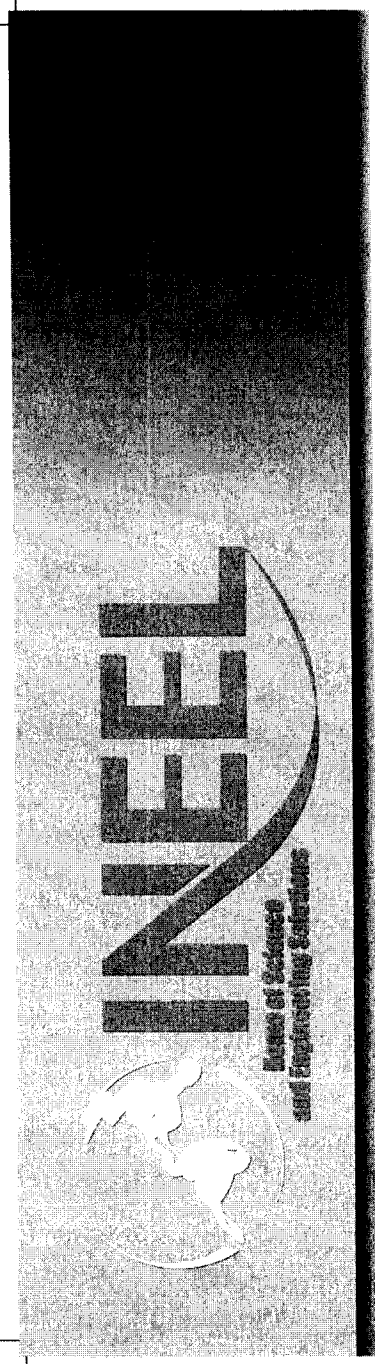


Idaho National Engineering and Environmental Laboratory

Nuclear Reactor Programs

Fiscal Year 2004 Detailed Work Plan

C.4.01

INEEL/EXT-03-01101-NRP

CONTENTS

Nuclear Reactor Program
C.4.01

DESCRIPTION

Objective

The Test Reactor Area (TRA), established in the early 1950s, has a mission to study the effects of radiation on materials, fuels, and equipment. It has met this goal using seven test reactors:

1. Materials Test Reactor (MTR) [1952-970]
2. Engineering Test Reactor (ETR) [1957-981]
3. Engineering Test Reactor Critical Facility (ETRC) [1957-1981]
4. Advanced Reactivity Measurement Facility I (ARMF-I) [1960-1991]
5. Advanced Reactivity Measurement Facility II (ARMF-II)(CFMRF) [1962-1991]
6. Advanced Test Reactor Critical Facility (ATRC) [1964-present]
7. Advanced Test Reactor (ATR) [1967-present].

Information obtained from test runs at the MTR influenced the choice of core structural materials and fuel elements for every reactor designed in this country since 1952. The ETR provided more testing space and flexibility than the MTR. At the time of startup, the ETR was the largest and most advanced materials test reactor in the world. The reactor was used to evaluate fuels, coolant, and moderator characteristics under environments similar to those in many types of power reactors. In 1972, the ETR was modified to support the Department of Energy's (DOE)'s breeder reactor safety program. The ATR began operating in 1967. The ATR has operated in support of the Naval Reactors (NR) Program to provide data for analysis of materials in reactor environments. The ATR also provides for irradiation services to outside programs, making it the world's premier materials test reactor.

The TRA is a fenced complex of approximately 104 acres including over 88 facilities and 70 major structures. TRA is dedicated to research supporting national DOE missions, including nuclear technology research. The Idaho National Engineering and Environmental Laboratory (INEEL) has recently been designated as the Nuclear Energy lead laboratory for Nuclear Reactor Research and Development.

Technical Content

The Nuclear Reactor Program is broken into three primary areas:

Naval Reactors Program: The primary focus of the NR Program is operation and maintenance of the ATR to support materials and fuel testing, as well as supporting the ATR infrastructure. The majority of the present and proposed experiments in FY 2004 are for Bettis Atomic Power Laboratory (BAPL) in support of the NR irradiation program. Also, a major core internals changeout (CIC) is planned during the last half of FY 2004.

Nuclear Energy Program: Projects are planned to replace or upgrade the current infrastructure to achieve goals of footprint reduction, energy conservation, and maintenance and repair of equipment and facilities. Efforts will also focus on hazardous waste determination and disposition of legacy waste, remediation, characterization, and closure of contaminated tanks. Completion of TRA Hot Cell upgrades will support restart of the Hot Cell facility and use of a Test Train Assembly Facility (TTAF) for long experiment assemblies and fueled experiments. Support is also provided to the University Reactor Assistance Program by provision of manufactured fresh nuclear fuel and transportation of fresh and irradiated fuel for DOE-supported test, research, and training reactors. Construction projects supporting the TRA mission are not reported in the FY 2004 DWP, and will be approved based on their separately Nuclear Energy-ID (NE-ID) approved project management and project execution plans and project authorizations.

Work for Others: Although the primary user of the ATR is the Naval Nuclear Propulsion Program, this facility has several other government, commercial, and foreign users. The unique four-leaf-clover core design provides nine main test spaces. Additional smaller test spaces allow even more experiments to be conducted independently. These smaller spaces are routinely used for production of medical and industrial isotopes for commercial and governmental clients. Irradiation testing and radioisotope production are conducted for other DOE and international customers as a means to support full utilization of the capacity and capabilities of the ATR. As new customers are identified, workscope will be added to the FY 2004, baseline using the TRA Program Baseline Change Control Process (BCP).

Program Work Statement: FY 2004

Naval Reactors Program: The ATR is a unique test reactor designed and operated primarily to support the development of naval nuclear propulsion technology and provides irradiation services in support of a broad range of experiments supporting DOE-Nuclear Energy (DOE-NE) research programs and private industry. Included in this effort are the reactor base operation, procurement of reactor fuel and special ATR process spares, ATR Operations support (including ES&H, training, maintenance, etc.), plant modifications and upgrades, experiments and program support, and the upgrade of ATR systems and facilities.

The current ATR configuration provides the capability of irradiating five train-type experiments with various flux conditions in pressurized water loops and capsules and lead experiments in the northeast, center, east, and south flux trap positions. Additional positions are also available for a large number of capsule and lead experiments in smaller facilities throughout the core. The majority of the present and proposed experiments in FY 2004 are for BAPL in support of the NR irradiation program.

Nuclear Energy Program: Projects are planned to replace or upgrade the current infrastructure to achieve goals of footprint reduction, energy conservation, and maintenance and repair of equipment and facilities. Efforts will also focus on hazardous waste determination and disposition of legacy waste, remediation, characterization, and closure of contaminated tanks. Completion of TRA Hot Cell upgrades in FY 2003 will support the restart of the Hot Cell facility and use of a Test Train Assembly Facility (TTAF) for long experiment assemblies and fueled experiments. Support of the University Reactor Assistance Program will also continue, but will be reported within the Research and Development Program.

Work For Others: The Work for Others Program has been developed as a means to support full utilization of the capacity and capabilities of the ATR and to continue to provide irradiation services and isotope production to non-NR customers.

FY 2004 Planned Work

Operate the ATR at full power and shut down according to the NR sponsor test plan.

- Perform four scheduled outages
- Complete the CIC.

Conduct the Operational Readiness Review to restart and operate the TRA Hot Cells and TTAF to support production of radioisotopes and irradiation testing for industrial and medical purposes.

Complete Equipment Upgrades:

- Complete Minimum Cladding Measurement System
- Complete Instrument Uninterruptible Power Supply Project
- Procure equipment for ATR Air/Drier/Receiver Modification Project.

Provide radioisotope production and irradiation testing for industrial and medical purposes. These activities support full utilization of the capacity and capabilities of the ATR while providing irradiation services to non-NR customers:

- Perform minor loop modifications as requested by BAPL
- Perform trace metals analysis work for Knolls Atomic Power Laboratory (KAPL)
- Continue irradiation for Atomic Energy of Canada, LTD (AECL)
- Continue experiment for DOE Oak Ridge Mixed Oxide Fuel (MOX).

Submit hazardous waste determination and the closure documents for VCO Action Plan TRA-001 to the Idaho Department of Environmental Quality (IDEQ) in support of the final enforceable milestone of June 30, 2004, for 100% characterization and disposition of legacy items.

Complete RCRA closure activities for the TRA-730 catch tank system.

Obtain approval by IDEQ and implement the Resource Conservation and Recovery Act (RCRA) Closure Plan for TRA-713 Tank Assessment.

Submit closure certification to IDEQ and complete actions prior to the enforceable milestone for TRA-730 catch tank and dismantle Fluidic Plus Monitoring and Retrieval System (FPM&RS) equipment.

Complete construction projects to upgrade the ATR and the aging TRA infrastructure to achieve goals of operating efficiency, footprint reduction, and energy conservation initiatives. Schedule and scope summaries for these projects are not provided in the DWP 2004 books:

- Complete the Reactor Data Acquisition System (RDAS) upgrade
- Complete the regulating rod upgrade
- Complete the Fire and Life Safety System Line-Item Construction Project (LICP)
- Continue the TRA electrical upgrade LICP
- Initiate construction activities on the Potable Water Well Project
- Prepare the mission need documentation for the 40-ton crane upgrade.

Project Key Assumptions

Naval Reactors Program

- No failure of major equipment components

- FY 2004 is budget compliant with NR funding guidance
- The ATR canal has adequate storage for the beryllium reflector blocks removed during CIC

- CIC outage:
  - Decontaminate two experiment loops (2B-SE & 2E-NW) early in the CIC outage
  - Non-nuclear testing and restart management self-assessment will be performed concurrently after the 150-day outage
  - Critical path activities assume work schedule of 24 hours, 7 days per week; however, only minimal non-ATR operations overtime can be used due to program funding limitations
  - Inpile tubes are to be removed after loop decontamination
  - Plant and loop inservice inspection is coordinated with current inservice inspection (ISI) plan
  - Install a new PALM system
  - Install new Motor Control Centers (MCC) on Loops 1C-W, 1D-N, 2D-SW, and 2E-NW
  - Install new pumps in Loop 1C-W
  - Install new freeze seal units
  - Issue $8.3M of special process spares during the CIC.

- Fuel element fabrication levels by fiscal year are as follows:
  - FY 2004—65 elements.
- Fuel element usage by fiscal year is as follows:
  - FY 2004—107 elements.

- ATR spent fuel shipment plans are consistent with PLN-845, "INEEL Spent Nuclear Fuel Integrated Transfer Schedule," dated April 30, 2001:
  - Through FY 2005, wet shipments to CPP-666, Fluorinel Dissolution Process and Fuel Storage Facility, continue
  - FY 2006 through FY 2010, dry shipments to CPP-603, Irradiated Fuel Storage Facility for dry storage
  - FY 2011, through end of project – dry shipments to Savannah River Site for dry storage.
- Funding of ATR Irradiated Fuel – Dry Shipment Plan is currently reflected in the NR baseline.
- Though not in the FY 2004 DWP, the following FY 2005 and beyond planning assumptions are recognized:
  - FY 2005 planning reflects increases to fuel production rates, special process spares procurements, and restarts projects and upgrades delayed as a result of funding shortfalls in FY 2002 through FY 2004, as presented to NR on April 14, 2002
  - 40-ton crane upgrade will be completed in June 2005 to support receipt of new test train cask
  - North outer flux trap baffle changeout is not currently funded
  - All capital equipment, General Plant Projects (GPP) and other construction/projects historically supported by NR, will be transferred to the Nuclear Energy Programs for funding and execution.

Nuclear Energy

- TRA Hot Cells 2 and 3 are made operational
- Test Train Assembly Facility (TTAF) is available for assembly of long experiment assemblies and fueled experiments
- No failure of major equipment components
- No contingency for emerging work
- Active participation in the INEEL facility footprint reduction initiative, such as:
  - Consolidate activities and personnel into newer, less costly facilities
  - Vacate older high maintenance and energy inefficient buildings
  - Deactivate older buildings and prepare them for the D&D process
  - Discontinue investment in facilities with limited mission potential.
- Continuing in FY 2004 Idaho Cleanup Project (ICP) D&D will fund deactivation of legacy facilities at TRA
- FY 2004 budget is compliant with DOE – NE's funding guidance
- Cost of fuel fabrication equipment upgrades is shared between NR and the University Reactor Fuel Assistance Program based on fabrication throughput
- The MTR vessel structure's facility classification will be downgraded.
- The ICP will fund surveillance and maintenance for MTR activities
- A final disposition path forward will be determined for disposal of ATR beryllium reflector blocks
- The ICP VCO Program will continue to jointly fund TRA VCO projects.

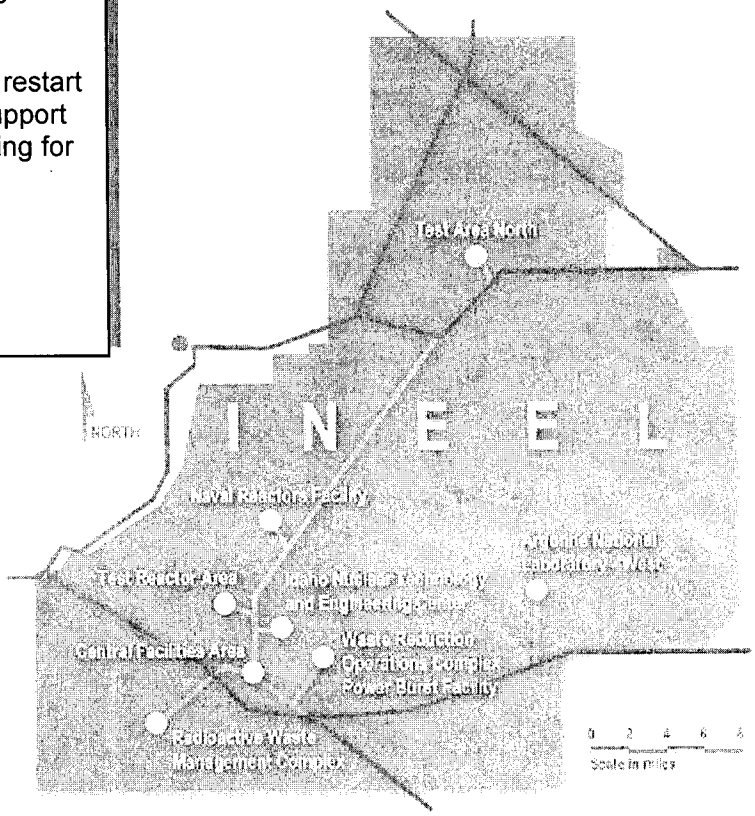
Work For Others

- TRA Hot Cells are operational in late CY 2003
- Customers understand the planned ATR cycles for FY 2004, and the limitations to irradiation time due to the CIC planned for the second half of FY 2004
- No failure of major equipment components
- No contingency for emerging work
- Conducted on a full-cost recovery basis without interference to DOE Programs.

ACTION PLAN

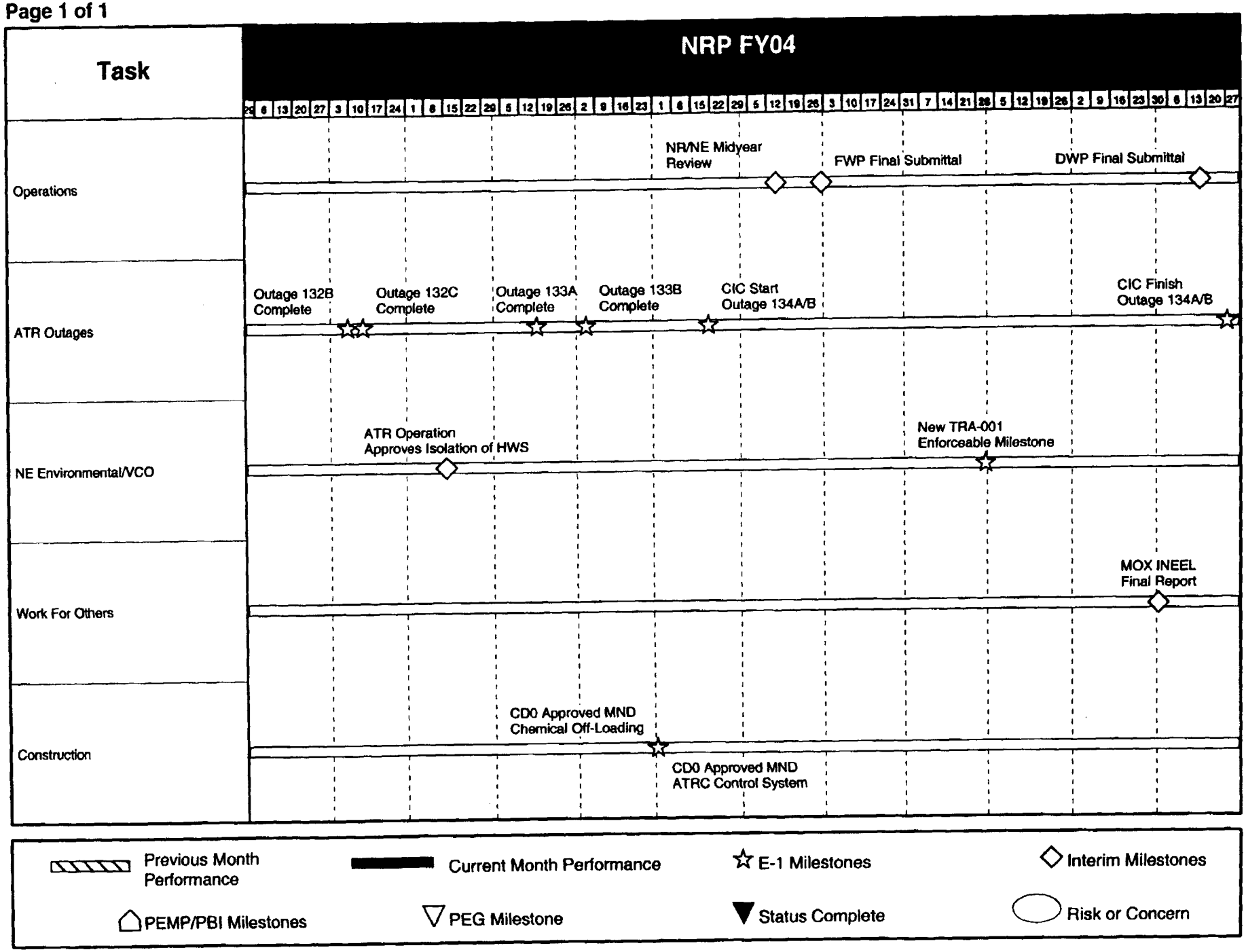
FY 2004

- Operate the ATR at full power and shut down according to the NR Sponsor Test Plan
- Perform CIC
- Complete the Fire and Life Safety System LICP
- Continue the TRA electrical upgrade LICP
- Conduct the Operational Readiness Review to restart and operate the TRA Hot Cells and TTAF to support production of radioisotopes and irradiation testing for industrial and medical purposes.



WORK BREAKDOWN STRUCTURE INDEX

WBS#	Title	Responsible Individual
C.4	INEEL Nuclear Products and Operations	Art Clark
C.4.01	Nuclear Reactor Program	David J Richardson
C.4.01.01	Naval Reactors Program	David J Richardson
C.4.01.01.01	ATR Base Operations Project	Dennis W Suthers
C.4.01.01.02	ATR Experiments	Seldon K Penny
C.4.01.01.03	ATR Special Process Spares and Fuel Support	Seldon K Penny
C.4.01.01.04	Naval Reactor Inventories	Seldon K Penny
C.4.01.01.05	ATR Operations Support Project	Dennis W Suthers
C.4.01.01.06	ATR Program Support Project	John E Dwight
C.4.01.01.10	NR Capital Equipment Purchases Project	Dennis W Suthers
C.4.01.01.11	ATR RDAS Replacement	Leo J Van Reet
C.4.01.01.13	Reg Rod Control System Upgrade	Leo J Van Reet
C.4.01.01.CN	TRA NR Construction Projects	Leo J Van Reet
C.4.01.02	Nuclear Energy Program	David J Richardson
C.4.01.02.02	TRA Nuclear Energy Facilities	Joel W Duling
C.4.01.02.03	TRA NE Environmental Projects	Leo J Van Reet
C.4.01.02.05	TRA Capital Equipment Purchases Project	Joel W Duling
C.4.01.02.06	TRA Fire and Life Safety LICP	Leo J Van Reet
C.4.01.02.07	TRA Electrical Utility Upgrade LICP	Leo J Van Reet
C.4.01.02.CN	TRA NE Construction Projects	Leo J Van Reet
C.4.01.03	Work for Others (WFO) Program	David J Richardson
C.4.01.03.00	ATR Revenues	John E Dwight
C.4.01.03.01	I-3 Campaigns	Seldon K Penny
C.4.01.03.02	DOE-Oak Ridge	Seldon K Penny
C.4.01.03.03	KAPL Test Program	Seldon K Penny
C.4.01.03.04	Bettis Support Projects	Seldon K Penny
C.4.01.03.08	AECL CANIS Experiment	Seldon K Penny

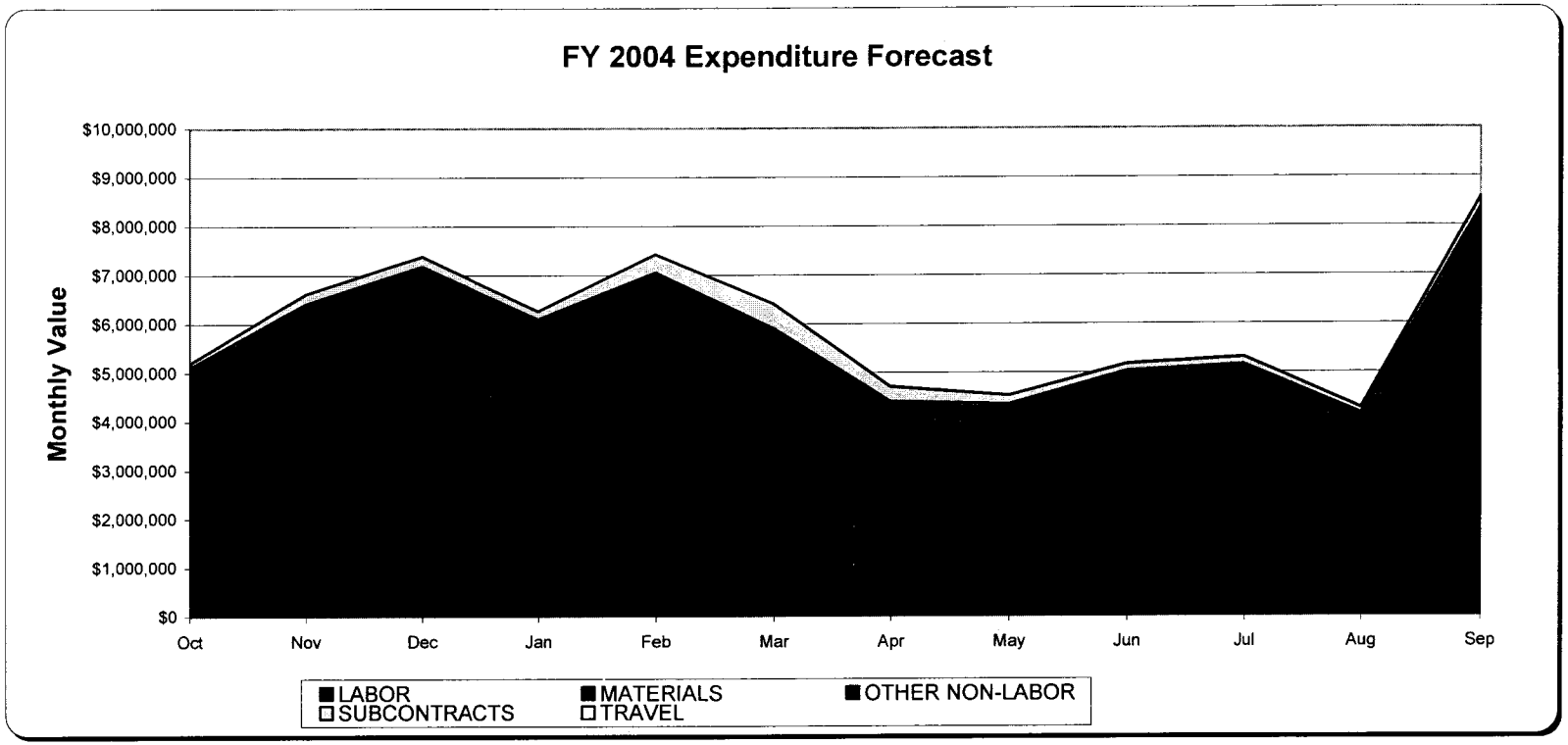

Task
NRP FY04
Operations
ATR Outages
NE Environmental/VCO
Work For Others
Construction
NR/NE Midyear Review
FWP Final Submittal
DWP Final Submittal
Outage 132B Complete
Outage 132C Complete
Outage 133A Complete
Outage 133B Complete
CIC Start Outage 134A/B
CIC Finish Outage 134A/B
ATR Operation Approves Isolation of HWS
New TRA-001 Enforceable Milestone
MOX INEEL Final Report
CD0 Approved MND Chemical Off-Loading
CD0 Approved MND ATRC Control System
Previous Month Performance
Current Month Performance
E-1 Milestones
Interim Milestones
PEMP/PBI Milestones
PEG Milestone
Status Complete
Risk or Concern

MILESTONE LOG

WBS Element	Description	Dwp Date	Enforceable Date	Level
C.4.01.01.CN.GS.03	CD0 Approved MND Chemical Off-Loading	30-SEP-2004		E2
C.4.01.01.CN.GS.03	CD0 Approved MND ATRC Control System	30-SEP-2004		E2
C.4.01.02.03.02.02	NEW TRA-001 Enforceable Milestone	30-SEP-2004		E2

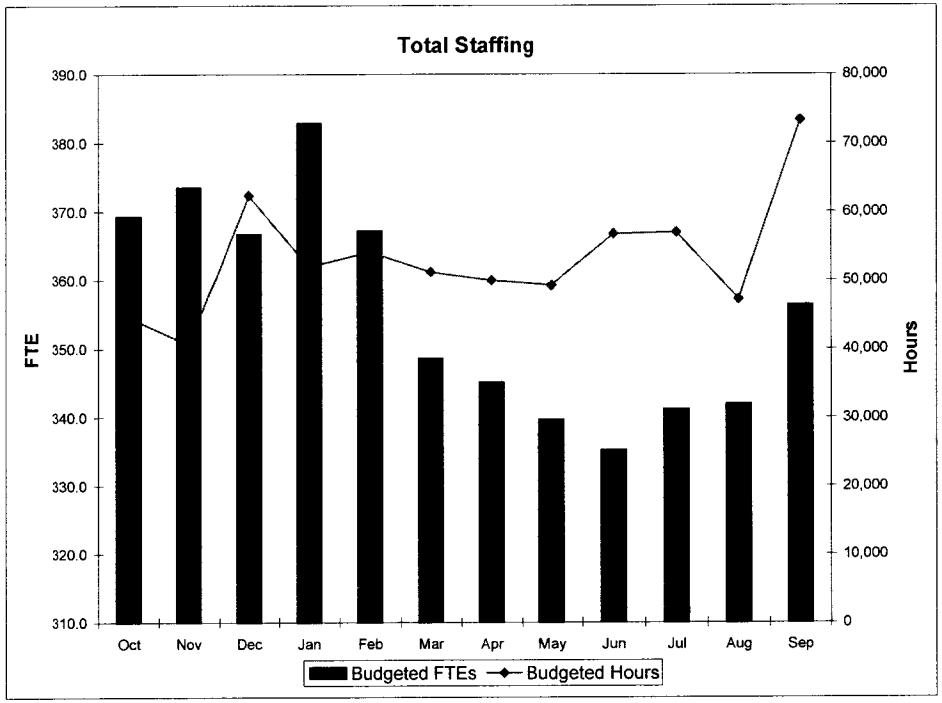
Program:	Description:	Approval:
C401	Nuclear Reactor Program	Program Manager
Run Date:	Status Date:	Functional Manager
9/15/2003	9/30/2003	Cost Account Manager

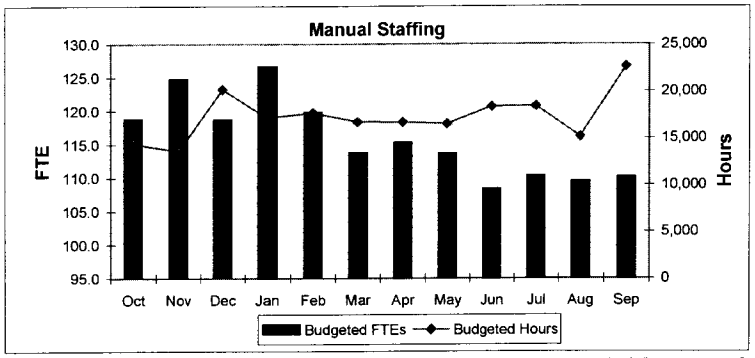
WBS[3]	WBS[4]	BE[2]	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
C.4.01 Nuclear Reactor Program															
	C.4.01.01 Naval Reactors Program														
		L Labor	2,750.9	2,528.3	3,877.7	3,202.1	3,366.8	3,210.3	3,224.6	3,229.9	3,766.2	3,726.8	3,120.7	4,730.8	40,735.1
		M Material Purchases	171.6	1,874.6	241.7	352.8	1,009.4	194.4	169.6	170.1	198.3	195.6	162.0	1,881.1	6,621.4
		N Other Non-Labor	1,614.1	1,537.9	2,273.7	1,813.7	1,969.7	1,905.4	391.9	392.9	458.1	545.7	338.8	739.9	13,981.7
		S Sub Contracts	53.3	48.0	75.1	59.9	197.7	292.0	55.8	55.9	65.2	64.3	53.3	79.3	1,100.0
		T Travel	10.4	9.4	14.6	13.2	15.4	14.0	15.5	15.5	18.1	17.8	14.8	21.2	179.8
		WBS[4] Totals:	4,600.4	5,998.1	6,482.7	5,441.7	6,559.1	5,616.1	3,857.3	3,864.4	4,505.9	4,550.3	3,689.6	7,452.3	62,618.0
	C.4.01.02 Nuclear Energy Program														
		L Labor	434.7	359.9	549.2	540.0	479.9	436.9	478.5	429.7	483.7	548.2	430.1	744.1	5,914.9
		M Material Purchases	62.9	48.7	107.7	90.7	71.7	61.6	63.3	55.0	56.2	70.8	48.9	189.4	927.0
		N Other Non-Labor	40.4	33.1	58.2	49.7	52.4	52.3	51.5	43.9	46.8	43.8	31.0	45.0	548.1
		S Sub Contracts	27.0	141.4	121.3	87.8	159.5	201.8	233.5	113.4	62.1	71.4	49.3	110.7	1,379.2
		WBS[4] Totals:	564.9	583.1	836.4	768.3	763.5	752.7	826.9	642.0	648.9	734.2	559.3	1,089.1	8,769.3
	C.4.01.03 Work for Others (WFO) Program														
		L Labor	33.5	38.4	66.5	53.9	70.2	41.1	36.5	28.3	27.3	26.9	22.3	33.1	477.9
		M Material Purchases	2.7	2.5	4.0	3.2	3.5	3.3	3.3	3.3	3.8	3.8	3.1	4.6	41.3
		N Other Non-Labor	1.8	3.7	7.3	5.6	38.3	8.1	1.4	1.6	1.8	1.8	1.5	2.2	75.1
		T Travel	1.4	1.2	1.9	1.5	1.7	1.7	1.6	1.6	1.9	1.9	1.6	2.3	20.3
		WBS[4] Totals:	39.4	45.8	79.7	64.2	113.7	54.1	42.8	34.8	34.8	34.3	28.4	42.3	614.5
WBS[3] Totals:			5,204.8	6,627.1	7,398.8	6,274.2	7,436.3	6,422.9	4,727.0	4,541.2	5,189.6	5,318.9	4,277.3	8,583.7	72,001.8

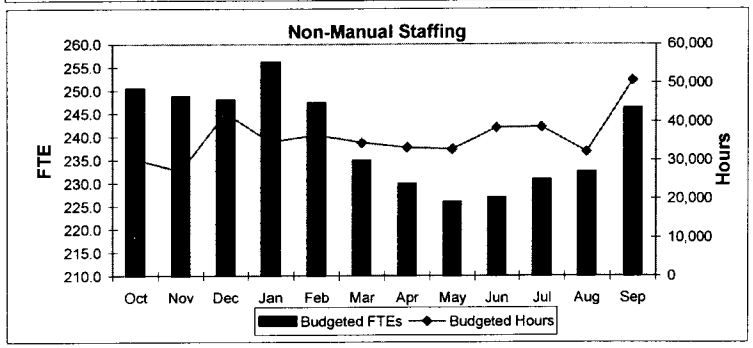


	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
LABOR	3219089.96	2926614.84	4493357.72	3796058.50	3916914.14	3688316.43	3739539.74	3687942.06	4277161.78	4301894.15	3573064.53	5507992.81
MATERIALS	237220.81	1925840.03	353449.41	446735.10	1084583.92	259340.20	236229.51	228389.32	258406.98	270188.12	214031.76	2075210.69
OTHER NON-LABOR	1656359.32	1574628.00	2339142.68	1868962.07	2060423.20	1965741.46	444820.58	438371.20	506730.36	591295.78	371343.62	787063.64
SUBCONTRACTS	80342.61	189420.20	196344.94	147690.20	357269.66	493838.56	289336.36	169361.30	127339.70	135788.70	102547.96	189952.82
TRAVEL	11753.33	10585.78	16550.01	14730.12	17105.98	15685.24	17079.49	17126.67	19969.32	19698.03	16312.80	23473.25
TOTAL	5204766.04	6627088.85	7398844.75	6274175.99	7436296.90	6422921.89	4727005.68	4541190.55	5189608.13	5318864.78	4277300.67	8583693.21

LABOR PROFILE







	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Total Staffing												
Budgeted FTEs	369.3	373.5	366.7	382.8	367.2	348.6	345.1	339.6	335.2	341.1	341.9	356.4
Budgeted Hours	44,605	40,637	62,378	51,952	54,129	51,176	49,972	49,311	56,744	56,969	47,287	73,356
Manual Staffing												
Budgeted FTEs	118.8	124.8	118.7	126.6	119.8	113.8	115.3	113.6	108.3	110.3	109.5	110.2
Budgeted Hours	14,353	13,577	20,190	17,184	17,660	16,698	16,688	16,499	18,340	18,424	15,144	22,669
Non-Manual Staffing												
Budgeted FTEs	250.4	248.7	248.0	256.2	247.4	234.9	229.9	226.0	226.8	230.8	232.4	246.3
Budgeted Hours	30,252	27,060	42,188	34,767	36,469	34,477	33,284	32,812	38,404	38,544	32,142	50,687

Program:	Description:	Approval:
C401	Nuclear Reactor Program	Program Manager
Run Date:	Status Date:	Functional Manager
9/15/2003	9/30/2003	Cost Account Manager

WBS[3]	BE[4]		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Totals
C.4.01 Nuclear Reactor Program															
	A08 PLANNING & BUDGETS	FTE	0.58	0.58	0.58	0.58	0.58	0.66	0.67	0.72	0.80	0.80	0.80	0.80	0.68
	A09 PROCUREMENT	FTE	0.64	0.43	0.41	0.16	0.13	0.06	0.12	0.03	0.07	0.14	0.07	0.07	0.19
	A11 PROJECT MGMT SUPPORT	FTE	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
	A14 SECRETARIAL	FTE	7.14	7.14	7.14	7.14	7.14	6.82	7.51	7.09	7.09	7.08	7.07	7.02	7.12
	A16 SHIPPING/RECEIVING	FTE	0.02	0.07	0.04	0.05	0.05	0.07	0.04	0.02	0.01	0.05	0.04	0.07	0.04
	A20 OTHER ADMIN SUPPORT	FTE	0.98	0.98	0.98	0.98	0.98	0.98	0.94	0.92	0.92	0.92	0.92	3.04	1.13
	C30 DATA BASE ENGINEERING	FTE	0.24	0.24	0.24	0.24	0.24	0.23	0.25	0.25	0.25	0.25	0.25	0.22	0.24
	C31 DISTRIBUTED SYSTEMS/DATA ACQUISITION	FTE	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80
	C32 MODELING/SIMULATION	FTE	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
	C36 OPERATING SYSTEMS ANALYSIS/PROGRAMMING	FTE	0.49	0.49	0.49	0.49	0.49	0.48	0.49	0.49	0.49	0.49	0.49	0.49	0.49
	C38 SOFTWARE ANALYSIS/INTEGRATION ENG	FTE	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03
	E04 CIVIL/STRUCTURL ENGINEERING	FTE	-	-	0.06	0.10	0.10	0.10	0.10	0.05	-	-	-	-	0.04
	E05 DESIGN	FTE	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
	E06 ELECTRICAL ENGINEERING	FTE	1.10	1.10	1.10	1.10	1.10	1.07	1.10	1.10	1.10	1.10	1.10	1.10	1.10
	E08 ENVIRONMENTAL ENGINEERING	FTE	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
	E11 MECHANICAL ENGINEERING	FTE	3.55	3.70	3.77	3.78	3.78	3.37	2.87	2.87	2.87	2.87	2.87	2.84	3.26
	E12 METALLURGICAL ENGINEERING	FTE	0.11	0.11	0.11	0.11	0.11	0.10	0.12	0.12	0.12	0.12	0.12	0.09	0.11
	E14 NUCLEAR ENGINEERING	FTE	6.96	7.10	7.12	7.13	7.17	6.84	6.58	6.22	5.99	5.99	5.99	5.96	6.59
	E17 QUALITY ENGINEERING	FTE	3.64	3.55	3.56	3.60	3.66	3.17	3.38	3.38	3.38	3.46	3.38	3.15	3.44
	E18 RADIOLOGICAL ENGINEERING	FTE	3.28	3.32	3.49	3.67	3.50	3.10	3.28	3.23	3.26	3.21	3.21	3.21	3.31
	E19 SAFETY ENGINEERING	FTE	1.92	1.95	1.97	2.05	2.02	1.70	1.87	1.83	1.86	1.85	1.85	1.85	1.89
	E28 PROJ MGMNT	FTE	2.59	2.20	2.09	2.13	2.15	2.27	2.90	2.07	2.20	2.30	2.28	1.62	2.23
	E31 CRITICALITY SAFETY	FTE	0.58	0.58	0.58	0.58	0.58	0.53	0.57	0.57	0.57	0.57	0.57	0.57	0.57
	E34 PROJECT ENGINEER	FTE	5.22	4.58	4.72	4.77	4.72	4.18	4.37	4.47	4.30	4.50	4.48	4.02	4.53
	E35 INSTRUMENTATION AND CONTROLS	FTE	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	E38 REMOTE APPLICATIONS ENGINEERING	FTE	0.36	-	0.04	0.26	0.21	0.15	0.15	0.15	0.15	0.61	0.15	0.15	0.20
	E39 APPLIED MECHANICS	FTE	0.16	0.81	1.13	1.13	1.13	0.29	0.21	0.24	0.24	0.24	0.24	0.23	0.50
	E40 ENGINEERING CONFIGURATION MANAGEMENT	FTE	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
	E41 FIRE PROTECTION	FTE	0.59	0.59	0.60	0.61	0.61	0.56	1.29	1.02	0.59	0.59	0.59	0.59	0.69
	E48 OPERATIONS ENGINEER, GENERAL	FTE	0.15	0.15	0.15	0.15	0.15	0.13	-	-	-	-	-	1.58	0.21
	E52 OPERATIONS ENGINEER, TECHNICAL SPEC	FTE	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	E54 OPERATIONS SYSTEM ENGINEER, NUCLEAR FAC	FTE	29.06	28.95	28.30	27.55	27.51	28.66	28.98	27.48	27.33	27.78	27.54	26.89	28.00
	F01 BUILDING/FACILITY MANAGEMENT	FTE	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.21	3.23	3.21	3.20
	F04 EMERG PREPAREDNESS/FAC PROTECTION	FTE	1.24	1.24	1.24	1.24	1.24	1.16	1.23	1.23	1.23	1.23	1.23	1.23	1.23
	F05 FAC OPERATIONS	FTE	20.73	20.73	20.61	21.43	18.93	17.80	16.90	16.78	16.65	17.44	17.76	17.73	18.62
	F07 FAC/PLANT MAINTENANCE	FTE	3.13	3.13	3.20	3.25	3.25	3.19	2.66	2.60	2.54	2.54	2.54	2.54	2.88
	F10 WORK PLANNING AND/OR SCHEDULING	FTE	18.66	18.89	19.19	19.59	19.38	18.25	15.65	15.39	15.61	15.28	15.28	15.28	17.20
	F21 OTHER FACILITY SERVICES	FTE	4.64	4.63	4.59	4.65	4.64	4.27	4.68	4.64	4.58	4.60	4.68	4.54	4.60
	F22 COST ESTIMATING	FTE	0.25	0.25	0.29	0.32	0.32	0.32	0.16	0.04	-	-	-	-	0.16
	F23 WASTE/FUEL PKG TRANSPORTATION	FTE	0.26	0.26	0.26	0.26	0.32	0.26	0.29	0.29	0.29	0.29	0.29	0.29	0.28
	F26 CONSTRUCTION FIELD ENGINEER	FTE	-	-	0.02	0.04	0.04	0.04	0.04	0.02	-	-	-	-	0.02
	F27 CONSTRUCTION SUBCONTRACT TECHNICAL REP	FTE	0.17	0.17	0.32	0.41	0.41	0.41	0.41	0.25	0.14	0.37	0.37	0.37	0.32
	F31 CONSTRUCTION OTHER TECHNICAL	FTE	-	-	0.01	0.02	0.02	0.02	0.02	0.01	-	-	-	-	0.01
	P18 PURCHASING	FTE	0.12	0.09	0.03	-	-	-	-	-	-	-	-	-	0.02
	P21 SUBCONTRACT ADMIN	FTE	0.22	0.22	0.22	0.22	0.22	0.20	0.23	0.23	0.23	0.26	0.26	0.35	0.24
	P23 TRAINING	FTE	13.33	13.33	13.33	13.33	13.33	12.86	9.65	9.65	9.65	9.65	12.85	24.57	12.96
	P33 OTHER ADMIN SERVICES	FTE	6.36	6.36	6.32	6.31	6.31	5.89	6.28	6.28	6.28	6.28	6.28	7.33	6.36
	P40 PROJECT ADMINISTRATOR	FTE	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
	P44 PLANNING AND CONTROLS	FTE	6.18	6.19	6.09	6.08	6.12	6.71	6.65	6.87	7.81	7.87	7.70	7.15	6.79
	S04 ENVIRONMENTAL SCIENCES	FTE	-	-	0.01	0.02	0.02	0.02	0.02	0.01	-	-	-	-	0.01
	S08 INDUSTRIAL HYGIENE	FTE	0.83	0.86	0.87	0.86	0.79	0.72	0.75	0.75	0.75	0.76	0.76	0.76	0.79

WBS[3]	BE[4]		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Totals
C.4.01 Nuclear Reactor Program															
	S10 PHYSICS	FTE	0.27	0.27	0.27	0.27	0.27	0.24	0.27	0.27	0.27	0.27	0.27	0.27	0.27
	S14 OTHER SCIENTIFIC	FTE	-	-	0.03	-	-	0.02	0.01	-	-	-	-	0.05	0.01
	S15 ANALYTICAL CHEMISTRY	FTE	2.04	2.04	1.96	1.93	1.97	1.83	1.89	1.89	1.89	1.89	1.89	1.89	1.93
	S16 CHEMICAL SCIENCES	FTE	0.02	0.02	0.01	0.04	0.06	0.06	0.06	-	2.16	1.50	-	-	0.33
	S21 REGULATORY COMPLIANCE - ENVIRONMENTAL	FTE	3.94	2.86	2.89	2.72	2.71	2.47	2.66	2.64	2.64	2.66	2.72	2.89	2.82
	T03 DRAFTER	FTE	2.41	2.41	2.45	2.48	2.55	2.44	2.40	2.39	2.36	2.36	2.36	2.36	2.41
	T05 EPRO	FTE	28.43	28.43	28.39	29.77	28.61	27.46	27.10	27.10	27.01	27.12	27.17	27.17	27.81
	T06 FAC OPS/HAZARD WASTE TECH	FTE	1.82	1.98	1.56	0.65	0.56	0.55	0.55	0.55	0.53	1.70	2.43	1.70	1.22
	T07 FIELD SERVICE TECH	FTE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	T08 ILLUSTRATOR ARTIST	FTE	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
	T09 INSTRUMENTATION/CALIBRATION TECH	FTE	2.48	2.48	2.40	2.35	2.35	2.11	2.39	2.09	2.09	2.09	2.09	2.09	2.25
	T10 LABORATORY TECH	FTE	2.96	2.84	2.67	2.69	3.55	2.50	2.64	2.64	2.64	2.79	2.75	2.64	2.78
	T11 PC OPERATIONS TECH	FTE	1.13	1.13	1.13	1.13	1.13	1.10	1.13	1.13	1.13	1.13	1.13	1.09	1.12
	T12 QUALITY INSPECT TECH	FTE	3.86	3.84	3.86	3.82	3.93	3.60	3.65	3.57	3.57	3.68	3.57	4.79	3.81
	T13 HEALTH PHYSICS TECH	FTE	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	T16 INDUST SAFETY/HEALTH TECH	FTE	0.16	-	0.10	0.16	0.19	0.32	0.26	0.16	0.08	0.13	-	-	0.13
	T17 OTHER TECHS/OPS	FTE	0.09	0.11	0.06	0.05	0.11	0.11	0.06	0.01	-	0.32	0.16	0.22	0.11
	T25 COMP HARDWARE/SOFTWARE SUPPORT TECH	FTE	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	T27 NETWORK TECHNICIAN	FTE	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
	T37 WAREHOUSING AND DISTRIBUTION	FTE	0.85	0.85	0.85	0.85	0.85	0.76	0.83	0.83	0.83	0.83	0.83	0.83	0.83
	T39 FIRE PROTECTION TECHNICIAN	FTE	0.31	0.31	0.31	0.31	0.31	0.28	0.27	0.27	0.27	0.27	0.27	0.27	0.29
	U06 CARPENTER	FTE	3.18	2.77	2.95	2.79	3.06	3.09	3.09	2.84	2.58	3.02	2.56	3.77	2.98
	U09 CUSTODIAN	FTE	3.15	3.15	3.15	3.15	3.15	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14
	U11 ELECTRICIAN	FTE	13.81	13.90	13.63	13.36	13.41	12.44	11.91	12.02	12.04	11.88	11.84	11.84	12.67
	U12 EQUIPMENT OPERATOR	FTE	0.31	1.02	0.41	0.33	0.33	0.53	0.86	0.88	0.86	1.10	0.83	0.39	0.65
	U16 FITTER	FTE	8.13	8.15	8.16	8.32	7.80	7.44	7.48	7.06	6.69	6.33	6.33	6.33	7.35
	U19 INSTRUMENT SPECIALIST	FTE	9.56	9.67	9.60	9.56	9.56	8.78	8.40	8.39	8.39	8.36	9.05	8.57	8.99
	U20 INSULATOR	FTE	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
	U21 LABORER	FTE	4.42	3.68	3.62	3.64	3.36	4.00	4.46	4.60	3.65	4.65	4.15	3.33	3.96
	U24 LOCKSMITH	FTE	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
	U26 MACHINIST	FTE	0.47	0.52	0.55	0.55	0.55	0.45	0.42	0.42	0.42	0.42	0.42	0.42	0.47
	U28 MATERIAL SPECIALIST	FTE	2.48	2.48	2.48	2.48	2.48	2.30	2.35	2.35	2.35	2.35	2.35	2.35	2.40
	U29 SYS MECHANIC	FTE	12.05	12.09	11.88	11.74	11.91	10.82	10.10	10.35	10.30	10.12	10.44	10.69	11.04
	U35 PAINTER	FTE	1.97	1.97	1.97	1.97	1.97	1.86	1.66	1.70	1.78	2.17	2.17	3.39	2.05
	U46 SERVICE OPER DISPOSAL	FTE	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
	U55 WELDER	FTE	1.78	2.28	2.43	2.24	2.03	2.01	1.75	1.67	1.57	1.24	1.24	1.97	1.85
	U59 SECURITY OFFICER/ESCORT	FTE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	U60 RADIOLOGICAL CONTROL TECH	FTE	19.21	24.78	17.96	20.29	19.71	18.08	20.55	20.95	19.50	20.49	19.87	18.86	20.02
	U71 MATERIAL MOVING EQUIPMENT OPERATOR,HEAVY	FTE	2.37	2.40	2.45	2.30	2.29	2.08	2.06	2.38	2.11	1.98	1.98	1.98	2.20
	U74 CHEMICAL TECHNICIAN	FTE	0.31	0.31	0.31	0.31	0.31	0.28	0.31	0.31	0.31	0.31	0.31	0.31	0.31
	U81 CONSTRUCTION CARPENTER (FORCE ACCT)	FTE	1.83	1.83	1.90	1.95	1.95	1.95	1.95	1.15	0.61	0.61	0.61	0.61	1.41
	U82 CONSTRUCTION ELECTRICIAN (FORCE ACCT)	FTE	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.41	0.17	0.17	0.17	0.17	0.55
	U84 CONSTRUCTION LABORER (FORCE ACCT)	FTE	0.17	0.17	0.91	1.40	1.40	1.40	1.40	0.83	0.17	0.17	0.17	0.17	0.70
	U87 CONSTRUCTION PIPE FITTER (FORCE ACCT)	FTE	-	-	0.53	0.89	0.89	0.89	0.89	0.47	-	-	-	-	0.38
	U90 WASTE OPS TECH - TRA	FTE	31.87	31.87	32.04	37.63	31.88	30.46	30.72	30.72	30.72	30.83	30.88	30.88	31.71
	X16 MIXED/HAZARDOUS WASTE MANAGEMENT	FTE	3.17	3.20	2.81	2.72	2.52	2.25	2.28	3.19	2.38	2.84	3.00	2.30	2.72
	X22 SAFETY ANALYSIS	FTE	6.61	6.61	6.56	6.54	6.54	6.45	6.49	6.46	6.45	6.45	6.45	6.45	6.51
	X23 PROBABILISTIC RISK ANALYSIS (PRA)	FTE	0.25	0.25	0.25	0.25	0.25	0.25	0.18	0.11	0.08	0.08	0.08	0.08	0.18
	X24 PERFORMANCE ASSURANCE	FTE	0.06	0.06	0.06	0.06	0.06	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06
	Z01 MANAGER, ADMIN SERVICES	FTE	-	-	-	-	-	-	-	-	-	0.02	0.02	0.02	0.01
	Z02 MANAGER, FAC SUPPORT SERVICES	FTE	0.82	0.82	0.82	0.82	0.82	0.73	0.81	0.81	0.81	0.81	0.81	1.11	0.83
	Z03 MANAGER, OPERATIONS	FTE	8.76	8.76	8.76	8.76	8.76	7.99	8.34	8.34	8.34	8.34	8.34	8.34	8.49
	Z04 MANAGER, SCI/ENG FUNCTION	FTE	2.09	2.01	1.99	7.51	3.40	1.93	1.94	1.88	1.85	1.85	1.85	1.85	2.51
	Z07 SUPERVISOR, FAC SUPPORT SERVICES	FTE	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99
	Z08 SUPERVISOR, OPERATIONS	FTE	8.62	8.64	8.70	10.13	8.70	8.31	6.83	6.83	6.83	6.83	6.83	6.83	7.84
	Z09 SUPERVISOR, SCI/ENG FUNC	FTE	1.45	1.45	1.45	1.45	1.45	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44

WBS[3]	BE[4]		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Totals
C.4.01 Nuclear Reactor Program															
	Z10 FOREMAN, OPERATIONS	FTE	1.49	1.49	1.49	1.49	1.49	1.42	1.48	1.48	1.48	1.48	1.48	1.48	1.48
	Z11 FOREMAN, CRAFTS	FTE	4.92	4.95	4.98	4.92	4.90	4.62	4.45	4.51	4.37	4.44	4.44	4.38	4.66
WBS[3] Totals:		FTE	369.28	373.54	366.73	382.88	367.25	348.64	345.09	339.58	335.20	341.15	341.92	356.41	355.64