03	7650	287	96 (CY 03 Average = 96%)
Q1CY04	8044	64	99
Q2CY04	8197	114	99
<b>Q3CY04</b>	<b>8158</b>	<b>169</b>	<b>98</b>

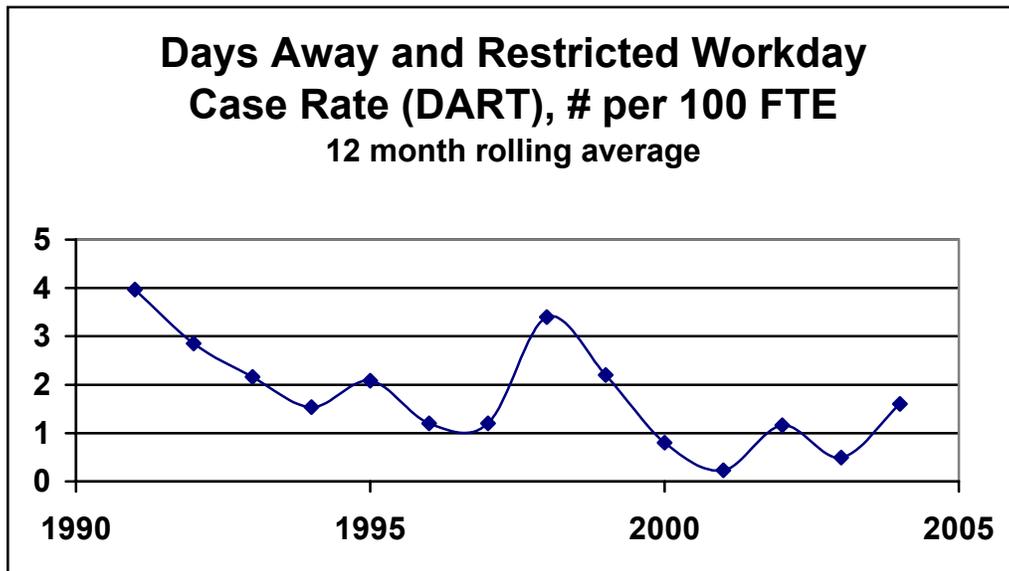
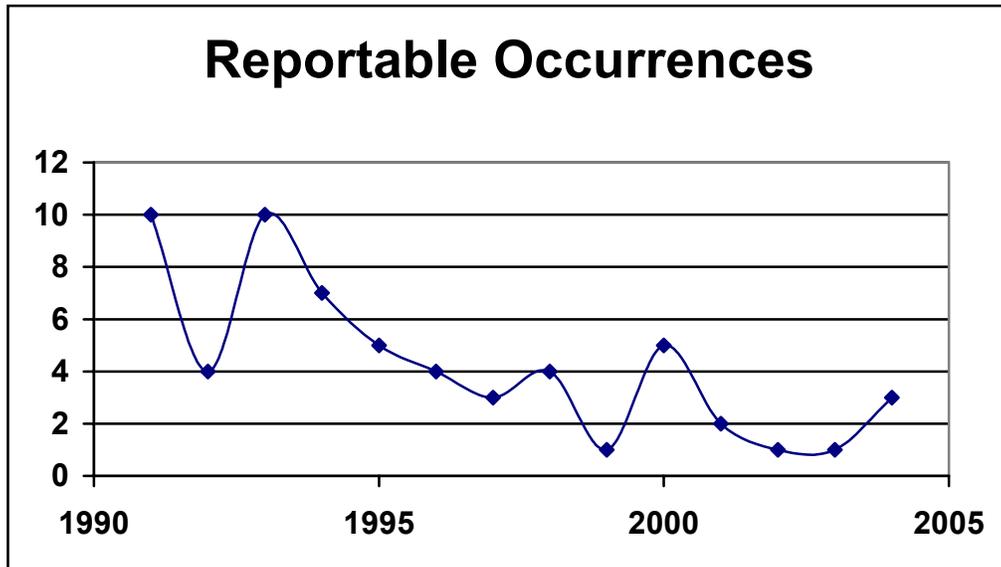
TABLE 4,  
CY04 CRITIQUES OF C-AD EVENTS

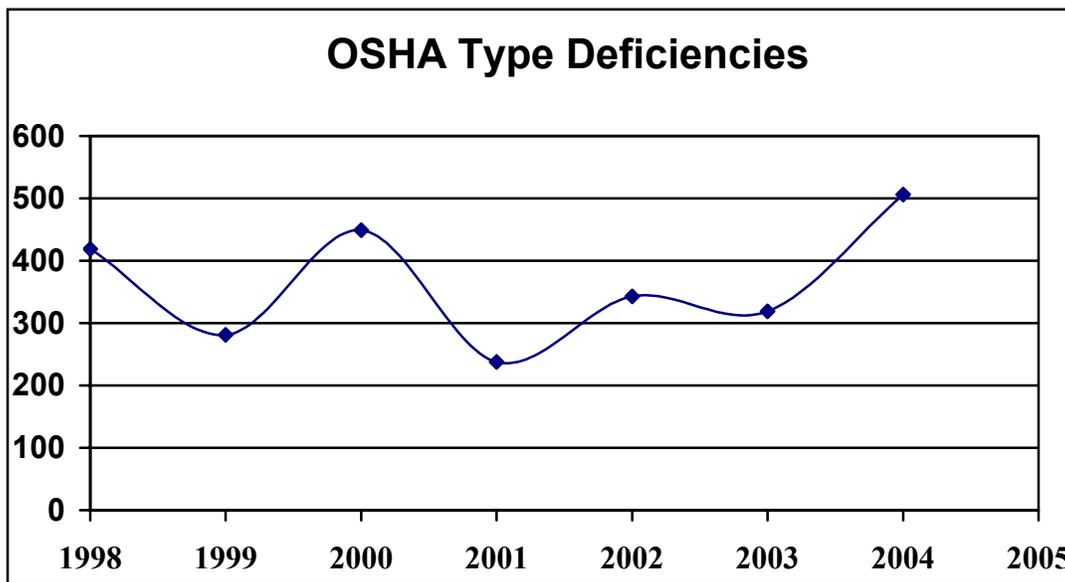
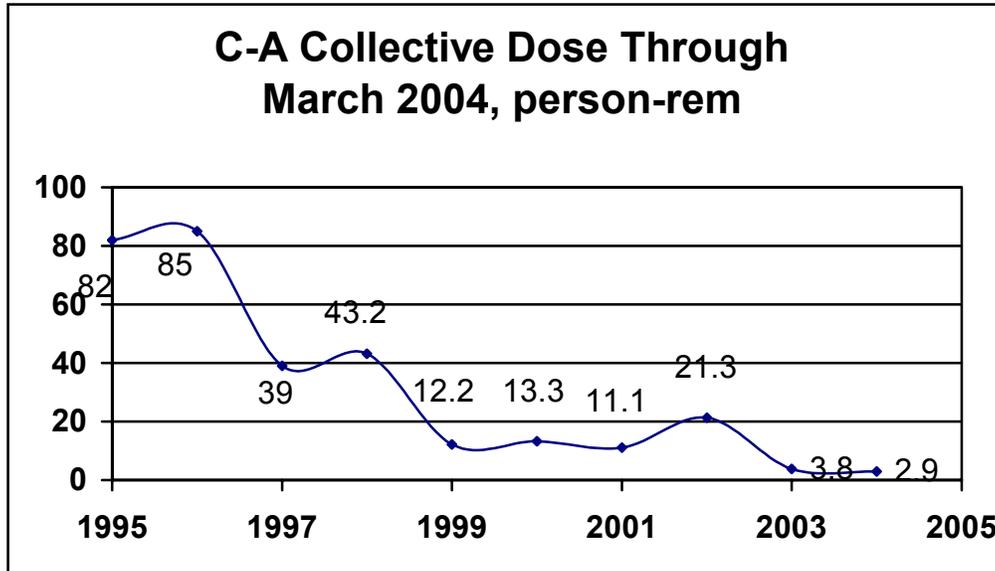
<b>Worker Injures Ankle After Slipping on Walking Surface, 1-23-04</b>
<b>Ground Fault Due to Inadequate Clearance for Wiring, 3-09-04</b>
<b>Welder's Helper Injures Eyes, 3-24-04</b>
<b>Load Falls Off Truck During Transport, 3-27-04</b>
<b>Anomaly at NSRL During Access, 4-14-04</b>
<b>Failed Relay Causes Excess Heat, 5-5-04</b>
<b>Equipment Falls From Man-Lift, 5-17-04</b>
<b>CI-39 Contamination from Atlas Experiment, 6-1-04</b>
<b>Removal of Radiation Monitors, 7-1-04</b>
<b>Work Interruption During Welding at 1005, 7-8-04</b>
<b>Fire in the 28 MHZ Anode Power Supply, 7-14-04</b>
<b>Passenger in Step-Van Injury to Hand, 8-5-04</b>
<b>Heating Element Causes Burn to Hand, 8-17-04</b>
<b>Out of Calibration Radiation Monitor, 9-8-04</b>

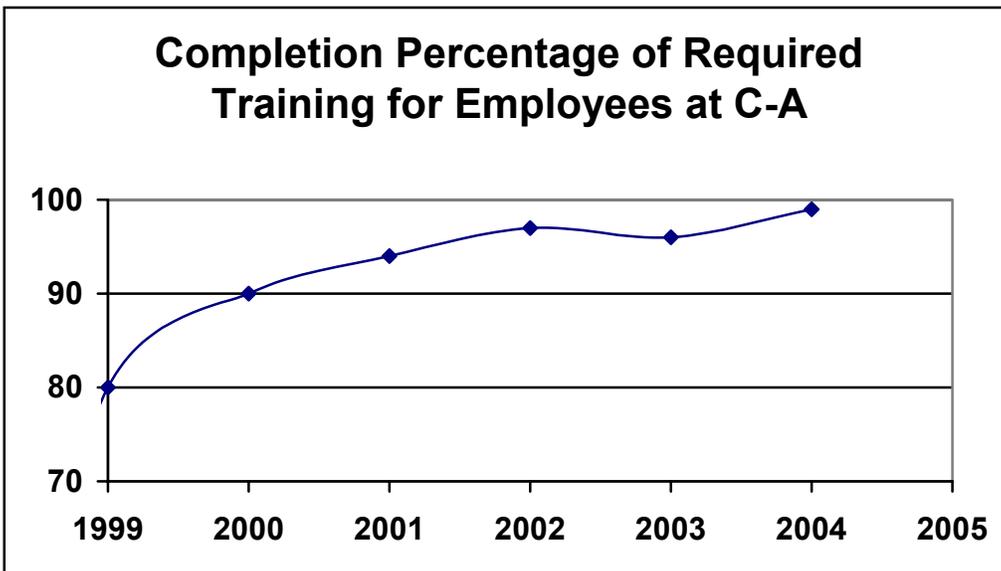
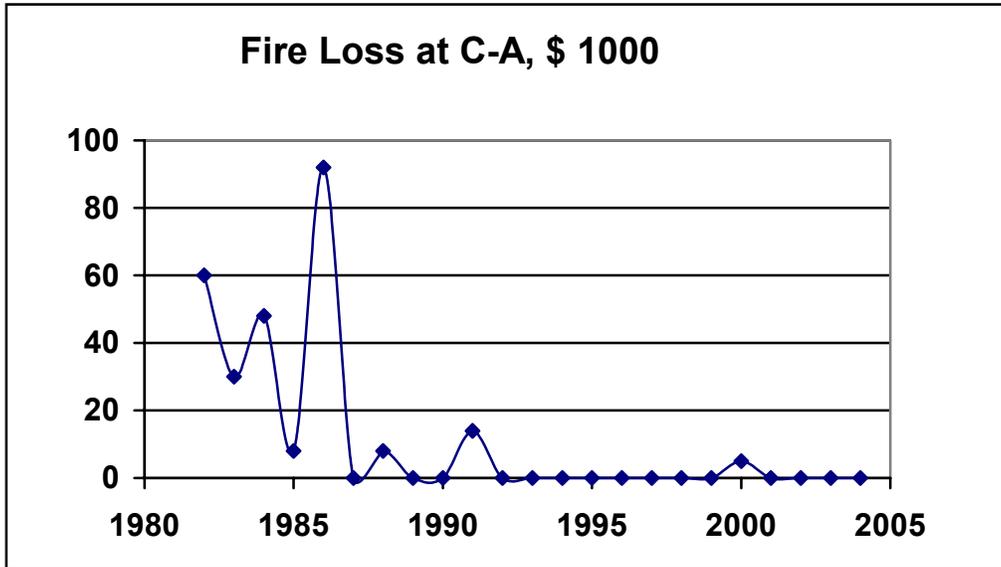
TABLE 5,  
CY04 C-AD REPORTABLE OCCURRENCES

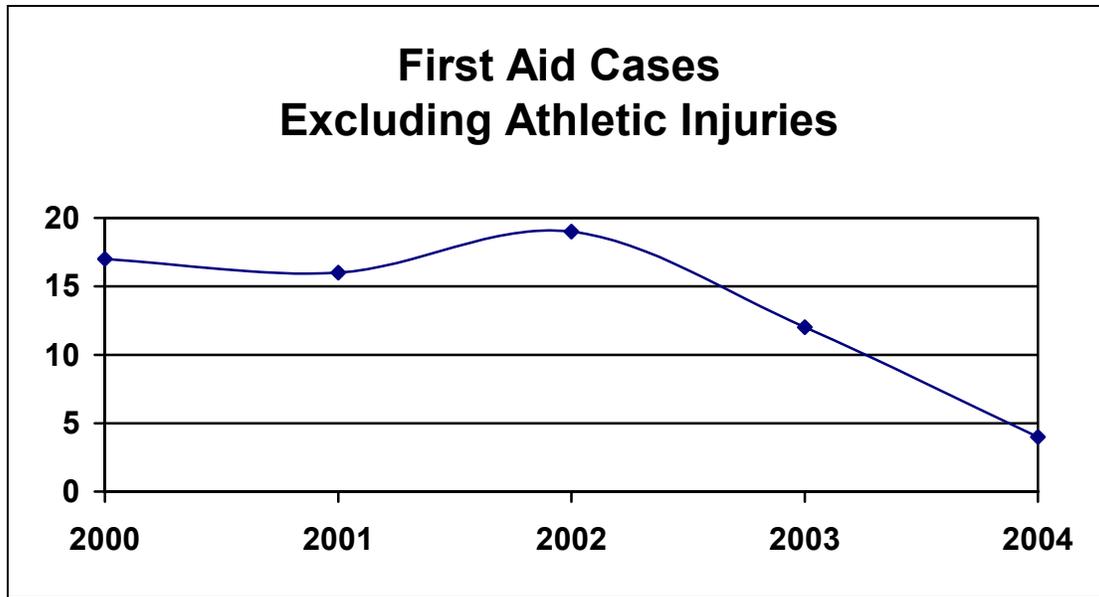
<b>Transformer Dropped During Rigging (occurred 12-30-03, reported in CY04)</b>
<b>2004, Worker Injures Ankle Preparing for Cable Pull</b>
<b>2004, Load Falls Off Truck During Transport</b>
<b>2004, Worker Burns Hand on Heater Element in Cryogenic System</b>

### SELECTED GRAPHS OF PERFORMANCE INDICATORS









Distribution:

C-A Department

- Bebon, M.
- Chaudhari, P.
- Goode, G.
- Gulshan, R.
- Hoey, S.
- Kelley, P.
- Kirk, T.
- Lebel, R.
- McNerney, A.
- Schaefer, C.
- Tarpinian, J.
- Williams, P.