

Argonne National Laboratory

INFRASTRUCTURE PROGRAM IMPLEMENTATION  
PLAN

FY 2003

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APPROVED:



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## EXECUTIVE SUMMARY

The goal of the ANL-West Infrastructure Program is to maintain the DOE NE facilities at ANL-West in a “Mission Ready” state, and support the on-going DOE Missions and Programs. This is accomplished by safely and cost-effectively managing the physical and personnel assets of ANL-West with capable, knowledgeable, well trained staff.

ANL-West’s mission is to lead the development of advanced, sustainable nuclear power systems in this country. Our work will be centered on the Advanced Nuclear Fuel Cycle Initiative and will focus on developing and demonstrating pyroprocessing separation technologies for treating and reducing spent nuclear fuel and high-level waste. We will also collaborate with other national laboratories and international organizations, and take a leadership role in the emerging Gen IV Nuclear Reactor Program and Space Nuclear Program initiatives.

The ANL-West capabilities encompass the entire nuclear fuel cycle and includes; nuclear fuel development, spent fuel disposition technology development, liquid metal technology, post-irradiation examinations, waste and nuclear material characterization, nuclear waste stabilization development, and development of dry, interim storage for spent fuel and other highly radioactive materials. ANL-West has a unique suite of nuclear, radiological, and industrial facilities, and operations support organizations that support these activities.

The Work Breakdown Structure (WBS) is consistent with guidance and discussions from DOE. Control Level 1 includes the entire Infrastructure project and is controlled by the DOE Office of Nuclear Energy, Science and Technology (DOE-NE). Control Level 2 has three principle components: Safeguards and Security (S&S), Asset Management (AM), and Administrative Services (AS), and is controlled by DOE-CH-AAO. Control Level 3 defines the primary operational activities and is controlled by ANL-West.

The Infrastructure Program is the management process that ANL-West uses to define, communicate, and manage the work activities and associated costs that are required to maintain the ANL-West site and facilities in a “Mission Ready” condition. The Program is managed by the Infrastructure Program Director, who represents ANL-West to DOE-NE, and interfaces with the ANL Division Directors to accomplish the work. The Division Directors are responsible for prioritizing, planning, scheduling, performing, and supervising Infrastructure activities and ensuring completion in a safe and timely manner.

The Infrastructure Program consists of both direct and nondirect functions and personnel. Direct functions are those tasks or activities, that are directly budgeted and charged to the Infrastructure accounts. These direct charges include a nondirect “tax”. The nondirect functions within Argonne National Laboratory provide support for all projects or programs. The budget for these functions is recovered by assessing a “tax” on the direct costs in a project or a program. The tax supports staff from both ANL-East and ANL-West and also the budget for general materials and services to operate the Laboratory. The nondirect tax-rate is determined by the Argonne Overhead/Indirect Budget Committee and is assessed to all direct programs and projects. The process to determine this tax-rate is structured and takes place every year.

The Infrastructure Program mainly consists of the on-going day-to-day activities required to maintain assets and support programs. As such, its activities are more closely related to level-of-effort support functions rather than completing specific tasks and milestones that are normally associated with the typical project management plan.

Infrastructure Program WBS Performance Reports are generated monthly as an internal management and information tool. The Infrastructure Program Director uses these reports to evaluate overall Infrastructure performance and address potential problem areas. The WBS Performance Reports are summarized and the information is provided to DOE and to ANL management in the formal Infrastructure Program Implementation Plan Monthly Report.

Changes to the Infrastructure Program baseline are managed in accordance with typical DOE project management change control guidelines. Formal changes are initiated when the baseline has been altered by circumstances that could not have been reasonably anticipated. Anticipated changes are routinely documented and reported as a variance against the approved baseline as part of the monthly performance reports. Unanticipated changes that result in a significant variance from the baseline will be documented and approved by the appropriate level of authority. Two types of changes will be implemented by the same system: directed and project-initiated changes. The types of changes are divided into three areas: technical scope, schedule, and cost. Each of the three areas is subdivided into three sublevels. A different organization is responsible for approval of each change level.

This Infrastructure Implementation Plan describes the Infrastructure organization, planning model, workscope, assumptions and risks, schedules, reporting, change control, and environmental and safety issues. The DOE-NE Congressional Budget request for Fiscal Year (FY) 2003 is \$31.1M for ANL-West Infrastructure, which is \$1.8M less than what DOE provided in FY 2002, and \$8.3M less than ANL-West requested for FY 2003. The ANL-W “over target” request to DOE-EM for FY 2003 Safeguards and Security funding is \$8.2M, which is \$0.5M less than what DOE provided in FY 2002. Therefore, this Plan also identifies the areas of risk, which must be mutually understood and agreed on when establishing the baseline workscope, milestones, and costs.

## Acronym List

AL	Analytical Laboratory
ANL	Argonne National Laboratory
ANL-E	Argonne National Laboratory-East
ANL-W	Argonne National Laboratory-West
BBWI	Bechtel BWXT Idaho, LLC
BWXT	Bechtel Wilcox Technologies
CAS	Central Alarm Station
DEQ	Department of Environmental Quality
DOE-EM	Department of Energy, Office of Environmental Management
DOE-NE	Department of Energy, Office of Nuclear Energy, Science and Technology
DOE-OS	Department of Energy, Office of Science
EBR-II	Experimental Breeder Reactor-II
ES&H	Environment, Safety, and Health
ETA	Engineering Task Authorization
FASB	Fuel Assembly and Storage Building
FCF	Fuel Conditioning Facility
FMF	Fuel Manufacturing Facility
GPP	General Plant Project
HEU	High Enriched Uranium
HFEF	Hot Fuel Examination Facility
HWMA	Hazardous Waste Management Act
INEEL	Idaho National Engineering and Environmental Laboratory
ISM	Integrated Safety Management
MBA	Materials Balance Area
NEPA	National Environmental Policy Act
NRAD	Neutron Radiography Reactor
ORSA	Outside Radioactive Storage Area
OSR	Operational Safety Requirement
PAAA	Price-Anderson-Amendment-Act
RCRA	Resource Conservation and Recovery Act
RPS	Radioisotope Power Source
RSSF	Radioactive Sodium Storage Facility
RSWF	Radioactive Scrap and Waste Facility
RTF	Remote Treatment Facility
RWMC	Radioactive Waste Management Complex
SAR	Safety Analysis Report
SCMS	Sodium Component Maintenance Shop
SPF	Sodium Process Facility
SPOs	Security Police Officers
SSB	Sodium Storage Building
STP	Site Treatment Plan
TPBAR	Tritium Production Burnable Absorber Rods
TRU	Transuranic Waste
TREAT	Transient Reactor Test Facility

TSCA	Toxic Substances Control Act
TSR	Technical Safety Requirement
USQ	Unreviewed Safety Question
WCA	Waste Characterization Area
WFO	Work For Others
ZPPR	Zero Power Physics Reactor

## 1.0 INTRODUCTION

The ANL-West Infrastructure consists of the basic facilities, equipment, and people required to support the DOE NE mission and programs. The ANL-West Infrastructure Program Implementation Plan has been developed to communicate and document Infrastructure scope, cost and schedules. This submittal includes a detailed description of workscope by functional element according to the Work Breakdown Structure (WBS), which has been revised relative to the FY 2002 WBS. The baseline planning model is described in Section 2.0, and graphically shown in Figure 1. This Plan also provides direction and guidance for managing the ANL-West Infrastructure, and describes the measures by which ANL-West Infrastructure performance will be evaluated by ANL management and DOE.

The ANL-West Infrastructure Program supports the ANL-West site which is located within the boundaries of the Idaho National Engineering and Environmental Laboratory (INEEL) in Southeastern Idaho. The ANL-W site is operated by Argonne National Laboratory (ANL) in accordance with the contract between the University of Chicago and the Department of Energy (DOE). ANL operates two sites; the main site, ANL-East, located in Illinois, and the West site, ANL-West, located in Idaho. Historically, basic scientific research is conducted at the main ANL-East site near Chicago, with large-scale nuclear technology testing and development conducted at the ANL-West Idaho site.

Specific areas of expertise and accomplishments include;

- Nuclear fuel development
- Spent fuel disposition technology development
- Liquid metal technology
- Post irradiation examinations
- Waste and nuclear material characterization and treatment
- Nuclear waste stabilization development
- Development of dry storage for spent fuels and other highly radioactive materials

ANL-West operates and maintains a suite of unique facilities and capabilities that supports these activities. These facilities include the following;

- The Fuel Conditioning Facility (FCF) is a recently renovated air and argon hot cell facility. Its current mission is to treat the inventory of stored sodium-bonded spent fuel from the EBR-II using electrometallurgical treatment technology (see Spent Fuel Treatment Implementation Plan).
- The Hot Fuel Examination Facility (HFEF) is a versatile, modern air and argon hot cell facility that can perform post-irradiation examination of reactor fuels, and characterize and package spent fuel and radioactive waste, including high-level waste which could ultimately be placed in a geologic repository. It also contains the Waste Characterization Area (WCA) which is used to examine, characterize, core drill, repackage and treat drums of contact-handled TRU waste.

- The Neutron Radiography Reactor Facility (NRAD) is a TRIGA research reactor that is located within the HFEF. It is equipped with two beam tubes and two separate radiography stations that make it one of the finest facilities in the world for radiography of irradiated and unirradiated reactor components.
- The Fuel Manufacturing Facility (FMF) is currently being used to support research and development of treatment techniques for uranium and actinide-bearing waste forms. FMF also contains one of the two Category I Materials Balance Area (MBA) vaults at ANL-W. In addition, FMF is processing 500kg of High Enriched Uranium (HEU) for Bechtel Wilcox Technologies (BWXT) over five years (2001-2006).
- The Zero Power Physics Reactor (ZPPR) Complex includes Building 776, the ZPPR Reactor Cell, which is in a non-operational standby mode. The Reactor Cell currently contains the Gas Generation Experiment (GGE) glovebox and the recently acquired Radioisotope Power Source (RPS) Program products. Building 775 contains the other Category I MBA vault at ANL-W. Building 792 currently receives and stores the Spent Fuel Treatment Program product, and will eventually be modified to house the RPS Program.
- The Radioactive Scrap and Waste Facility (RSWF) provides a fully RCRA-permitted interim, dry underground storage capability for a variety of experimental spent fuels and radioactive scrap.
- The Contaminated Equipment Storage Building (CESB) is being used for legacy equipment characterization and waste repackaging.
- The Analytical Laboratory (AL) and Electron Microscopy Laboratory (EML) provide analytical capabilities to support the electrometallurgical treatment technology and the development of waste forms that will be suitable for long-term geologic disposal. The AL also provides environmental analysis, operational analysis, and radiochemistry support for the site and other DOE Programs. EML provides material science and characterization capabilities which include optical, scanning electron, and transmission electron microscopes.
- The Sodium Process Facility (SPF) was used to convert radioactive sodium into a chemically stable, low-level waste form. The sodium included legacy sodium from the Enrico Fermi Atomic Power Plant in Michigan, which was stored at ANL-West and the primary and secondary sodium coolant from the EBR-II. SPF is being maintained in a standby condition pending DOE guidance for using SPF to process other DOE sodium and NaK for disposal.
- The Sodium Components Maintenance Shop (SCMS) is a fully RCRA-permitted treatment and storage facility. The waste streams treated at this facility include legacy and newly generated wastes from ANL-West programs, and DOE legacy waste from other DOE facilities (e.g. INEEL).
- The Transient Reactor Test Facility (TREAT) is in standby and not currently operating. However, it has historically, and is still capable of testing reactor physics and core design,

analyzing nuclear materials, and testing waste treatment technologies. The non-reactor portions of the TREAT facility will be used in FY 2003 to support various DOE programs.

Other nuclear, radiological and balance of plant facilities are listed in Table 1, and constitute the remainder of the ANL-West infrastructure. Section 2.7 provides additional details regarding planned workscope.

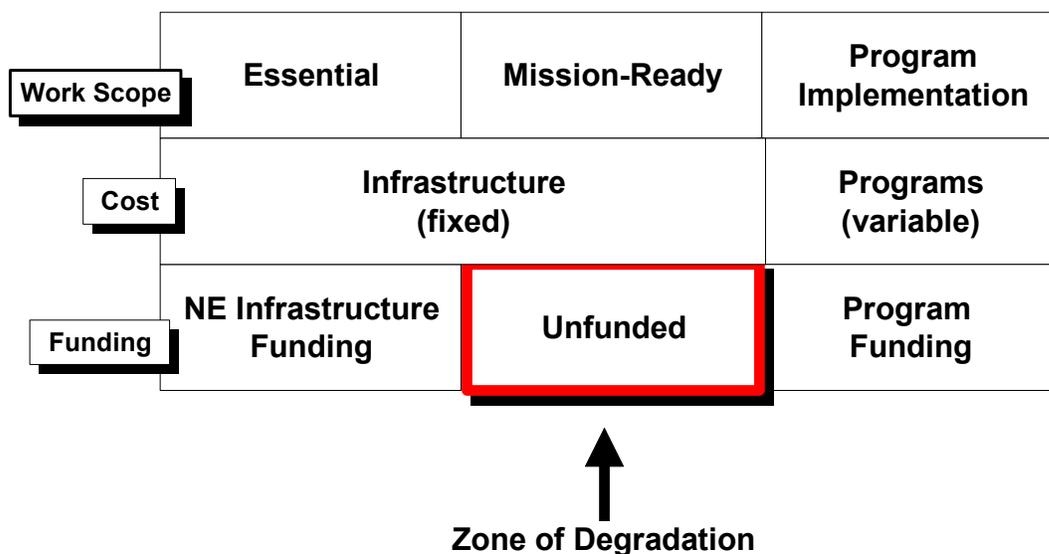
## 2.0 BASELINE

The Infrastructure Program Implementation Plan baseline is the quantitative expression of projected workscope, costs, schedule, and technical requirements and risks. The baseline is also the established plan that is used to measure Program performance.

### 2.1 Planning Model

Historically, DOE-NE had mandated that the planning basis for the Infrastructure Program was to maintain ANL-W facilities in a “Mission Ready” state. However, with the continually decreasing level of funding it is no longer possible to perform all the necessary workscope to maintain “Mission Ready” facilities. Therefore, as an aid in preparing the FY 2003 baseline, we have refined the Infrastructure Program Planning model, by subdividing the Program activities into three states of readiness; “Essential”, “Mission Ready”, and “Program Implementation”. The former “Mission Ready” state of readiness is now subdivided into “Essential” and “Mission Ready”. Figure 1 illustrates the Infrastructure Program Planning Model that is used in defining workscope, cost, and funding sources.

**Figure 1, Infrastructure Program Planning Model**



## **Work Scope**

The first part of the model addresses workscope. “Essential” workscope is that required to meet mandatory health and safety, security, and environmental requirements, and court-mandated agreements. This includes; (1) DOE requirements for Health and Safety, Nuclear Safety (facility authorization basis), and Safeguards and Security, (2) State and Federal environmental permit requirements for hazardous waste (RCRA and TSCA) and air emissions, and (3) court-mandated agreements such as the INEEL Site Treatment Plan and the Idaho Governor’s Settlement Agreement. Failure to perform this workscope could result in fines, penalties, and loss of authorization to operate the ANL-W facilities.

“Mission Ready” workscope provides well-maintained facilities and support systems that are ready to accept program work. It also provides the core operational staff that can assist programs in planning the program-specific work activities, preparing required ES&H and quality documents, and developing program-specific operations procedures. It does not provide the operations staff to actually perform the program workscope.

“Program Implementation” workscope is the activities and resources that are required to actually perform the program workscope. This includes facility operators, technical staff, and operations support (e.g. Health Physics Technicians).

## **Cost**

The second part of the model addresses workscope cost. The “Essential” and “Mission Ready” costs are basically fixed costs and are required regardless if any programs are operating or not in the facilities. The “Program Implementation” costs are variable, depending on the desired amount of program workscope, but the number of staff and amount of materials required to meet the “Essential” and “Mission Ready” workscope remains constant. For example, the spent fuel pyroprocess in FCF can be operated on a one-shift or two-shift schedule, depending on the desired throughput. Therefore, the number of operations staff will vary, depending on the program-specified workload.

As part of the FY 2003 Program planning process, the workscope and associated costs have been defined for the “Essential” and “Mission Ready” states. The “Program Implementation” workscope and costs are not defined in this Infrastructure Program Implementation Plan because they are outside of the scope of the Infrastructure Program, but are defined by the specific Programs.

## **Funding**

The third part of the model deals with funding. As mentioned earlier, the Infrastructure Program funding was originally intended to provide for both “Essential” and “Mission Ready” costs. However, with the decreased funding, the DOE-NE Infrastructure funding currently barely covers the “Essential” costs. The “Program Implementation” costs have always been provided by the individual programs and are not discussed in this Plan. This leaves the “Mission Ready” costs that are unfunded, thus producing the “Zone of Degradation”. The size of the “Zone of Degradation” depends on the amount of available DOE-NE Infrastructure funding, and

represents the amount of funding needed to bring the ANL-W site and facilities from an “Essential” readiness level to fully “Mission Ready” for programmatic activities.

The impact of being in the “Zone of Degradation” is that ANL-W’s ability to readily support programs is degraded, and can manifest itself in the following ways;

- Facility systems and equipment (e.g. non-essential manipulators, cranes, power supplies, etc.) are not functional and are not immediately available. They may require corrective maintenance/repair, upgrades, modifications, and spare parts before being returned to service to support program work.
- Facility availability is reduced because of increased frequency and duration of unplanned outages. This is due to more frequent breakdown of aging equipment, and/or outages are extended because of inadequate on-site spare parts inventory and/or obsolete spare parts are unavailable.
- Facility staff cannot immediately respond to program requests because the core facility staff has not been maintained to support program planning (e.g. plans, schedules, procedures, and safety documentation) and operational readiness (e.g. trained and qualified operators and maintainers). Staff will either need to be reassigned from other facilities or programs, or hired from off-site. Also, ANL-West response to DOE-NE requests will be impaired for the same reasons as stated above.

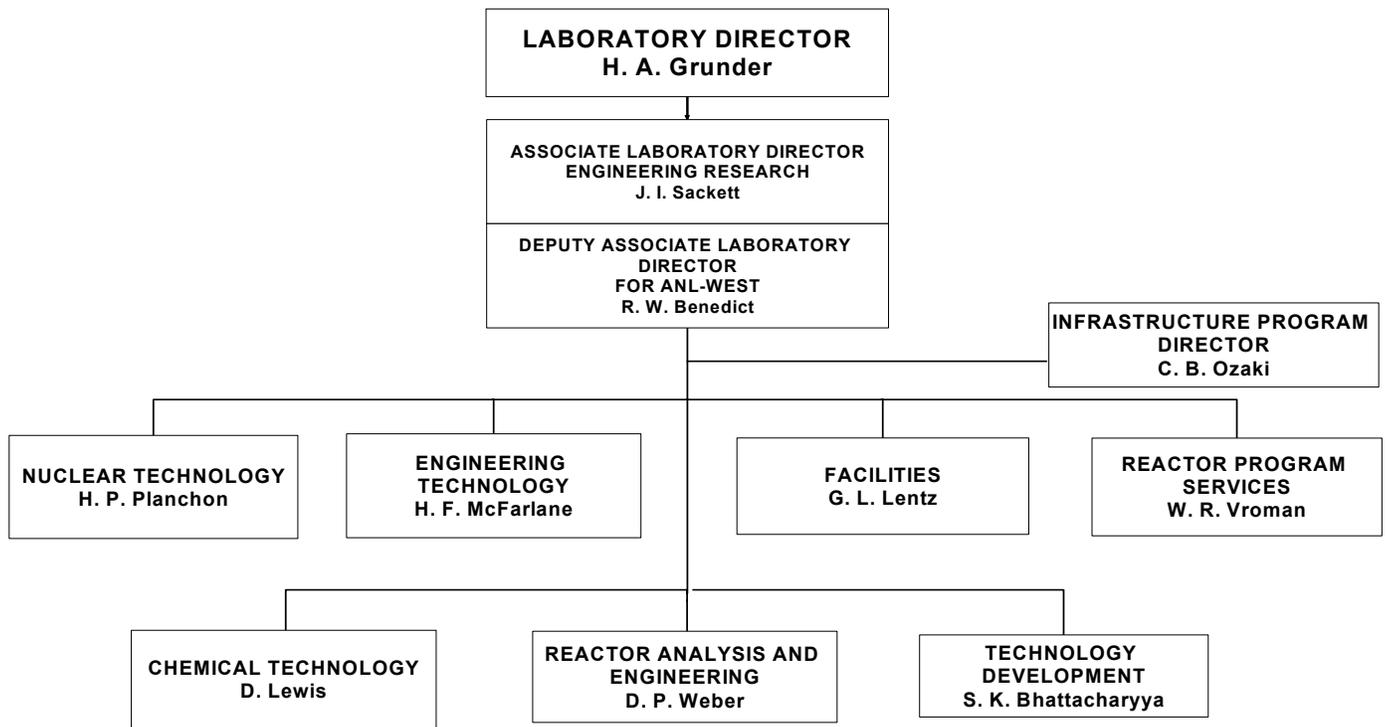
There are other options for absorbing the impacts of being in the “Zone of Degradation” that do not directly degrade the facilities, but do have other associated risks and ramifications. They are as follows:

- Implement a more extensive “graded approach” to DOE-directed administrative process requirements. Safety performance is always maintained at an adequate level. However, for non-safety related process requirements (e.g. training, document control, conduct of maintenance, etc.), the robustness and overall quality are reduced to the minimal, mutually acceptable level, which may not meet traditional DOE expectations, but will meet the minimal functional requirements.
- Programs directly fund some or all of the “Mission Ready” costs. However, this increases the overall cost to the programs for having work performed at ANL-W, and decreases our competitiveness with other service providers (e.g. Hanford, Oak Ridge, Los Alamos, etc.). Historically, ANL-West has been one of the more cost effective National Laboratories within the DOE Complex, which has enabled us to successfully compete for new program work (e.g. Radioisotope Power Source Program from Mound, Ohio).

## 2.2 Organizational Structure

Argonne National Laboratory is divided into Associate Laboratory Director (ALD) organizations and subdivided into Divisions (see Figure 2). The Infrastructure Program is part of the Engineering Research (ER) ALD organization. Engineering Research consists of seven divisions with four located at ANL-West and three at ANL-East.

**Figure 2, Infrastructure Program Organizational Chart**



Division Directors are responsible for assigning and managing personnel, planning, prioritizing, scheduling, supervising and performing Infrastructure work activities. They are also responsible for ensuring the work is completed in a safe, timely, and cost effective manner, and meet the technical and quality requirements. The Divisional work forces are required to follow the ANL-West administrative, health and safety, radiation control, waste management, and environment compliance policies, plans, and procedures that implement the ANL-West Quality Assurance Plan, Integrated Safety Management practices, and other DOE Orders and Directives, and State and Federal regulations. ANL-West Senior management is responsible for developing the policies, plans, and procedures, and ensuring their effective implementation.

The Infrastructure Program is managed by the Infrastructure Program Director who reports to the Deputy Associate Laboratory Director for Engineering Research. The Infrastructure Program Director is the ANL-West Program interface with DOE-NE and CH-AAO and is responsible for the following;

- Define the ongoing Infrastructure Program financial needs, and ensure the necessary funding and resources are available to meet the Infrastructure Program goals and commitments, and to maintain the capital asset base at the ANL-West site.
- Coordinate, develop, and recommend the annual Infrastructure Program budget allocation for the ANL-West and ANL-East Divisions who perform the work.
- Work with managerial leads to define workscope, milestones, and deliverables, and monitor and report cost and schedule performance, including significant accomplishments, concerns or issues.
- Work with managerial leads to identify cost effective changes in Infrastructure processes and activities, and work with Division management in evaluating and implementing new, cost effective processes.
- Work with Division Directors and Senior management in resolving priority and resource conflicts between Infrastructure, Programmatic, and Laboratory activities and commitments.

### **2.3 Applicable Requirements**

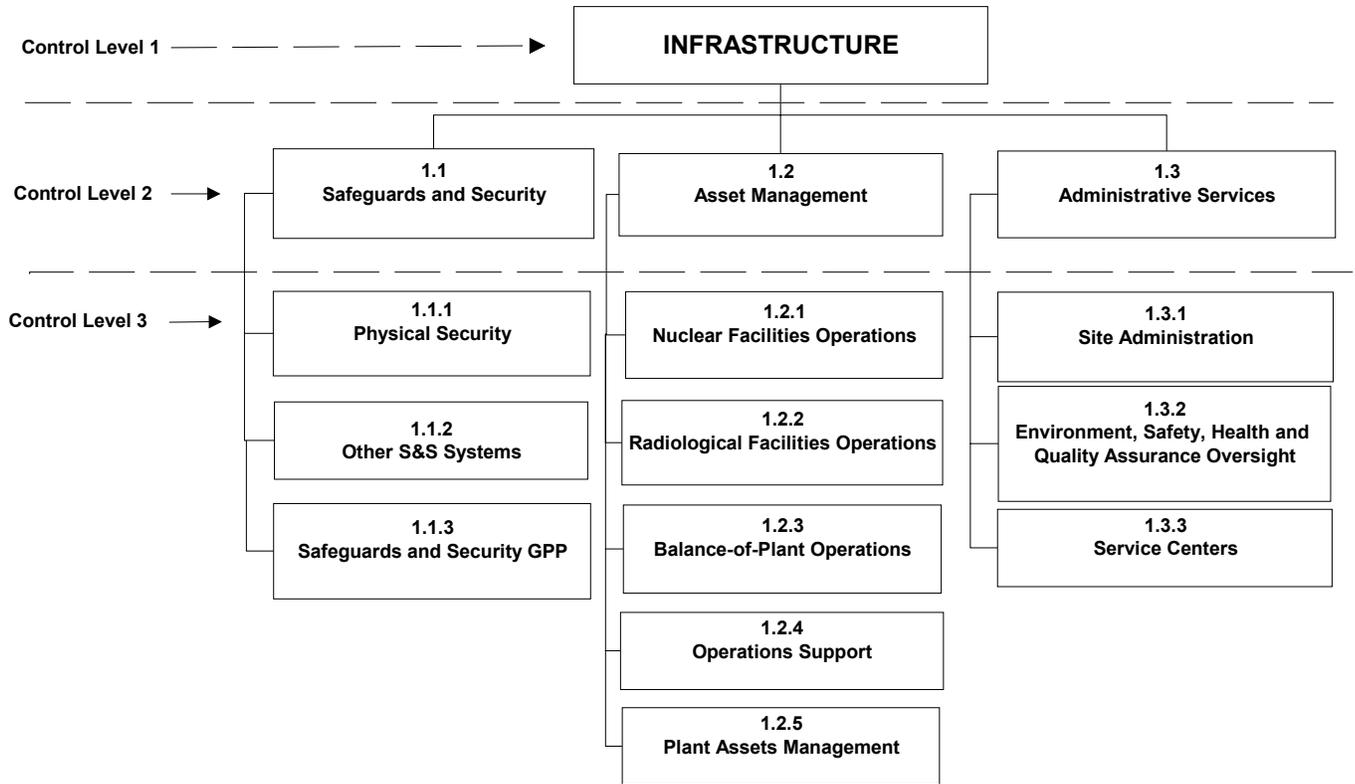
The contractual requirements for ANL-West are found in the ANL contract, Appendix I, List B, dated July 26, 2001. Any changes to this list will be evaluated for impact to this Plan's baseline workscope, cost, and schedule. Directed changes will be handled through the change control process described in Section 3.0.

### **2.4 Work Breakdown Structure**

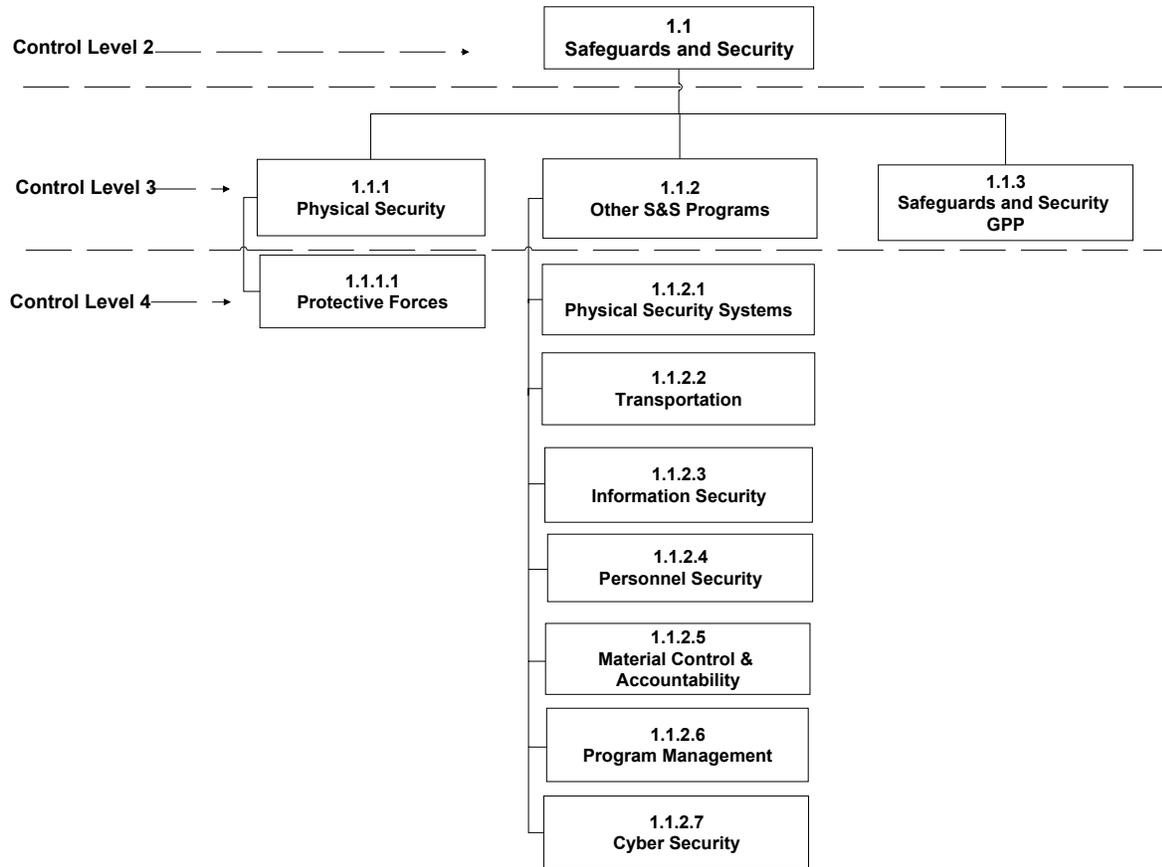
The Work Breakdown Structure (WBS) has been revised to more accurately reflect the way that work activities are currently subdivided, integrated, controlled, and reported. As shown in Figure 3, Control Level 1 includes the entire Infrastructure Program (DOE-NE and EM funded activities), and is controlled by DOE-NE. Control Level 2 has three principle components: Safeguards and Security (S&S), Asset Management (AM), and Administrative Services (AS); and is controlled by DOE-CH-AAO. Control Level 3 defines the primary operational activities and is controlled by ANL-West. Figures 4-6 provide WBS details down to Control Level 4, which is controlled and managed by the designated ANL-West managerial lead person.

The S&S activities include the staffing, materials, and services needed to provide physical security and physical security systems for ANL-W. Also included in the S&S activities is the multi-year General Plant Project (GPP) for modifying and upgrading the physical security systems. The scope for FY 2003 was finalized and issued as the ANL-W FY 2003 Security

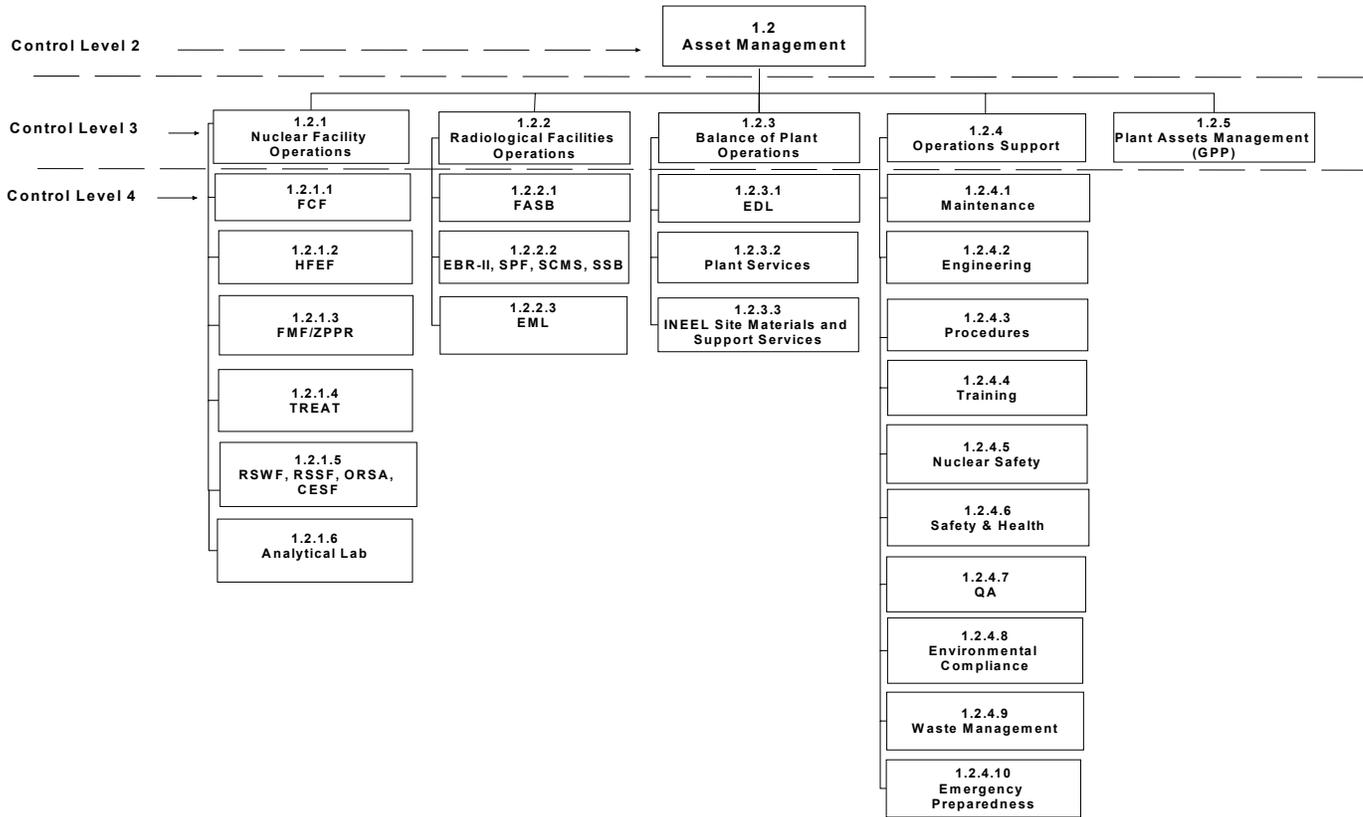
**Figure 3, Level 1 Work Breakdown Structure**



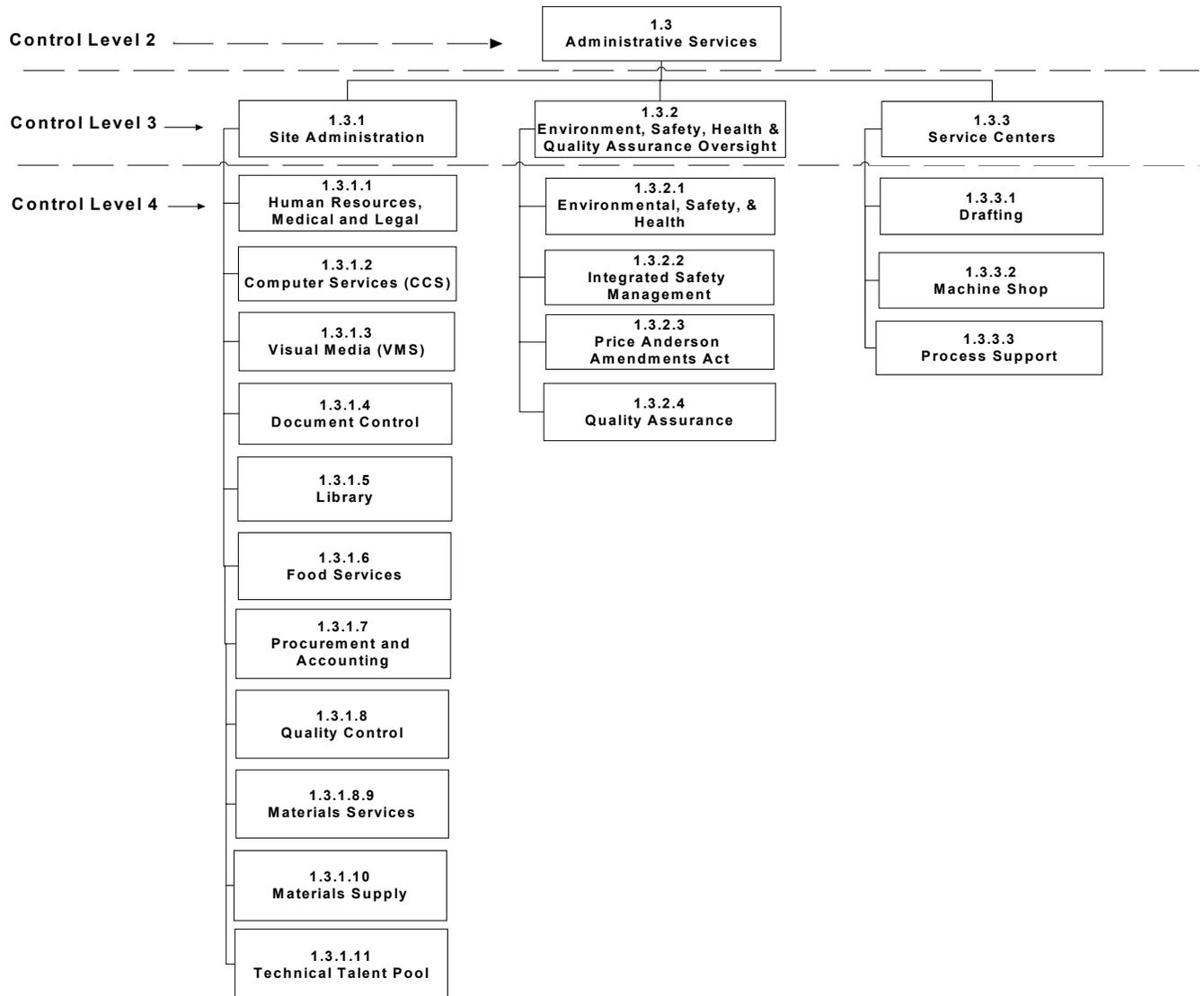
**Figure 4, Safeguards and Security Work Breakdown Structure**



**Figure 5, Asset Management Work Breakdown Structure**



**Figure 6, Administrative Services Work Breakdown Structure**



Upgrades Management Plan in September 2002 (W7380-011-ES, Revision 04). This activity is included in the scope of the Infrastructure Program Implementation Plan because it is an “Essential” component of the ANL-W Infrastructure. However, through a recent change in DOE organizational responsibilities, the S&S activities are now funded through DOE-EM, and not DOE-SC. (See Section 2.7 for funding discussion)

The AM activities include the staffing, materials, and services needed to support the ANL-W facilities and operations. The subtasks include the operations of the three classifications of facilities (Nuclear, Radiological, and Balance of Plant), and also the Operations Support which provides the cross-cutting functional support to the facilities. The Balance of Plant activities include the INEEL Site Materials and Support Services which are provided by the INEEL Landlord contractor, BBWI, and Plant Services. Also included in the AM activities is Plant Assets Management, which includes the General Plant Projects (GPP) and General Plant Equipment (GPE) activities of the Infrastructure Program.

The AS activities are nondirect functions, such as Site Administration, Environmental, Safety and Health, Quality Assurance Oversight, and Service Centers (e.g. Drafting and Machine Shop). The nondirect functions provide support for all ANL-W programs. The funding for these functions is recovered by assessing a “tax” on all direct program activities. By contrast, direct functions are those tasks or activities which are directly funded, and the costs are charged to a specific program account (e.g. Safeguards and Security, Facility Operations, and Spent Fuel Treatment). The nondirect tax provides funding for nondirect staff from both ANL-East and ANL-West and also provides funding for procuring the materials and services that support the AS activities. The nondirect “tax” and the Level 3 work elements are described in detail in Sections 2.7 and 2.8 of this Plan.

## **2.5 ANL-West Facilities**

The ANL-West Infrastructure Program is responsible for maintaining and operating all facilities and support services at the ANL-West site. These facilities are classified as Nuclear, Radiological, and Balance of Plant (support and office) facilities. Table 1 shows facility classification, operational status, nuclear hazards category and safeguards category.

## **2.6 Costs - Assumptions and Risks**

The Infrastructure Program is not a typical DOE project as defined by DOE Order 430.1, Life Cycle Asset Management (LCAM). A typical DOE project is generally a unique effort with a defined start and completion point and is funded over several years. By contrast, the Infrastructure Program is the on-going, day-to-day level-of-effort activities that are required to maintain ANL-West site assets and support programs, and is funded on a year-to-year basis. Thus, changes which affect activities this fiscal year are relevant for discussion within this Plan, while changes which affect future fiscal years are not relevant for this Plan. However, these future year changes will be addressed in future revisions to this Plan and other sub-tier planning documents (e.g. Plant Asset Management Plan) that underpin this Implementation Plan.

**Table 1, Facility List**

Facility Name	Operational Status*	Nuclear Hazard Category	Safeguards Category
<b>ANL-West Nuclear Facilities</b>			
Fuel Conditioning Facility (FCF)	O	2	IV
Hot Fuel Examination Facility (HFEF)	O	2	IV
Neutron Radiography Reactor (NRAD)	O	2	IV
Fuel Manufacturing Facility (FMF)	O	2	I
Zero Power Physics Reactor (ZPPR)			
Workroom/vault	O	2	I
Reactor Cell	S	3	IV
Materials Control (B 784)	O	3	IV
Mockup (B 792)	S	3	IV
Transient Reactor Test Facility (TREAT)		2	
Protected Area (PA)	S		II
Remainder of building	S		III
Radioactive Scrap and Waste Facility (RSWF)	O	2	III
Outside Radioactive Storage Area (ORSA)/Radioactive Sodium Storage Facility (RSSF)	O	3	NA
Contaminated Equipment Storage Building (CESB)	O	3	NA
Analytical Laboratory (AL), including Casting Lab and NDA	O	3	III
<b>ANL-West Radiological Facilities</b>			
Fuel & Assembly Storage Building (FASB)	O	NA	IV
Experimental Breeder Reactor II (EBR-II)	S		NA
Sodium Process Facility (SPF)	S		NA
Sodium Components Maintenance Shop (SCMS)	O		NA
Sodium Storage Building (SSB)	O		NA
Radioactive Liquid Waste Treatment Facility (RLWTF)	O		NA
QC Inspection Laboratory	O		NA
Electron Microscopy Laboratory (EML)	O		IV
<b>ANL-West Balance of Plant</b>			
Engineering Development Laboratory (EDL)	O	NA	NA
Security Building	O		
Fire Station	O		
Warehouse	O		
Machine Shop	O		
Engineering Laboratory	O		
Fuel Dispensing Stations	O		
Office Buildings	O		
Work Shops	O		
Electrical Substations	O		

\*O = Operational      S = Standby

The most likely changes that can have an adverse affect on the ANL-West Infrastructure Program are; (1) the FY 2003 target funding levels are below the FY 2003 requested funding levels and the FY 2002 actual funding levels, (2) funding for FY 2003 is lower than anticipated, (3) DOE Orders change, and audits and assessments increase, (4) unanticipated increases in the cost of ANL-West salaries and/or materials and services, and (5) INEEL Site Services costs are higher than anticipated. Each of these potential events is discussed below.

**(1) The FY 2003 target funding levels are below FY 2003 requested funding levels and the FY 2002 actual funding levels**

The \$8,217k shown in Table 2 for Safeguards and Security is the FY 2003 “over target” funding level that ANL-W requested from DOE-EM. This is \$1,448k more than the FY 2003 target level. If the over target funding level is not provided, the target funding level will create a shortfall in required funding for personnel training, replacement of weapons, additional ammunition, and replacement of clothing and breakout gear. Also, with the heightened security levels (SECON 3 modified) following the September 11, 2001 terrorist attacks, the target funding level does not adequately provide for the required number of Security Police Officers (SPOs). The “Essential” workscope can be accomplished with the current staffing levels, with the use of overtime. However, this is viewed as a short-term fix and not a permanent solution. This situation needs to be addressed in the annual Program guidance from DOE NE and DOE-EM.

The anticipated FY 2003 funding level for the Infrastructure Program is \$31.1M. This is \$1.8M less than the FY 2002 actual funding level, and \$3.1M less than the FY 2002 funding level when adjusted for inflation. The estimated cost of performing the “Essential” workscope is \$30.9M, and the User-Ready cost is \$7.2M. This leaves a deficit of \$7.0M of Mission-Ready workscope that will not be funded through the Infrastructure Program.

This deficit will be managed through a combination of methods, as discussed in Section 2.1 and described below;

- “Mission Ready” workscope will be deferred (e.g. repairs, upgrades, modifications, and spare parts), which will result in an increased risk of facility systems, equipment, and staff not being available when requested by programs, and therefore result in a decreased level of responsiveness to program requests.
- Stored and newly generated materials, waste, and facilities will not be treated and dispositioned, which will lead to an increased buildup of legacy materials and future liabilities. Any impact to the INEEL STP or Governor’s Settlement Agreement will need to be discussed and negotiated with DOE-CH, DOE-ID, and the State of Idaho.
- The graded approach will be implemented to reduce the robustness and quality of non-essential processes to a minimal, mutually acceptable level of expectation.

**Table 2, Essential FY 2003 Staffing and Budgeted Costs**

<b>Control Levels 2 and 3</b>	<b>Direct FTE</b>	<b>Cost (\$k)*</b>
<b>Safeguards and Security (SS)</b>		
• Physical Security	52	5,430
• Other S&S Systems	13	1,750
• S&S GPP	-	1,000
<b>Subtotal</b>	<b>65</b>	<b>8,180</b>
<b>Asset Management (AM)</b>		
• Nuclear Facility Operations	50	9,864
• Radiological Facility Operations	8	1,510
• Balance of Plant Operations	43	6,736
• Operations Support	86	13,005
• Plant Assets Management	-	-
<b>Subtotal</b>	<b>187</b>	<b>31,115</b>
<b>Total Direct (S&amp;S &amp; AM)</b>	<b>252</b>	<b>39,295</b>
<b>Administrative Services (AS)</b>	<b>Non-direct FTE</b>	
• Site Administration	36	
• Environment, Safety, Health, and Quality Assurance Oversight Programs	1	
• Service Centers	3	
<b>Total Non-Direct (AS)</b>	<b>40</b>	
<b>Total Infrastructure (SS+AM+AS)</b>	<b>292</b>	

\*Includes Effort and M&S fully "taxed"

- This will reduce the time and money involved in implementing these interpretive requirements.
- Programs will be asked to pay for more of the “Mission Ready” costs than previously. This will increase the unit cost of programmatic work at ANL-W.
- Infrastructure staff will continue to look for and identify opportunities to improve cost efficiencies and productivity in the “Essential” workscope activities.

A risk-informed, performance-based approach will be used to balance the risks created by the budget deficit. The Infrastructure Program Director will document the specific actions taken to manage the budget deficit and the associated risks and impacts.

**(2) Funding for FY 2003 is lower than anticipated**

The ANL-West Infrastructure Plan has been developed using DOE-NE and EM anticipated funding levels for the coming fiscal year. If the actual funding levels are lower than anticipated, there will be a direct negative impact to the Infrastructure Plan workscope, cost, and schedule, and an indirect negative impact to the programs and projects that the Infrastructure Program supports. This will be considered a directed change and the impact will be evaluated through the normal change control process.

**(3) DOE Orders change, and audits and assessments increase**

There is a likely risk that there will be new State and Federal rules and regulations, and DOE Orders which will require increased time and effort if we are required to implement the new requirements. The Infrastructure Program Director will ensure that the impacts of all changes in state and federal rules and regulations, and DOE orders are evaluated. Those that have a significant cost and schedule impact will be treated as a directed change, and the scope of the Infrastructure Plan will be revised through the normal change control process.

Historically DOE-directed changes in such requirements are often the outcome of audits and assessments. The specific regulation or Order does not actually change, and the specific requirement is usually fairly general in nature. However, what changes is the interpretation and expectation of how ANL-W demonstrates compliance with the requirement.

**(4) Unanticipated increases in the cost of ANL-West salaries and/or materials and services**

The inflation rate is expected to be approximately the same as in FY 2002, and the costs of materials and services are expected to remain fairly stable. If these expectations turn out to be incorrect, and the associated costs increase, then the Infrastructure Program

Director will reevaluate the currently planned workscope and adjust accordingly. This could include requesting supplemental funding from DOE-NE.

**(5) INEEL Site Services costs are higher than anticipated**

The anticipated costs for INEEL Site Materials and Support Services are estimated at the beginning of the fiscal year, based on the previous year's rates, usage factors, and anticipated inflationary changes. However, since the INEEL Site Services are operated on full cost recovery basis by BBWI, and not fixed prices, the actual costs to ANL-W can deviate from the budgeted amounts set at the beginning of the fiscal year.

ANL has minimal control over these cost changes. However, we are working with BBWI to revise the Memorandum of Understanding (MOU) to more specifically define the workscope and cost allocation methodology for each of the site services, and identify whether the site services are considered mandatory or elective. These changes in the MOU will allow ANL to more effectively understand, manage, and control the INEEL Site Materials and Support Services costs.

**2.7 Staffing and Cost**

Since the ANL-West Infrastructure Program is not a line item project, the final approved annual budgets are established after the submittal of this Implementation Plan, and may differ from the baseline values. If this occurs, the change will be handled as a directed change according to the established change control process after program guidance is received each fiscal year. FY 2003 direct staffing and budgets are shown in Table 2.

**2.8 Direct Functions**

As discussed in Section 2.2, Organizational Structure and Section 2.4, Work Breakdown Structure, the Control Level 2 direct functions are managed by their respective Division management. The following is the detailed description of the various functions and the Divisions wherein the function resides.

**Safeguards and Security**

The Safeguards and Security organization is in the Reactor Program Services Division (RPS) and performs the following functions:

**(1) Physical Security;**

Physical Security is the physical protection of DOE and ANL security interests including special nuclear materials (SNM), vital equipment, sensitive information, government property, and facilities. Assessments of vulnerability and risk, and effective planning, are a part of this program and influence resource allocation for other protection programs at ANL-West.

- (a) Protective Force; protects and/or prevents unauthorized removal of SNM, classified matter, government/ANL-West property, and protects personnel at ANL-West. Security Police Officers (SPO) and Special Response Team (SRT) members are dedicated to protecting DOE national security interests from theft or diversion of Category I and lesser quantities of SNM, theft or diversion of classified matter, industrial sabotage, radiological sabotage, toxicological sabotage, espionage, unauthorized access, loss or compromise, and other hostile acts that may cause unacceptable adverse impacts on national security, program continuity, the environment, or the health and safety of employees and the general public. The costs associated with this WBS element are for FTEs, equipment, training, travel, and materials and services.
- (2) Other S&S Programs
- (a) Physical Security Systems; provide the detection, assessment, delay, and response capability for protecting vital equipment, SNM, classified information, DOE and Laboratory property, and facilities. These systems include buildings, fences, barriers, lighting, sensors, surveillance devices, entry controls, access control systems, alarm stations, power systems, and other real property and hardware designed for or affecting security. This program includes personnel, procedures, and documentation for operations, maintenance and testing to ensure effective application of these systems.
  - (b) Information Security; encompasses classified and sensitive unclassified information, and classified matter. This program protects, controls, and accounts for sensitive matter generated, received, transmitted, used, stored, reproduced, or destroyed at ANL-West.
  - (c) Personnel Security; provides the security clearance program which determines eligibility for access authorizations, and focuses on security awareness through a continuing security education program and visitor controls.
  - (d) Material Control and Accountability; provides protection and control of nuclear materials, classified matter, facilities, and government property. This program is designed to deter, prevent, detect, and respond to unauthorized possession, use, or sabotage of nuclear materials.
  - (e) Program Management; includes program planning and administration, resource management, professional development and training, policy oversight, inspections, surveys and assessments. This program is also responsible for managing any concerns regarding Foreign Ownership, Control or Influence (FOCI).
  - (f) Cyber Security; is responsible for managing unclassified and classified computer security, communications security (COMSEC) and TEMPEST.

- (3) Safeguards and Security General Plant Project (GPP); is managed by a project manager from the Engineering Technology Division who reports on this project to the RPS Division Director through line management with a workscope as follows:

The GPP funding is being used to update and improve the current physical security systems employed at ANL-West. The primary objective is to update the protection for the Category I SNM currently stored at ANL-West. A secondary objective is to protect potential radiological sabotage targets located at ANL-West.

During FY 2001 the ANL-W Protected Area (PA) Perimeter Intrusion Detection and Assessment System (PIDAS) was upgraded. This task developed the design and completed the construction of all required upgrades to the PA PIDAS, as well as upgrade and re-location of the PA Access Control Point (ACP) to the interior of Building 774. Operational validation of the ACP and PA PIDAS Upgrades has also been completed.

FY2002 work included operationally deploying the upgraded PA PIDAS, upgrading the Central Alarm Station (CAS), evaluating a special door, and initiating upgrades to the ANL-W Property Protection Area (PPA). This work will be completed by October 1, 2002.

FY2003 work will complete the PPA security systems upgrades, enhance access controls, entry controls, and warehouse inspection capabilities.

### **Asset Management**

Asset Management is the Control Level 2 WBS element that includes Nuclear and Radiological Facility Operations, Balance of Plant Operations, Operations Support, and Plant Asset Management for the ANL-West site. Most of the Nuclear, Radiological, and Balance of Plant facilities are managed by the Facilities Division. The exceptions are the Analytical Laboratory which is managed by the Nuclear Technology Division, and the Electron Microscopy Laboratory, Engineering Development Laboratory, and Machine Shop which are managed by the Engineering Technology Division. The Security Buildings, Fire Station, Warehouse, Office Buildings, and other industrial and administrative buildings are managed by the Reactor Program Services Division.

The goal of Facility Operations is to maintain DOE assets in a "Mission Ready" state. The necessary personnel include facility managers, supervisors, operators, and technical and administrative support staff. Management responsibilities include business and personnel functions, implementation of DOE, Federal, and State regulatory requirements, review and approval of work control and safety documentation, oversight and assessment activities, and emergency response. Supervisory responsibilities include personnel administration, implementing work control processes, facility surveillances, and emergency response. Operator responsibilities include facility surveillances, equipment and systems operations, transfer equipment operations, training, and emergency response. Technical support responsibilities include systems engineering, criticality safety, materials control and accountability, training, and waste management.

(1) Nuclear Facilities Operations:

Nuclear Facilities are those facilities that handle or contain radioactive material, and are classified as either a Nuclear Hazard Category 2 or 3. The Operations include the activities necessary to manage, operate and maintain the facilities to support DOE and ANL programs and initiatives. Refer to Table 1 for the list of Nuclear Facilities.

During FY 2003, FCF and HFEF will continue to support the Spent Fuel Treatment Project in pyroprocessing the EBR-II driver and blanket spent fuel. FMF/ZPPR will continue to process HEU for BWXT, support the AAA and RERTR fuel fabrication and testing programs, and RPS storage and assembly activities. The HEU work is funded through a Work for Others project with BWXT, but is included under the Infrastructure Program because it also cost-effectively eliminates an HEU inventory storage vulnerability.

The RCRA Treatment, Storage, and Disposal (TSD) facilities (RSWF, RSSF/ORSA, and CESB) will continue to support treatment, storage, and disposal of ANL-W legacy waste and INEEL Site Treatment Plan (STP) mixed waste treatment activities. The Analytical Laboratory will also continue to support Infrastructure activities and other direct funded programs.

TREAT operations will continue to perform maintenance and surveillance activities that are essential for maintaining the facility in a safe standby configuration pending a DOE decision on future use. No incremental funds have been provided in the FY 2003 Infrastructure Program budget, therefore restoration of the reactor operational capability will continue to be deferred. Although no DOE funds have been committed to recover the TREAT operations infrastructure or conduct a test program, ANL-West is continuing discussions with various national and international organizations to develop and fund a testing program to support renewed interest in new nuclear energy systems.

The Remote Treatment Facility (RTF) FY 2002 activities were focused on preparing and submitting the documentation needed to support DOE-EM's Critical Decision-0 (CD-0). The documentation included the Conceptual Design Report, Mission Needs statement, Project Data Sheets, Preliminary Acquisition Execution Plan, draft Environmental Assessment, and INEEL Integrated Remote-Handled Waste Management Strategy. The proposed workscope and budget request for FY 2003 consisted of \$750k for activities to support CD-1. However, the current budget request for FY 2003 contains zero funding for RTF activities. This will result in a slippage of the request for authorization of Line Item Construction Project funding in FY 2004, and commencement of facility operations in 2009. The lack of progress in treating the RH waste could jeopardize DOE's commitments the INEEL Site Treatment Plan and Governor's Settlement Agreement. It could also increase the risk of DEQ not renewing the RSWF RCRA storage permit in FY 2003, which could shut down FCF and HFEF spent fuel treatment operations.

(2) Radiological Facilities Operations:

Radiological Facilities are those facilities that handle or contain radioactive material, and are classified radiological, non-nuclear facilities. The Operations include the activities necessary to manage, operate and maintain the facilities to support DOE and ANL programs and initiatives. SPF, SCMS, and EBR-II are RCRA-permitted facilities and are also required to be maintained in accordance with the conditions found in their permits. Also, SSF is in the process being permitted for RCRA TSD activities.

During FY 2003 FASB will continue to support the Spent Fuel Treatment Project with experiments and technology development activities. It will also continue to support the RERTR program by fabricating test fuel samples. SPF is being maintained in a ready-standby state pending a decision by DOE to process other identified DOE sodium waste streams. SCMS will continue to treat and store a wide variety of legacy and newly generated mixed waste streams from ANL-West and other DOE Programs. EBR-II has been closed out as an operating facility and will be maintained as a RCRA storage area in accordance with its RCRA permit, while awaiting funding for the initiation of RCRA "clean closure" remediation activities

EML provides material science and characterization capabilities which include optical, scanning electron, and transmission electron microscopes. The facility can handle ordinary, radiologically contaminated, and radioactive samples, and has radiological hoods and a glovebox available for sample preparation. In FY 2003 EML plans to continue to support the Spent Fuel Treatment, AAA, and RERTR Programs and a wide variety of other DOE programs and industrial customers.

(3) Balance-of-Plant Operations:

The Balance-of-Plant WBS element includes the EDL, Plant Services, and INEEL Site Materials and Support Services sub elements, as well as the remaining site facilities that are not classified as nuclear or radiological facilities. The EDL is comprised of four facilities which provide capabilities to mockup, build, and test prototypes for researchers and engineers that are designing and developing new equipment or processes. It also supports the installation and testing of one-of-a-kind equipment and glove boxes. These same facilities are also used by researchers to perform a variety of tests in support of DOE NE and non-DOE NE programs. In addition, the EDL qualifies and tests all process and maintenance equipment destined for installation in FCF and HFEF, and in specific radiological control glove boxes located in FASB. During FY 2003 EDL will continue to support a variety of direct funded Programs.

For FY 2003, two nondirect functions, Plant Services and INEEL Site Materials and Support Services, have been moved from the Administrative Services WBS element to the Balance-of-Plant Operations WBS element. These two WBS elements provide facility and operations support to the entire site.

Plant Services is responsible for operating and maintaining site-wide systems and features such as; (1) steam generation and distribution, (2) site utilities; sanitary waste

systems, fire and potable water systems, industrial waste systems, instrument and plant air systems, and cooling water systems, (3) electrical distribution systems, (4) heating, ventilation, air conditioning, and refrigeration, (5) custodian services, (6) yards and grounds, (7) radioactive liquid waste, (8) site, facility, and building repair and modification, (9) fuel dispensing stations, and (10) snow removal.

The INEEL Site Materials and Support Services are provided to ANL-West by BBWI, the current INEEL site contractor. These include; transportation (busses and cars), electricity and power management, telecommunications, dosimetry, solid waste management, fire department, emergency management, and occupational medicine services. The services are delineated in a Memorandum of Understanding (MOU) between DOE Idaho and DOE Chicago (GM07-981 D-11352). Prior to the start of each fiscal year, ANL-W estimates the required baseline services and costs, and establishes a target budget. However, BBWI operates on a full cost recovery basis and does not provide their projected service rates to ANL-W until after the start of the fiscal year. These rates can also change during the fiscal year as a result of increased costs of providing the services (e.g. cost of fuel to operate the busses).

(4) Operations Support

Operations Support provides the cross-cutting functional support activities that are needed to operate the facilities.

The services and expertise from these functional elements are matrixed to the facilities on an as-needed basis.

- (a) Maintenance; provides support from the Mechanical, Instrument & Control, and Electrical (MICE), and Manipulator Repair Group (MRG). These groups maintain and calibrate the facility operations and support systems, and radiation monitoring systems through a process of scheduled preventive and corrective maintenance, and facility surveillances.
- (b) Engineering; provides support from the Remote Systems Development (RSD), Digital Controls and Informations Systems (DCIS), Electrical Engineering, Mechanical Engineering, Structural/Civil Engineering, and Operations Engineering Support Sections. Activities may include design, analyses, procurement, fabrication, installation, corrective maintenance, inspection, testing, modification and/or decommissioning of a facility, system, piece of equipment, or software system.
- (c) Procedures; develops, revises, maintains, and controls site-wide and Division-specific instructions/procedures and manuals consistent with base safety documents and DOE and ANL policies, practices, and requirements. Products include operating and off-normal response instructions, maintenance instructions/procedures, administrative documents, safety documentation, Training Instruction Manuals, drawings/figures, and a Writers Guide for

Technical Procedures. Services include document control and intranet services for web-based on-line documents.

- (d) Training; provides the Maintenance Training & Qualification program, and supports site-wide ES&H training, such as confined space entry, overhead crane and forklift, hoisting and rigging , and lockout-tagout training programs.
- (e) Nuclear Safety; provides nuclear facility safety-basis stewardship to ensure compliance with 10 CFR Part 830, Nuclear Safety Management, and administers the ANL-W criticality safety program. Activities include preparing safety basis documentation (e.g. Safety Analyses Reports (SAR) and Technical Safety Requirements (TSR)), Unreviewed Safety Question Determinations (USQD), and Criticality Safety Evaluations) and reviewing and revising maintenance and operating procedures.
- (f) Safety & Health; provides Radiological Health, Industrial Safety/Hygiene and Fire Protection guidance and performs inspections, task planning, and hazards analysis. Activities include developing and implementing ANL-West Safety and Health programs to ensure that the safety and health of ANL-West employees and the general public is adequately maintained and protected. It also implements the site-wide Radiological Control Program and provides radcon training for the site.
- (g) Quality Assurance; implements the ANL-W Quality Assurance Program (QAP). QA Representatives review specifications, drawings, work requests, fabrication requests, modification proposals, installation and maintenance instructions and procedures. They also prepare special project plans, specific QA instructions, provide training, and participate in management assessments.
- (h) Environmental Compliance; prepares, maintains, assists in implementation, and liaises with the State of Idaho on environmental permits and regulator compliance (e.g. HWMA, RCRA, NESHAPs, Title V Air, etc.). It also interfaces with the INEEL and State of Idaho on the INEEL Site Treatment Plan and the State of Idaho Settlement Agreement commitments, and provides program leads for the site-wide environmental programs (e.g. Clean Air Act, Clean Water Act, TSCA, CERCLA, Waste Water, etc.)
- (i) Waste Management; assists waste generators in dispositioning radioactive and/or hazardous waste by preparing Sampling and Analysis Plans, Waste Analysis Plans, and Quality Assurance Project Plans, providing hazardous waste determinations, properly characterizing solid waste, preparing technical manifests, providing general and specific training (e.g. Chain of Custody training), providing regulatory interpretation, and maintaining facility operational logs. They also assist TSD facilities to ensure that INEEL Site Treatment Plan milestones are met.
- (j) Emergency Preparedness; provides emergency response training and planning activities for the ANL-West site. Planning activities include: (a) determining hazards and credible events that could result in emergency situations; (b)

preparing for those situations through the development of a trained emergency response organization; (c) procuring and maintaining emergency equipment and facilities; (d) determining protective actions; (e) developing standards and techniques for notification, classification, consequence assessment, reentry, medical support, and program administration; (f) providing timely and accurate public information; and (g) identifying the diverse elements involved in recovery and reentry.

(5) Plant Assets Management:

ANL-West's physical assets include buildings and other structures, their functional systems and equipment, and other non-facilities fixed systems and equipment. This also includes site features such as landscaping, roads, sidewalks, and parking areas, outside lighting and communication systems, and utilities supply and distribution systems.

The Plant Assets Management function provides the planning to identify the necessary funding for ANL-West physical assets maintenance, equipment requirements, improvements to existing facilities, and construction of new facilities. In FY 2002, funding was provided from the DOE Office of Science for the Safeguards and Security General Plant Project (GPP) and the Office of Nuclear Facility Management. These funds were used to purchase needed equipment (approximately \$50,000) and commence prerequisite engineering on the highest priority tasks in anticipation of future funding.

The multi-year Plant Assets Management Plan has been revised (September 2002) to reflect the FY 2003 GPP/GPE target funding level of zero. This will result in no work being accomplished in FY 2003 to implement the GPP engineering packages that were prepared in FY 2002.

During FY 2003, we plan to develop a comprehensive, integrated list of facility restorations, modifications, upgrades, and replacement/new physical asset needs. A risk-ranking and prioritization process will be developed and implemented, and form the basis for determining which Plant Asset projects will have the prerequisite engineering completed, and which project will be included in future GPP/GPE funding requests. This planned activity is an enhancement and expansion to the current risk-based prioritization process that is implemented through the ANL-W ES&H Plan, and will enable us to more effectively manage risk and prioritization of Plant Asset needs.

### **ANL-West Support to DOE-NE Missions and Programs**

The ANL-West Infrastructure facilities and operations offer a unique suite of nuclear, radiological, and industrial facilities and operations support capabilities that encompass the entire nuclear fuel cycle. These facilities and operations are critical to the overall success of DOE-NE technology demonstration programs, and provide unique and valuable scientific and engineering services to other DOE programs and commercial industries. Table 3 summarizes the ANL-West Infrastructure facilities that directly supported DOE-NE missions, and DOE and non-DOE programs during FY 2002.

**Table 3, ANL-West Facility support to DOE Missions and Programs**

<b>Missions &amp; Program</b>	<b>FCF</b>	<b>HFEF</b>	<b>FMF</b>	<b>ZPPR</b>	<b>ACL</b>	<b>RSWF</b>	<b>TREAT</b>	<b>EML</b>	<b>FASB</b>	<b>EBRII</b>	<b>EDL</b>
<b>Expand Nuclear Energy – Short Term</b>											
Southern California Edison								X			
NEPO-Stainless Steel					X			X	X	X	
JNC EBR-II Stainless Steel		X			X			X			
<b>Expand Nuclear Energy – Long Term</b>											
AAA Oxide Fuel Processing			X		X			X			
AAA Fuel Development		X	X	X	X			X			
AAA Materials Handbook								X			
RERTR					X			X	X		
<b>Advanced Nuclear Energy Systems (GEN IV, AFCI)</b>											
Spent Fuel Treatment	X	X			X	X		X	X	X	X
JNC Safety Testing										X	
BN 350 Plant Closure										X	X
FFTF Studies										X	
MEDC		X			X		X	X	X	X	X
Molten Salt					X			X			
NERI-Proton Irradiation								X			X
NERI-Corrosion Mechanisms								X			X
<b>Advanced Nuclear Research</b>											
Radio vascular catheter					X			X			
Fuel Cell Ceramic Plates								X			
NUPEC Heater								X			
Microbial Induced Corrosion					X						
<b>National Security</b>											
B&W HEU			X	X	X			X			
RTG Storage				X							
ATR BE Analysis					X						
LLNL Pu Oxide					X			X			X
LLNL Stainless Steel		X						X		X	
LANL Pu Exchange					X						
Materials Protection			X	X						X	
ORNL MOX										X	
Sensor Development	X	X				X					
INEEL/WIPP 3100		X			X		X				
INEEL Mixed Waste Treatment						X				X	
WIPP Gas Generation Experiment				X							

## 2.9 Nondirect Functions

As mentioned earlier under the WBS discussion, the nondirect functions are financed by the collection of a nondirect “tax” on all programs and projects at Argonne National Laboratory. The budgets for these functions are determined on a lab-wide basis, and provide the staffing, materials, and services both at ANL-East and ANL-West to operate the Laboratory. The nondirect tax rate is determined by the Argonne Overhead/Indirect Budget Committee and is assessed on all direct charges to programs and projects. This committee reports to the ANL Management Council which is chaired by the Laboratory Director. The process to determine this tax rate is structured and takes place every year.

The Infrastructure Program, as well as the Spent Fuel Treatment and Work for Others Programs are all assessed this tax rate against direct charges to the program. Table 2 identifies the staffing levels and costs for the direct staff, and only the nondirect staffing levels because the budgeted costs for nondirect staff are already included in the “tax” on direct charges (i.e. part of the direct costs) The programs do not have a direct say in the staffing levels of the nondirect functions. However, any decrease in funding of any program will have a direct effect on the tax rate. The nondirect function workscope and/or cost would need to be reduced, or the tax rate would need to be adjusted to compensate for any significant loss of program funding. It is also important to note that the nondirect functions for ANL-West are provided by both ANL-West and ANL-East.

### (1) Site Administration

The Infrastructure Program Site Administration is responsible for implementing and ensuring compliance with DOE Orders, Federal, State, and local laws and regulations, and Laboratory policies and requirements. Site management is also responsible for developing and pursuing new programs for utilizing existing facilities.

The Infrastructure Program Director is responsible for developing, issuing, reporting, and maintaining this Implementation Plan and to equitably distribute the Infrastructure budget to support the Divisions who are responsible and accountable for the facilities and operations support activities. ANL-West senior managers are responsible for; (1) measuring, assessing, and improving Infrastructure performance, (2) developing and submitting Infrastructure budgetary requests, and (3) managing those funds to optimize the accomplishment of Infrastructure goals and objectives.

Division management is also financed as part of the nondirect overhead rate. This includes the necessary staffing, materials, and services to operate a respective Division. The Division management and administrative personnel are not included in the FTE’s shown in Table 2, but are included in the overall direct costs.

The nondirect support services provided by Argonne Divisions are as follows;

- (a) Human resources, medical services, and legal services; supports the Laboratory’s goals of hiring and employment, problem resolution, and administering union contracts. Medical services provide emergency and non-emergency medical care, health education, and periodic physical examinations. Legal services provide

legal review and consultation to Laboratory management in regulatory and labor relations areas.

- (b) Information Services (IS); assures that electronic mail systems, network connectivity, communication systems, computers and related peripherals are installed and maintained. This support function also maintains the Fire Protection and Alarm Systems, Security Systems, emergency reporting system (Dial 13), public address paging system, and criticality system.
  - (c) Visual Media Services (VMS); provides photographic, video, copy center, graphic arts, visual imaging systems, and library services.
  - (d) Document Control; provides document control services for programmatic activities and ensures that ANL-West documents are maintained, controlled, and stored in accordance with governing DOE and ANL-West orders, regulations and requirements.
  - (e) Food Services; prepares and serve meals in the ANL-West cafeteria and for special functions as needed. The quality of this service is an exceptional asset in maintaining worker moral, which in turn enhances Program performance.
  - (f) Procurement, subcontract administration, and accounting; provides services for the acquisition of materials and services, contractual obligations, administration of subcontracts, and disbursements, deposits, reimbursements, receipts and credit union services.
  - (g) Materials Services; provides hoisting and rigging services for ANL-West facilities and the general ANL-West site, on-site movement of materials, and off-site transportation of radioactive and waste shipments.
  - (h) Materials Supply; provides shipping and receiving services, stores and issues general stores and spare parts inventory items, manages accountable, sensitive, and high-risk property, receives and distributes mail, manages the motor vehicle fleet, and coordinates bus transportation.
- (2) Environment, Safety, Health and Quality Assurance Oversight;

The Environment, Safety, Health and Quality Assurance Oversight function provides an independent oversight of ANL-West activities and reports to the Deputy Associate Laboratory Director for ANL-West. The ES&H, ISMS, PAAA, and QA WBS elements provide oversight of policy, procedures, and operations for programmatic and support activities to ensure public and worker safety, and environmental protection. The External Action Item database system is used to ensure timely completion of Federal, State, and DOE action items and milestones.

- (a) Environmental, Safety & Health (ES&H); programs; provide the structure for ensuring protection of the environment, and the safety and health of the general

public and the ANL-W employees. It also ensures compliance with applicable Federal, State, and local regulatory requirements.

- (b) Integrated Safety Management System (ISMS) program; provides the structure for integrating safety with all work planning and execution. Integration means that all facets of work planning and execution, including programs, organization, and activities, are used to ensure that all relevant aspects of safety are addressed. This is especially important for programs and activities with conflicting or competing goals and requirements. The ISMS program meets the seven principles of the DOE Policy P 450.4, Safety Management System Policy and complies with the DOE Acquisition Regulation (DEAR) clause 970.5204-2 as defined in the ANL contract.
- (c) Price-Anderson-Amendments-Act (PAAA) program; is responsible for identifying, reporting, tracking, trending and disseminating lessons learned from potential and actual noncompliances of PAAA rules, resulting from failure to comply with applicable nuclear-safety rules. An integral part of the PAAA and ISMS programs is the ANL-West Database for Improvement Opportunity Tracking (DIOT) system. The DIOT system is used to report and track ANL-West safety and quality improvement opportunities as well as associated corrective actions and lessons learned. Also, each Division provides support for inputting, tracking, trending, and follow-up on causal analysis for implementing the QA and PAAA Programs.
- (d) Quality Assurance Program; implements QA requirements based on 10 CFR 830.120 and DOE Order 414.1A. This program is applicable to all activities associated with ANL-West functions, such as design, procurement, fabrication, handling, construction, installation, inspection, testing, operation, maintenance, decontamination, and decommissioning of all structures, systems, and components at ANL-West. The intent is to ensure that each activity yields a result or outcome that matches its intended purpose and that the results or outcome conforms to DOE programmatic and regulatory requirements.

## 2.10 Schedule

Most Infrastructure activities are scheduled at a lower control level than the level of detail covered in this Plan. Examples include day-to-day support activities, scheduled preventative and corrective maintenance activities, periodic reports to the State of Idaho, DOE, or other Federal agencies, DOE action items, and new or revised DOE orders with implementation milestones within the current fiscal year. These sorts of activities are inappropriate for inclusion in the Infrastructure Plan schedule. However, some specific activities justify a higher level of attention and control. For these, Infrastructure Milestones are defined and scheduled, and their status is tracked and reported as part of the formal monthly Infrastructure Program Report. See the following section for Milestones.

## 2.11 Milestones

Level 1 and 2 Infrastructure Milestones are established annually as part of developing the annual Infrastructure Implementation Plan. Level 3 milestones are also established annually and used internally for managing the Infrastructure Program. They are included in this plan for information only.

The anticipated FY 2003 funding provides only enough funding to cover the “Essential” workscope, which is mainly level-of-effort activities that are fairly repetitious year-to-year. Previous Infrastructure Program milestones have typically focused on unique (one time only) tasks that are beyond the “Essential” workscope and focus on the “Mission-Ready” workscope. Therefore, for FY 2003, there will be fewer Level 2 and 3 milestones, and they will be focused on the key objectives of the “Essential” workscope. The FY 2003 DOE Infrastructure Program Guidance (General and Specific Expectations for Facility Operations) specify that the highest priority be given to nuclear safety, worker safety, nuclear safeguards, and environmental protection. Therefore, the FY 2003 focus areas for the ANL-W Infrastructure Program milestones are as follows;

- Safety and Health
- Environmental protection
- Safeguards and Security
- Nuclear Safety
- DOE-NE Program support

Table 4 identifies the Level 1, 2, and 3 milestones for FY 2003.

The following section describes the rationale for defining these milestones, and how the milestones are intended to support the DOE Program Guidance and ANL-W Infrastructure Implementation Plan “Essential” focus areas.

### **Level 1 Milestone;**

1. Supports ANL-W’s overall mission and objectives.

### **Level 2 Milestone;**

2. As specified in the FY 2003 DOE Program Guidance, General and Specific Expectations for Facility Operations, the highest priority is given to nuclear safety, worker safety, nuclear safeguards, and environmental protection. The ES&H Plan is our management planning tool for establishing priorities and funding requirements, allocating resources, identifying and managing risk. The Plan forms the basis for the ANL-W management process for maintaining a safe and compliant work place.

**Table 4, FY 2003 Infrastructure Milestones\***

<b>Level 1 Milestones</b>
1. Conduct all ANL-West Infrastructure activities (including critical activities) to support programmatic missions in a safe, secure and environmentally compliant manner within the authorized budget.
<b>Level 2 Milestones</b>
2. Submit revised ANL-W ES&H Management Plan to DOE-CH, by April 30, 2003
3. Submit HWMA/RCRA Permit Re-application for ANL-W Storage Facilities (RSWF, HFEF, TREAT, SSB) to DEQ by July 1, 2003
4. Complete Safeguards and Security GPP per the Security Upgrade Project Management Plan, by September 30, 2003
5. Submit the revised ANL-West Site Safeguards and Security Plan to DOE-CH, by September 30, 2003
6. Submit the ZPPR Documented Safety Analysis (DSA) to DOE-CH, by April 10, 2003
7. Submit the Analytical Laboratory SAR/TSR to DOE for approval, by November 31, 2002
8. Review and revise (if required) the ANL-West Plant Assets Management Plan, by March 31, 2003.
9. Review and revise (if required) the ANL-West Plant Assets Management Plan, by August 31, 2003.
10. Process 90 Kg of Highly Enriched Uranium (HEU) for Babcox & Wilcox, Lynchburg, VA by September 30, 2003
<b>Level 3 Milestones</b>
11. Evaluate other DOE contractor Safety and Health Programs to identify improvement opportunities and lessons learned, by March 31, 2003.
12. Submit HWMA/RCRA Permit Re-application for ANL-W Storage Facilities (RSWF, HFEF, TREAT, SSB) to DOE by June 1, 2003.
13. Develop and implement a risk-ranking and prioritization process for identifying Plant Asset needs, by June 2, 2003.
14. Develop and implement a set of outcome-oriented performance measures, and track and report through the ANL-West monthly performance reports, by December 31, 2002.

\* The milestone due dates assume that DOE Program Guidance is received by the start of the Fiscal Year. If guidance is delayed, then the milestone due dates will be adjusted accordingly.

3. The existing HWMA/RCRA Permit for the ANL-W storage units; RSWF, HFEF-WCA, TREAT, SSB, and RSSF; expires January 4, 2004. ANL-West/DOE must re-apply for, and receive, a new Permit for these units or initiate closure under the existing Permit. Regulations require re-application at least 180 days before expiration of existing Permit. ANL-West is currently in the process of treating the existing inventory or re-locating containers into the SSB with the intent of closing RSSF in 2003. Therefore, RSSF will not be included in the re-application. The remaining storage units are critical to ongoing Infrastructure activities and other missions at ANL-West and the INEEL, including Spent Fuel Treatment and the Site Treatment Plan required under the Federal Facilities Compliance Act.

4. As mentioned above, nuclear safeguards is one of our highest priority activities. The Safeguards and Security Upgrade Project is a multi-year project that will modernize the ANL-W security systems to meet the current standards. FY 2003 is the final year of this project, with the end goal of completing the PPA security systems upgrades, enhancing access and entry controls, and improving warehouse inspection capabilities.
5. The Site Safeguards and Security Plan is the management tool that facilitates and guides long term planning for site safeguards and security operations. It identifies, describes, evaluates and analyzes potential vulnerabilities and risks to the ANL-W Safeguards and Security Programs.
6. Up-to-date nuclear safety and safety authorization basis documents are fundamental requirements for safe operations. 10 CFR 830, "Nuclear Safety Management" requires that all nuclear facilities have adequate Documented Safety Analyses (DSA) submitted to DOE for approval by April 2003. The ZPPR DSA is the final remaining authorization basis document that needs to be updated to be in compliance with 10 CFR 830. ANL-W will update the current ZPPR SAR and submit it to DOE-CH for approval by April 10, 2003.
7. As stated above, 10 CFR 830 requires up-to-date safety authorization basis documentation. One of the FY 2002 Level 3 milestones was to revise and consolidate the Analytical Laboratory SAR/TSR, and to submit it to the ANL Nuclear Safety Review Committee (NSRC) for review. This milestone was completed in September 2002, and the follow-on FY 2003 Level 2 milestone is to submit it to DOE for approval.
8. One of DOE's and ANL-W's General Expectations is to "continually strive to make our operating facilities "world class". The Plant Assets Management Plan identifies the near and long term "Essential" and "Mission-Ready" GPP and GPE needs and funding requirements for the ANL-W Infrastructure. This planning document is key to developing the annual GPP/GPE funding requests that support current and future DOE and ANL-W missions, and our striving to operate world class facilities. The Plan is reviewed and revised (if required) every six months (March 31, 2003 and August 31, 2003) to support budget development and implementation.
9. Same as above.
10. ANL-W has a Work For Others (WFO) contract with Babcox & Wilcox in Lynchburg, VA to process 100 kg of HEU per calendar year. This project has a two-fold benefit to ANL-W. First, it cost-effectively eliminates a potential safety concern from degradation of HEU during long-term storage. And second, it supports an ongoing DOE mission and program need. This meets the General Expectation of providing a service or product to a customer, and achieving customer satisfaction.

### **Level 3 Milestones**

11. As part of ANL-W's ongoing effort to continuously improve our safety performance, ANL-W will evaluate other DOE contractor Safety and Health Programs, and their

performance. In addition to identifying improvement opportunities and lessons learned, it will also provide an opportunity to benchmark ourselves with other similar organizations and facilities. This will allow us be more proactive in managing our safety performance.

12. This is a precursor milestone activity to #3, allowing DOE the opportunity to complete a final review before submittal to the State of Idaho.
13. The current ANL-W management process for identifying, ranking, and prioritizing Plant Asset needs is part of the ES&H Plan development process. However, this process mainly focuses on the needs that potentially impact “Essential” ES&H activities. The proposed process will focus on developing a comprehensive Asset Management needs list which includes both “Essential” and Mission-Ready” needs, with consideration for striving to maintain and operate world class facilities.
14. The revised Work Breakdown Structure focuses on Infrastructure work activities that provide products or services to internal and external customers and programs (e.g. kg of spent fuel treated at FCF, HEU processed at FMF, samples analyzed at the AL, maintenance activities and ETA’s completed, etc.). The monthly report is formatted to report performance by WBS Level 3 (and Level 4 for Asset Management) work elements. A combination of quantitative and qualitative outcome-oriented performance measures will be developed, tracked, and reported in the Infrastructure Monthly Report.

### **3.0 CHANGE CONTROL**

This Implementation Plan establishes the baseline scope, schedule/milestones, and costs for the Infrastructure Program. As with any program, anticipated and unanticipated changes will impact the baseline plans. Formal changes are initiated when the baseline has been altered by circumstances that could not be reasonably anticipated. The change control process is not intended to be used for documenting excuses for poor planning or to eliminate variances. Anticipated changes are routinely documented against the approved baseline, shown and explained as a variances, and included as part of the routine performance reports. The significant unanticipated changes that alter the baseline plans will be documented and approved by an appropriate level of authority.

Two types of changes will be implemented by the same system; directed and program-initiated changes. Directed changes are typically initiated by a letter from DOE, and the Program evaluates and documents the impacts and proposed actions. Program-initiated changes are usually initiated by an unanticipated event that exceeds the available Program resources. The Program-initiated change request is typically initiated by Division management for milestone and/or financial issues. For these changes, the unanticipated event, proposed corrective action and impacts on the program baseline are documented in the change control request letter.

The changes are categorized into three areas; technical scope, schedule, and costs. Each of the three areas are subdivided into three levels. A different organization is responsible for approving each change level: Level 1 changes by DOE-NE, Level 2 changes by DOE-CH-AAO, and Level 3 changes by ANL-West management. Table 5 defines the change control thresholds.

**Table 5, Change Control Thresholds for ANL-West Infrastructure**

<b>Change Areas</b>	<b>DOE-NE</b>	<b>DOE-AAO</b>	<b>ANL-West</b>
<b>Scope</b>	Changes to <b>Scope</b> as a result of DOE direction	Changes to <b>Scope</b> at DOE-CH-AAO request	Changes to <b>Scope</b> that delay Level 2 milestones >2 months
<b>Schedule</b>	N/A, level 1 milestones are on an annual basis	Delays in Level 2 <b>Milestones</b> >3 months	Delays in Level 2 <b>Milestones</b> >2 months
<b>Cost</b>	<b>Increase in Total Annual Cost</b>	Level 2 <b>Annual Cost Increase</b> >15%	Level 3 <b>Annual Cost Increase</b> >15%

The change control process will be initiated by the Infrastructure Program Director. For the proposed changes, the Director decides if the change affects other DOE sponsored programs or internal ANL-W resources and milestones. For changes that affect resources external to the Infrastructure Program, a change control board (CCB) will be constituted as appropriate. For internal program changes, the Infrastructure Program Director chairs a CCB with affected Division Directors or their designees.

For Level 3 changes, the proposed baseline changes, the impacts, the discussion of alternatives and the approved changes are documented in the Program files. For Level 1 and 2 changes, the Director sends a letter to the appropriate DOE organization notifying them of the initiating event, the affects on the program, and the proposed baseline change. The letter will specify a date by which the approval is needed. This date will be at least 20 working days after notification of the requested change. The request may be either approved or denied. If a change is denied, the basis for the denial will be provided to ANL-W. If the change is not approved by a specific date, there will be an effect that will result in a directed change. Notification and approval of changes may be made verbally or by email, but formal transmittal letters are also required for program files.

#### **4.0 MONTHLY REPORTING**

Infrastructure Program monthly reports are prepared and intended to serve as an internal management and information tool. The Infrastructure Program Director uses these reports to evaluate Infrastructure Program performance and as an indicator of potential problem areas. The reports are formally submitted to DOE-NE and to ANL-West management on or about the 20<sup>th</sup> of the following month.

##### **4.1 Definitions**

**Baseline;** is the scope, costs and milestones that are established in the ANL-West Infrastructure Program Implementation Plan.

**Scope;** is defined in Section 2.1.

**Milestones;** are shown in Table 4.

**Annual Infrastructure Budget;** is the total of the individual fiscal year WBS element budgets shown in Table 2.

**Cost** is the money that is charged to the Infrastructure WBS elements that have been officially established in the Argonne financial system.

#### 4.2 Performance Reports

Performance reports will be issued monthly to DOE and ANL-W management and document the progress and actions being taken to address any performance issues. The general content will be organized as follows:

- **Project Director's Summary;** describes the overall progress, an assessment of any problem areas and actions being implemented.
- **Highlight Narrative;** provides a brief list of major accomplishments and photographs (as applicable), by WBS element, since the last report.
- **ES&H Performance Measures;** provides ANL-W Safety & Health, ANL contract, and DOE ISM performance measure data.
- **Milestone Summary;** lists the status of Level 2 milestones as a measure of their scheduled completion. The status of Level 3 milestones is provided as supplemental information to document progress towards completing associated Level 2 milestones. Delays in Level 2 milestones greater than two months and corrective actions will be explained.
- **Financial Summary;** lists the BCWP and ACWP. Negative variances greater than 15% and associated corrective actions are discussed. In response to a request from DOE-NE, the Monthly Financial Summary has been expanded to include the following;

WBS 1	Infrastructure Totals
WBS 1.1	Safeguards & Security Total
WBS 1.1.1	Physical Security
WBS 1.1.2	Other S&S Systems
WBS 1.1.3	Safeguards & Security GPP
WBS 1.2	Asset Management Total
WBS 1.2.1	Nuclear Facilities Operations
WBS 1.2.2	Radiological Facilities Operations
WBS 1.2.3	Balance-of-Plant Operations
WBS 1.2.4	Operations Support
WBS 1.2.5	Plant Assets Management (GPP/GPE)

- **Baseline Changes;** discusses approved and potential formal baseline change control items.

- **Operational Events Affecting Infrastructure;** explains reportable occurrences, and audit and assessment findings that have the potential to affect the Infrastructure. Reportable occurrences and their reference number are listed for Infrastructure related operations. Findings from audits and assessments during the reporting period that pertains to the Infrastructure and the impacts on cost and schedule are explained.

#### 4.3 Performance Measures

The Infrastructure Program uses performance measures to ensure that the work at ANL-West is managed in an effective manner to maximize the value to DOE, and to ensure that operations are performed in an industrially, radiologically and environmentally safe manner. The ANL contract performance measures are described in Appendix B, *Performance Criteria and Measures* of the Prime Contract (W-31-109-ENG-38) and may be viewed on the Argonne National Laboratory Performance Management web page (<http://www.ipd.anl.gov/cpmr/>).

At a minimum, the Monthly performance Report will contain the ANL-West-specific contract performance measures and the DOE ISM performance measures. During FY 2003, the ANL-W Infrastructure Program will develop and implement a set of outcome-oriented performance measures that will be tracked and reported through the ANL-West internal self-assessment process.