Contract No. DE-AC08-98NV13149

ATTACHMENT L

APPENDIX D -- WORK ACTIVITY DESCRIPTION AND THE NECESSARY SUFFICIENT STANDARDS: WBS VERSUS STANDARD

Appendix D -- Work Activity Descriptions and the Necessa y and Sufficient Standards: WBS versus Standard

Notes:

1 - The law and standards applicable to all work activities includes Section S(a)(l) of Public Law 91-596, Occupational Safety and Health Act (i.e., the "General Duty Clause") for development of office safety programs and, as required, a program for mitigating illness and injury associated with repetitive motion. The general requirements of Titles 29 CFR 1910, and 1926 are applicable to each work activity as defined in the standard. If properly implemented, these standards will mitigate the employee hazards not mitigated by the specific standards cited for each WBS element. Personnel are expected to comply with requirements in place for sites and work activities outside their normal work environment.

2 - The environmental regulations cited in WBS 4.5 serve as the umbrella requirements for all WBS elements irrespective of the specific standards which may or may not be cited in each discrete WBS listing.

3 - There are two conventions that should be understood with respect to the standards cited. These are:

(a) When an act or public law is cited, it automatically includes and invokes the codified requirements in the Code of Federal Regulations (CFR) that implement that act or law.

(b) All Title CFR citations include the edition of the consensus standards (i.e., "standards incorporated by reference ") in effect when the contract was signed Other CFR citations include standards incorporated by reference as well; these are included as part of the baseline set although, depending upon the CFR Title, a specific edition may be incorporated rather than the edition in effect when the contract was signed.

4 - This report presents standards by grouping them into the following general categories within each WBS element as applicable: CFR, Consensus Standard, Department of Energy, Federal Government (not in another category), Municipal Code, Other (miscellaneous), State Regulations, and United States Code (USC).

WBS: 1. 1.1 (Continued)

WBS: 1.1.1 Employment

Work Activity Description:

The following work activities are related to the Human Resources function of Employment:

Relocation
Assistance is provided for new employees and transferring employees in exempt classifications and may be offered to nonexempt personnel when deemed appropriate and approved by the DOE Contracting Officer. The actual relocation process relies on the coordination of the following components, two of which are contracted by the organization:

Employment
The activity includes directing and coordinating the entire relocation process, including travel arrangements (airline ticketing and settling-in lodging), and providing reimbursement and shipping guidelines to the next two components.

Traffic
The activity includes contracting a moving company to facilitate the movement and storage of household goods and persona1 effects of personnel within the guidelines established by the relocation agreement.

Travel & Relocation
The activity includes the documentation and reimbursement of all authorized expenses in conjunction with the transportation of the employee and dependents.

Travel Agency
The activity includes, when appropriate, the booking of airline tickets, rental cars, and lodging for the employee, as authorized.

Outplacement
An Outplacement Center has been established following the guidelines of the "National Defense Authorization Act of FY 1993," Section 3 16 1, which requires government contractors to provides such assistance for displaced workers affected by workforce restructuring events. Other outplacement components related to Human Resources are described as follows:

WBS: 1.1.1 (Continued)

Employment Assessment
The activity includes assisting affected employees in assessing their education, knowledge, and ski11 levels thereby assisting in the pursuit of employment.

Job Search Assistance
Resume assistance is provided in cooperation with the Nevada Business Service. Information regarding unemployment insurance, union opportunities, employment opportunities, credit counseling services, and federal and state programs ins provided by the state of Nevada. A job search network is used to broadcast job openings received from the DOE-generated Job Opportunity Bulletin Board (JOBBS) and other companies, to access America's Job Bank database, and the access date on the Internet.

Training/Retraining
DOE has provided funding for educational assistance which is used to provide counseling and administrative oversight of the application/reimbursement process.

Staffing
A small core of personnel are provided to support the recruiting, advertising, and college relations programs as well as to administer the requisition and job-posting programs.

Standard	***Title***	***SIT Application Note***
10 CFR 707	Workplace Substance Abuse Programs at DOE Sites	Required actions: maintaining a safe work place.
48 CFR 31.205-35	Relocation Cost	Required action: allowable actual relocation expenses; reimbursing authorized expenses; and expedited reporting to work.
48 CFR 970.3102-16	Relocation Cost	Required action: allowable actual relocation expenses; reimbursing authorized expenses; and expedited reporting to work.
48 CFR 992.8	Equal Employment Opportunity	This citation makes reference to 41 CFR 260 which is applicable to all DOE contracts.
29 USC 206	Equal Pay Act	Required actions: matching openings with applicants, and considering dislocated workers.

WBS: 1. 1. 1 (Continued)

29 USC *621, et* seq.	Age Discrimination in Employment Act	Required actions: matching openings with applicants, and considering dislocated workers.
29 USC 701, et seq.	Rehabilitation Action 1973	Required actions: matching openings with applicants, and considering dislocated workers.
42 USC 12111, et seq.	Americans with Disabilities Act (ADA)	Required actions: matching openings with applicants, and considering dislocated workers.
42 USC 2000e, et seq.	Equal Employment Opportunity	Required actions: matching openings with applicants, and considering dislocated workers.
42 USC 727(4h)	National Defense Authorization Act, Section 3161	Section refers to actions for outplacement assistance, education assistance, and consideration of displaced workers.
5 USC 2105 and 29 USC 2601	Family and Medical Leave Act	Applicable to outplacement assistance, education assistance, and consideration of displaced workers. Required actions: matching openings with applicants, and considering dislocated workers.

WBS: 1.1.2 Employee Relations

Work Activity Description:

The following work activities are related to the Employee Relations function:

Equal Employment Opportunity (EEO) Activities
All managers, supervisor and employees must comply with provisions of federal and state laws as they pertain to nondiscrimination, affirmative action, and equal employment opportunity. Affirmative Actions Plan(s) (AAP) are prepared, disseminated, and monitored. Responses are prepared for both internal and external discrimination complaints. Work is conducted with appropriate entities to ensure that employees receive applicable EEO training.

Grievance Activities
Assistance is provided in responding to internal grievances raised by employees, applicants or previous employees. After verification of facts,
a recommendation may be made to resolve the concern and to ensure that the issue has been adequately addressed.

WBS: 1.1.2 (Continued)

Substance Abuse Activities
A safe work environment is provided for all employees. Education, drug testing, employee assistance, and a rehabilitation aspect are provided whenever possible. Punitive action is taken when necessary to reduce the possibility of accidents by employees who use illegal drugs or misuse or abuse alcohol and to mitigate the harm should such events occur.

Standard	*Title*	*SIT Application Note*
IO CFR 707	Workplace Substance Abuse Programs at DOE Sites	Required for maintaining a safe workplace.
41 CFR 60-I	Obligations of Contractors and Subcontractors	Required for development, implementation and dissemination of Affirmative Action Plans(s).
41 CFR 60-2.10 through 60.2.32	General Enforcement: Compliance Review and Complain Procedure	Required for development, implementation and dissemination of Affirmative Action Plans(s).
29 USC 621, et seq.	Age Discrimination in Employment Act	Required employee action: response to discrimination complaints and maintenance of confidentiality.
29 USC 701, et seq.	Rehabilitation Act of 1973	Required employee action: response to discrimination complaints and maintenance of confidentiality.
29 USC 793	Employment Under Federal Contracts	Required for development, implementation and dissemination of Affirmative Action Plan(s).
38 USC 503, 1502, 1507, 2012	Vietnam Era Veterans Readjustment Assistance Act of 1974	Required for development, implementation and dissemination of Affirmative Action Plan(s).
42 USC 12111, et seq.	American with Disabilities Act (ADA)	Required employee action: response to discrimination complaints and maintenance of confidentiality.
42 USC 1981, et seq.	Civil Rights Act	Required employee action: response to discrimination complaints and maintenance of confidentiality.

WBS: 1.1.2 (Continued)

42 USC 2000e, et seq.	Equal Employment Opportunity	Required employee action: respopse to discrimination complaints and maintenance of confidentia lity.
5 USC 2105 and 29 USC 2601	Family and Medical Leave Act	Required for maintaining a safe workplace.
5 USC 552a	Privacy Act	Required employee action: response to discrimination complaints and maintenance of confidentia lity.

WBS: 1.1.3 Compensation

Work Activity Description:

This work activity includes a pay plan and changes to that plan. It involves developing and executing pay delivery programs, premium and incentives, pay adjustments, job definitions and position descriptions, employee performance management/feedback, and earnings. The pay plan is based upon analyses which defines each employees' pay in relationship to local/national market surveys, justifies an amount to be distributed for merit, promotion, and adjustments to pay, justifies changes to the pay plan structure, allows for changes in an individual employees' pay, job titles, and levels, and includes management's participation in determining compensation strategy.

The scope of this work activity includes management, administration, plan design and eligibility, and communications. Financial and payroll standards associated with this compensation activity are reported under WBS 1.2, Finance. Represented (union) employee's pay plans are determined and administered per negotiated agreements.

Standard	*Title*	*SIT Application Note*
48 CFR 52.222-6	Davis Bacon Act	Davis-Bacon Act (guarantees employees on federally funded projects prevailing wages).
Worker Adjustment and Retraining Act	Worker Adjustment and Retraining Notification Act	Defense Authorization Act, Sect. 3161 and the Worker Adjustment and Retraining Notification Act (Provide notice of layoffs, plant closures and a minimum wage and overtime rates).
Best Business Practices	N/A	Guidance for job description, employee qualifications, performance measures, and feedback.

WBS: 1.1.3 (Continued)

State Wages and Hours Laws	State Wage and Hour Laws	State Wage and Hour Laws such as Nevada Revised Statute Chapter 608, California Industrial Welfare Commission Wage Order 4, and New Mexico and Maryland wage and hour laws (defines employees eligibility for minimum wages, defines work hours, overtime provisions).
29 USC 173	Labor Management Relations Act of 1947	Labor Management Relations Act (guarantees employees the right to engage in concerted activity for the purpose of collective bargaining).
29 USC 201, et seq.	Fair Labor Standards Act	Fair Labor Standards Act (defines those employees exempt from minimum wage and overtime provisions).
29 USC 206	Equal Pay Act	Equal Pay Act (requires men and women be paid the same for doing equal work).
29 USC 551 and 41 USC 35-45	Walsh-Healey Act	Walsh-Healey Public Contract Act (provides overtime rates in some circumstances).
29 USC 666	Occupational Safety and Health Act of 1970	Occupational Safety & Health Act (defines place of employment free from hazards likely to cause death or serious physical harm) for job qualifications of inspectors.
29 USC 701, et seq.	Rehabilitation Act of 1973	Rehabilitation Act (prohibits discrimination be federal contractors against individuals with handicaps).
40 USC 276a	Davis-Bacon Act	Davis-Bacon Act (guarantees employees on federally funded projects prevailing wages).
41 USC 351-357	Service Contract Act	Federal/State government pay oversight (affects wages of employees of those furnishing federally contracted services).
42 USC 12111, et seq.	Americans with Disabilities Act (ADA)	Title 1 - Americans with Disabilities Act (prohibits discrimination in hiring, firing, and terms and condition of employment).
42 USC 1981, et seq.	Civil Rights Act	Civil Rights Act (projects employees from discrimination based on race, sex, nationality or age, and nondiscriminatory compensation).

WBS: 1.1.3 (Continued)

42 USC 727(4h)	National Defense Authorization Act, Section 3161	Defense Authorization Act, Sect. 3161 (2 USC 701, et seq.) and the Worker Adjustment and Retraining Notification Act, provide notice of layoffs, plant closures and a minimum wage and overtime rates.
8 USC 1255a	Immigration Reform and Control Act	Immigration Reform Act (protects resident aliens against discrimination).

WBS: 1.1.4 Health & Welfare Benefits/Pension Plans

Work Activity Description:

This work activity is based upon benefit strategy, which defines employee's benefit eligibility, options and contributions in relationship to management philosophy and surveys. The scope of work includes plans and changes to them; delivery programs; employee eligibility, and enrollments; employee/company contributions or premiums; vendor/administrator selection and performance; establish/use of an executive administrative committee; consultant/advisor selection and performance; and associated budget and costs related to health and welfare benefits and pension plans.

Health & Welfare Benefits include any plan, fund or program established or maintained for the purpose of providing for its participants or their beneficiaries, through the purchase of insurance or by making other financial arrangements, medical, surgical, or hospital care in the event of sickness, accident, disability, death, or unemployment. It may also include other benefits such as paid leave programs. For the purpose of this work activity, workers' compensation and state unemployment insurance standards have been identified to ensure that proper understanding and referencing exist for claims processing, as well as effective and timely communications and/or coordination of benefits as required.

Pension benefits include defined benefit Retirement Plans and defined contribution Savings Plans which provide retirement income or defer income to a time after covered employment ends. The savings plan provides employees with investment options prior to their retirement years. These plans provide employees with two options for income protection -- retirement income replacement and payments or income for survivors. The scop of work includes management, administration, plan design and eligibility, and communications.

Craft (Union) benefits activities are not represented since they must be administered according to a negotiated agreement rather than following federal or state standards.

WBS: 1.1.4 (Continued)

Standard	*Title*	*SIT Application Note*
Internal Revenue Codes (IRC 2- Sections 79, 105, 106, 125, 1 9 a n d 1 3 2	Internal Revenue Codes (IRC 2- Sections 79, 105, 106, 125, 1 9 and 132	Benefit provisions meet legal standards, plan definition, eligibility requirements.
Old Age, Survivors, and Disability Insurance (Medicare)	Old Age, Survivors, and Disability Insurance (Medicare)	Benefit provisions meet legal standards, plan definition, eligibility requirements.
Older Worker Benefit Protection Act	Older Worker Benefit Projection Act	Benefit provisions meet legal standards, plan definition, eligibility requirements.
State Disability Laws	State Disability Laws	Issues resolved: (1) benefit provisions meet legal standards, plan definition, eligibility requirements; (2) provide required and committed benefits; (3) informatton communication and reporting; (4) periodic budget/expenditure review; and (5) funding arrangement and investment portfolio review.
State Unemployment Laws	State Unemployment Laws	Issues resolved: (1) benefit provisions meet legal standards, plan definition, eligibility re uirements; (2) provide required and committed benefits; (3 information communication and reporting; (4) periodic budget/expenditure review; and (5) funding arrangement and investment portfolio review.
15 USC 3703, et seq.	Tax Equity and Fiscal Responsibility Act	Benefit provisions meet legal standards, plan definition, eligibility requirements.
29 USC 1001	Retirement Equity Act 1984	Benefit provisions meet legal standards, plan definition, eligibility requirements.
29 USC 1107, et seq.	Employee Retirement Income Security Act (ERISA)	Benefit provisions meet legal standards, plan definition, eligibility requirements.

WBS: 1.1.4 (Continued)

29 USC 621, et seq.	Age Discrimination in Employment Act	Issues resolved: (1) benefit provisions meet legal standards, plan definition, eligibility requirements; (2) provide required and committed benefits; (3) information communication and reporting; (4) periodic budget/expenditure review; and (5) funding arrangement and investment portfolio review.
42 USC 12111, et seq.	Americans with Disabilities Act (ADA)	Benefit provisions meet legal standards, plan definition, eligibility requirements.
42 USC 13956, et seq.	Consolidated Omnibus Budget Reconciliation Act (COBRA)	Benefit provisions meet legal standards, plan definition, eligibility requirements.
42 USC 1395h	Deficit Reduction Act	Issues resolved: (1) benefit provisions meet legal standards, plan definition, eligibility requirements; (2) provide required and committed benefits; (3) information communication and reporting; (4) periodic budget/expenditure review; and (5) funding arrangement and investment portfolio *review*.
42 USC 300e	HMO Amendments Act	Benefit provisions meet legal standards, plan definition, eligibility requirements.

WBS: 1.1.5 Training

Work Activity Description:

Training programs are developed to ensure that employees possess the skills and knowledge necessary to perform their jobs in a safe, efficient, and effective manner. These programs cover the following areas: environmental, security, safety and health (ESS&H) rules and guidelines; job skills; management training; instructor qualification; and general employee training. ESS&H training programs are designed to promote the safety and health of employees and ensure that operations do not adversely affect the public or the environment. The training tools available include, but are not limited to: reading assignments, lectures, seminars, courses (classroom/laboratory), and on-the-job training. These programs are conducted by in-house training staff, instructor-qualified Subject Matter Experts (SMEs), and outside subcontractors.

Most training programs are developed and administered using a systematic approach that has proven to be successful for DOE moderate-risk operations such as nonreactor nuclear or high-explosive activities. The five distinct phases included in this approach are as follows:

WBS: 1. I. 5 (Continued)

Analysis, Design, Development, Implementation, and Evaluation.

Training needs assessments are conducted to determine employee-specific training requirements in support of line management. To accomplish this, assistance is provided to supervisors and managers to determine what knowledge and skills are required of individual employees to assure that they are qualified to perform their jobs. Additionally, training staff and subject matter expert instructors members attain special qualifications through Train the Trainer programs to ensure that they are competent in the presentation of course materials.

Work activity is initiated by one or more of the following means:

- A request for specific training to correct a skill or knowledge deficiency for a single employee or a category of workers;
- A training need identified by management to meet business priorities and objectives; or
- A requirement for training specified in an applicable law or statute.

There are on-going requirements to update training materials and to maintain an audit trail documenting these changes. It is imperative that as job junctions and legal requirements change, that there is a process is in place to ensure these changes are captured and incorporated into the appropriate training programs.

The majority of the activity ends when the employee is trained and the records are filed to document the training. Original attendance records are tiled in a central, controlled-access location; recorded in a training records database file; and maintained according to standards identified WBS 1 .5. 1, "Records and Document Management."

Standard	***Title***	***SIT Application Note***

WBS: 1.1.5 (Continued)

DOE Handbook 1074-95	Alternative Systematic Approaches to Training, January 1995	No statue or regulation is necessary for the less formal forms of training. Typically an attendance sheet or acknowledgment form, along with identification of the covered material, is adequate documentation for such training at the direction of the functional department or project. There is no single DoD-wide "standard" that the SME is aware of that specifies this approach but it is referred to in military service documents by various names. The SAT process, which DOE describes the method in DOE Handbook 1078-94, dated August 1994, is virtually identical to that implemented by the U.S. military.
DOE Handbook 1078-94	Training Program Handbook, A S stematic Approach to Training &AT), August 1994	No statue or regulation is necessary for the less formal forms of training. Typically an attendance sheet or acknowledgment form, along with identification of the covered material, is adequate documentation for such training at the direction of the functional department or project. There is no single DoD-wide "standard" that the SME is aware of that specifies this approach but it is referred to in military service documents by various names. The SAT process, which DOE describes the method in DOE Handbook 1078-94, dated August 1994, is virtually identical to that implemented by the U.S. military.

WBS: 1.1.7 Labor Relations

Work Activity Description:

This package refers to those individuals not previously discuss under WBS 1.1.2 "Employee Relations" which includes workers who are covered under the collective bargaining agreements who are not permanent, full-time employees of the organizations as well as some workers, typically crafts, who are employees of the organization and are represented by a union. The collective bargaining, grievance, arbitration, and dispute resolution activities described under the Employee Relations function of Labor Relations are unique to this activity.

The following activities are associate with the Employment function of Labor Relations:

- The hiring and termination of craft employees who are employed under the provisions of any of the numerous construction and/or

WBS: I. 1.7 (Continued)

maintenance and operations project labor agreements is dependent upon the coordination of both of the following activities.

- Employment which includes the direction and coordination of the hiring process, including employment forms, and the administration of medical screening and security in-processing.

- Termination which includes the direction and coordination of the termination process, including exit interviews, and the administration of medical and security out-processing.

- An Outplacement Center is operated within the Human Resources organization in response to the requirement for government contractors to assist displaced workers affected by workforce restructuring events. Other outplacement activities include:

- Employment Assessment which involves coordinating with Human Resources to address any concerns of the employee regarding benefits under the "National Defense Authorization Act of FY 1993 - Section 3 161" such as medical benefit continuation and educational benefits.

- Training/Retraining which involves coordinating with Training concerning funding that is provided by DOE to support educational assistance including counseling as well as administrative oversight of the application/reimbursement process.

The following work activities are associated with the Employee Relations function of Labor Relations:

- Collective Bargaining Activities which involves the timely negotiations of the numerous collectively bargained Project Labor Agreements, including the administration of these contracts during their term.

- Grievance and Arbitration Activities which involves administering the grievance procedures established under each Project Labor Agreement. The grievance process provides for unresolved issues to be referred to arbitration. This also involves ensuring that the firm's position regarding the facts of the grievance are adequately documented and presented at the arbitration hearing.

- Promote Resolution of Disputes which involves promoting the goal of no work stoppages; maintaining good relationships with the unions; implementing a training program for supervisors, foremen and general foremen; and designing and implementing a successful Work Assignment Dispute Resolution Process.

- Substance Abuse Activities which involves provisions for pre-employment and "for-cause" drug testing to maintain a safe work

environment for employees. This also involves ensuring that the Employee Assistance Program and other services provided to non-bargaining employees are available to craft employees.

Standard	*Title*	*SIT Application Note*
10 CFR 707	Workplace Substance Abuse Programs at DOE Sites	
41 CFR 260	Equal Employment Opportunity	
Executive Order 11246	Equal Employment Opportunity	
NLRB 102.48(a)	National Labor Relations Board -- Rules To Be Followed By Employers	Rules and regulations to be followed to avoid the atmosphere prompting work stoppages.
29 USC 179	Labor Management Relations Act	
29 USC 206	Equal Pay Act	
29 USC 621, et seq.	Age Discrimination in Employment Act	
42 USC 12111, et seq.	Americans with Disabilities Act (ADA)	
42 USC 1981, et seq.	Civil Rights Act	
42 USC 727(4h)	National Defense Authorization Act, Section 3161	Section refers to actions for outplacement assistance, education assistance, and consideration of displaced workers.
5 USC 2105 and 29 USC 2601	Family and Medical Leave Act	

WBS: 1.2.1 General Accounting

Work Activity Description:

The General Accounting (GA) area of the Finance functions involves the following activities:

WBS: 1.2. I (Continued)

- Cash management
- Accounts payable
- Accounts receivable
- Property accounting (plant & equipment)
- Payroll
- Tax accounting (federal, state & local)
- External reporting (balance sheet, income statement etc.)

The fundamental purpose of this function is to provide DOE/NV accountability of organizational resources which must be manage in accordance with Generally Accepted Accounting Principles (GAAP). The primary objective is to produce and provide data to satisfy the following elements:

- Accurate and timely recording of all financial transactions.
- Tight control of all obligations within budget appropriations.
- Sufficient details supporting all transactions.
- Timely feedback of all financial reports (i.e., balance sheet, income statement, etc.).

Each of these activities fulfills an integral piece of the Financial Reporting process and each of them must be properly reconciled to the General Ledger and subsidiary records, as necessary, by activity. Essential activities include the following:

- Cash management activities include the timely collection of all cash (and equivalent) receipts, prompt deposit of cash collections, strict

WBS 1.2.1 (Continued)

disbursement methods, proper recording of all related transactions, maintaining detailed supporting documentation, and tight controls to effectively separate employee duties in related areas for proper safeguards and security. Where necessary, employees are required to be bonded to function in and/or around specific areas.

- Accounts payable activity includes the amounts owed for items received, services received, expenses incurred, assets acquired, construction performed, and amounts received but as yet unearned. Effort is made to record all liabilities in a timely and accurate manner. Accrued expenses are made against liability accounts before the actual receipt of an invoice only when the goods and/or services have been received, but not yet billed. Matching expenses against the period in which they are incurred is in line with GAAP. All recorded items are paid according to the letter of credit and Department of Treasury procedures.

- Accounts receivable activity involves the management of accounts receivable, loans receivable, and interagency/interfund receivables from the point of inception through the collection and/or writeoff. Separate accounts are maintained for each debtor. Monthly detail is produced to reflect aging of each account by category. Any direct billing or invoicing to debtors is completed monthly.

- Property accounting (plant & equipment) includes any piece of real or personal property that is acquired through a purchase, is received from another Interagency transfer, is retired from use, is excessed from use, and/or is sold. Thresholds have been established to distinguish between real and personal capital property for additional reporting requirements. Capital property becomes eligible for depreciation (tangible) and/or amortization (intangible). Service life data is maintained to properly calculate depreciation/amortization amounts.

- Payroll labor activities are a key element to financial reporting records in that their accurate, timely capture on a direct or indirect labor basis is critical in the establishment of other related functions.

- Tax accounting activity involves, as with any business entity, the requirement to pay federal, state, and local taxes as a part of routine procedures. A variety of taxes are paid, including employment taxes, sales/use taxes, property taxes, business taxes, and fuel taxes, among others.

- External reporting activity is a result of timely and accurate recording of financial transactions throughout the previously mentioned systems. The Balance Sheet, Income Statement, and other financial statements are produced as need, which may vary monthly, quarterly, and/or annually.

Standard	*Title*	*SIT Application Note*

WBS: I. 2.1 (Continued)

29 CFR 516	Records to be Kept by Employers	Requirements for Payroll.
29 CFR 548	Authorization of Established Rates for Computing Overtime Pay	Requirements for Payroll.
29 CFR 785	Hours Worked	Requirements for Payroll.
48 CFR 52	Solicitation Provisions and Contract Clauses	
48 CFR 932.9	Prompt Payment	Prompt payment requirements for response to accounts payable.
48 CFR 9904	Cost Accounting Standards (CAS)	The CAS is generally required. The following specific citations were in effect at the time of identifying the N&S set: 9904.401 - Consistency in Estimating, Accumulating & Reporting Costs, 9904.402 - Consistency in Allocating Costs for the Same Purpose, 9904.403 - Allocation of Home Office Expenses to Se ments, 9904.405 - Accounting for Unallowable Costs, 9904.485 - Cost Accounting Period, 9904.408 - Accounting for Cost of Compensated Personal Absence, and 9904.418 - Allocation of Direct and Indirect Costs.
DOE 0 534.1 Contractor Requirements Document (CRD)	Attachment 1 - DOE Accounting Handbook	
Federal Tax Statutes, State Tax Laws, and Union Agreements for Taxes	Federal Tax Statutes, State Tax Laws, and Union Agreements for taxes	Requirements for taxes.
Financial Accounting Standards Board's Generally Accepted Accounting Principles (GAAP)	Generally Accepted Accounting Principles (GAAP)	
General Accounting Office (GAO) Policy and Procedures Manual for Guidance of Federal Agencies, Title 2	Accounting	

WBS: 1.2.1 (Continued)

General Accounting Office (GAO) Policy and Procedures Manual for Guidance of Federal Agencies, Title 6	Pay and Leave	
General Accounting Office (GAO) Policy and Procedures Manual for Guidance of Federal Agencies, Title 7	Fiscal Requirements	
Office of Management and Budget (OMB) Circular A-l 27	Internal Control Systems	Addresses external reporting requirements.
31 USC 1801, et seq.	Prompt Payment Act	

WBS: 1.2.2 Cost &counting (Financial Analysis)

Work Activity Description:

This work activity covers the provision of cost accounting services to DOE, DOE/NV contractors and their management, as well as the national laboratories consistence with applicable requirements. The services provided include the following:

- Implementation of sufficient and effective financial procedures, processes and systems. These procedures, processes, and systems assemble and categorize information that is current, complete, and accurate and that conform to cost accounting regulations.
- Ensure that non-contract efforts undertaken are properly identified, accounted for, funded, and adequately disclosed to DOE.
- Manage the accounting for actual costs incurred during contract performance.
- Ensure charging practices are in compliance with the disclosure statement.
- Develop and monitor methods of indirect cost allocation to accomplish full cost recovery.

Core deliverables associated with the Cost Accounting work activity included the following:

WBS: 1.2.2 (Continued)

- Provide effective cost accounting support management and DOE.
- Develop polices and procedures that will strengthen cost accounting practices.
- Exercise due diligence using systems to properly manage cost accounting activities.
- Apply oversight responsibility for ensuring compliance with DOE Orders. Oversight will include the development and application of internal controls for cost accounting systems.
- Establish indirect cost rates in accordance with the Financial Management System Improvement Council (FMSIC) cost model and DOE/NV Chief Financial Officer (CFO) guidance.
- Ensure that indirect costs are properly monitored to minimize variances and that maximum funds are available for direct program use.
- Assist DOE/NV by providing data and other cost accounting information need as a result of DOE/NV or other special requests.
- Ensure adequacy of Cost Accounting Reports:

* Comply with the policies, procedures, and practices, both manual and automated, to formally communicate proprietary cost accounting information regarding past, current, and future events in support of DOE programs to both internal and external groups.

* Provide cost accounting reports free of errors or omissions.

* Establish appropriate systems, procedures, and reports which provide cost performance measurement data.

* Manage and account for indirect cost rates to accomplish full cost recovery.

* Maintain current funding balances in the job cost system.

- Review cost accounting systems and procedures for areas where enhancement and improvements can be made.

WBS: 1.2.2 (Continued)

- Formally request DOE/NV Financial Services Division approval of all proposed changes to financial systems, accounting and budgeting policies and procedures, particularly those relating to cost accounting and distribution as reflected in the current Cost Accounting Disclosure Statement.

- Provide full disclosure of financial activities.

- Submit cost accounting reports by the due date which meet content and format requirements. Prepare recurring and special financial reports in a consistent manner which are supported by adequate documentation. Financial report data must be verifiable, auditable, and traceable. Distribute cost accounting reports to appropriate program management review to ensure reasonableness and consistency.

- Continue developing performance measurement parameters and indicators for cost accounting.

- Monitor distribution pool and recharge rates to ensure equitable charges and minimum annual variances.

- Ensure labor load computations are made in a way that minimal changes are needed throughout the year.

- Establish adequate audit trails.

- Establish a fair and equitable cost distribution system with allocable costs reflected in financial reports properly charged to benefiting final cost objectives within DOE/NV policy guidelines.

Other Work Activities are interfaced with on a regular basis. Actual costs incurred are booked to the cost accounting system. Actual cost data is used by management for forecasting, tracking, and reporting costs (budget vs. actual) to DOE. The cost accounting organization, while responsible for oversight of the financial information within the cost accounting system, must rely on Project Management and Procurement processes to provide timely and accurate data to he system. Therefore, interfaces and effective coordination between Project Management, Procurement, Cost Accounting, and other organizational functions are critically important for ensuring timely and accurate data is available for management and DOE.

Standard	***Title***	***SIT Application Note***

WBS: 1.2.2 (Continued)

10 CFR 708	DOE Contractor Employee Protection Program	Requirements for processing complaints by employees.
48 CFR 970.5204-59	Whistleblower Protection for Contractor Employees	Requirements for regulation of waste, fraud, and abuse.
48 CFR 9904	Cost Accounting Standards (CAS)	The CAS is generally required. The following specific citations were in effect at the time of identifying the N&S set: 9904.401 - Consistency in Estimating, Accumulating & Reporting Costs, 9904.402 - Consistency in Allocating Costs for the Same Purpose, 9904.405 - Accounting for Unallowable Costs, 9904.406 - Cost. Accounting Period, and 9904.418 - Allocation of Direct and Indirect Costs.
DOE 0 534.1 Contractor Requirements Document (CRD)	Attachment 1 - DOE Chief Financial Officer's Accounting Handbook	
Financial Accounting Standards Board's Generally Accepted Accounting Principles (GAAP)	Generally Accepted Accounting Principles (GAAP)	
General Accounting Office (GAO) Policy and Procedures Manual for Guidance of Federal Agencies, Title 2	Accounting	
Reporting System	Reporting System	A Reporting System consistent with the following requirements: Work Breakdown Structure - hierarchy of elements of the work effort, • Line Item Reporting - items required by the statement of work, • Cost Element Reporting - a subdivision of direct and indirect costs, • Organization/Labor Category Reporting - by organizational elements, * Construction Element Reporting - based on Title stages 1, 2, & 3, • Reporting by Budget & Reporting Number - if need for the work effort, and • Degree of Reportin Complexity - commensurate with magnitude and complexity o3 the work effort and the product.

WBS: 1.2.3 (Continued)

WBS: 1.2.3 Speciality Areas (Finance)

Work Activity Description:

This work activity covers the provision of special accounting services to DOE, DOE/NV, its contractors, and their management, as well as the national laboratories consistent with applicable requirements. Services provided include the following:

INTRA/INTER-AGENCY TRANSFERS
Work performed for other DOE contractor entities requires a documented scope of work; an identified performance schedule and deliverable(s); and a formal cost estimate consistent with that scope of work, performance schedule, and deliverable(s). DOE/NV Budget & Resources Management Division (BRMD) should receive certification of available funding from the authorizing entity or receive a cash order, not exceeding $100,000, before the scope of work effort may proceed.

Work performed by other DOE contractor entities requires the same documentation. BRMD should receive certification of available funding from the authorized entity. If no certification is available, a cash order not exceeding $100,000 before scope of work effort is initiated.

PRODUCT AND SERVICE PRICING
Comprises the policies, procedures, and practices (both manual and automated) that are used to determine the cost of service and/or products furnished to others outside DOE so that full cost recovery is achieved.

Provide reasonable assurance that the product and service pricing process is in conformance with DOE requirements with all exceptions properly authorized and adequately justified, documented, and reported; that department-wide rates are consistently applied; and that biennial review of fees, royalties, rents and other charges for services and items of value provided, required by the Chief Financial Officers (CFOs) Act, is accurately and timely conducted and provides meaningful results and recommendations on revising those charges to reflect costs incurred in providing those services and things of value.

TRAVEL
The travel system comprises the policies, procedures, and practices (both manual and automated) for managing activities associated with permanent change of station, temporary duty, and local travel.

Provide reasonable assurance that the travel system includes adequate controls which ensure that all travel charged to the contract is in

WBS: 1.2.3 (Continued)

accordance with DOE and contract requirements; travel is properly authorized; travelers are reimbursed only for entitlements; and vouchers are processed in a timely manner.

REIMBURSABLE WORK
Reimbursable work refers to work or services performed or to be performed for another federal or nonfederal customer for which DOE is compensated by specific type of offsetting collection, known as a reimbursement, which may be credited as authorized by law to the appropriation or fund account of DOE. The reimbursable work or services performed by DOE are financed by funds of the ordering federal customer or by cash advances from a nonfederal customer.

Provide reasonable assurance that reimbursable work being performed has been properly authorized, costed, and funded according to DOE requirements, which include ensuring that budgetary resources have been obtained before commencing work and incurring costs; that there is sufficient reimbursable obligational authority from the departmental CFO within the respective allotment; full cost recovery is achieved; costs do not exceed available funding; a system is in place to provide advance notification of potential funding shortfalls in sufficient time to obtain additional funding or begin orderly termination of the project; and work is managed and accounted for according to the funding limitations and other provisions of the reimbursable agreement.

RELATED PARTY TRANSACTIONS
Related party transactions include transactions between a contractor and its parent or subsidiaries of a common parent. Transactions between related parties commonly occur in the normal course of business. Transactions with related parties include purchases of supplies needed in connection with the performance of work and services received or furnished (i.e., accounting, management, engineering,, and legal services). For services received, a request for contractor affiliated sources process is used. Contractor Officer approval of the contractor's fiscal year work plan showing the anticipated level of affiliate support and procedure is required prior to implementation.

Provide reasonable assurance that related party transactions have been identified, conform with DOE requirements, are appropriately authorized and approved, and are adequately disclosed.

The following work activities apply to the special areas/services listed above:

- Apply oversight responsibility for ensuring compliance with DOE Orders. Oversight will include the development and application of internal controls for special accounting areas.

WBS: 1.2.3 (Continued)

- Assist DOE/NV by providing data and other cost accounting information needed as a result of DOE/NV or other special requests.

- Adequacy of reports - Comply with the policies, procedures, and practices, both manual and automated, to formally communicate proprietary accounting information about past, current, and future events in support of DOE programs to internal and external groups.

Standard	*Title*	*SIT Application Note*
41 CFR 301	Travel Allowances	
48 CFR 970.520459	Whistleblower Protection for Contractor Employees	Invokes 10 CFR 708 relative to waste, fraud, and abuse.
48 CFR 9904	Cost Accounting Standards (CAS)	The CAS is generally required. The following specific citations were in effect at the time of identifying the N &S set: 9904.405 - Accounting for Unallowable Costs.
DOE 0 534.1 Contractor Requirements Document (CRD)	Attachment 1 - DOE Accounting Handbook	
DOE Order 1500.3	Foreign Travel Authorization	Travel requirements.
DOE Order 21 10.1A	Pricing of Departmental Materials and Services	Reimbursable Work (Work for Others)
Financial Accounting Standards Board's Generally Accepted Accounting Principles (GAAP)	General Accepted Accounting Principles (GAAP)	
General Accounting Office (GAO) Policy and Procedures Manual for Guidance of Federal Agencies, Title 2	Accounting	
General Accounting Office (GAO) Policy and Procedures Manual for Guidance of Federal Agencies, Title 5	Federal Travel Regulations, Chapter 301 (GAO Title 5 Transportation)	Travel requirements.

WBS: 1.2.6 (Continued)

WBS: 1.2.6 Budgeting

Work Activity Description:

The Budgeting work activity is comprised of two related, but distinct, elements; the DOE/HQ Unified Field Budget Call (UNICALL) and the regular budgeting process, detailed as follows:

The UNICALL is a significant work activity. New guidance concerning this process is issued annually by DOE/HQ, the Defense Programs Office, the Environmental Restoration and Waste Management (ERWM) Office, other DOE/HQ departmental offices, and DOE/NV. The entire UNICALL process is unique to the government, its agencies, and government contractors.

The bi-annual budget call, which is a planning tool, includes requests for Capital Equipment and General Plant Projects (GPP), as well as Operating Expenses. The basic budgeting process is separated into three distinct phases: Planning, Formulation, and Execution. Interfaces with other functional departments within the business entity occur frequently, as described below.

Commercial organizations usually have a marketing plan which determines overall advertising, production and spending levels. Within the DOE community, programmatic guidance occurs at the DOE/HQ and DOE/NV levels. This guidance determines production and spending levels. Current work scope input is obtained from all customers such as the national laboratories and the Yucca Mountain Site Characterization Office (YMP).

The first phase of the budget process, Planning, is performed to acquire and to validate work scopes which are obtained from DOE/NV programmatic officials, customers, and internal management. The following rates are also determined: Labor, Overhead, General & Administrative (G&A), Material, Transfers to/from other DOE/NV contractors, Capital Equipment, and projected GPP.

The second phase of the budget process, Formulation, is performed by pricing-out the budget. Specific guidance is obtained from DOE/HQ and DOE/NV relative to inflation rates, formats, due dates, and other input. The budget must be priced out using methods prescribed in the DOE Budget Formulation Handbook.

Customers and primary programmatic officials at DOE/NV often review budgets before they are presented to the DOE Resources Management Division (RMD) as a final product. Review occurs at several stages during the process (e.g., after work scope validation and the first price out). Reviews ensure that all guidance and input are considered when formulating the budget.

WBS: 1.2.6 (Continued)

Budget validation, which usually takes place before the final product is submitted to RMD, is in most cases performed by personnel outside of budgeting since validation represents an independent review to ensure a quality product and one that conforms to all guidance provided by DOE/NV, DOE/NV, company management, and customers.

The final phase of the budget process, Execution, occurs when programmatic work scope and the related funding are provided to the Contractor. This informal process involves DOE Program Cost Analysts, company budget personnel, and customers. Once a final work scope is agreed upon, organizational budgets are established and the differences between actual monthly costs and the budgeted amounts are measured in terms of variances. Managers are usually responsible for explaining significant monthly variances. Program budgets are established in order to obtain adequate funding. Monthly budgeted costs are measured against actual costs to ensure that no overruns occur. The primary measurement vehicles are the Departmental Integrated Standardized Core Accounting System (DISCAS) monthly report versus the budget obligation and cost ceilings as reflected in the Approved Funding Program (AFP) issued by RMD. Integrated Management & Operating (M&O) Contractors use the Financial Information System (FIS) to transmit financial data to DOE/NV monthly using a program that translates the contractor's accounts into DOE's FIS accounts.

Budget obligation funding levels are established at Office of Management & Budget (OMB) and congressional levels and are legal funding limits that must not be exceeded. Cost ceilings are administrative levels established at DOE/NV and should also not be exceeded. Cost ceilings usually reflect full-year funding estimates where obligations may not be funded for a full year depending on circumstances.

The following Finance sub-elements have interfaces with the budgeting process:

1.2.1, General Accounting: The Generally Accepted Accounting Principles (GAAP) apply to the budgeting process; e.g., consistency and conservatism.
1.2.2, Cost Accounting: Cost Accounting Standards (CAS), such as allocating home office expenses, apply.
1.2.3, Special Areas: Each special area (reimbursable work for others, transfer to and from DOE/NV contractors, and travel costs) must be estimated in terms of work scope and associated costs estimates to be included in the budget.

Significant interfaces with other work activities or programs occur during the budget process. Customers are queried to determine work scopes; functional managers are asked to assess levels of personnel and Capital Equipment/GPP needs; DOE/NV programmatic officials provide input on work scope; and DOE/I-IQ provides inflation assumptions and formats for the final product.

It is difficult to clearly define boundaries between functional areas. The budgetary process generally relates to the planning, formulation,

***WBS:** 1.2.6 (Continued)*

and execution of the budget while cost accounting, general accounting, and the special areas are cost reporting and asset/liability measurement tools.

Standard	*Title*	*SIT Application Note*
48 CFR 9904	Cost Accounting Standards (CAS)	The CAS is generally required. The following specific citations were in effect at the time of identifying the N&S set: 9904.401 - Consistency in Estimating, Accumulating & Reporting Costs, 9904.402 - Consistency in Allocating Costs for the Same Purpose, 9904.403 - Allocation of Home Office Expenses to Business Se ments,9904.404 - Capitalization of Tangible Capital Assets, 9984.407 - Use of Standard Cost for Direct Material and Direct Labor, 9904.409 - Depreciation of Tangible Capital Assets,. 9904.410 - Allocation of Business Unit General and Administrative Ex enses ,9904.411 - Accounting for Acquisition Costs of Material, 9984.412 - Composition and Measurement of Pension Costs 9904.413 - Adjustment and Allocation of Pension Costs, 9904.414 - Cost of Money as and Element of the Costs of Facilities Capital, 9904.415 - Accounting for the Cost of Deferred Compensation, 9904.416 - Accounting for Insurance Costs, 9904.417 - Cost of Money as an Element of the Costs of Capital Assets, 9904.418 - Allocation of Direct and Indirect Costs, and 9904.420 - Accounting for Independent Research and Development Costs and Bid and Proposal Costs.
DOE 0 130.1 Contractor Requirements Document (CRD)	Attachment 1 - Budget Formulation Process	If the Budget Formulation Handbook, DOE/NV, and DOE/HQ budget guidance, as well as DOE Order 130. 1, "Budget Formulation Process" are followed, then the hazards noted above will be mitigated and the work will be accomplished in a cost-effective and efficient manner. The guidance provided by DOE/HQ is to ensure that they respond to OMB and requirements under OMB Circular A-l 1.

WBS: I. 2.6 (Continued)

Financial Accounting Standards Board's Generally Accepted Accounting Principles (GAAP)	Generally Accepted Accounting Principles (GAAP)	Some GAAP apply such as consistency, conservatism! checks and balances, and Internal controls or separation of duties. Consistency is maintained by building the budget using the same structure the business entity uses for reporting costs. Accounting and budgeting personnel must always be conservative in estimates so that adequate funding may be secured to accomplish all identified work scope yet not include too much management reserve.
Office of Management and Budget (OMB) Circular A-l 1	Pre aration and Submission of Bu8get Estimates	

WBS: 1.3.1 Procurement

Work Activity Description:

This work activity begins with receipt of a Purchasing Requisition (PR) which includes all necessary documentation to write the solicitation and make award, and includes the following supplementary material, as applicable.

- A sole source justification,
- Packaging requirements,
- Statement of work revealing requirement for Foreign Ownership, Control or influence of Contractor (FOCI) and/or an Organizational Conflict of Interest (OCI),
- Specifications, drawings, and other miscellaneous documentation,
- Technical evaluation criteria,
- Quality requirements,
- Safety requirements,

WBS: 1.3.1 (Continued)

- Flow-down of facility or site requirements,
- Government furnished material or equipment,
- Independent Cost Estimates and/or Basis of Estimates.

The procurement work activity begins when the user is consulted to determine whether acquisition planning documents forecast procurement activities. With receipt of the PR submitted by the user, the bidder's list is compiled, the solicitation including all required flowdown clauses and orders is prepared and released, proposals are received and evaluated, and the contractual document is written and awarded. Some procurements require a technical evaluation to ensure capability of performing the job or providing the correct product, an audit of prices to ensure prices are allowable and allocable, and a quality review of the firm if the item or service must be purchased from an approved vendor. Expediters ensure the item is received on time; administrators ensure the service or construction project is progressing as ordered and government regulations are being followed. When all items are received or services are completed, the procurement action is closed-out and final payment is made.

Purchases are varied and include services, commodities, one-time buys, and longer term "just-in-time" contracts. About 90 percent of all procurement actions are one-time purchase orders in the range of $100,000 or less.

Standard	*Title*	*SIT Application Note*
41 CFR 101	Federal Property Mahagement Regulations	
41 CFR 109	DOE Property Management Regulations	
48 CFR 19.5	Set-Asides for Small Business	Must set-aside for Small Business. Applies to procurements between $50,001 and $100,000.
48 CFR 22.8	Equal Employment Opportunity	Equal Employment Opportunity. Applies to procurements over $2,500.

WBS: I .3. I (Continued)

48 CFR 23.5	Drug-Free Workplace	Requirements for a drug-free workplace. Applies to procurements over $25,000.
48 CFR 25	Foreign Acquisition	Applies to procurements over $2,500.
48 CFR 52	Solicitation Provisions and Contract Clauses	Requirements for Certifications and Representations. Applies to procurements over $25,000.
48 CFR 52.222-13	Compliance with Davis-Bacon and Related Action Regulation	Requirements for government construction. Applies to procurements over $2,000.
48 CFR 52.222-26	Equal Opportunity	Requirements for E ual Employment Opportunity. Applies to procurements over 32,500.
48 CFR 52.222-41	Service Contract Act, as Amended	Applies to procurement over $2,500.
48 CFR 52.2226	Davis-Bacon Act	Requirements for government construction. Applies to procurements over $2,000.
48 CFR 6	Competition Requirements	Re uires full and open competition. Applies to procurements over $2,900.
48 CFR 9.4	Debarment, Suspension, and Ineligibility	Requires checking Debarred List. Applies to procurement over $100,000.
48 CFR 9.5	Organizational Conflict and Consultant Conflicts of Interest	All Clauses apply to procurements in this category.
48 CFR 970.5101	Use of Government Supply Sources	Must purchase from government sources of supply. Applies to procurements over $2,500.
48 CFR 970.52	DOE Contract Clauses for Managing and Operating Contractors	All Clauses apply to procurements in this category.
48 CFR 970.5204.44	Government Construction	

WBS: 1.3.1 (Continued)

Executive Order 10865	Safeguarding Classified Information Within Industry	Deals with foreign ownership, influence or control. All Clauses apply to procurements in this cate ory. Per DOE/NV, they have not heard of a change in the near future for 10865. Executive Order 12829 states that it is revoking 1A and 1B of Executive Order 10865 as of Jan 5, 1993, though both orders are still currently in existence.
Executive Order 12829	National Industrial Security Program	Deals with foreign ownership, influence or control. All Clauses apply to procurements in this category. Per DOE/NV, they have not heard of a change in the near future for 10865. Executive Order 12829 states that it is revoking 1A and 1 B of Executive Order 10865 as of Jan 5, 1993, though both orders are still currently in existence.
Executive Order 12845	Requiring Agencies to Purchase Energy Efficient Computer Equipment	Deals with purchasing computers. Applies to procurement over $2,500.
Executive Order 12958	Classified National Security Information	Deals with foreign ownership, influence or control. All Clauses apply to procurements in this category.
29 USC 793	Employment Under Federal Contracts	Applies to procurement over $2,500.
41 USC 251	Federal Acquisition Streamlining Act (Public Law 103-355)	This law generically applies to the FAR and DEAR requirements, it gives leeway to implement best practices in lieu of department practices.
42 USC 10	Buy American Act Requirements (PL 103-182)	Applies to procurements over $2,500.

WBS: 1.3.6 Asset Management

Work Activity Description:

Total Asset Management provides for the management of government property throughout its entire life cycle beginning at acquisition and ending with final disposition. The specific scope of the total asset management function includes, but is not limited to, the following:

WBS: 1.3.6 (Continued)

- Maintain a total asset management program in conjunction with the Department of Energy (DOE) which facilitates, coordinates, and promotes the centralized visibility of all non-nuclear materials in the inventory to include accountable property, chemicals, raw materials, metals, vehicles and equipment, repair parts, precious metals and scrap.

- Administer a system which provides for accountability of both real and personal property assets to include acquiring, inventorying, asset location tracking, transferring, and disposing of individual property items.

- Provide a system which provide for custodianship of individual property items.

- Maintain a system for the administration of excess property to include the sale of surplus property.

- Maintain an internal system that provides the prerequisite information to enable the appropriate property accounting of any property acquired through a purchase, received from another interagency transfer, retired from use, excessed form use, and/or sold. This includes retention of service life data to properly calculate depreciation, maintenance of acquisition cost information to support general accounting requirements and vendor/manufacturer information to support warranty or maintenance management purposes.

- Manage a program to administer and control high-risk property which is deemed high-risk due to being (a) nuclear-related; (b) proliferation-sensitive or export controlled; (c) chemically, biologically, or radiologically contaminated; (d) of national security/military interest; and (e) related to operations security matters.

Administrative and operational controls include, but are not limited to identification, screening for excess, and disposal.

- Conduct sales of surplus property and otherwise dispose of excess government-owned property including scrap.

- Maintain precious metals control verification.

- Conduct walk-through inspections to ensure proper use of government property according to applicable regulations and report the results of the inspections to the DOE.

WBS: 1.3.6 (Continued)

- Maintain a system for the requisition, receipt, inspection, storage, issue, and delivery of supplies.
- Provide warehousing services to facilitate timely receipt, distribution, shipping, and stocking of materials.
- Monitor the use of government property and supplies to ensure economical and efficient use.
- Develop and maintain total asset and property management procedures which facilitate compliance with applicable regulations.

Total asset management clearly includes activity commonly associated with inventory management, storage and distribution, property management, supply, excess, and disposal operations to include the accountability of both real property assets (land and facilities) and personal property (all property other than real property). Total asset management may also embrace additional areas such as motor equipment management and the inventory tracking of materials such as chemicals and raw products.

Standard	*Title*	*SIT Application Note*
15 CFR 730.3	Dual Use Exports	From: General Information of the Export Administration Regulations 15 CFR 730.
29 CFR 1910 Subpart N	Materials Handling and Storage	Required for warehousing operations.
41 CFR 101	Federal Property Management Regulations	
41 CFR 109	DOE Property Management Regulations	
48 CFR 945	Department of Energy Acquisition of Government Property	
DOE Interim Guidelines on Export Control and Nonproliferation, November 3, 1994	DOE Interim Guidelines on Export Control and Nonproliferation	

WBS: 1.3.6 (Continued)

DOE Interim Policies for Control of High Risk Property, Revision 1, February 7,1995	DOE Interim Policies for Control of High Risk Property	
DOE 0 430.1	Life Cycle Asset Management (LCAM)	Provides the high-level requirements for development of NV specific plans for life-cycle management of assets.
Asset Management Plan	Asset Management Plan	An "Asset Management Plan" is to be developed jointly by WSI, BN, and DOE/NV.

WBS: 1.4.1 Asset Management and Planning

Work Activity Description:

Information Services Asset management and Planning is comprised of the following activities:'

End User Computing is facilitated by a desktop software systems support organization and is the distributed computing function responsible for support of desktop computers. End User Computing include the following:

- Develop and implement configuration standards,
- Respond to software-related Help Desk requests,
- Install and assist with software applications for off-the-shelf software packages.

Data Center involves provision of technical systems management to both mainframe and minicomputer systems. This activity begins with analysis of requirements for computing resources at the data center level. Once requirements are identified, specifications are written to satisfy them and are provided to the procurement process. Once the equipment is delivered, installation is planned and implemented, including data center design and software installation. Follow-on activities include performance monitoring, tuning layered applications support, capacity planning, and other duties. This activity covers all phases from initial identification of a requirement through the excess of the equipment once it is obsolete.

Networking involves the provision of technical data communications network management support beginning with the analysis of

WBS: 1.4.1 (Continued)

requirements for data communications resources at the enterprise level. This activity includes data communications network design and installation. Once requirements are identified, specifications are written to satisfy the requirements and submitted to the procurement process. After the equipment is installed, follow-on activities include performance monitoring, tuning, capacity planning, and network management duties.

Software Management is focused on the acquisition, licensing, inventory, and disposition of commercial "shrink wrap" licensed software used on desktop workstations and network servers.

Acquisition
A list of "standard" software packages is maintained based on the review of the baseline information architecture and short range forecasts of future requirements.

Licensing (w/conditions of use)
The General Counsel's office assists in the determination of legal requirements and the establishment of policy on the use of commercial software.

Inventory
An automated inventory of acquired software will be established company-wide.

Disposition
Excess software is kept in a library for redistribution, a list of obsolescent software is maintained, and restrictions are placed on the disposition of obsolete software.

Property Management involves designating a property steward, establishing a property control center, and assigning custodians for accountable property. Records are maintained for assigned property in the Property Information System (PRISM) from initial acquisition to final disposition.

Equipment Re-Utilization is an adjunct to the procurement and property management functions. Property control centers are utilized to identify and redistribute excess equipment.

ADP Maintenance/Support Agreetnent Management addresses ADP equipment maintenance agreements as well as software support

WBS: 1.4.1 (Continued)

agreements entered into with external vendors. While the acquisition of such services is the purview of the Procurement organization, Information Services possesses the technical expertise and resources to ensure the services are the most cost effective. This function involves the following activities:

- Identification of all current ADP maintenance/support agreements with external vendors and notification to Procurement of any agreements that can be consolidated or terminated.

- Coordination between Information Services and Procurement concerning the acquisition of new Automated Data Processing (ADP) equipment or software that will require a maintenance/support agreement.

- Coordination between Information Services and Property Management regarding the retirement of hardware/software that is under an existing maintenance/support agreement.

Management processes include those organizational overhead activities related to the acquisition, development, operation,. and maintenance of information systems. The purpose of the following activities is to continually improve service to the customer, to maintain both organizational and professional standards, and to ensure all work is performed in a cost effective, safe manner:

- Development and publication of information systems-related policies and procedures,

- Organization administration including ES&H activities and genera1 office support,

- Development and monitoring of performance measures,

- Program reviews,

- Change control,

- Personnel development.

Government contractors are required to perform Information Resources Management (IRM) planning activities. The Office of Management & Budget (OMB) has issued guidelines which state that agencies must plan for how information will be processed; how it will

WBS: 1.4.1 (Continued)

be transmitted; how it will be used; what provisions will be made for access to it; whether and how it will be disseminated; how it will be stored; and how it will be disposed of. The Paperwork Reduction Reauthorization Act requires agencies to develop and annually revise a five-year plan for meeting information technology needs. Compliance is ensured with the following planning documents:

Long-Range Plan is a requirement of DOE Headquarters (DOE/HQ) and is submitted to OMB as part of the congressional budgeting process. Requirements fluctuate annually to address the specific concerns of HQ's information management team and to document emerging technological issues.

Strategic Plan is a requirement of the local field office, DOE/NV, to gather data concerning the organizational structure, planning and procurement process, information management strategies, and computing resource requirements. This document illustrates the company's short- and long-range approach to the management and acquisition of computing resources. Once approval is granted by DOE/NV, this document provides the sole justification for all information resources costing up to $25,000. Since it is prepared in advance of the fiscal year, any effort to acquire information resources when required is not hampered with requests for additional documentation.

Short-Range Plan is required by DOE/NV to document, in advance, any planned information resource initiatives to exceed $25,000. Costs are to coincide with the Capital Equipment budget. DOE rewards foresighted planning efforts by allowing sites to submit abbreviated documentation.

Standard	*Title*	*SIT Application Note*
48 CFR 227.19	Commercial Computing Software	Policy for management of computing software.
Office of Management and Budget (OMB) Circular A-l 30	Security of Federal Automated Information Resources	Establishes policy for the management of federal information resources.
PL 104-106, Section 5001 - 5703	Information Technology Management Reform Act of 1996	Repeals the 30 year old Brooks Act.
17 USC I-215	Copyright Act	Outlines the rights of owners and users of copyrighted software and provides sanctions for the infringement of a copyright.
18 USC 2319(b)	Criminal Penalties for Software Copyright Infringement	Establishes same.

WBS: I .4. I (Continued)

29 USC *701,* et seq.	Rehabilitation Act of 1973	Section 508 (Public Law 99-506) FIRMR Amendment 14, Electronic Office Equipment Accessibility for Handicapped Employees (41 CFR Parts 201-1, 201-30, 201-32).
44 USC 3501	Paperwork Reduction Reauthorization Act	Also its predecessor Public Law 96-51 1, The Paperwork Reduction Act of 1980, which establish a broad mandate for Agencies to perform their information activities in an economical manner.

WBS: 1.4.3 Software Applications

Work Activity Description:

Software applications development and maintenance is performed to help facilitate cost-effective, computer-based applications (i.e., development, acquisition, implementation, and maintenance); to assist clients with information technology planning; to identify requirements; and to provide a single point-of-contact for problem resolution and project coordination. Related activities include the following:

Project Management
The activity includes project requirements identification and management, project planning, tracking and oversight.

Software Engineering
This activity includes technology assessment, requirements definition, system design, technology procurement, and technical review of deliverables from the aforementioned processes.

Application Software Development
This activity includes application software design, programming and unit testing, software integration, and software implementation.

Sustaining Engineering
This activity includes customer support, application modification and enhancements, operations, system upgrades and database administration, commercial off-the-shelf product upgrades, and technical review of deliverables from the aforementioned processes.

Quality Management
This activity includes system testing, discrepancy reporting, and corrective action plans.

WBS: 1.4.3 (Continued)

Configuration Management
This activity includes establishing a project baseline definition library, defining a change control process, and establishing requirements traceability to the baseline.

The primary role of applications development is to support core business systems like finance, purchasing, human resources, payroll, and property. In recent years, the scope has been expanded to include organizational and individual application development as well as support for areas such as environment, safety, and health. Self-assessment is emphasize using job models to describe organizational missions, strength, weaknesses, vision, deliverables, and performance measures.

Standard	*Title*	*SIT Application Note*
Software Engineering Institute (SEI) SEI-93-TR-24	Capability Maturity Model for Software	The software engineering model and key practices references are recommended by the Software Engineering Institute as necessary to produce repeatable, predictable results from software application development activities.
Software En ineering Institute (SEI) SEI-93-TR-2%	Key Practices of the Capability Maturity Model	The software engineering model and key practices references are recommended by the Software Engineering Institute as necessary to produce repeatable, predictable results from software application development activities.
PL 104-106, Section 5001- 5703	Information Technology Management Reform Act of 1996	Repeals the 30 year old Brooks Act.

WBS: 1.4.6 Data

Work Activity Description:

The Data Management work activity encompasses the control and management of data and information as a corporate resource. Data Management--which provides the specifications for data naming conventions, structural definitions, validation checks, storage and access methods, dat sharing, and data usage--is comprised of the following two subactivities.

Date Administration includes the following non-technical tasks associated to data management:

WBS: I. 4.6 (Continued)

- Planning and Coordinating Functional Data Requirements

* Analyze existing Information Systems, both manual and electronic to understand what data/information is currently available within the organization.

* Develop strategic, functional plans for the evolution (planning, control, and management) of the corporate data/information architecture.

* Determine what constitutes the corporate information model and who are direct owners.

* Direct data integration strategies, including data usage and the sharing of information across organizational/project boundaries.

- Resolution of cross-organizational issues associated with data administration practices (e.g., data ownership or access conflicts).

* Establish a centralized information repository for the **meta-data** by functional domain.

* Develop policies and procedures for data administration functions.

- Application Development Support and Control

* Provide assistance in data architecture methods (e.g., entity relationship molding, logical applications design).

* Review functional requirements definitions, logical model designs, and data structures.

* Review and approve all proposed changes to the **meta-data** in the central repository.

* Review data security, data validation, and data integrity controls.

Other Functions

- Coordinate requests for access to data.

WBS: 1.4.6 (Continued)

- Develop and implement data administration standards regarding the standardization of data elements, data naming conventions, data definitions, and documentation of meta-data.

- Develop control mechanisms for the repository, including configuration management, of the meta-data.

- Review tools and methodologies to be used in data administration.

- Provide consultation, assistance, and information to end-users as required.

- Review programming tools in concert with the DOE/NV Information Management Council.

Database Administration includes the following technical tasks associated to data management:

- Planning and Implementation of the Database Management System (DBMS) Environment

* Develop strategic, technical plans'for the evolution (implementation, growth, management and recovery) of the corporate DBMS.

- Establish data integrity and security policies/procedures to control user access, data creation, data manipulation and data storage.

- Establish DBMS backup, recovery and re-start procedures.

* Ensure the effective operation of the DBMS environment by establishing, communicating, and controlling policies/procedures that manage the overall DBMS architecture.

* Resolve cross-organizational issues associated with physical data storage, access, security or database structure.

* Establish corporate DBMS standards (e.g. object naming conventions, DBMS security, access methods/tools, and data validation/integrity).

* Develop and implement database connectivity strategies to support an open database architecture.

WBS: 1.4.6 (Continued)

* Perform all management activities within the DBMS.

* Provide support and control of application development efforts.

* Provide assistance in physical database architecture/design techniques.

* Review and approve all physical design, and data structures.

* Review and approve all proposed changes to DBMS structures.

* Review data security, data validation, and data integrity controls.

Other Functions

- Control/Coordinate requests for access to data.
- Develop and implement database administration standards regarding the storage and security of data, internal object naming conventions, and data access methods.
- Develop control mechanisms for the DBMS, including configuration management of the physical database structures and overall database performance.
- Review tools and design methodologies to be used within the DBMS environment.
- Provide consultation, assistance, and information on all DBMS issues.
- Act as the single point of contact to the DBMS vendor.

Standard	*Title*	*SIT Application Note*
48 CFR 27.4	Rights in Data and Copyright	

WBS: 1.4.6 (Continued)

American National Standards Institute (ANSI) X3.135	Database Language SQL	
Department of Defense Directive (DoDD) 8320.1	Data Administration	
Federal Information Processin Standards Publication (FIPS) 427-2	Database Language SQL	
Federal Information Processin g Standards Publication (FIPS) 193	Data Administration	
Federal Property and Administrative Services Act	Federal Property and Administrative Services Act of 1949	"Section Ill d(c as amended by the Computer Security Act of 1987, Public Law 100-235.
PL 104-106, Section 5001 - 5703	Information Technology Management Reform Act of 1996	Repeals the 30 year old Brooks Act.
15 USC 271 and 40 USC 759	Computer Security Act of 1987	

WBS: 1.5.1 Records Management and Document Control

Work Activity Description:

Records Management has the functional responsibility to establish, implement, and manage a cost effective, fully compliant Records Management Program for unclassified documents. This program shall ensure that our customers have the necessary information, in a timely manner, to conduct business.

Document Control has the functional responsibility to establish methods and processes for controlling distributing, tracking, retrieving, and acting as record copy holder for company documentation. These processes shall ensure that the appropriate revision of he document is utilized.

The basic Records and Document Management process is separated into three distinct phases: creation, maintenance and use, and disposition. The first phase is creation. The primary function of creation is to adequately document the organization, function, activity, and processes. The second phase is maintenance and use. Included within this phase is the protection, control, distribution, and retrieval of documents. The last phase of the Records and Document Management process is disposition. This includes long-term storage, turnover or

*WBS: **1.5.1 (Continued)***

transfer, archiving, and destruction of inactive documents.

Interface and training with other functional areas occurs on a frequent or daily basis. Under the records Management program each functional area will identify a Records Coordinator to interface with Records Management staff. Within the Document Control program matrixed personnel will be provided to interface with each functional area.

Standard	*Title*	*SIT Application Note*
36 CFR 1200 Subpart B	Disclosure of Records	Records management issue: expanding volume of work; and control, preservation & timeliness.
36 CFR 1200 Subpart G	Damage to, Alienation,. and Unauthorized Destructron of Records	
41 CFR 201 Subparts A and B	Agency Programs	Records management issue: space, personnel & equipment; and budgets.
44 USC 2101	National Archives and Records Administration	
44 USC 2901	Records Management by the Archivist of the United S ates and by Administrators of the General Services	
44 USC 3101	Records Management by Federal Agencies	
44 USC 3301	Disposal of Records	

WBS: 1.5.3 Mail Management

Work Activity Description:

The mail centers are operated and managed for timely receipt, distribution, and processing of mail. Mail centers include research and use

WBS: 1.5.3 (Continued)

of the most economical United States Postal Service (USPS) postage rates and services and express mail services. Activities include review and procedure development for mail run schedules, internal mail procedures, and use of government interoffice envelopes. All mail is processed with the most economical and efficient postal service available.

Express mail shipping services contracted by the Government Services Agency (GSA) are used for routine shipments of government letters and packages.

All outgoing mail that requires postage application is processed through a mail center. The post office box rental, bulk rate permit, and business reply permit are used to process mail. The establishment of mail routes and schedules is based on locations, mileage, and bus schedule.

The messenger/courier service picks up all incoming and outgoing mail and delivers it to the USPS, DOE/NV, and government contractor agencies. This includes registered mail, certified mail, express mail, and U.S. Government Messenger Envelopes.

Standard	*Title*	*SIT Application Note*
29 CFR 1910.1030	Blood Borne Pathogens	Required to mitigate hazards associated with bloodborne pathogens.
29 CFR 1910.132	Personal Protective Equipment	Required to mitigate hazards associated with handling and mailing "blood boxes".
U.S. Postal Service Domestic Mail Manual	Domestic Mail Manual	Includes instructions for the mailing of hazardous materials.

WBS: 1.5.4 Printing and Publishing

Work Activity Description:

Print Plant capabilities cover a range of services including offset printing, duplicating, binding, stapling, folding, laminating, padding, color copying, as well a blueline and camera services. This work activity covers the printing plant at Mercury and the four duplicating centers at Losee Road, DOE, Remote Sensing Lab and the Control Point (CP) at Mercury.

The types of jobs requested vary greatly. Some are simple, one-step processes such as producing a few copies; others are very complex and

WBS: 1.5.4 (Continued)

involve coordination between various areas of the Print Plant. The complexity of the equipment also varies greatly. Jobs may require anything from hand binders and 30-year-old folding machines to highly sophisticated, computerized, multifunctional duplicating machines. Work includes both classified and unclassified printing and publishing, for which the standards are the same.

This activity begins with the receipt of a "Reproduction Work Request." The "Reproduction Work Request" can be submitted by DOE/NV, laboratories, contractors, and all other agencies. The request must be fully completed and include the number of copies required, whether the project is to be printed on one or two sides, the type of binding required, the type of paper to be used, the project's due date, and any other special services needed. When the requested work is complete, the job is returned to the customer.

Requests may also include printing a classified document which have the same standards as unclassified printing. The printing and publishing activities are the same for both types of materials. WBS 3.7, Industrial Security, addresses the security issues associated with printing and publishing.

Standard	*Title*	*SIT Application Note*
29 CFR 1910.1200	Hazard Communication	
29 CFR 1910.212	General Requirements of All Machines	
29 CFR 1910.95	Occupational Noise Exposures	
48 CFR 908.8	Acquisition of Printing and Related Supplies	
Executive Order 12873	Federal Acquisition, Recycling and Waste Prevention (November 1993)	Environmentally preferable products.
Government Printing and Binding Regulations No. 26	Government Printing and Binding Regulations	Joint Committee on Printing requirements for management of equipment.
Manufacturers Recommendations for Equipment Maintenance	Manufacturers Recommendations for Equipment Maintenance	
17 USC l-215	Copyright Act	

WBS: 1.5.4 (Cdntinued)

44 USC Chapter 5	Production and Procurement of Printing and Binding

WBS: 1.5.5 Scientific and Technical Information

Work Activity Description:

This work activity covers the management of Scientific and Technical Information (STI) reporting for the purpose of optimizing the availability of useful information, sharing of information resources, and minimizing duplication of STI available elsewhere. Program/Project Managers must plan and budget for the production of STI products that may result from DOE-funded work performed in their project or programmatic areas.

Additionally, the management of STI encompasses the requirements to protect information through control mechanisms to ensure that all STI products are reviewed for technical accuracy, policy requirements, patent, classification and unclassified sensitive information, and worldwide public releasability. STI projects may also require specific copyright statements, disclaimers, credit lines, and other document control markings relevant to the sensitivity level of the product.

The DOE definition of STI is "Information" in any format or medium that is derived from scientific and technical studies, work, or investigations that relate to research, development, demonstration, and other specialized areas such as environment and health protection and waste management. Classified, declassified, and sensitive information is included in the scope of the definition.

Examples of STI product mediums covered in this activity are paper or electronic versions of technical reports (progress, topical, or final), abstracts, journal articles, books, computer media, scientific/technical audiovisual or multimedia, computer software, theses or dissertations, scientific/technical conference presentations, video reports, poster sessions, foreign trip reports, and symposium proceedings.

Standard	*Title*	*SIT Application Note*
10 CFR 605	Office of Energy Research Financial Assistance Program	
10 CFR 781	DOE Patent Licensing Regulation	

WBS: 1.5.5 (Continued)

10 CFR 782	Claims for Patent and Copyright Infringement	
15 CFR 768	U.S. Import Certification and Delivery Verification Procedure	Regulation which defines and controls Export Controlled Information.
32 CFR 2001	National Security Information	Classification authority.
37 CFR 1	Patents	
48 CFR 927	Patents, Data, and Copyrights	
48 CFR 952.227	Protection Of Controlled Proprietary Data From DOE Financial Assistance Agreements	Protection of controlled proprietary data which arises from DOE financial assistance agreements.
DOE G 1430.1 D-l	Guide to Scientific and Technical Information Management	Provides guidelines for implementing the procedures related to submitting and ordering STI computer software and the procedures Managing STI contained in other medium.
DOE Order 1430.1 D, Appendix 2, Contractor Requirements Document (CRD)	Scientific and Technical Information Management	Policy and requirements to ensure integration of STI management into Departmental programs and activities.
DOE Order 5650.28	Identification of Classified Information	
Executive Order 12958	Classified National Security Information	Prescribes a uniform system for classifying, safeguarding, and declassifying national security information.
Office of Management and Budget (OMB) Circular A-l 30	Security of Federal Automated Information Resources	Requires agencies to plan in an integrated manner for managing information through its life cycle, recognizing that open and efficient exchange of STI fosters excellence in scientific research an effective use of Federal R&D funds.
17 USC 702	Copyrights	17 USC, Copyright Law - Law establishing copyright mandates

WBS: 1.5.5 (Continued)

22 USC 2751, et seq.	Nuclear Nonproliferation and Arms Export Control Act	Statute which defines and controls arms and weapons related exports including controlled information.
35 USC	Patents	Law which protects unauthorized disclosure of patentable subject matter.
42 USC 13201	Energy Policy Act	(Public Law 102-486) - Requires the accelerated transition of technologies and protection of information resulting from research, development, demonstration, and commercial application activities.
42 USC 2161	Atomic Energy Act, as amended -- Policy	Establishes the overall requirement that DOE disseminate its scientific and technical information to promote scientific and industrial progress and understanding.
42 USC 2201, et seq.	Department of Energy Organization Act	(Public Law 95-91), Title I, Section 102 - Requires DOE to disseminate the information resulting from its research and development programs.
5 USC 552	Freedom of Information Act	5 USC 552 (Public Laws 89-487 and 93-502), the Freedom of Information Act, as amended, - Establishes the right of citizens to request information from Federal Agencies and establishes a framework of procedures to implement this right. Also establishes guidelines and regulations for exempting from public disclosure certain categories of information.
5 USC 552a	Privacy Act	5 USC 552a, (Public Law 93-549), Privacy Act of 1974, as amended, - Establishes requirement for the collection., maintenance, and dissemination of personal information by Federal Agencies.
63 USC 15, Sections 3701-3715	Utilization of Federal Technology	

WBS: 1.6 Public and Employee Communications

Work Activity Description:

The Public and Employee Communications work activity consists of the following areas:

WBS: 1.6 (Continued)

Employee Communications: This function involves the start-to-finish production of a variety of employee communications products and programs, from planning and conceptualization through final completion. These products and programs communicate authorized and accurate information of a general, management, or technical nature to all employees. Specific tasks include newsletter production, special management program coordination, video news magazine productions, etc.

Public Information: This function involves the provision of accurate and authorized information regarding activities and programs to the media and the public. Specific tasks include responding to media inquiries and requests for information from stakeholders; publicizing strategic plan and associated DOE/NV and contractor accomplishments and activities; producing brochures, fact sheets, exhibits, and videotapes on business capabilities and opportunities; etc.

Community Relations: This function involves the development and maintenance of positive relations with stakeholders, community leaders, civic organizations, and elected officials to promote and preserve the DOE/NV family's reputation and image. Specific tasks include coordinating participation in community events, responding to community requests for presentations or corporate donations, arranging school and, civic partnering activities, serving as a liaison with elected officials and business/community leaders, etc.

Standard	*Title*	*SIT Application Note*
48 CFR 970.5204 Acquisition Letter 92 8R	Ownership of Records	Defines "property" of the government.
Lesly's Public Relations Handbook	Lesly's Public Relations Handbook	Standards from Chapters entitled "Employee Communication" and "Employee Publications".
42 USC 2011 et seq.	Atomic Energy Act	Defines DOE access authorization
5 USC 552a	Privacy Act	Sets forth restrictions on the collection and maintenance of information and the disclosure of records.

WBS: 1.7.1 Regular Audit

Work Activity Description:

Internal Audit is an independent appraisal and control function that examines and evaluates the adequacy and effectiveness of other

WBS: 1.7.1 (Continued)

controls. Management is assisted by furnishing analysis, appraisals, and counsel concerning the activities audited and promoting effective control at a reasonable cost.

Work activity is representative of that performed at a publicly listed corporation. Commercial auditing standards are described in the American Institute of Certified Public Accountants (AICPA) Code of Professional Conduct and the Institute of Internal Auditors Codification of Standards for the Professional Practice of Internal Auditing (Red Book). Both sets of standards are incorporated within the GAO Government Auditing Standards (Yellow Book).

The organization participates in the Cooperative Audit Strategy with the Office of the Inspector General (OIG) and the DOE/NV field office. The OIG uses a risk assessment methodology as a basis for planning audits. The OIG also relies on the work of others; specifically, the work of the Management & Operations (M&O) contractor's internal audit staff. The audit strategy requires the OIG to establish a tracking system to provide the information needed to produce a coordinated OIG audit plan. This tracking system should prevent duplicate audit coverage.

This work activity begins with a risk assessment of all areas as described in the IG audit manual relating to audits of both integrated and maintenance and operation (M&O) contractors. Based on the results of the risk assessment, an annual audit plan is prepared and routed to the DOE/NV for their review and approval. The approved plan is then provided to the IG. The scheduled audits will be either financial or operational in nature and will include the following general audit objectives.

Additional work activities are detailed as follows:

- Determine compliance with laws, regulations, and contract provisions that govern the acquisition, management, and use of resources, or have the material effect on financial information.

- Determine whether audited functions are being managed efficiently and effectively, and within the terms of the contract.

- Determine whether programs, projects, and other activities are functioning as intended and are accomplishing their stated purpose or objective.

- Determine whether internal controls are adequate to prevent and/or detect fraud, waste, and abuse.

***WBS:** 1.7.1 (Continued)*

- Determine whether incurred costs are allowable. Identify and report unallowable costs.

Full and complete access is provided to all records, physical properties, and personnel relevant to the area under review. All activities of the M&O and its subcontracts are subject to audit. Individual audit reports and an annual summary of audits performed are provided to both the OIG and the DOE/NV Financial Compliance and Review Division (FCRD). Other work activities are described in the following related packages:

- WBS 1.7.2 - Internal Audit-Vendor Audits
- WBS 1.7.3 - Internal Audit-Special Investigations.

Standard	*Title*	*SIT Application Note*
48 CFR 970.5204-0(h)	internal Audit	
48 CFR 970.5204 DOE Acquisition Letter 90-3R	Clarification of DEAR 970.5204-9(h)	
General Accounting Office (GAO) Government Auditing Standards (Yellow Book)	GAO Government Auditing Standards (Yellow Book)	

WBS: 1.7.2 Vendor Audit

Work Activity Description:

Internal Audit is an independent appraisal and control function. Internal Audit performs various types of vendor (contract) audits when requested by project managers, procurement and support services.

Internal Audit's role is to provide professional advice on accounting and financial matters, and to assist in negotiating, awarding, administrating, repricing, and settling contracts. When dealing with vendors, Internal Audit's recommendations are advisory in nature.

The objective of vendor auditing is to ensure that prices paid for goods and services are fair and reasonable. A fair and reasonable price is

WBS: 1.7.2 (Continued)

one that is fair to both parties to the contract. Vendor audits are performed before award, during performance, and after completion as described below.

Before Subcontract Award

- Cost or Pricing Data: Review the subcontractor's "cost or pricing data." This information supports their price proposal. This type of audit represents the majority of all vendor audits performed by Internal Audit.

- System Reviews: Review various subcontractor systems, when necessary, to insure they are adequate to support the requirements of the subcontract before awarding. Examples of areas that may be subject to review are the subcontractor's accounting, purchasing, estimating, or payroll systems. These reviews are performed by performance assurance personnel in coordination with audit personnel.

During Subcontract Performance

- Incurred cost reviews: This type of audit is performed to determine costs incurred.

- Repricing of the original subcontract: This type of audit is performed to account for changes or claims.

- Defective Pricing Reviews: This type of audit is performed to ensure that the "cost or pricing data" supporting the original subcontract is current, accurate, and complete at the time of negotiations.

After Subcontract Completion

- Historical Cost Audit: This type of audit is performed to ensure that claimed costs are allowable. Historical cost audits are usually performed annually.

- Subcontract Audit Closing Statement: This type of audit is performed as a means of issuing a final statement on the total allowable costs.

Vendor auditing performed is similar to the types of vendor audits performed at publicly listed corporations. Commercial auditing standards are based the following standards which are incorporated in the "GAO Government Auditing Standards (Yellow Book):"

WBS: 1.7.2 (Continued)

- American Institute of Certified Public Accountants (AICPA) "Generally Accepted Auditing Standards"
- Institute of Internal Auditors (IIA) "Codification of Standards for the Professional Practice of Internal Auditing (Red Book)."

A major difference in governmental procurement is the specificity of types of costs that are allowable and types of financial systems that are required under the Code of Federal Regulations.

Other related work activities are described in the following documentation packages:

- WBS 1.7.1 - Internal Audit - Regular Audits
- WBS 1.7.3 - Internal Audit - Special Investigations

Standard	*Title*	*SIT Application Note*
48 CFR 15.804	Cost or Pricing Data	
48 CFR 15.805	Proposal Analysis	
48 CFR 15.806	Subcontract Pricing Considerations	
48 CFR 30	Cost Accounting Standards Administration	
48 CFR 31	Contract Cost Principles and Procedures	

WBS: 1.7.3 Special Investigations

Work Activity Description:

Internal Audit is an independent appraisal and control function. Special investigations are conducted at the request of DOE/IG, management, or are independently identified and undertaken by Internal Audit. Special Investigations encompass fraud, waste, abuse, defalcation, misappropriation, and other fiscal or non-fiscal irregularities. Special investigations consist of performing extended procedures and techniques to determine whether fraud, waste, abuse or other irregularities have occurred. The object of a special investigation is to

WBS: 1.7.3 (Continued)

gather sufficient evidential matter to reach a conclusion on the allegation of suspected fraud, waste, abuse, or other irregularities.

One of the responsibilities of management is the detection of defalcation, misappropriation, and other irregularities. The primary area of special investigations relates to fraud. Fraud encompasses fiscal irregularities that include, but are not limited to, the following:

- Any dishonest or fraudulent act,
- Forgery or alteration of any document or account,
- Misappropriation of funds, securities, supplies, or other assets,
- Impropriety in the handling or reporting of money or financial transactions,
- Profiteering as a result of insider knowledge or disclosing to other persons activities contemplated by the company,
- Accepting or seeking anything of material value from vendors or persons providing services/material to the company,
- Destruction or disappearance of records, furniture, fixtures, or equipment,
- Use of government-funded resources including labor, equipment, and materials for non-government, private purposes.

Typical fraud examinations involve the following attributes and characteristics:

- Fraud examinations are adversarial in nature,
- Fraud examinations are nonrecurring and are conducted only with sufficient predication,
- Fraud examinations are conducted to reach a conclusion relating to the specific allegations and to affix responsibility,
- The scope of fraud examinations includes the identification an examination of internal supporting documentation, obtaining and reviewing external documentation (e.g., public records, correspondence), conducting internal and external reviews, obtaining legal

WBS: I. 7.3 (Continued)

counsel opinions, etc.,

- The results of all special investigations performed by Internal Audit are reported to executive management. Results of special investigations n the areas of fraud, waste, and abuse are reported to executive management, DOE Financial Services Division, who, in turn, reports the results to the DOE/IG.

Other word activities which are not included in this documentation package are:

- WBS 1.7.1 - Internal Audit - Regular Audits
- WBS 1.7.2 - Internal Audit - Vendor Audits

Standard	*Title*	*SIT Application Note*
48 CFR 970.5204-59	Whistleblower Protection for Contractor Employees	This citation implements 10 CFR 708, the DOE policy requiring reporting of waste, fraud, and abuse and protection of whistleblowers.
DOE Order 2030.48	Reporting Fraud, Waste, and Abuse to the Office of the Inspector General	
General Accounting Office (GAO) Government Auditing Standards (Yellow Book)	General Accounting office (GAO) Government Auditing Standards (Yellow Book)	

WBS: 2.1.2 - PCB

Work Activity Description:

Polychlorinated Biphenyls (PCBs) were offered by manufacturers for use in applications where stable, fire-resistant, heat-transfer properties were necessary. They were primarily used in transformers where their chemical and physical properties were a desired attribute. In 1977, the commercial production of PCBs ceased after studies indicated that they caused reproductive effects and other disorders in laboratory animals. Since that time, the use, storage and disposal of PCBs and the containers or equipment in which they are used or stored

WBS: 2.1.2 (Continued)

have been regulated.

The only PCB regulated items under DOE/NV control are capacitors located in Area 27 of the Nevada Test Site (NTS). While these items are in use and not leaking, there is no requirement to take them out of service or retrofill and reclassify them. The only other PCB items that will be managed by DOE/NV are those newly-discovered wastes characterized as containing PCBs. Items found to contain RCRA wastes in addition to PCBs are managed as hazardous waste, as described in WBS element 2.1.3. DOE/NV also accepts, and arranges for disposal, PCB items from non-DOE users of the NTS.

Generally, work activities associated with PCB management are broken down into five responsible areas. The areas of concern hare characterization, marking, inspection, storage, and disposal.

Characterization
Items suspected of containing PCBs must be characterized to determine the level of concentration.

Marking
Each item containing greater than 50 parts per million must be marked accordingly.

Inspections
PCB items in service or in storage prior to disposal are inspected on a regular schedule to discover spills or leaks. If any spill or leak is discovered, Environmental Protection Agency (EPA) regulations specify repair and clean-up standards. Actual clean-up and repair work is covered under the WBS element for Construction (2.8) or Maintenance (3.4) depending upon the scope of work and the facility. Standards selected in this WBS are applied for the actual clean-up effort in other WBSs to ensure meeting appropriate TSCA requirements, e.g., the level of cleanliness required-how clean is clean enough.

On-Site Storage Prior to Disposal
PCB items and PCB oil stored for use, reuse, or disposal must meet applicable storage requirements. At the Nevada Test Site, PCBs are stored in a building in Area 6 which is specially constructed to prohibit the potential release of PCBs to the environment. PCB items may be stored in this facility for up to one year.

Disposal
The transportation and disposal of PCBs are regulated much like hazardous waste. PCBs are transported offsite using a hazardous waste

WBS: 2. I. 2 (Continued)

manifest, and an off-site contractor disposes of them by incineration at a permitted facility.

Standard	*Title*	*SIT Application Note*
40 CFR 761	Polychlorinated Biphenyl (PCB) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions	Regulated under the Environmental Protection Agency's Toxic Substance Control Act.
Nevada Administrative Code (NAC) 444.960 - 444.960	Polychlorinated Biphenyl (PCB)	DOE/NV only temporarily stores PCBs rior to disposal and is not subject to these requirements. All DO&NV generated PCB waste is disposed at facilities permitted in states under the auspices of the federal law.

WBS: 2.1.3 Hazardous Waste

Work Activity Description:

Hazardous waste management at the following U.S. Department of Energy Nevada Operations Office (DOE/NV) operated facilities which include all DOE/NV sponsored remediation sites, consists of the "cradle to grave" tracking process prescribed by the Resource Conservation and Recovery Act (RCRA), which includes requirements for analytical sampling and analysis, waste characterization, and waste disposal:

Wastes whose hazardous constituents are not regulated under RCRA (polychlorinated biphenyls, asbestos, radioactive material) will be managed per the federal, state, and local laws indicated in the following Work Breakdown Structures:

- 4.3 - Medical Services
- 2.1.2 - PCB Waste
- *2.1.4* - Solid Waste
- 2.1.5 - Transuranic Waste

WBS: 2.1.3 (Continued)

- *2.1.6* - Mixed Waste
- *2.1.7* - Low-Level Waste

The hazardous waste management process can be summarized as follows:

- Identification: Discarded materials (out of service date, waste products, etc.) Identified by waste generators.
- Characterization: Determine constituents of waste stream by process knowledge. If process knowledge is inadequate, then coordinate the necessary qualified personnel to arrange sampling and analysis activities in ensure the waste is accurately and adequately characterized.
- Accumulation: Waste (discarded material) is placed in a Satellite Accumulation Area (SAA) for temporary accumulation after being characterized. The SAAs should be near the point of generation, and must be under control of the generator.
- Transport: The waste is collected from SAAs and transported to the RCRA compliant storage facility.
- Storage: The waste is stored at the RCRA compliant storage facility and is shipped off-site for treatment or disposal within the required time frame. The waste is tracked according to the date brought onto the RCRA storage facility, both by database and by logbook.
- Disposal: The waste is sent off-site to a commercial Treatment/Storage/Disposal Facility (TSDF) for disposal.

Standard	***Title***	***SIT Application Note***
29 CFR 1910.120(p)	Hazardous Waste Operations	Requirements for the storage facility.
49 CFR 171-178	General Information, Regulations, and Definitions; Hazardous Materials Table, Special Provisions, Hazardous Materials .. .;etc.	Establish standards for the packaging, labeling, marking, vehicle placarding, and shipping paper preparation necessary to ensure the safe transport of hazardous materials and wastes. Individual states and local governments may impose additional transportation requirements for transport of hazardous waste.
Andrews Air Force Base	Air Force Hazardous Waste Directives	Applicable state and other regulations implementing RCRA.

WBS: 2.1.3 (Continued)

DOE Headquarters Directive EM-30, Performance Objective for the Certification of Nonradioactive Hazardous Waste	DOE Headquarters Directive EM-30, Performance Objective for the Certification of Nonradioactive Hazardous Waste	Requires that hazardous waste destined for off-site disposal at commercial facilities be certified as containing no "DOE-added radioactivity."
California Codes, Title 22, Division 4	Social Security/Environmental Health	Applicable state and other regulations implementing RCRA.
California Codes, Title 26	Toxics	Applicable state and other regulations implementing RCRA.
Nevada Administrative Code (NAC) 444.850 - 444.8746	Disposal of Hazardous Waste	Applicable state and other regulations implementing RCRA.
Nevada Revised Statutes (NRS) 459.400 - 459.600	Disposal of Hazardous Waste	Applicable state and other regulations implementing RCRA.
New Mexico Hazardous Waste Act, Chapter 74, Article 4	Hazardous Waste Management	Applicable state and other regulations implementing RCRA.

WBS: 2.1.4 *Solid Waste*

Work Activity Description:

Solid waste can be either a solid, liquid or gas which has been disposed of, abandoned or recycled. There are a few wastes which are exempt from solid waste regulations which are normally regulated under other environmental laws. Solid waste may be further broken down into a category called "hazardous waste" which will not be discussed in this document. (See WBS Element 2.1.3).

Solid waste generators vary from office personnel to construction site personnel. The types of waste vary from office paper, to cafeteria waste, to construction debris.

Work activities include:

- Transporting solid waste to the disposal site - See WBS 3.6 Transportation.
- Verification that waste being disposed is adequately characterized.

WBS: 2.1.4 (Continued)

- Disposal of the solid waste. This entails operating heavy equipment in accordance with established procedures or techniques common to industrial operations. This includes moving waste in the disposal site and properly covering it.

- Prepare solid waste generator reports for submission to the state of Nevada.

- Closure and postclosure activities. This activity will not be defined until a final plan has been prepared and approved by the Department of Energy and the state of Nevada.

- Generally, operations will entail the movement and compaction of soil to form a final cover over the site.

For work activities conducted at off-site locations in Las Vegas, California, Washington, D.C., and New Mexico operations are conducted in government owned or leased facilities or at Air Force bases. Solid waste management is the responsibility if the local municipalities or the Air Force and is provided to the DOE operations as a service.

Standard	*Title*	*SIT Application Note*
29 CFR 1910.1001	Asbestos	Requirements for asbestos hazard abatement.
Nevada Administrative Code (NAC) 444.570 - 444.7499	Solid Waste Management	These regulations establish the criteria for permitting, operating, and closing disposal sites. They also define illegal solid waste disposal activities.
Nevada Revised Statutes (NRS) 444.440 - 444.465	Collection and Disposal of Solid Waste	

WBS: 2.1.5 Transuranic (TRU) Waste

Work Activity Description:

Transuranic (TRU) waste mixed with hazardous waste is stored at the Nevada Test Site in a dedicates storage building. TRU waste is defined by EPA as waste containing more than 100 nanocuries/gram of alpha-emitting transuranic isotopes (nuclides with an atomic number greater than uranium [92]), with half-lives grater than 20 years (40 CFR 191.02). Mixed waste contains a RCRA regulated hazardous component. These wastes were not generated at the NTS, but DOE/NV has accepted responsibility for their management.

WBS: 2.1.5 *(Continued)*

Current operations consist of managing the wastes in accordance with federal and state laws, and agreements/consent orders between DOE/NV and the State of Nevada.

The only activities currently performed by the contractor are inspections, and administrative tracking. A weekly inspection of the TRU mixed waste is performed as agreed to in a Settlement Agreement between DOE/NV and the state per 40 CFR 264.15 and 265.15. The tracking consists of database management and reporting to DOE/NV.

To meet the requirements of the Federal Facilities Compliance Act (FFCA), DOE/NV developed a Site Treatment Plan (STP), which established a schedule and milestones for characterization, and disposal of the TRU mixed waste. The state and DOE/NV signed a Consent Order which allows the state to enforce the schedule in the STP, and could subject DOE/NV and its contractors to penalties and tines if deadlines are missed. The disposal schedule is completely dependent upon the licensing and opening of the Waste Isolation Pilot Project (WIPP).

No other operational activities are currently performed on this waste.

Standard	*Title*	*SIT Application Note*
10 CFR *20.1302*	Compliance with the Dose Limit for Individual Member of the Public	
10 CFR 830.120	Quality Assurance Requirements for Nuclear Facilities	
10 CFR 830.3	Nuclear Safety Management - Definition	
29 CFR 1910.120(p)	Hazardous Waste Operations	Specifically covers the safety and health risks associated with operations at the storage facility.
40 CFR 191.02	Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level, and Transuranic Radioactive Waste - Definitions	The only applicable section is the definitions portion.

WBS: 2.1.5 (Continued)

Consent Order, March 1996	Consent Order	To meet the requirements of the Federal Facilities Compliance Act (31 USC 3301 and 42 USC 6901), DOE/NV developed a Site Treatment Plan (STP), which established a schedule and milestones for characterization, treatment, and disposal of the TRU mixed waste. The state and DOE/NV signed a Consent Order which allows the state to enforce the schedule in the STP, and could subject DOE/NV and its contractors to penalties and fines if deadlines are missed. The disposal schedule is completely dependent upon the licensing and opening of the Waste Isolation Pilot Project (WIPP). The Settlement Agreement for Mixed Transuranic Waste, to which DOE/NV and the state of Nevada are parties, requires weekly inspections of the TRU mixed waste. The RCRA Part B permit adopts the Settlement Agreement by reference.
DOE Order 5480.20	Personnel Selection, Qualification, Training, and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities	
DOE Order 5820.2A	Radioactive Waste Management	Establishes the policies and guidelines for managing TRU, and specifies the requirements for among other things, temporary storage. DOE 5820.2A also provides requirements for generation, treatment, certification, (pursuant to WIPP Waste Acceptance Criteria), packaging and shipping.

WBS: 2.1.6 Mixed Waste

Work Activity Description:

The work activity involved with mixed waste (radioactive and hazardous) generated, stored and disposed at the Nevada Test Site (NTS) includes: identifying the waste; storing the wastes according to the Mutual Consent Agreement for the Storage of Low Level Mixed Wastes; determining characterization methods and performing the characterization; maintaining characterization records; preparing generator applications for disposal at the NTS (see WBS 2.11 for a description of the NTS waste acceptance program); packaging, transporting (see WBS 3.6 for a description of the transportation program), and disposing of the waste in Area 5 or transporting the waste to

permitted off-site facilities for treatment/disposal; complying with the Site Treatment Plan (STP) and preparing reports, as required in state and federal regulations and agreements/consent orders between DOE/NV and the state of Nevada.

The NTS mixed waste streams include bulk lead items, spent uranium ore residues, transuranic mixed waste, soil contaminated with lead or other heavy metals, and soil contaminated with solvents or other organic chemicals. The management of transuranic mixed waste is described in WBS 2.1.5 and will not be further discussed here.

Characterization of the hazardous constituents of the mixed waste is accomplished by sampling and analysis, process knowledge, and/or hazardous waste identification lists (40 CFR 261). Requirements for sampling and analysis are also 'defined in 40 CFR 26 1, Appendices 2 and 3, which mandate the use of EPA Test Methods for Evaluating Solid Waste, Physical-Chemical Methods (SW-846).

Low-level mixed wastes are stored on the unused portion of the TRU storage pad in Area 5, except for Cotter Concentrates which are stored at the Strategic Materials storage yard in Area 5. The Cotter Concentrates were not moved to the TRU storage pad to minimize the radiation exposure levels to workers, per a state-approved management plan. Mixed wastes are temporarily stored at their site of generation for preliminary characterization and packaging. Waste determined to be "not mixed" is considered low level waste.

Pit 3 in the Area 5 Radioactive Waste Management Site has RCRA interim status for disposal of low-level mixed wastes. This is a disposal facility for mixed wastes generated on the NTS that meet EPA-mandated land disposal restrictions and the waste acceptance criteria (See WBS 2.11).

Standard	*Title*	*SIT Application Note*
10 CFR 20.1302	Compliance with the Dose Limit for Individual Member of the Public	
10 CFR 830.120	Quality Assurance Requirements for Nuclear Facilities	Selected as the QA standard and the standard for the grading of quality requirements for nonreactor nuclear facilities.
10 CFR 830.3	Nuclear Safety Management - Definition	
29 CFR 1910.120(p)	Hazardous Waste Operations	Specifically covers the safety and health risks associated with operations at the storage facility.

WBS: 2.1.6 (Continued)

Cotter Concentrate Management Plan	Cotter Concentrate Management Plan	Approved by the state of Nevada, governs the management of Cotter Concentrates in the Strategic Materials Storage yard.
DOE Order 5480.20	Personnel Selection, Qualification, Training, and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities	
Mutual Consent Agreement for the Storage of Low-Level Mixed Waste	Mutual Consent Agreement for the Storage of Low-Level Mixed Waste	Allows DOE/NV to store mixed waste on the TRU Storage Pad in accordance with applicable RCRA regulations for interim storage facilities. See WBS 2.1.5 for additional discussion of consent order.
Nevada Administrative Code (NAC) 444.850 - 44.8746	Disposal of Hazardous Waste	These State of Nevada statutes cover the aspects of managing hazardous waste and the facility.
Nevada Revised Statutes (NRS) 459.400 - 459.600	Disposal of Hazardous Waste	These State of Nevada statutes cover the aspects of managing hazardous waste and the facility.

WBS: 2.1.7 Low-Level Waste

Work Activity Description:

The primary activity of the Low-Level Radioactive Waste Management Program is to receive and dispose of low-level radioactive defense-related waste on-site to the NTS Radioactive Waste Management Sites at Area 3 and Area 5. These sites are regarded as a non-reactor nuclear facilities. The work scope discussed here applies only to the current operations involved in the acceptance, receipt, and disposal of low-level radioactive waste.

Operations:

Acceptance of waste:

Characterization and approval of waste is addressed in WBS 2.11.

Receipt and off-loading of waste:

WBS: 2.1.7 (Continued)

Trucks transporting low level radioactive waste arrive at either the Area 5 or the Area 3 RWMS. Upon arrival, the exterior of the van or Sealand-type container is radiologically surveyed, the paperwork accompanying the shipment and the packages are checked for compliance with Department of Transportation (DOT) regulations (packaging, labeling, and marking) and NVO-325, "Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements." The shipment is then off-loaded and placed to one side. Before the truck leaves the area, the bed is swiped and surveyed to meet DOE/NV Yucca Mountain Project (NV/YMP), "Radiological Control Manual" release limits.

Disposal of waste (includes stacking)

When off-loading is completed, the containers are stacked 4 tiers high in Area 5 pits or trenches provided for shallow land disposal of drums and boxes. In Area 3, a single tier is placed in an event crater used for bulk land disposal. The coordinates are recorded and entered into a database. The waste packages are covered with uncontaminated soil. Information is provided annually to DOE/HQ in response to requests for input to its nuclear complex-wide radioactive databases, i.e., types and amounts of waste. A weekly report concerning waste is sent to DOE in response to its request.

Standard	*Title*	*SIT Application Note*
10 CFR 20.1302	Radiation Dose Units for Individual Members of the Public	Radiation exposure protection for the general public.
10 CFR 61.55 Subpart D	Licensing Requirements for Land Disposal of Radioactive Waste -- Subpart D Technical Requirements -- Waste Classification	Waste classification; physical form and radiological class.
10 CFR 71	Packaging and Transportation of Radioactive Material	For packaging requirements.
10 CFR 830.120	Quality Assurance Requirements for Nuclear Facilities	Provides for the grading of quality requirements for nonreactor nuclear facilities. Pertaining to activities or operations.
10 CFR 830.3	Nuclear Safety Management - Definition	Provides for the grading of quality requirements for nonreactor nuclear facilities. Pertaining to activities or operations.

WBS: 2.1.7 (Continued)

10 CFR 835	Radiation Protection for Occupational Workers	Radiation exposure protection.
10 CFR Subpart C, Section 61.40 - 61.44	Performance Objectives	Performance Objectives for radiation exposure.
49 CFR 171-178	General Information, Regulations and Definitions; Hazardous Materials Table, Special Provisions, Hazardous Materials ..., etc.	As amended by HM-169A: radiation protection program for receivers of radioactive waste.
DOE Order 5480.20	Personnel Selection, Qualification, Training, and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities	
Nevada Administrative Code (NAC) 444.850 - 444.8746	Disposal of Hazardous. Waste	Required for waste certification, i.e., prove that waste is not hazardous waste.
42 USC 20216	Low-Level Waste Policy Amendments Act	Section 3(b)(l)(d), for greater than Class C commercially generated wastes.

WBS: 2.1.8 Waste Explosives Disposal

Work Activity Description:

This work activity involves the treatment of waste explosives at the Nevada Test Site. Explosive ordnance disposal, (EOD) can be divided into three activities: inspection, storage, and disposal. When disposing waste DoD ordnance, the proper DoD directives are employed.

Inspection:
- Weekly inspection of waste disposal site(s)
- Quarterly inspection(s) of explosive/ordnance magazine(s) materials to be destroyed

Storage of waste explosives/ordnance in approved magazines

WBS: 2.1.8 (Continued)

Disposal:
- Placing and setting charges for explosives destruction
- Shotfiring

Post shot activities:
- Confirmation of destruction
- Shrapnel pickup
- Record keeping

(WBS 3.12, "Explosives Storage," is a related work activity.)

Standard	*Title*	*SIT Application Note*
29 CFR 1910.120(p)	Hazardous Waste Operations	This work activity is performed at a permitted facility. The cited standard is specific to disposal activities and requires a site-specific safety program be developed that utilizes applicable parts of both 29 CFR 1910 and 29 CFR 1926. The resulting safety program should incorporate manufacturers' recommendations for disposal of waste ex losives. The site-specific safety program, when developed an8 properly implemented, will adequately protect the individuals disposing of conventional explosives. The mitigation of risks associated with the disposal of DoD ordinance requires use of trained EOD personnel and specific DoD-EOD disposal criteria for each type of ordinance. DoD-EOD is a unique activity requiring specially trained personnel and item-specific requirements that are not adequately addressed by conventional, industry safety standards. The DoD safety requirements for DoD-EOD could be included into the site-specific safety program if so desired.
Department of Defense (DoD) Ordinance Disposal Criteria	Department of Defense (DoD) Ordinance Disposal Criteria	Requirements for disposal of DoD wastes only.

WBS: 2.1.8 (Continued)

Nevada Administrative Code (NAC) 444.850 - 444.8746	Disposal of Hazardous Waste	The EOD Unit is a Permitted Hazardous Waste Treatment Unit.
Nevada Revised Statutes (NRS) 459.400 - 459.600	Disposal of Hazardous Waste	The EOD Unit is a Permitted Hazardous Waste Treatment Unit.

WBS: 2.2 Environmental Restoration

Work Activity Description:

This activity describes the comprehensive environmental restoration program for DOE Nevada. Major elements include:

- Assessing and remediating sites containing Resource Conservation and Recovery Act (RCRA) regulated materials, hydrocarbon contaminated soils, abandoned septic tanks, contaminated mud pits, radioactively contaminated soils, and removing or upgrading underground storage tanks;
- Collecting waste, soil, and water samples and performing geophysical surveys to determine below ground characteristics;
- Coordinating health physics, construction, and waste handling support and supervising and documenting field activities;
- Preparing closure plans, health and safety plans, work plans, radiation control permits, and the final closure reports;
- Maintaining extensive project files on completed projects to date and the available information of future projects. Records management activities are described in WBS element 1 .5;
- Designing and implementing a groundwater characterization program leading to the development of a hydrologic model for the NTS;
- Maintaining and developing computer data bases in support of compliance activities for the Federal Facility Agreement and Consent Order (FFACO);
- Locating and describing all known NTS sites requiring assessments or remediation.

Non-NTS Nevada locations include the Tonopah Test Range, the Project Shoal site, the Central Nevada Test Area and portions of the

WBS: 2.2 (Continued)

Nellis Air Force Range including the Double Tracks and Clean Slates I, II, and III safety shot sites. Remediation sites are also located in Alaska, Colorado, New Mexico, and Mississippi where subsurface nuclear tests were conducted.

It is possible to encounter TSCA wastes (PCBs) during environmental restoration work. The waste would be managed and disposed of in accordance with WBS 2.1.2. CERCLA would only come into play if the DOE experiences a release that must be reported to the National Response Center, or if DOE sites are placed on the National Priorities List. At this time, DOE/NV is managing wastes, including historic releases, under RCRA (40 CFR 264 Subpart F which introduces the concept of Solid Waste Management Units, and 40 CFR 264 Subpart S, Corrective Action for Solid Waste Management Units).

The environmental restoration work activity does not include the actual management and disposal of the waste that is generated during remediation work. Refer to WBS 2.1.2 (PCBs), WBS 2.1.3 (Solid Waste), WBS 2.1.4 (Hazardous Waste), WBS 2.1.5 (TRU Waste), WBS 2.1.6 (Mixed Waste), WBS 2.1.7 (Low Level Waste), and/or WBS 2.1.8 (EOD) for this information. The construction activities are covered under the WBS 2.8, Construction, and the transportation activities are described in the WBS 3.6, Transportation.

Standard	*Title*	*SIT Application Note*
29 CFR 1910.109	Explosives And Blasting Agents For General Work	Requirements for handling and use of explosives, except for 1910.109(d)91)(iv), Transportation of explosives which is covered by IME Standard 22.
29 CFR 1910.120	Hazardous Waste Operations and Emergency Response	Addresses hazardous waste site activities such as: organizational structure, work plan, site-specific safety and health plan, safety and health training, medical surveillance, procedures, and interfaces between general and specific work activities.
American National Standards Institute (ANSI)	Applicable Standards	Applicable standards for characterization activities like soil sampling and geophysical surveys. Specific standards used are determined on a case-by-case basis depending upon the type of activity, selected equipment, and the physical environment, e.g., soils conditions, moisture, rock type.

WBS: 2.2 (Continued)

American Society for Testing and Materials (ASTM)	Applicable Standards	Applicable standards for characterization activities like soil sampling and geophysical surveys. Specific standards used are determined on a case-by-case basis depending upon the type of activity, selected equipment, and the physical environment, e.g., soils condition, moisture, rock type.
Federal Facility Agreement and Consent Order (FFACO)	Federal Facility Agreement and Consent Order (FFACO)	The FFACO between DOE/NV and the State of Nevada wherein DOE/NV agrees as a matter of comity to enforceable cleanup milestones for Corrective Action Units (CAUs) which were previously DOE self-regulated under the Atomic Energy Act.
Nevada Administrative Code (NAC) 444.850 - 444.8746	Disposal of Hazardous Waste	RCRA is the regulatory driver for remediation projects involving RCRA regulated materials and wastes and contains significant civil and criminal fines and penalties.
Nevada Administrative Code (NAC) 459.9921 - 459.999	Storage Tanks	These regulations define reportable releases in terms of volume and concentration, define the minimum standards for construction, operation and monitoring of USTs, and set time limits for upgrading and closing USTs.

WBS: 2.3 Surface Mining

Work Activity Description:

The work activity involved with surface mining is to supply aggregate varying in size from large rock and rip-rap used as building stone, to finely screened sand and gravel used in concrete, road surfacing, and other construction applications.

Surface mining can be divided into the following activities:

Stripping

- Removal of the unusable material over the deposit by blasting or ripping the material.
- Transporting unusable material to a dump area within the mining complex, but away from the area to be mined.

This stripping is exclusive to mining and does not apply to ground-clearing operations for construction, environmental restoration or other

WBS: 2.3 *(Continued)*

activities.

Mining
- Blasting or ripping the material to be mined to loosen it so it can be loaded.
- Loading and transporting the material to the crushing and screening, treatment plant, or loading point (if quarried stone).

Treatment
- Crushing (or sizing) material.
- Washing or screening of the crushed material to produce a final product.
- Waste water is collected in a series of ponds and reused.

Handling of the final products
- Stockpiling or containerizing the usable product for shipment to customer.
- Stockpiling or disposing of unusable material from the treatment plan.

Necessary and sufficient aspects of transportation will be discussed under WBS 3.6, Transportation.

Standard	***Title***	***SIT Application Note***
30 CFR 56	Mineral Resources - Safety and Health Standards Surface Metal and Non-metal Mines	Requirements for worker protection from all hazards cited in the WBS including the actual blasting operation itself (however, 30 CFR Part 566005(b), respirators, is not included because respirators are covered by 29 CFR 1910.134 or 1926.103 from WBS 4.2.2). Surface Metal and Non-metal Mines are the most applicable standards for meeting the Necessary and Sufficient requirements for surface mining. MSHA and OSHA have reached an agreement in the state of Nevada that MSHA regulates surface mining operations.

WBS: 2.3 (Continued)

Nevada Administrative Code (NAC) 445.070 - 445.241	Water Pollution	Governs water discharge to waters of the state, and implement the Clean Water Act. No permits are currently necessary for water discharges from surface mining at the NTS.
Nevada Administrative Code (NAC) 4458.001 - 4458.395	Air Pollution	Governs air quality in the state of Nevada, and implement the Clean Air Act through a system of permits.

WBS: *2.4* ***Underground Operations***

Work Activity Description:

The major activities associated with underground operations at the NTS include:

Excavation - Tunneling horizontal drifts and excavation of underground alcoves using specialized equipment such as Alpine (trademark) miners is typical at the NTS. High-explosive blasting or tunnel boring machines are also used for excavation.

Ground support - Rock bolting and/or shotcreting of the excavated ground is common.

Transport of raw materials, components and finished products - Rubber tired, diesel powered equipment such as load-haul-dumps (LHD's) and diesel locomotives on rail are typically used in NTS underground operations. Vertical shafts with associated hoists and conveyances are also used for personnel, raw material and muck transport.

Underground construction, maintenance and test-bed support for various utility/support systems and user alcoves - Customized alcoves are frequently built to user specifications. Depending on the project scope, ventilation, water, power and other utilities may be provided underground.

Surface operations - Support structures for underground work are necessary such as hoist operator housings, tunnel entry control, and change houses. Placement of muck adjacent to underground facilities and storage of materials is common.

Standard	***Title***	***SIT Application Note***
29 CFR 1926.800	Underground Construction	

WBS: 2.5 (Continued)

WBS: 2.5 Drilling

Work Activity Description:

This work activity includes conventional activities associated with drilling and logging programs. Included in the work activity are all drilling and associated activities such as equipment rig-up and rig-down, drilling, completion, testing and geophysical logging. Site design and preparation are covered by WBS 2.7.1 "Engineering Design" and WBS 2.8 "Construction." All work activities beyond hole completion, except for geophysical logging, are covered by other WBS elements.

Examples of borehole types which may be drilled at DOE/NV include water production, monitoring, geotechnical, geophysical, emplacement and post-shot.

Standard	*Title*	*SIT Application Note*
10 CFR 39	Licenses and Radiation Safety Requirements for Well Logging	Standards for geophysical logging which utilize a nuclear source, for both inside and outside NTS boundaries, are governed by 10 CFR Ch. I, Part 39. DOE personnel must ensure compliance with the following sections for nuclear logging performed by a sub-contractor: the contractor is required to be licensed in accordance with sections 39.11 and 39.13; operations may begin only after a written agreement has been signed designating lost source responsibilities as described in 39.15; the contractor is responsible for equipment safety precautions covered in 39.31, 39.33, 39.35, 39.37, 39.39, 39.41, and 39.43; wells without surface casing are regulated by section 39.51; the contractor is responsible for personnel safety requirements as defined by sections 39.61, 39.63, 39.65, 39.67, and 39.69; and the contractor is responsible for security and records defined in 39.71, 39.73, 39.75, and 39.77.

. ***WBS: 2.5 (Continued)***

Department of Labor (DOL) Interpretation Letter, February 1982	Interpretation of 29 CFR 1910 for Drilling	In February 1982, the USDOL, OSHA issued an interpretation letter regarding the standards that are applicable to drilling operations, i.e., water well, oil, and gas. The Agency respected the requests of the International Association of Drilling Contractors (IADC) by using the general industry standards, 29 CFR 1910, specific industry consensus standards. The interpretation letter is used as a basis for compliance officers to cite drilling contractors when they inspect.
Nevada Administrative Code (NAC) 534.280 - 534.298	License to Drill Wells	Required for wells drilled by or for the DOE outside the NTS boundaries. These subsections describe the processes for qualification and certification of well drilling personnel. Other analogous state statutes will apply on a project-specific basis for drilling operations outside the State of Nevada.
Nevada Administrative Code (NAC) 534.300 - 534.470	Drilling, Construction, and Plugging of Wells -- Miscellaneous Provisions	These subsections describe: 1) Administrative Requirements, 2) Drilling and Completion Documentation, 3) Materials and Processes Required to Protect State Waters, and 4) Preservation of State Waters. Other analogous state statutes will apply on a project-specific basis for drilling operations outside of the State of Nevada.

WBS: 2.6.1 Technical Software Development

Work Activity Description:

The work activity is the development of software to support instrumentation and R&D activities. This includes software to control and calibrate instrumentation systems, software to reduce and analyze the data from them and software to mode them. The complexity of software written varies considerably. Projects which require critical software to be written or for which software is the major deliverable follow a general engineering process which consist of eliciting requirements from customers; designing a software system to meet the requirements; writing the software; testing the software; and producing the necessary documentation.

The requirements and specifications for the software to be produced are provided by the customer and are usually verbal and quite vague. Software may be, but is usually not, the primary product of the project that produces it. The software products are typically used by five

people or less. Most software is only used internally and is not delivered to an external customer. The developer is generally the end user. Occasionally critical software is developed.

The design of a data acquisition system may include software which is used to control the system for proper timing, sequencing, and data acquisition. The software development portion generally represents a small part of the design and buildup. Software is also written for data analysis which may or may not be the final deliverable to a customer. Most analysis software is used internally and may evolve as new techniques are identified. Some software is written to mode1 physical phenomena and the code may be the tangible deliverable to the customer. The most significant parts of modeling projects are developing and understanding the physics or science of the phenomena being modeled. The definition of critical is not driven by the type of software but its application and the potential of its failure to cause large financial loss, safety problems or loss/degration of mission (IEEE Standard 6 10.12-1990).

Standard	*Title*	*SIT Application Note*
Institute of Electrical and Electronic Engineers (IEEE) 730-1989	Standard for Software Quality Assurance Plans	· Critical software should be identified and the means used to mitigate the risks should be documented, unless the customer specifies otherwise, in a software quality assurance plan which conforms to IEEE Standard 730-I 989 Standard for Software Quality Assurance Plans. This standard provides the framework to mitigate the issues for critical software.

WBS: 2.6.2 *Assembly of Components and Systems*

Work Activity Description:

The work activity involved with assembly of systems and components is the actual fabrication which could include manufacturing, welding, soldering, wiring, sheet-metal work, running conduit, and other work processes to produce an end product. The system/component could be a small module or a large complex instrument canister/rack used for nuclear testing. Some projects are proof of concept experiments which require no manufacturing or assembly standards and are conducted on a workbench in an R&D environment. Work may be conducted inside a large facility, a small laboratory, or could occur in a field environment. Start of the assembly process involves identification of resources, very specific planning with control points, and procurement of items. Engineering design, which covers the identification of assembly and manufacturing standards, is covered in WBS element 2.7.1. Drafting is covered in WBS elements 2.7.2. Writing of technical software is covered in WBS element 2.6.1, construction is covered under 2.8, and procurement in 1.3.2.

WBS: 2.6.2 (Continued)

Assembly of components/systems can generally be divided into the follow activities:

- Purchase or fabricate special components
- Assembly of qualified work team and planning the assembly process to develop milestones, cost controls, schedules, testing requirements, and safety considerations.
- Perform the assembly operations

* Perform actual work process.

* Inform customer of work status and any special hold points or problems.

- Monitor work activity of for cost, time schedule, milestones, etc.

* Perform cost effectiveness evaluations

- Work inspection process

* Document product performance necessary to satisfy internal and external customer needs.

- Final testing and delivery

* Conduct performance test and functional checks to verify system/component meets original criteria.

* If tests are successful, deliver to customer.

* Write final report to provide traceability and documentation.

* Document lessons learned.

WBS: 2.6.2 *(Continued)*

Standard	*Title*	*SIT Application Note*
10 CFR 830	Quality Assurance Requirements for Nuclear Facilities	Applicable to activities at nuclear facilities only.

WBS: 2.6.3 ***Data Collection and Analysis***

Work Activity Description:

The work activity consists of the management of scientific data associated with the DOE Nevada contract. The work activities are: data acquisition (which can include the operation of the acquisition system); data analysis and reporting; and data storage (and associated retrieval processes). Each activity separately may constitute a complete project and produce a deliverable to the customer (data analysis for instance). Many different types of data are managed. These include (but are not limited to) handwritten documents such as journals entries and log sheets; hard-copy such as printouts and reports; film such as documentary photographs, weapons test oscilloscope traces, aerial photography; video tapes from presentations, documentary activities and scientific data acquisitions; and digital information stored on disks, tapes, magnetic cards.

The engineering design of the data acquisition system is covered under WBS element 2.7.1 Assembly and characterization of the acquisition system is covered under WBS element 2.6.2. The calibration process is covered under WBS element 3.10. The development of scientific software is covered under WBS element 2.6.1. Quality assurance issues are covered under WBS element 4.7. Retention of data, notes, drawings, etc. are covered under WBS element 1.5.1.

Standard	*Title*	*SIT Application Note*
Customer Specified Requirements	Customer Specified Requirements	This work activity is governed by other applicable program requirements developed through other WBS elements. The management issues are not mitigated by federal, state, local or industry orders or standards. The management issues are mitigated by implementing sound acceptable business/scientific practices and adopting any customer specific requirements or standards in a project plan.

WBS: ***2.6.4 Spill Testing***

WBS: 2.6.4 (Continued)

Work Activity Description:

The Spill Test Facility (STF's) mission is to provide a unique facility that affords the opportunity for private industry, governmental agencies and other users to conduct hazardous materials testing and training. It is the only facility of its kind and is ideally suited for commercial and governmental test sponsors to develop verified data on prevention, mitigation, clean-up, and environmental effects of toxic and hazardous materials.

The STF has been utilized for releases of highly hazardous chemicals to develop and evaluate the dispersion patterns, mitigation techniques, remote monitoring capabilities and combustion characteristics of selected materials. The STF has also been used to assist the users in developing emergency planning guidelines that are required under United States Public Law 99-499, the Superfund Amendments and Reauthorization Act of 1986 (SARA), and other federal, state and international laws and regulations.

Spill testing is conducted according to the safety requirements identified via Process Safety Management. For each test or test series, a test plan is developed, reviewed, approved, and implemented to govern the specific testing operations. Test plans include test description, hazard analysis, and safety plans and are intended to address specific environment, safety, and health risks and requirements. These plans also satisfy a state of Nevada requirement listed in the air quality permit which authorizes spill testing.

Transportation of chemicals to the STF is discussed under WBS 3.6.

In addition to tests that have been conducted at the STF, examples of ongoing work activities include:

- Construction/assembly of test sponsor equipment.
- Conduct spill testing.
- Data collection during test.
- Clean-up and site restoration at the completion of test.
- Maintenance of test equipment

Standard	*Title*	*SIT Application Note*

WBS: 2.6.4 (Continued)

29 CFR 1910.119	Process Safety Management of Highly Hazardous Chemicals	Requirements for specifically controlling process safety. This "Pre-Startup Safety Review" should be used to adapt the facility requirements to each individual test.
40 CFR 302	Designation, Reportable Quantities and Notification -- Notification Requirements	This activity is exempt from reporting requirements under CERCLA, Section 101, as codified in 40 CFR 302.6 (Notification Requirements), because it is a federally-permitted facility. The state of Nevada is an authorized state with an approved Implementation Plan for permitting and enforcement under Clean Air Act regulations. Unlimited spills will be subject to the standards identified for the Environmental Protection Program, WBS 4.5.
40 CFR 68	Chemical Accident Prevention Provisions	
Nevada Administrative Code (NAC) 4458.001 - 4456395	Air Pollution	This standard governs the air quality for the testing work.
Nevada Administrative Code (NAC) 459.952 - 459.9542	Regulation of Highly Hazardous Substances	This regulation mimics OSHA's process safety management process, but adds some requirements unique to Nevada. The spill test facility is the only place at the NTS which must comply with these regulations.
42 USC 7403, et seq.	Clean Air Act	Directs DOE, EPA and a federally-designated coordination council to establish the STF and operate it as a field laboratory to develop and evaluate predictive models for atmospheric dispersion, and to evaluate the effectiveness of hazard mitigation and emergency response technology and transportation-related accidental releases of hazardous chemicals.

WBS: 2.7.1 ***Design Engineering***

Work Activity Description:

Design Engineering provides a broad base of design services in support of Department of Energy Operations at the Nevada Test Site and at off-site locations (e.g., WAMO, RSL). The range of services provided includes the design and analysis of Structures, Systems and

WBS: 2.7. I (Continued)

Components (SSCs) representing a multitude of facility types, systems, and associated supporting infrastructure. Depending upon project requirements, functional support may be provided within one or more of the following technical disciplines: Civil, Architectural, Structural, Mechanical, Fire Protection, Electrical, Communications and Electronics.

The basic goal of the design process is to produce a design of high quality which meets the requirements, including required and appropriate codes and standards, in a cost-effective and timely manner. The primary characteristics of the design process which achieves this goal include the following:

- Clear understanding of the project or'task objectives which includes definitive scope and design criteria.
- A specific plan for meeting the objectives with a design concept and execution plan.
- Early and specific definition and implementation of requirements and design baselines.
- Early documentation and approval of the design criteria, including codes and standards, before initiation of detailed design.
- Iterations that allow refinement of the design to optimize the results.
- Integration of pertinent constraints and predecessor design information, including application of codes, standards, and criteria used successfully for past design activities.
- Identification of design process logic and tasks requiring completion prior to proceeding to the next steps in the process.
- Progressive validation and acceptance of the design through various feedback and performance assessment activities.
- Documentation of intermediate results to establish and maintain a clear and complete understanding of the design thereby adhering to the codes and standards throughout the design process and serving as a basis for configuration control.
- Engineering project and task teams with clear accountability for engineering execution, technical adequacy, and installed costs.
- Engineering staff with clear accountability for the technical adequacy, including codes and standards used for the design.

To control the engineering work, various activities are broken down into tasks and sub-tasks, and milestones are established. For example, external or off-project technical design reviews by the engineering staff are established as key milestones in that they are integral parts of the management process and are used to determine the technical adequacy of the design, including the applicable codes and standards being used, during the design development. Integrated design reviews can be conducted for project's SSCs at the completion of conceptual, preliminary, and detailed design. These reviews assure that design requirements are properly integrated, and the work of off-project efforts are included.

Specific to a project or task the project or lead engineer is responsible for managing the development of the design to assure the incorporation of established requirements which reflect both client needs and those imposed by external agencies which again encompass

WBS: 2.7. I (Continued)

required codes and standards. At the beginning of each project, task, or design effort, the project or lead engineer establishes the management control methods, interface control, and engineering group integration to ensure the above occurs.

The design process can be considered to have four major phases:

- Conceptual Design
- Preliminary Design (Title I)
- Detailed Design (Title II)
- Implementation (Title III including'engineering support to construction)

However, the engineering scope may not always include all of these phases. If the project is initiated at the preliminary or detailed design phase, the project work plan should reflect the need to obtain and assimilate information from earlier phases performed by other organizations. The following is a brief description of each phase:

CONCEPTUAL DESIGN - The purpose of the conceptual design phase is two fold. The first objective is to define the firm requirements and identify options and solution with related costs. The requirements and their relative importance must be known. Clients and external agency requirements are identified and analyzed to ensure that the applicable design inputs and parameters have been considered in developing conceptual solutions. This includes:

- Review of similar designs performed in the past.
- Establishment of design criteria;
  * system functional requirements
  * site and environmental requirements
  * equipment qualification requirements
  * fire protection requirements
  * codes and standards (further described and addressed below)
  * quality / verification requirements
  * regulatory / licensing requirements
  * basic client needs and requirements
- Identification of affected and / or design documents
- Reliability / availability, human factors, operations and maintenance requirements

WBS: 2.7. I (Continued)

- Identification of applicable construction, operations, and testing requirements

The outcome of the above objective should result in a requirements baseline that is mutually agreed-to by both the customer and Design Engineering. This serves as the basis for the initial Engineering Execution Plan for the next phase described below.

The second objective is to define and baseline the conceptual design. This may require several iterations to ensure that all requirements have been identified and potential solutions have been evaluated adequately. The contents of the conceptual design include:

- Functional objective of the design or statements of the task or problem
- Design Criteria established as discussed above, including applicable codes and standards to a level appropriate to the state of the design
- System design documentation and component interface identification
- Sketches or drawings of conceptual designs
- Schedule of major milestones
- Cost estimates (engineering, operating, total project)
- Analysis of alternative designs
- Identification of long-lead time procurement items
- Consequences of the concepts on success of tasks and items; such as other equipment quantities, facility size, risks, hazards (engineering will evaluate the hazards associated with a project's SSCs and select the appropriate design standards commensurate with those hazards while at the same time ensuring the appropriate level of quality and economy. This is further discussed later in this section.), etc.

It is also important that in a matrix organization the project engineer or lead engineer of a task or effort seek must seek technical review and input from the engineering functional technical disciplines comprising the engineering staff. After the completion of the staff reviews during this phase, the conceptual design is mutually agreed-to with the customer.

PRELIMINARY DESIGN - The preliminary design phase is the development, in more detail, of the design concept selected for each system and facility in the scope of the project. This involves the application of universally accepted formulas, equations, and other standard engineering practices in the design of SSCs. The engineering activities of this phase include: trade-off studies, refinement of cost, estimates, detailed schedules supporting major milestones, materials testing and surveys, advanced procurement activities, etc. These preliminary designs typically involve application of concurrent engineering techniques including coordination among all necessary engineering groups plus input from construction and startup personnel for compliance with design requirements, constructability, cost-effectiveness, and compatibility with schedule requirements.

WBS: 2.7. I (Continued)

Again following engineering staff reviews, which were mutually identified and agreed-to between staff and the project or task team, a meeting with the client may take place to ensure that the preliminary design is acceptable and approved. Following agreement, this forms the basis for the detailed design phase.

DETAILED DESIGN - The selected and documented preliminary design is developed into the detail design using the following:

- Walk-downs
- Design technical reviews
- Design calculations including finalization of applicable preliminary calculations performed
- Drawings
- Specifications
- Bill of materials / material requisition
- Vendor data
- Construction reviews of design
- Test procedures
- Construction / subcontract plan
- Turnover plan / beneficial occupancy

The control of the design process activities will assure that the developed detailed design still adheres to the requirements previously established in the preliminary design and validates the technical adequacy of the supporting engineering analysis. This process includes the accomplishment of design verification conducted by peer review, design review, alternate analysis, or qualification test.

Quality assurance, inherent to the engineering work process, is based upon performance compliant with established procedures covering the control of design input, design analysis and verification processes, design document preparation, and design change control. All records supporting audit of these processes are maintained by engineering.

IMPLEMENTATION - The design is constructed with the support of Design Engineering through interpretation of design documents and resolution of implementation problems. The SSCs are then tested and operated to verify that performance requirements have been met. Results from testing or operation which are not consistent with design requirements must be evaluated to determine the need for design changes. If a design change is needed, the change must be evaluated for possible adverse impacts on the original design and carried

WBS: 2.7. I (Continued)

through each of the cases noted above. The design and engineering activities culminate with turnover of the systems and facilities and as-built drawings, as appropriate, to the client.

Standard	*Title*	*SIT Application Note*
National Electric Code	Applicable Standards	The proper application of standards in conjunction with the engineering work process will result in an acceptable level of potential hazard mitigation as well as providing for the best value to the client. A comprehensive set of standards will be identified during the establishment of the project-specific Design Criteria Package, as those which are both necessary and sufficient to fully satisfy a particular project's requirements. This comprehensive set of standards will vary from project to project.
Uniform Building Code (UBC)	Application Standards	The proper application of standards in conjunction with the engineering work process will result in an acceptable level of potential hazard mitigation as well as providing for the best value to the client. A comprehensive set of standards will be identified during the establishment of the project-specific Design Criteria Package, as those which are both necessary and sufficient to fully satisfy a particular project's requirements. This comprehensive set of standards will vary from project to project.
Uniform Fire Code (UFC)	Applicable Standards	The proper application of standards in conjunction with the engineering work process will result in an acceptable level of potential hazard mitigation as well as providing for the best value to the client. A comprehensive set of standards will be identified during the establishment of the project-specific Design Criteria Package, as those which are both necessary and sufficient to fully satisfy a particular project's requirements. This comprehensive set of standards will vary from project to project.

WBS: 2.7.1 (Continued)

Uniform Mechanical Code (UMC)	Applicable Standards	The proper application of standards in conjunction with the engineering work process will result in an acceptable level of potential hazard mitigation as well as providing for the best value to the client. A comprehensive set of standards will be identified during the establishment of the project-specific Design Criteria Package, as those which are both necessary and sufficient to fully satisfy a particular project's requirements. This comprehensive set of standards will vary from project to project.
Uniform Plumbing Code (UPC)	Applicable Standards	The proper application of standards in conjunction with the engineering work process will result in an acceptable level of potential hazard mitigation as well as providing for the best value to the client. A comprehensive set of standards will be identified during the establishment of the project-specific Design Criteria Package, as those which are both necessary and sufficient to fully satisfy a particular project's requirements. This comprehensive set of standards will vary from project to project.
DOE P 450.3	Closure Process for Necessary and Sufficient Sets of Standards	Authorizes use of the Necessary and Sufficient Process standards-based ES&H management.

WBS: 2.7.2 Drafting

Work Activity Description:

"Drafting is the language of engineering. Drafting communicates the intent of the design to the constructor." -- Author Unknown

Drafting provides the graphical representation of design requirements and existing physical conditions for all engineered buildings, structures, parts, components, and systems for conventional as well as non-reactor nuclear facilities. Drafting also provides instructional drawings including shop details, assembly procedures, machinery placement, crane positioning and rigging, and general logistics type planning documents. Drafting activities do not, by definition, include design activities. However, drafting activities as performed by senior draftsman, designers, and engineers do, by their nature, encompass and provide design engineering control. Design engineering control is further elaborated through a checking process which confirms geometry, general language and spelling, adherence to drafting standards, and reproduction feasibility. Drawings may be interpreted as legal documents communicating the intent of the design.

WBS: 2.7.2 (Continued)

Drafting work is controlled by the following:

Criteria: Drafting accepts and interprets a design or project criteria provided by Design Engineering to develop a consistent depiction of SSCs and SSC requirements into a physical design. Transformation of the criteria is accomplished through consultation with engineering, project engineering, the client, or other responsible parties involved with the final product.

Standards: Drafting follows standards for drawing creation that ensure the final drawing can be understood by the intended users.

Client: Drafting provides modified and customized graphic deliverables depending on client need.

Standard	*Title*	*SIT Application Note*
American National Standards Institute (ANSI) IAWS A2.4	Standard Symbols for Welding, Brazing and Nondestructive Examination	When a standard selected by Engineering imposes specific drafting requirements, the Drafting (CAD/CAE) work activity will supplement its typical implementation standards with the additional requirements.
American National Standards Institute (ANSI) Y1 .l	Abbreviations for use on Drawings and in Text	When a standard selected by Engineering imposes specific drafting requirements, the Drafting (CAD/CAE) work activity will supplement its typical implementation standards with the additional requirements.
American National Standards Institute (ANSI) Y14.1	Drawing Sheet Size and Format	When a standard selected by Engineering imposes specific drafting requirements, the Drafting (CAD/CAE) work activity will supplement its typical implementation standards with the additional requirements.
American National Standards Institute (ANSI) Y14.15	General Electronic Diagrams	When a standard selected by Engineering imposes specific drafting requirements, the Drafting (CAD/CAE) work activity will supplement its typical implementation standards with the additional requirements.

WBS: 2.7.2 (Continued)

American National Standards Institute (ANSI) Y14.2	Surface Texture Symbols	When a standard selected by Engineering imposes specific drafting requirements, the Drafting (CAD/CAE) work activity will supplement its typical implementation standards with the additional requirements.
American National Standards Institute (ANSI) Y14.5M	Dimensioning and Tolerancing	When a standard selected by Engineering imposes specific drafting requirements, the Drafting (CADICAE) work activity will supplement its typical implementation standards with the additional requirements.
American National Standards Institute (ANSI) Y32.16	Reference Designators (schematics and PCB)	When a standard selected by Engineering imposes specific drafting requirements, the Drafting (CAD/CAE) work activity will supplement its typical implementation standards with the additional requirements.
American National Standards Institute (ANSI) Y32.2 and Y32.14	Graphic Symbols (schematics)	When a standard selected by Engineering imposes specific drafting requirements, the Drafting (CAD/CAE) work activity will supplement its typical implementation standards with the additional requirements.
American National Standards Institute (ANSI) IPC-A-600	Printed Wiring Bd. (fabrication)	When a standard selected by Engineering imposes specific drafting requirements, the Drafting (CAD/CAE) work activity will supplement its typical implementation standards with the additional requirements.
American National Standards Institute (ANSI) IPC-D-275	Circuit Card Assembles	When a standard selected by Engineering imposes specific drafting requirements, the Drafting (CAD/CAE) work activity will supplement its typical implementation standards with the additional requirements.
Bechtel Design Drawing Standards	Applicable Standards	RSN Design Drawing Standards as adopted by Bechtel.
Bechtel Drafting Manual	Applicable Standards	RSN Manual as adopted by Bechtel.

WBS: 2.7.2 (Continued)

42 USC 12111, et seq.	Americans with Disabilities Act (ADA)	When a standard selected by Engineering imposes specific drafting requirements, the Drafting (CAD/CAE) work activity will supplement its typical implementation standards with the additional requirements.

WBS: 2.7.3 Estimating

Work Activity Description:

This work activity involves the production of cost estimates and schedules for projects funded by DOE/NV. A project could be any type of Work activity with defined starting and ending points and come well defined work process. Projects can range from construction of a building or system to environmental management programs or administrative functions. A project can be any type of activity which is managed for timeliness of completion and/or cost-effectiveness to the client. Estimates and schedules are used by managers of projects, project team members and clients to plan required actions, forecast resource requirements and gauge progress.

The actual work process involves development of a basic time line, then development of a more detailed schedule and the resource loading of the proper manpower, equipment and materials to finish the required tasks within the required time frame. Estimates are completed when the total units of man hours, equipment hours, and material quantities are known and multiplied by the proper cost factors for each cost category. The proper overhead charges, labor loads, administrative burdens, inflationary figures, etc., must then be added to the estimate to obtain the complete accurate cost projection for the project. Major projects or ones with some level of uncertainty have a contingency added, which is an assigned percentage of the total project cost.

There are no specific laws or industrial standards which govern the estimating or scheduling process. The process used must only meet the business standards of the contractor performing the estimate, as well as any special client requirements for format, accuracy and completeness.

In outside industry, many companies guard their methods of producing estimates for bidding purposes as proprietary information.

Standard	*Title*	*SIT Application Note*

WBS: 2.7.3 (Continued)

NONE	NONE	There are no regulatory or statutory methods for estimating and scheduling. It is expected that organizations conducting work for DOE/NV will develop, implement and maintain a system for estimating and scheduling work activities to permit prudent allocation of resources. The DOE Life Cycle Asset Management Order is incorporated into the N&S set for WBS 1.3.6. This LCAM process contains elements and requirements that relate to the estimating task. Consideration of the features of the LCM program of WBS 1.3.6 should be included in the development of the implementing procedures for Estimating and Scheduling.

WBS: 2.7.4 Visual Inspections and Quality Control Inspections

Work Activity Description:

Work under this WBS element includes independent inspection services provided in support of engineering and construction activities. Inspections are planned using design documents, technical data, and code requirements. The work is executed so as to verify and document conformance or nonconformance of construction products, processes and construction materials. Inspection scopes varies dependent upon project need to perform the following:

- Furnish project inspection plans
- Furnish construction status reports
- Verify governing lines and benchmarks
- Verify conformance to engineering design
- Verify conformance to required codes and standards
- Furnish "as-built" record drawings and specifications
- Furnish required completion certifications

Field inspection activities can be broken down into the following disciplines:

- Concrete and Grout
- Soils
- Structural

WBS: 2. 7.4 (Continued)

- Electrical
- Mechanical
- Mining
- Drilling

Inspection Services are provided at construction sites, material production plants, fabrication facilities, and underground tunnel locations.

Standard	*Title*	*SIT Application Note*
Project Specific Design Specifications	Project Specific Design Specifications	The following are the most common consensus organizations with standards used by inspectors: American National Standards Institute (ANSI); American Society of Mechanical Engineers (ASME); Institute of Electrical and Electronic Engineers (IEEE); Instrument Society of America (ISA) American Concrete Institute (ACI); American Welding Society (AWS): American Society for Testing and Materials (ASTM); American Assoc. of State Highway Traffic Officials (AASHTO); American Water Works Association (AWWA); State of Nevada Department of Transportation (NDOT); Federal Specifications (FS); Concrete Reinforcing Steel Institute (CRSI); Steel Structures Painting Council (SSPC); American Institute of Steel Construction (AISC); National Electrical Code (NEC); and Uniform Building Code (UBC). Inspection will also follow manufacturer's specifications associated with the design, as appropriate.

WBS: 2.7.5 Surveying

Work Activity Description:

Survey Services provides surveying support to construction, network control, and engineering design. Although survey services are provided primarily in the state of Nevada, more specifically on the Nevada Test Site, some work could be done at other locations out of state. If that occurs, appropriate national and state regulations would be applied to perform the work

Support to construction consists of the layout of states, location both horizontally and vertically, that construction personnel utilize to

WBS: 2.7.5 (Continued)

position structures or earthwork; periodic checking of projects to ensure compliance with design criteria specified on approved drawings; and providing final "as-built" configurations incorporating any changes or field modifications in project design. This support is also provided for tunnel construction.

Survey support to the Environmental Restoration and Waste Management (ERWM) projects is defined by relevant criteria that is site specific. This includes topographic surveys or location surveys in areas of environmental concern. These areas of concern may contain radioactivity, hazardous waste, or industrial waste.

Network control is the surveying of existing control monuments or establishing new monuments that are tied to the National Geodetic Survey (NGS) National Geodetic Control Network. The existing monuments are located, for the most part, on remote mountain tops throughout the Nevada Test Site.

Engineering design utilizes survey to provide the existing topographic and planimetric features to be used as a background for a design drawing. This information is transmitted to design via electronic means. Survey Services is called upon to check design drawings prior to them being issued for construction.

Survey Services also provides Users with data pertaining to drill hole locations, geodetic positions, volume determinations, and other pertinent survey information.

Standard	***Title***	***SIT Application Note***
54 FR 25318, Issue 113, 6/14/89	Section 5.0 North American Datum Affirmation of 1983 (NAD 83)	
Federal Geodetic Control Committee, 1984	Standards and Specifications for Geodetic Control Networks	The specific standard that is used for this publication addresses the accuracy of surveys performed. This standard is addressed as a distance accuracy: 1:a a = d/s; d = distance accuracy denominator s = propagated standard deviation of distance between survey points obtained from a least squares adjustment.

WBS: 2.7.5 (Continued)

Nevada Revised Statutes (NRS) 278	Planning and Zoning	Required for work off the NTS in Nevada. Analogous statutes for other states will be used as applicable for projects or sites outside of Nevada.
Nevada Revised Statutes (NRS) 327	Nevada Coordination System	Required for work off the NTS in Nevada. Analogous statutes for other states will be used as applicable for projects or sites outside of Nevada.
Nevada Revised Statutes (NRS) 329	Perpetuation of Corners	Required for work off the NTS in Nevada. Analogous statutes for other states will be used as applicable for projects or sites outside of Nevada.
Nevada Revised Statutes (NRS) 625	Professional Engineers and Surveyors Manual of Instruction for the Survey of Public Lands of the United States.	It is intended that NRS 625 will be the standard for surveying work in Nevada for on or off the NTS. Analogous statutes for other states will be used as applicable for projects or sites outside of Nevada.

WBS: 2.8 Construction

Work Activity Description:

This work activity is intended to cover common construction activities. Special construction of nuclear facilities or other critical use facilities with special requirements are not covered here. This activity includes modifications to existing facilities. Maintenance and repair of existing facilities is addressed in WBS 3.4, Facility Maintenance.

Site Work
Site work pertains to all construction related ground preparation activities for buildings, as well as for other infrastructure elements (roads, water systems, sewer systems, power systems, etc.). Site work also includes excavation for environmental restoration work. Site work includes clearing, grubbing, watering, cut and fill, rough grading, finish grading, compaction, trenching, excavation, and demolition of existing facilities and utilities. Most of this work is accomplished through the operation of heavy equipment such as dozers, rippers, scrapers, trenchers, rollers, back holes, graders, loaders and trucks. Excavations are still done by hand when necessary by laborers using pick and shovel or various pneumatic tools. If rock is encountered during site work, drilling and blasting may also be employed. Local codes in North Las Vegas or in cities or counties where other offsite operations are located would need to be complied with. These would be identified during the criteria development phase of the engineering design.

WBS: 2.8 (Continued)

Structural
Structural work activities pertain to all building construction activities and methods as well as to other adjoining appurtenances and utilities. These work activities cover the entire scope of building work from measuring, staking, form setting, concrete pouring, pumping and finishing, framing, erection, siding, covering, sheathing, and roofing, through caulking, finishing, testing, plastering, painting, and cleaning for final use.

Mechanical
Mechanical work activities pertain to the construction, assembly, and installation of the physical plant portion of buildings, and systems. This may include air systems, boilers, condensate and feed systems, fire suppression systems, water treatment systems, compressed gas systems, diesel engines and support systems. Work activities include pipe fitting, welding, placing, leveling, aligning and anchoring equipment and charging refrigerant systems.

Electrical
Electrical work pertains to activities required to build, install and construct all components of a building or system which are electrical in nature. The components could be transformers, power feeds, power distribution systems, wiring, alarms, controls or communications systems as well as the supports for these components. The work methods comprise placing, bending and installing conduit, pulling and running wire, as well as splicing, welding, soldering, crimping, terminating.

Standard	*Title*	*SIT Application Note*
American Water Works Association (AWWA)	Applicable Standards	The American Water Works Association is the recommended standard for water supply systems. The Nevada Administrative Codes set the standards for sewage and water supply systems.
National Electrical Code (NEC)	Applicable Standards	The National Electric Code (NEC) is the normal standard applicable for construction of electrical utilization systems in the United States. The NEC is referenced in state and local building codes for all systems except those of 600 volts or higher.

WBS: 2.8 (Continued)

Uniform Building Code (UBC)	Applicable Standards	The Uniform building Code (UBC) is the normal standard applicable for State and local building regulations and is familiar to all construction crafts. The UBC states the minimum acceptable parameters for this type construction that has been developed over time. This is the standard in Clark County, Nevada and exceeds the standards of Nye County, Nevada where the NTS is located.
Uniform Fire Code (UFC)	Applicable Standards	
Uniform Mechanical Code (UMC)	Applicable Standards	The Uniform Plumbing Code (UPC) and Uniform Mechanical Code (UMC) are the usual standards applicable for all State and local building regulations and are familiar to the applicable crafts. These codes state the minimum acceptable parameters for this type construction that have been developed by public building officials.
Uniform Plumbing Code (UPC)	Applicable Standards	The Uniform Plumbing Code (UPC) and Uniform Mechanical Code (UMC) are the usual standards applicable for all State and local building regulations and are familiar to the applicable crafts. These codes state the minimum acceptable parameters for this type construction that have been developed by public building officials.
Nevada Administrative Code (NAC) 445.070 - 445.241	Water Pollution	
Nevada Administrative Code (NAC) 445B.001 - 445B.395	Air Pollution	Nevada Administrative Code [NAC] 4458.001 through 4458.395, Nevada Revised Statute [NRS] 445.401 through 445.601 which implement the Clean Air Act. Disturbance of the ground surface of up to five acres is covered under a site-wide air quality permit. Dust-producing equipment, such as screens and conveyors, have individual permits. Other activities that degrade air quality would need to be evaluated for permits.

WBS: 2.8 (Continued)

Nevada Department of Transportation (NDOT)	Standard Specifications For Road and Bridge Construction	The local State highway specifications are the usual standards for grading, drainage, and paving, and many times contain specifications for water and sewer installations for work within the right-of-way. The Nevada Department of Transportation (NDOT) Standards Specifications For Road and Bridge Construction is a recommended standard.
Nevada Revised Statutes (NRS) 445A.131 - 445A.354	Water Pollution Control	
Nevada Revised Statutes (NRS) 4458.401 - 4458.601	Air Pollution	Nevada Administrative Code (NAC] 4458.001 through 4458.395, Nevada Revised Statue [NRS] 445.401 through 445.601 which implement the Clean Air Act. Disturbance of the ground surface of up to five acres is covered under a site-wide air quality permit. Dust-producing equi ment, such as screens and conveyors, have individual permits. 8 ther activities that degrade air quality would need to be evaluated for permits.
42 USC 4321	National Environmental Policy Act	The National Environmental Policy Act (NEPA), is the standard which mitigates the environmental impacts of proposed construction at the NTS. Project plans are reviewed by environmental specialists outside of construction and a determination is made as to what level of NEPA documentation will be completed; Categorical Exclusion (CX), Environmental Assessment (EA), or Environmental Impact Statement (EIS). Preactivity field surveys are done by trained archeologists, biologists., hydrologists and others to identify potential impacts of constructron. The completed NEPA documentation is approved by the DOE/NV Manager. Surveyed areas are marked and construction is not allowed to proceed outside of previously cleared areas.

WBS: 2.9 Cement and Concrete Products

Work Activity Description:

WBS: 2.9 (Continued)

Work under this WBS entails the supply of concrete, grout and other cement-related materials for NTS activities. Cement-related construction materials are supplied from three (3) NTS batching facilities that are similar to commercial batching facilities. The scope of work for this WBS consists of the following activities:

- Receipt and storage of raw materials
- Blending and mixing of cement and other materials (e.g., aggregate, water)
- Loading of cement-related products into trucks for transport
- Transport of products to job site

Supply of materials in support of construction includes the various concrete and grout mixtures that are designed to meet client/customer specifications. The mixture of cement, concrete and grout products are designed to achieve many different client needs. This can include mixtures that structurally support, insulate, contain, or protect structures that are located at NTS.

For cement and grout materials, the supplied products can be "dry product" or mixed as a wet product and delivered to the various construction sites. Concrete products are only delivered as a "wet product."

The cementing facilities supply grouting and stemming materials in support of ERWM drilling operations. The "dry product grout" is supplied to the drill site where it is site mixed for down hole grouting.

These facilities also provide construction support for other DOE site contractors and subcontractors in the form of:

- Blending cementing products
- Mixing and supply of concrete products
- Bagging and supply of blending cement products

Standards applicable to transportation of concrete and cement products will conform to standards established in the Transportation WBS

WBS: 2.9 (Continued)

element.

Standard	*Title*	*SIT Application Note*
American Society for Testing and Materials (ASTM) Tests Contained in Volume 04.01	Cement; Lime; Gypsum	The majority of the test methods used to assure that NTS Materials cement/concrete products meet job-specific requirements are ASTM test methods commonly used in commercial practice (e.g., ASTM C-l 50 for cement products). The specific test methods for a given project are typically identified by the customer. The ASTM method will be used unless the client specifies a different method.
American Society for Testing and Materials (ASTM) tests Contained in Volume 04.02	Concrete and Aggregates	The majority of the test methods used to assure that NTS Materials Cement/concrete products meet job-specific requirements are in ASTM test methods commonly used in commercial practice (e.g., ASTM C-94 for concrete products). The specific test methods for a given project are typically identified by the customer. The ASTM method will be used unless the client specifies a different method.
Nevada Administrative Code (NAC) 4458.293	Air Quality -- Operating Permits	Air emissions from the facilities are controlled via a permit from NDEP (Permit No. AP971 l-0549). This permit is issued in accordance with State regulations, specifically NAC 4458.293, Operating Permits. The permit identifies emission units and mitigation measures necessary to control emissions (e.g., bag-houses, coverings, water sprays).

WBS: 2.10 Occurrence Reporting

Work Activity Description:

This work activity addresses the documentation that arises from the determination, categorization, investigation, and corrective action due to events which have potential safety, environmental, health or operational significance. These events, called reportable occurrences, require DOE/NV notification to DOE Headquarters. The reports are to be timely, contain appropriate information describing the occurrence, the significance of the event, the causal factors involved, and corrective actions taken. The primary use of occurrence reporting is for management information while the end use is to develop lessons learned. The information gathered is input into a DOE-wide computer database called the Occurrence Reporting Processing System (ORPS).

WBS: 2. IO (Continued)

Standard	*Title*	*SIT Application Note*
DOE 0 151.1	Comprehensive Emergency Management	DOE 0 151.1 replaces the 5500 series of Orders for categorization of events. DOE 0 151 .1 is applicable to this work activity with regarding to classification of events.
DOE 0 232.1 Contractor Requirements Document (CRD)	Occurrence Reporting and Processing of Operations Information	There are no national or state industrial standards which fulfill the requirements of DOE headquarters policy. Therefore, DOE Order 232.1 is regarded as the necessary and sufficient standard for this Work activity.

WBS: 2. 11 Radioactive Waste Acceptance Program (R WAP)

Work Activity Description:

The Radioactive Waste Acceptance Program (RWAP) is responsible for ensuring generator compliance with and providing guidance for shipping radioactive waste to the Nevada Test Site for storage or disposal.

Generators that are designed by DOE/I-IQ to apply to DOE/NV to ship radioactive waste to the NTS must develop and implement waste certification programs for characterizing, packaging, and shipping that waste. Currently, NVO-325 states that it is the policy of DOE that waste will be accepted only from generators designed by DOE/I-IQ and approved by DOE/NV. NVO-325 also states that DOE/NV will consider application requests from DOE/I-IQ, DOE Field Offices and DOE Area Offices generating defense waste. In addition, requests from other government agencies generating classified waste will be considered. The RWAP generator review process includes: reviewing applications, sampling plans, and characterization data; development of audit reports and other documents for submittal to DOE; development of regulatory position papers and correspondence for submittal to the state of Nevada Division of Environmental Protection (NDEP); and conducting performance-based audits of generator facilities. Once the reviews and audits have been conducted and it has been determined that the generator's program is in compliance with NVO-325, the generator is approved by the DOE/NV manager to ship to the NTS those waste streams that were deemed acceptable by the review and audit process. Currently the NTS only accepts low level radioactive waste (LLW) for disposal. The single exception to this, in accordance with the RCRA Part B permit for the NTS, is that mixed waste generated at the NTS may be accepted for disposal if it meets the requirements of NVO-325.

Before a waste generator can obtain approval to ship waste to the NTS, RWAP personnel review his waste programs to ensure that the waste proposed for shipment does not contain any materials unacceptable for disposal and that the waste will be transported in compliance

WBS: 2. I *1 (Continued)*

with applicable requirements. The initial step of the RWAP process is a review of the generator's application to ship waste to the NTS. The next step in the review process is to perform an audit of the generator's program at his site. The audit evaluates the generator's implementation of the characterization, quality assurance, and waste traceability (documentation) aspects of his waste certification program. The audit process consists of observing related processes such as waste packaging, sampling and treatment, review associated documentation, and often times opening waste packages and examining package contents. Deficiencies identified during the audit are transmitted in an audit report prepared by RWAP. Corrective actions are then evaluated in a surveillance review conducted by RWAP at the generator's site. Once it has been determined through the surveillance process that all corrective actions have been implemented adequately, RWAP makes a recommendation for approval to the DOE/NV Manager.

Performance assessment activities, as well as waste receipt and disposal operations are not the responsibility of the RWAP, and are addressed by other groups.

Standard	*Title*	*SIT Application Note*
10 CFR 61.55 and 61.65	Licensing Requirements for Land Disposal of Radioactive Waste -- Subpart D Technical Requirements -- Waste Classification	Waste classification and characteristics.
10 CFR 71 Subpart H	Packaging and Transportation of Radioactive Material -- Quality Assurance	Quality Assurance requirements applicable to the design, purchase, fabrication, storing, shipping, inspection, and repair of packaging components.
10 CFR 172	Radiation Protection for Occupational Workers	The radiation exposure hazards are mitigated by the standard.
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications	Packaging, marking, labeling, documentation, shipping.
49 CFR 180	Continuing Qualification and Maintenance of Packaging	Packaging, marking, labeling, documentation, shipping.
Nevada Administrative Code (NAC) 444.950 - 444.8746	Disposal of Hazardous Waste	

WBS: 2.1 I (Continued)

Nevada Revised Statutes (NRS) 459.400 - 459.600	Disposal of Hazardous Waste

WBS: 2.12 Hazard Assessment

Work Activity Description:

The purpose of hazard assessment is to systematically review the structures, systems, components and operations of facilities and activities to ensure that these items are operated in a fashion that minimize the risks to the workers, general public and environment. To accomplish this assessment in a cost effective manner, the implementation should be in a graded manner considering the likelihood of an event in combination with the consequences of an event. In the case of nuclear facilities, the radiological consequences of operations and design basis events must be considered as well. Hazard assessments typically focus on the safety aspects of processes or unique activities. These assessments complement the routine activities conducted under the auspices of the Industrial Hygiene and Occupational Safety and Health programs, such as protection against trips, slips and falls, entry into confined spaces, use of respirators, control of exposure to industrial chemicals, control of exposure to noise or thermal stress. Representative work found in this activity includes assessment of chemical hazards routinely encountered in the workplace; assessment of physical hazards in the workplace (e.g. noise, and determination of method(s) of mitigation; and assessment of hazards associated with construction activities prior to start of construction and documentation of hazards as part of the construction Health and Safety Plan when requested.

To be most effective, a hazard assessment should be initiated during the conceptual design phase for a facility or profess or activity, and updated at appropriate points as additional information becomes available. The early initiation of the assessment permits the design to address identified hazards and engineer features to mitigate the hazards. As the design and implementation progresses it will become increasingly difficult and expensive to design mitigating features. The hazard assessment should rank hazards by risk to assist management in allocating its resources in the most effective manner possible.

Hazard assessments may be either qualitative or quantitative. Typical techniques for performing these assessments include:

- Safety review
- Checklist analysis
- Relative ranking
- Preliminary hazards analysis
- What-if analysis

WBS: 2. 12 (Continued)

- What-if/checklist analysis
- Hazard and operability analysis
- Failure modes and effects analysis
- Fault tree analysis
- Event tree analysis
- Cause-consequence analysis
- Human reliability analysis

It is up to the judgment of the assessment participant(s) to choose the technique most appropriate for the complexity of the process, magnitude of consequences and availability of information. There is no single format for documenting the hazard assessment, although several of the assessment techniques have typical tools. However, it is necessary that the documentation be sufficiently rigorous to demonstrate the adequacy of the assessment.

Aspects of hazard assessments include: for new, non-routine, or one-time-only jobs, assess hazards by performing a Job Safety Analysis (JSA); perform hazard assessment for input to a management plan for any process involving the use of highly hazardous chemicals; perform preliminary hazards analysis in conjunction with the conceptual design phase of engineering projects and identify those hazards amenable to mitigation by engineering features; starting with the information provided (or planned for inclusion) in the project's radiological safety analysis document, develop a nuclear safety hazard assessment plan that identifies the particular radiologically-related items that should be included (non-nuclear hazards/items would be incorporated based on their identification by the applicable hazard assessment process). (A preliminary hazard analysis, based primarily on design or operational considerations, may be utilized as the basis for a preliminary radiological safety analyses document.)

For nuclear facilities, it is necessary to analyze the radiological consequences of operations and accidents. The techniques and documentation requirements for these analyses are typically more prescriptive than those for non-radiological hazards. It should be noted that the techniques listed above may be appropriate for evaluating a process or facility or activity with radiological hazards.

For example, for nuclear-related activities that involve byproduct or special nuclear material (SNM), or land disposal of low-level radioactive waste (which are currently given a hazard categorization designator of either 1, 2, or 3, based on methodology provided in DOE-STD-1027-92), provide a preliminary hazard assessment consistent with the need to identify associated hazards and mitigative steps to reasonably assure that the health and safety of the workers, general public, and environment will be protected. In performing this assessment, use as guidance, the information that would be provided to address the technical and administrative topics (excluding financial

WBS: 2.12 (Continued)

and other business-related topics) required of a prospective applicant for an NRC license to conduct the stated activities. Topics to be included, as identified in Section 3.0, are to be collectively contained in a safety analysis document. The hazard assessment would focus, among other things, on assuring that plans are in place to meet the applicable NRC requirements for assuring the protection of health, safety and the environment (e.g. plans for emergencies, physical security of material and safeguards contingency). Upgrade the hazard analysis to include consideration of operational activities so it can be reflected, as necessary, in changes to the safety analysis document.

[The NISCG concurs with not including DOE Order 5480.23 and DOE STD-1027-92 based upon the discussion provided herein. The list of standards not withstanding, NISCG concluded that the fundamental standard for this WBS is the conduct of a hazard assessment before beginning a new activity. This assessment should be cost effectively matched to the complexity, uncertainty, and overall risk of the activity. There are several guidelines that describe effective approaches to assure that real and contingent hazards associated with a process or a facility are addressed by an assessment of this type. The following are examples:

- AIChE Guidelines for Hazard Evaluation Procedures.
- NASA Safety Policies and Requirements Document.
- MIL-STD-882, System Safety Program Requirements.]

Standard	*Title*	*SIT Application Note*
10 CFR 30.32(i)(1)	Application For Specific Licenses	Required for handling byproduct material usin the guidance Provided in 30.32(I)(2). [10 CFR 30, "Rules o3 General Applicability To Domestic Licensing of Byproduct Material."]
10 CFR 61.13	Technical Analysis	Required for the activity of land disposal of radioactive waste. [10 CFR 61, Licensing Requirements for Land Disposal of Radioactive Waste."]
10 CFR 61.16	Other Information	Required for the activity of land disposal of radioactive waste. [10 CFR 61, Licensing Requirements for Land Disposal of Radioactive Waste."]
10 CFR 61.51(a)(4), (5), & (8)	Disposal Site Design For Land Disposal	Required for the activity of land disposal of radioactive waste. [10 CFR 61, Licensing Requirements for Land Disposal of Radioactive Waste."]

WBS: 2.12 (Continued)

10 CFR 61.53(b)	Environmental Monitoring	Required for the activity of land disposal of radioactive waste. [10 CFR 61, Licensing Requirements for Land Disposal of Radioactive Waste.“]
10 CFR 61.55	Waste Classification	Required for the activity of land disposal of radioactive waste. [10 CFR 61, Licensing Requirements for Land Disposal of Radioactive Waste.“]
10 CFR 61.56	Waste Characteristics	Required for the activity of land disposal of radioactive waste. [10 CFR 61, Licensing Requirements for Land Disposal of Radioactive Waste.“]
10 CFR 70.22(a)(7) and (8)	Contents of Applications	Required for handling of special nuclear material (SNM) using the guidance in 70.22(i)(2) & (3) and 70.22(j)(1) to develop a safeguards contingency plan as described in Appendix C of 10 CFR 73 “Physical protection of plants and materials”, and 10 CFR 70.23(a)(3) & (4) “Requirements for the approval of applications“, 70.24 “Criticality accident requirements”, and 70.32(i) “Conditions of licenses”. [IO CFR 70 “Domestic Licensing of Special Nuclear Material”.]
10 CFR 70.22(g)(l), 70.22(h)(l), and 70.22(i)	Contents of Applications	Required for handling of special nuclear material (SNM) using the guidance in 70.22(i)(2) & (3) and 70.22(j)(1) to develop a safeguards contingency plan as described in Appendix C of 10 CFR 73 “Physical protection of plants and materials”, and 10 CFR 70.23(a)(3) & (4) “Requirements for the approval of applications”, 70.24 “Criticality accident requirements”, and 70.32(i) “Conditions of licenses”. [IO CFR 70 “Domestic Licensing of Special Nuclear Material”.]

WBS: 2.12 (Continued)

10 CFR 70.23(a)(3) and (4)	Requirements For The Approval Of Applications	Required for handling of special nuclear material (SNM) using the guidance in 70.22(i)(2) & (3) and 70.22(j)(1) to develop a safeguards contingency plan as described in Appendix C of 10 CFR 73 "Physical protection of plants and materials", and 10 CFR 70.23(a)(3) & (4) "Requirements for the approval of applications", 70.24 "Criticality accident requirements", and 70.32(i) "Conditions of licenses". [10 CFR 70 "Domestic Licensing of Special Nuclear Material".]
10 CFR 70.24	Criticality Accident Requirements	Required for handling of special nuclear material (SNM) using the guidance in 70.22(i)(2) & (3) and 70.22(j)(1) to develop a safeguards contingency plan as described in Appendix C of 10 CFR 73 "Physical protection of plants and materials", and 10 CFR 70.23(a)(3) & (4) "Requirements for the approval of applications", 70.24 "Criticality accident requirements", and 70.32(i) "Conditions of licenses". (10 CFR 70 "Domestic Licensing of Special Nuclear Material".]
10 CFR 70.23(i)	Conditions Of Licenses	Required for handling of special nuclear material (SNM) using the guidance in 70.22(i)(2) & (3) and 70.22(j)(1) to develop a safeguards contingency plan as described in Appendix C of 10 CFR 73 "Physical protection of plants and materials", and 10 CFR 70.23(a)(3) & (4) "Requirements for the approval of applications", 70.24 "Criticality accident requirements", and 70.32(i) "Conditions of licenses". [10 CFR 70 "Domestic Licensing of Special Nuclear Material".]
29 CFR 1910.119(e)	Process Safety Management of Highly Hazardous Chemicals	Required for hazard analysis of highly hazardous chemicals.
40 CFR 68	Chemical Accident Prevention Provisions	

WBS: 3.1 Housing

WBS: 3. I (Continued)

Work Activity Description:

Housing is an NTS-only activity. Housing facilities are provided on the NTS to enable workers who must complete work activities on schedule to remain on the site and be readily available. The activity is private, non-public access housing similar to short-term accommodations provided by small city motels. This work activity begins with the receipt of a request for quarters at the site. It can be in response to a reservation request or the physical presence of an individual at the Housing Office in Mercury, NV. Current suspension of the test program has reduced the demand below the available supply of rooms, so advance reservations and the attendant potential to resolve conflicts is not as significant as it once may have been. Facilities exist both in Mercury and in Area 12, but only the Mercury facilities are currently in use.

The actual housing service consists of three components, office functions, housekeeping, and guest safety. Each is described below.

Office Functions: The activity includes reservations, guest check-in and check-out, billing, and the subordinate accounting functions, e.g., accounts receivable. The basic+ reservation principle is first come, first served. Check-in,involves positive identification of the guest and assurances of the correct billing information. Check-out involves assuring that all applicable charges have been accrued to the guest and either direct collection or provisions for billing to the parent organization have been made.

Housekeeping: The activity includes the actual work involved in linen service and cleaning. Cleaning includes space cleaning and sanitation. Sanitation involves trash removal and fixture sterilization.

Guest Safety: This activity includes the efforts to protect guests from slips, trips and falls and to assure their personal safety and the security of their personal property. This activity relies on employee and management awareness to identify potential faulty conditions and administrative controls over access.

This work description assumes that the issues related to the maintenance of the structure and services (e.g., potable water, electricity, sewage, heating and cooling) are described and assessed as part of WBS 3.4, Facility Maintenance, and WBS 3.8 Utilities.

Standard	***Title***	***SIT Application Note***
29 CFR 1910.1030	Blood Borne Pathogens	29 CFR 1910.132 and 1910.1030 for mitigation of Blood borne pathogens (as implemented through WBS 4.2.2 Industrial Hygiene, and WBS 4.3, Medical Programs).

WBS: 3.1 (Continued)

29 CFR 191-0.132	Personal Protective Equipment	29 CFR 1910.132 and 1910.1030 for mitigation of Blood borne pathogens (as implemented through WBS 4.2.2 Industrial Hygiene, and WBS 4.3, Medical Programs).
40 CFR 261.4, Exemptions, b.1	Solid Wastes Which Are Not Hazardous Waste	Identifies "Household Waste" as not hazardous waste. Household waste is defined as ".... any material (including garbage, trash and sanitary wastes in septic tanks) derived from households (including ... hotels and motels,...)." This allows for handling of waste generated from housing as non-hazardous waste.
Nevada Administrative Code (NAC) 447	Public Accommodations	General Requirements on cleanliness and laundry that are applicable to commercial businesses.

WBS: 3.2 Food Services

Work Activity Description:

Food service is necessary to support the work at the Nevada operations. The program is expected to provide approximately three hundred thousand meals per annum. In addition catering is to be provided for site tours, other official visits, box lunches, and the Yucca Mountain Project as required. Food service activities for the NTS are:

- Menu planning, food preparation; and serving.
- Wrapping and loading the food into food vending machines.
- Transportation suitable and acceptable storage of food and other supplies.
- Cleaning of all food service facilities, including vending machines.

Food service facilities at NTS are licensed and inspected by the State of Nevada Department of Environmental Health.

Standard	*Title*	*SIT Application Note*
29 CFR 1910.1030	Blood Borne Pathogens	

WBS: 3.2 (Continued)

29 CFR 1910.132	Personnel Protective Equipment	Applicable provisions of 1910.132 for mitigation of communicable disease.
Nevada Administrative Code (NAC) 446	Food and Drink Establishments	(The health card requirements are applicable to Clark County only.) This standard is utilized because of all of the food service facilities are licensed by the State of Nevada. These licenses are issued in accordance with the requirements of the above publication. The Nevada Code complies with the 1993 U.S. Public Health Service Food Code. The subcontractors to vendors also include a reference to the applicable state regulations for food establishments.

WBS: 3.3 Aviation

Work Activity Description:

This work activity involves providing aircraft and aviation support to government programs world-wide under the purview of the DOE. Aircraft include modern multi-engine jet, propeller driven airplanes and helicopters. Aviation support includes aircraft maintenance, ground support, emergency response to radiological incidents, and routine non-emergency collection of scientific data. Depending on mission, the aircraft will operate as either a public or civil aircraft.

This activity provides:

- Airworthy and mission equipped aircraft.
- Trained and qualified aircrews.
- 24-hour emergency response capability.
- Aerial surveys.
- Expert assistance in developing and integrating remote sensing systems to flight operations.

WBS: 3.3 (Continued)

- Procurement of waivers to FAA regulations and the performance of necessary coordination for operations inside special use airspace when required.

- Aviation ground support equipment necessary to support operations from remote locations.

Industrial Hygiene requirements are detailed in WBS 4.2.2.

Standard	*Title*	*SIT Application Note*
14 CFR Series	Aeronautics and Space	Hazards and management issues associated with aviation are typical of those in similar civil and commercial flying operations.
49 CFR 171-173, 175, and 178	Hazardous Material Regulations for Transportation	Applicable portions will apply when operating as a civil aircraft. Hazards and management issues associated with aviation are typical of those in similar civil and commercial flying operations.
49 CFR 830	Notification and Reporting of Aircraft Accidents or Incidents and Overdue Aircraft and Preservation of Aircraft Wreckage, Mail, Cargo, and Records	Hazards and management issues associated with aviation are typical of those in similar civil and commercial flying operations.
International Civil Aviation Organization (ICAO)	Flight Regulations and Requirements	Hazards and management issues associated with aviation are typical of those in similar civil and commercial flying operations.
Federal Aviation Administration (FAA) Advisory Circular 00-l. 1	Government Aircraft Operations	Hazards and management issues associated with aviation are typical of those in similar civil and commercial flying operations.
Office of Management and Budget (OMB) Circular A-126	Improving the Management and Use of Government Aircraft	Hazards and management issues associated with aviation are typical of those in similar civil and commercial flying operations.
Office of Management and Budget (OMB) Circular A-76	Performance of Commercial Activities	Hazards and management issues associated with aviation are typical of those in similar civil and commercial flying operations.
28 USC 591	Independent Safety Board Act of 1994	Hazards and management issues associated with aviation are typical of those insimilar civil and commercial flying operations.

WBS: 3.4 (Continued)

WBS: 3.4 Facility Maintenance

Work Activity Description:

A formal facility maintenance and. repair program assures that during its useful lifetime, the facility is fully capable of supporting the mission. A facility is any structure, building, utility system or road and related appurtenances, including the equipment designed and built into the facility to support functionality. Maintenance and repair work is performed in nuclear facilities, as well as non-nuclear facilities, on installed equipment, and in some cases, the installed process equipment and systems.

The operation and maintenance of DOE Nevada facilities includes work at remote sites such as at Santa Barbara and Amador Valley in California, Los Alamos in New Mexico, on Nellis Air Force Base in Las Vegas, Nevada and on Andrews Air Force Base in Maryland. The M&R work activities must be performed to comply with the host site's ES&H requirements, and in some cases, as specified in an inter-agency support agreement, such as on Air Force Bases.

Maintenance and repair work falls into three general categories.

- Scheduled preventive maintenance is work that is scheduled to maintain existing equipment and facilities. Examples of this type of work are: cooling tower refurbishment, HVAC filter replacements, electrical equipment testing, and fire protection system testing.

- Scheduled repair or corrective maintenance is work that is required to repair facilities or equipment that has worn and, if not repaired/replaced, will soon fail and no longer be available to function as designed. Examples of this type of work are repair of air conditioning/heating equipment, replacing flooring, and repair of leaking roofs.

- Emergency repair, as the name implies, is the unscheduled work required to repair facilities or equipment that have failed, are no longer able to function to specification and may be causing an immediate hazard to health, safety or the environment that must be repaired or controlled to mitigate the hazard potential.

Maintenance and repair work is identified by the following methods:

Work requests are requests from a user group for maintenance or support services for which the site M&R crafts have the skills to perform. Examples of this type of work are handing a white board, painting an office, or moving furniture. This work activity also includes work to support closed facilities. Facilities that are reopened are inspected to identify, correct or control hazards.

WBS: 3.4 (Continued)

Service calls are either initiated over the telephone or are submitted by the M&R organization for either emergencyrepairs or for small, quick-to-provide services for minor work on a low priority basis when craft time is available.

ES&H Inspections often result in the identification of work requirements that are entered into the work order system for scheduling.

Preventive maintenance work orders are issued by the Computerized Maintenance Management System (CMMS) for scheduling according to the frequency of service required to maintain the facility or installed equipment recommended by either a code, an industrial standard, by the manufacturer or as a result of a historical precedence or an analysis of the historical maintenance data.

The detail of work performed varies from location to location. For example, the maintenance of the roads is accomplished by the contractor at the Nevada Test Site, but not on sites where the contractor is a tenant supported through a host-tenant agreement.

Modifications are conducted under WBS 2.8, Construction.

Standard	***Title***	***SIT Application Note***
NONE	NONE	Facility-specific design criteria (drawings, specifications, and vendor data) and equipment manufacturer's recommendations as modified by actual experience.

WBS: *3.5.1* ***Heavy Equipment Maintenance***

Work Activity Description:

This work activity covers the maintenance, repair, inspection, waste handling and storage, purchase and excess, and equipment control. It involves mobile and stationary equipment and includes the electrical and mechanical aspects of the equipment. The work activity includes work performed at the Nevada Test Site and Las Vegas facilities. At remote sites this work is provided by the host agency.

The scope of this activity includes, but is not limited to, the following types of equipment: mobile cranes, overhead and gantry cranes, drilling rigs, generators, light plants, compressors, forklifts, and many forms of earth moving equipment, i.e., dozers, scrapers, and front end loaders. Work is performed according to the manufacturers' recommendations. Engineering is consulted when equipment modifications are made or a structural defect is suspected.

WBS: 3.5. I ***(Continued)***

Equipment is inspected before and after repair work, and as recommended by national guides or manufacturers' recommendations.

The work activity involves:

Preventive Maintenance
Preventive Maintenance (PM) performed in the shop or the field. The user reports the hours of use and the PM is performed at intervals recommended by the manufacturer.

Repair
Inspection is performed upon return from the renters or other users to determine the state of the equipment. Repairs are performed as needed. Upon completion of the repairs the equipment is inspected before being placed on the "ready line" or delivered to the user. The repairs are accomplished to meet the manufacturers' specifications or recommendations.

Some instances a field mechanic is dispatched to the field to repair problems reported through trouble calls. If necessary, the equipment is brought to the shop.

Inspection
Several types of equipment are required by codes to receive an inspection at certain intervals. Mechanical and electrical inspectors do these inspections. Some inspections are on equipment that is not controlled by the Fleet and Equipment Department. The expertise is just in the department.

Waste Handling and Storage
Waste is generated during the work activity. The waste oil and lead acid batteries are stored and recycled by an offsite vendor. This is coordinated between the generator, Waste Operations, and the department office. Antifreeze is recycled on site and reused.

Purchase and Excess
Equipment, parts, and fuel are purchased using the procedures identified by the Procurement and Accounting/Cost Departments. The disposal of equipment is accomplished through the Property Management procedures.

Equipment Control

WBS: 3.5. I (Continued)

This activity involves tracking equipment location, user, and availability. It also keeps track of accumulated repair cost and repair for the equipment.

Standard	*Title*	*SIT Application Note*
American National Standards Institute (ANSI)	Applicable Standards	Applicable ANSI standards in addition to those included by reference in the 29 CFR sections (for equipment not covered by the OSHA standards).
Crane Manufactures Association of America	Applicable Standards	
Society of Automotive Engineers (SAE)	Applicable Standards	
Manufacturer's Specifications	Manufacturer's Specifications	Manufacturer's recommendations or engineering specifications (if modifications to the standard vendor product have been made).

WBS: 3.5.2 *Fleet Maintenance*

Work Activity Description:

Fleet Maintenance work activities include:

- Inspecting and preparing documents for purchase of new vehicles.
- Inspecting new vehicles and installing license plates, decals, communications radios, service bodies, etc.
- Tracking motor vehicle usage, scheduling, and performing preventive maintenance, e.g., oil and filter changes.
- Recycling used oil, oil filters, antifreeze, tires, Freon refrigerants, and batteries.
- Operating a welding and fabrication shop to support maintenance and repair. This shop also supports other organizations as needed and funded.

WBS: 3.5.2 (Continued)

- Inspecting and reclaiming reusable government property from vehicles to be excessed.
- Operating service stations and fuel delivery trucks for facilities and operations at the NTS.

Standard	*Title*	*SIT Application Note*
29 CFR 1910 Subpart (Q)	Welding, Cutting, and Brazing	Requirements for welding, cutting, and brazing.
29 CFR 1910.1001	Asbestos'	Requirements for asbestos (for brake repair).
29 CFR 1910.106	Flammable Liquids	Requirements for flammable and combustible liquids and servicing multi-piece and single piece wheel rims.
29 CFR 1910.177	Servicing Multi-Piece and Single-Piece Rim Wheels	Requirements for flammable and combustible liquids and servicing multi-piece and single piece wheel rims.
40 CFR 82 Subpart B	Protection of Stratospheric Ozone	
48 CFR 1 - 53	Federal Acquisition Regulation System	
49 CFR 180, Part E, 401 - 417	Qualification and Maintenance of Cargo Tanks	DOT, Research and Special Programs, Hazardous Materials Transportation Regulations 49 CFR 180.401 - 417, Qualification and Maintenance of Cargo Tanks.
49 CFR 382-399	Subchapter B - Federal Motor Carrier Safety Regulations (FMCSR)	DOT, Office of Motor Carriers, Federal Motor Carrier Safety Regulations (FMCSR), 49 CFR Parts 392 - 399.
49 CFR 570	Vehicle In Use Inspection Standards	49 CFR 570 is the default maintenance standard.
49 CFR 571	National Highway Traffic Safety Administration, Federal Motor Vehicle Safety Standards (FMVSS)	DOT, National Highway Traffic Safety Administration, Federal Motor Vehicle Safety Standards (FMVSS) 49 CFR Part 571.

WBS: 3.5.2 (Continued)

Society of Automotive Engineers (SAE)	Applicable Standards
Tire and Rim Manufacturer's Association, Inc. (TRMA)	Recommended Practices for Fleet Operations
Nevada Administrative Code (NAC) 444.850 - 444.8746	Disposal of Hazardous Waste
Nevada Revised Statutes (NRS) 459.400 - 459.600	Disposal of Hazardous Waste

WBS: 3.6 Transportation

Work Activity Description:

Transportation is the movement of passengers or property, on the premises or in commerce, by commercial motor vehicle. The work activity includes:

- Moving equipment, materials, and people on and off public highways and other transportation support activities. Specific examples are: moving construction equipment and potable/non-potable water; watering roads and work areas; driving snow plows; transporting hazardous materials; delivering fuel; and lubricating construction equipment in the field.
- Providing furniture and office equipment movement teams with specialized trucks and equipment.
- Providing qualified, licensed drivers to support DOE/NV operations.
- Providing Department of Transportation (DOT) "Principle Place-of-Business" record keeping for motor carrier operations and qualifications of drivers.
- Providing third-party driver skills evaluations for Nevada commercial drivers licenses (CDL) for company drivers.
- Providing oversight for applicable transportation regulations.

WBS: 3.6 ***(Continued)***

- Providing management and oversight for the subcontracted NTS shuttle-bus system.
- Evaluating local and regional motor carriers.
- Packaging, shipping, and receiving of equipment, waste, or property. The work activity applies to the securing of packaged waste, e.g. drums on pallets and securing for loading in the transport vehicle. The shipments can be non-hazardous or hazardous.

Standard	***Title***	***SIT Application Note***
10 CFR 71	Packaging and Transportation of Radioactive Material	NRC, Packaging and Transport of Nuclear Material, 10 CFR Part 71.
15 CFR 30	Foreign Trade Statistics Regulations	U.S. Department of Commerce, Customs Regulations, 15 CFR Part, 39, Foreign Trade Statistics Regulations, for classification of domestic and foreign commodities exported.
15 CFR 768-799	U.S. Import Certification and Delivery Verification Procedure	Export Administration Regulations, and the Harmonized Tariff Schedule of the United States.
49 CFR 107 Subpart B	Exemptions	
49 CFR 107 Subpart G	Registration of Persons Who Offer or Transport Hazardous Materials	
49 CFR 171 - 180	Hazardous Materials Transportation Regulations	DOT, Hazardous Materials Transportation Regulations 49 CFR 171 -183..
49 CFR 382 - 399	Subchapter B -- Federal Motor Carrier Safety Regulations (FMCSR)	DOT, Office of Motor Carriers, Federal Motor Carrier Safety Regulations (FMCSR) 49 CFR Part 382 - 399.
Institute for Manufacturers of Explosives (IME) Safety Library Publication No. 22	Standard 22	IME for transport of explosives and detonators on the same truck (incorporated by reference in 49 CFR 177.835).

WBS: 3.6 (Continued)

International Air Transport Association (IATA)	Dangerous Goods Regulations	
International Civil Aviation Organization (ICAO)	Flight Regulations and Requirements	
Nevada Administrative Code (NAC) 444.8746	Hazardous Waste Transport Rules	
Nevada Revised Statutes (NRS) 459.400 - 459.600	Disposal of Hazardous Waste	
Nevada Revised Statues (NRS	Administration of Driving Skills Test By Person or Agency Other Than Department; Credit for Passing Test	Regulations for third party CDL drivers skills examiners.

WBS: 3.7 Industrial Security

Work Activity Description:

This work activity is for security services as it relates to the Industrial Security mission for DOE/NV Operations Office not including those activities required to protect Special Nuclear Material (SNM). Services are performed by contractor organizations at the NTS and Las Vegas, Nevada; Amador Valley Operations and Special Technologies Laboratory, California; Los Alamos Operations, New Mexico; Washington Aerial Measurements Operations, Andrews AFB, Maryland; and Yarrow Associates, Virginia. There are five major areas of security services: General Security, Physical Security, Technical Security, Internal/Personal Security and Security Education and Operations Security (OPSEC).

General Security Services includes:

- Badge services
- Access Control
- Facility checks/Security patrols
- Protection of property and security interests
- Searches of vehicle and personnel hand-carry items
- Response to security and fire protection alarms

WBS: 3.7 *(Continued)*

- Enforce property removal policies and procedures
- Prepare written security station orders
- Escort duties for classified materials/equipment
- Detain personnel, as appropriate
- Monitor alarms and surveillance cameras/equipment in the Primary and
- Secondary Alarm Stations
- Participate in security training exercises (alarm and emergency response)

Physical Security includes:

- Facility and other security plans (including printing) development
- Operating procedures development for physical security
- Performance tests of physical security program
- Investigation of the loss or theft of government property
- Implementation of security lock and key control procedures

Technical Security includes:

- Establishment of technical security standards, programs, and guidelines.
- Classified Computer Security (CSS) Program Unclassified Computer Security (UCS).
- Program Technical Surveillance Countermeasures (TSCM) Program.
- Communication Security (COMSEC) Program engineering guidance for alarm systems and electronic access control systems.

Internal/Personnel Security includes:

- Procedures to protect classified matter
- Visitor Control program
- New-hire and terminating employee security processing
- Classified matter handling education program
- Personnel Security Program (Security clearances)

WBS: 3.7 (Continued)

Security Education and Operations Security (OPSEC) includes:

- Operations Security (OPSEC) program
- Employee Security Education program
- OPSEC assessments
- Administer the OPSEC Waste and Disposal Program
- OPSEC administrative support

The NISCG noted that "armed Security Police Officers" may serve in positions where only unarmed access control personnel are required. Security should be considered three related but distinct work activities:

a) Safeguards and Security of Special Nuclear Material (SNM). Within the Safeguards and Security of SNM, specific requirements exist for Special Police Officers (SPO) work activities regarding the use of force (including deadly force), physical and mental fitness (Personnel Assurance Program); training including crowd/riot control and tactical methods, and firearms safety. Specific requirements, standards and guidelines have been established for these activities through DOE Orders and local implementing documents (including DOE/NV guidance). Such requirements are for the protection of SNM and the prevention of the theft of SNM and are therefore outside the scope of this activity.

When the SPOs are deployed to work stations where an armed security person is not required, they bring this knowledge with them. The use of force at these work stations may be invoked in rare instances, which are included in the SPO training. A non-SPO security person deployed to the same work station would not be trained in, nor expected to invoke the use of force.

b) Nye County arrest authority only as deputies of Nye County Sheriff (on NTS only). This work activity is somewhat unique in that SPOs have been deputized by the Nye County Sheriffs Office for supporting activities on the NTS. When acting in this capacity, the SPO is acting as an agent of Nye County under the auspices of the Nye County Sheriff.

c) Industrial Security. The work activity described in the N&S is based on commercial and government "industrial security" practices. During the process of identifying the work activity, and attempting to identify alternate (necessary and sufficient) standards for security activities, coordinating was accomplished with other DOE/DoD contractors, DOE field offices, and industrial/commercial organizations.

The hazards and management issues, Section 2.0, and the standards, Section 3.0, are based upon information from these contacts. In an

WBS: 3.7 (Continued)

Industrial/commercial environment, access control is normally performed by non-armed personnel, e.g., a receptionist.

Standard	*Title*	*SIT Application Note*
10 CFR 860	Trespassing on Department of Energy Property	issued for the protection and security of facilities, installations, and real property subject to the jurisdiction or administration of, or in the custody of DOE.
DOE 0 440.1 Contractor Requirements Document (CRD) Attachment 2, Paragraph 20	Motor Vehicle Safety	
DOE 0 1240.28	Unclassified Visits and Assignments by Foreign Nationals	
Department of Defense (DoD) 5220.22-M	National Industrial Security Program Operating Manual	
Executive Order 12829	National Industrial Security Program	This document serves as a single, integrated, cohesive industrial security program to protect classified information and to preserve economic and technical interests. Per DOE/NV, they have not heard of a change in the near future for 10865. Executive Order 12829 states that it is revoking 1 A and 1B of Executive Order 10865 as of Jan 6, 1993, though both orders are still currently in existence.
State of California Private Security Services Act, Chapter 11.5	Private Security Services	This standard is applicable to California activities only.

WBS: 3.8.1 Power

Work Activity Description:

The NTS Power System is a utility supplying electric power at voltage levels required. The transmission voltage levels of the NTS Power System are 138KV and 69KV. Distribution voltage levels are 34.5KV, 12.5KV, and 4.16KV. The scheduled work activity for operators of the electric power system is 24 hours per day, seven days per week. The schedule activity for maintenance personnel of the electric power

WBS: 3.8.1 (Continued)

system is 10 hours per day, 4 days per week. Maintenance is performed by craftsmen titled High Voltage Electrical Mechanics, High Voltage Line Mechanics and Industrial Control Wiremen. Substations, transmission lines and distribution lines are maintained through inspections, preventive maintenance, and emergency repair. Work scheduled by using a work package and trouble call system.

NTS power dispatchers are responsible for the operation of the electric power system on an around-the-clock basis.

Standard	*Title*	*SIT Application Note*
'29 CFR 1910.269	Electric Power Generation Transmission and Distribution	Provides basic standards for lock-out and tag-out procedures.
29 CFR 1926 Subpart V, Sections 950-960	Power Transmission and Distribution	Requirements for construction of transmission lines and equipment.
institute of Electrical and Electronic Engineers (IEEE)	Stahdards for Engineering in Safety, Maintainability and Operability of Lines (ESMOL)	IEEE Standards for Engineering in Safety, Maintainability and Operability of Lines (ESMOL) - Suite of standards.
Institute of Electrical and Electronic Engineers (IEEE) Standards Collection (C57)	Distribution, Power and Regulating Transformers	IEEE Standards Collection (C57), Distribution, Power and Regulating Transformers - Suite of 64 standards.
State of California General Order No. 95	Overhead Line Construction	Adopted for work on the NTS involving short-run (i.e., 10 poles or less) power line construction.

WBS: 3.8.2 *Water and Steam*

Work Activity Description:

This work activity describes the work at the NTS. Water and Steam systems are operated and maintained to supply public drinking water, to support non-potable water demands (e.g., construction work) and steam for building heating and process work. The demand for this work activity is continuous, i.e., twenty four hours per day and seven days per week. Supply of potable/non-potable water and steam consists of maintaining systems that provide adequate pressure and water quality. The source of the water at the NTS is ground water.

- Operations: The work activity includes continuous operations of water wells, booster pumps, chlorinators, distribution and transmission

WBS: 3.8.2 (Continued)

pipelines, storage tanks, construction water sumps, water treatment facilities, steam boilers and water treatment of boiler water.

- Maintenance: Maintenance consists of preventive, and corrective maintenance of water wells, booster pumps, chlorinators, distribution and transmission pipelines, storage tanks, construction water sumps, water treatment facilities and steam boilers.

Standard	*Title*	*SIT Application Note*
29 CFR 1926 Subpart P	Excavations	Requirements for work in excavations or. trenches.
American Society of Mechanical Engineers (ASME)	Boiler and Pressure Vessel Code	
Nevada Administrative Code (NAC) 445A.450 - 445A.459	Water Quality	The standards identified are those used by general industry for this work activity.
Nevada Administrative Code (NAC) 445A.485 - 445A.492	Water Quality -- Reporting through Severability	The standards identified are those used by general industry for this work activity.
Nevada Administrative Code (NAC) 445A.617 - 445A.652	Certification of Operators of Privately Owned Systems	The standards identified are those used by general industry for this work activity.
Nevada Administrative Code (NAC) 445A.655 - 445A.682	Water Supply	The standards identified are those used by general industry for this work activity.

WBS: 3.8.3 Sewer

Work Activity Description:

There are ten active sewage collection and treatment systems on the NTS. Biological treatment is accomplished by use of lagoons and disposal is achieved via evaporation and infiltration to the subsurface soils. Sewage received can be generated from domestic and industrial sources that can not contain hazardous waste nor adversely affect the operation of the treatment lagoons. There are also sixteen active septic tanks and leach-field sites on the NTS which treat and dispose of sewage generated from individual facilities in remote locations.

The major activities associated with sewage collection and treatment at the NTS are categorized into the following eight areas:

***WBS: 3.8.3** (Continued)*

- Operate sewage lagoons to attain proper treatment and disposal.
- Clean, inspect and repair the collection system on a regular basis to prevent blockages and possible surface discharges in any part of the sewage system, which includes permit required confined spaces.
- Maintain structural integrity and design of the lagoon embankments.
- Perform required monitoring and sampling.
- Prepare monitoring reports and correspondence on compliance issues.
- Evaluate proposed discharge of liquid wastes to the sewage collection systems.
- Obtain approval for additions and modifications to the wastewater systems.
- Conduct investigations and proposed construction projects to achieve compliance with regulations.

Standard	*Title*	*SIT Application Note*
29 CFR 1910.1030	Blood Borne Pathogens	Requirements for the sanitation work.
29 CFR 1910.132	Personnel Protective Equipment	
29 CFR 1910.141, .146, .147, and .151	Sanitation; Permit - Required Confined Spaces; The Control of Hazardous Energy; Medical Service and First Aid	Requirements for the sanitation work.
29 CFR 1926 Subpart 0	Motor Vehicles, Mechanized Equipment, and Marine Operations	29 CFR 1910 and applicable part of Subparts 0 and W of 1926 for general hazards.
29 CFR 1926 Subpart W	Rollover Protection Structures; Overhead Protection	29 CFR 1910 and applicable part of Subparts 0 and W of 1926 for general hazards.

WBS: 3.8.3 (Continued)

Nevada Administrative Code (NAC) 444.750 - 444.840	Sewage Disposal	The state statutes and regulations control discharge of pollutants from sources to waters of the state or to any type of treatment facility. They apply to sewage collection and treatment facilities on the Nevada Test Site since facilities have a potential to discharge to the groundwaters of the state.
Nevada Administrative Code (NAC) 445A.070 - 445A.348	Water Pollution Controls	The state statutes and regulations control discharge of pollutants from sources to waters of the state or to any type of treatment facility. They apply to sewage collection and treatment facilities on the Nevada Test Site since facilities have a potential to discharge to the groundwaters of the state.
Nevada Administrative Code (NAC) 445.131 - 445.354	Water Pollution Controls	The state statutes and regulations control discharge of pollutants from sources to waters of the state or to any type of treatment facility. They apply to sewage collection and treatment facilities on the Nevada Test Site since facilities have a potential to discharge to the groundwaters of the state.

WBS: 3.8 Telecommunications

Work Activity Description:

Telecommunications services involve the following activities:

- Provide telephone services for DOE operations in Nevada and Amador Valley Operations for official government business which includes receiving and processing customer requests; tracking and billing charges to the customer; procuring and issuing cellular phones; processing requests with other vendors, e.g., AT&T; and planning/budgeting expansions and upgrades.

- Provide secure and unsecured communications support (i.e., narrative, data, facsimile, voice, and video) to DOE/NV and other clients at Nevada operations, which includes transmitting and receiving messages; providing secure telephone units; coordinating video conferencing; and Data Encryption Standard key loader support.

- Provide a fractional T1 (high speed communications) network for nation-wide, fractional T1 Metropolitan network, and an asynchronous transfer mode telecommunications infrastructure. The networks are monitored through on-line, real time software which reports alarms and

WBS: 3.9 (Continued)

troubles within the network for any of its links or nodes.

Standard	*Title*	*SIT Application Note*
29 CFR 1910.268	Telecommunications	Requirements for telecommunications work.
National Telecommunications and Information Administration (NTIA)	Manual of Regulations And Procedures For Federal Radio Frequency Management	
Automated Digital Network (Autodin) Operating Procedures	Joint Army, Navy, and Air Force Publication	
General Services Administration (GSA) Federal Information Resources Management Regulation (FIRMR 101.35)	Applicable Standards	Requirements for government and government contractors for telephone fraud, misuse and abuse. (See notes regarding FIRMR in WBS 1.4, Information Services)
Bell Telephone Standards	Maintenance, Installation and Operation	
Security Telecommunications and Information Systems Security	Allied Communications Publications, Joint Army, Navy Air Force Publication (Automated Digital Network (Autodin) Operating Procedures), and Department of Energy Publications	These are miscellaneous publications from the various agencies listed under the title of this standard.

WBS: 3.10.1 *Materials Testing*

Work Activity Description:

Materials Testing includes destructive and nondestructive testing of materials and equipment. This includes testing for physical, mechanical, hydrologic, chemical, thermal, etc., properties. Test materials include rock, soil, concrete, cements, grouts, steel, nuts, bolts, wire ropes, composite materials, foam, and cables. Testing includes field quality assurance tests for construction and. soil and rock coring for foundation evaluations.

WBS: 3. IO. 1 (Continued)

Nondestructive evaluations (NDE) and testing are conducted to identify discontinuities in materials without impairing the usefulness or longevity of the material. NDE tests include visual observations, magnetic particle methods, ultrasonic testing, liquid penetrate testing, x-ray evaluations, leak testing and dielectric testing. Dielectric testing is conducted on aerial boom trucks to verify the insulation resistance to ground.

Test work is conducted in the laboratory, construction locations, and underground. Test work is initiated by the NTS project managers, site services, and supports the construction department. The test and evaluation reports are sent to the work requesters and the tested samples will be disposed of as directed.

Standard	*Title*	*SIT Application Note*
29 CFR 1910.1450	Occupational Exposure to Hazardous Chemicals in Laboratories	
49 CFR 106-177	Chapter I -- Research and Special Program Administration Department: Subchapter A -- Hazardous Materials Transportation, Oil Transportation and Pipeline Safety	Management issues are mitigated using national standards or special procedures identified by the client. In the absence of client specific standards, the following standards are used: U.S. Department of Transportation (DOT) 49 CFR 106 through 177 regulations for radiation equipment transportation and safety related testing.
American National Standards Institute (ANSI)	Applicable Standards	Management issues are mitigated using national standards or special procedures identified by the client.
American Petroleum Institute (API)	Applicable Standards	Management issues are mitigated using national standards or special procedures identified by the client. In the absence of client special standards, the following standards are used: American Petroleum Institute (API) procedures for the drilling mud materials physical properties testing and also rock testing.

WBS: 3.10. I *(Continued)*

American Society for Testing and Materials (ASTM)	Applicable Standards	Management issues are mitigated using national standards or special procedures identified by the client. In the absence of client specific standards, the following standards are used: American Society for Testing and Materials (ASTM) procedures and specifications are for test work such as concrete, soil, aggregate, rocks, steel, nuts, bolts, etc.
American Society of Mechanical Engineers (ASME)	Applicable Standards	Management issues are mitigated using national standards or special procedures identified by the client. In the absence of client specific standards, the following standards are used: American Society of Mechanical Engineering (ASME) standards for material specifications and acceptance standards for physical properties and NDE.
American Welding Society (AWS)	Applicable Standards	Management issues are mitigated using national standards or special procedures identified by the client. In the absence of client specific standards, the following standards are used: American Welding Society (AWS) standards for sample preparations, testing and NDE activities.
Society of Automotive Engineers (SAE)	Applicable Standards	Management issues are mitigated using national standards or special procedures identified by the client. In the absence of client specific standards, the following standards are used: Society of Automotive Engineers (SAE) standards for testing and specifications of fasteners and product test procedures.
Nevada Department of Transportation (DOT)	Materials Manual of Testing Procedures	Management issues are mitigated using national standards or special procedures identified by the client. In the absence of client specific standards, the following standards are used: Applicable Nevada Highway test standards and procedures for testing road construction projects.

WBS: 3.10.2 Scientific Services

Work Activity Description:

***WBS: 3.10.2** (Continued)*

Scientific services are provided to DOE contractors at the NTS; Las Vegas, Nevada; Amador Valley Operations and Special Technology Laboratory, California; Los Alamos Operations, New Mexico; and Washington Aerial Measurements Operations, Andrews AFB, Maryland. Work is initiated by customer request and performed in the laboratory and the field with some work underground as required. Field work requires transporting measuring and characterization equipment to the experiment locations.

Services include:

- Standards and Calibration
- Transducer Calibration and Characterization
- Fabrication of fiber arrays and hybrid electronic circuits
- Installation of fiber systems
- Operation of optical measuring devices and lasers
- Production, calibration, and design of electro-optic devices, radiation detectors, and diagnostic recording systems for field events
- Electronic and optical technologies for reading and analyzing data from event film
- Characterization of optical modulators

Work will be performed to customer requirements. If none are specified, the default standards will be drawn from this list which represents common industrial practice.

Standard	*Title*	*SIT Application Note*
American National Standards Institute (ANSI)	Applicable Standards	ANSI Standards for product specifications, acceptance criterion laser safety requirements, laser utilization guidelines, radiation measurements, and calibration of radiation sources and instruments.

WBS: 3. IO. 2 (Continued)

American National Standards Institute (ANSI) Z136.1	Safe Use of Lasers	
American Society for Testing and Materials (ASTM)	Applicable Standards	American Society for Testing and Materials (ASTM) procedures and specifications used in test work such as steel nuts, bolts, etc., test, and radiation measurements.
American Society of Mechanical Engineers (ASME)	Applicable Standards	American Society of Mechanical Engineers (ASME) standards used for material specifications and acceptance standards for physical properties.
Institute of Electrical and Electronic Engineers (IEEE)	Applicable Standards	Institute of Electrical and Electronic Engineers (IEEE), applicable portions used for design, testing, qualifications, and interface requirements.
Society of Automotive Engineers (SAE)	Applicable Standards	Society of Automotive Engineers (SAE) standards used in testing and specifications of fasteners and product test procedures.

WBS: 3.10.3 Photo-Video

Work Activity Description:

The work activity is divided into three categories, image acquisition, image processing and image distribution. These activities are the same for both the photographic and video processes.

Image Acquisition
This activity 'involves the use of video or photographic equipment to capture either moving or still images. Specifically, the activities are:

- Video image acquisition
- Aerial image acquisition (photographic and video)
- Still photography acquisition
- Electronic (digital photography acquisition

WBS: 3.10.3 (Continued)

- Scientific instrument image data acquisition
- Customer defined image acquisition
- Created image acquisition

Image Processing
Once an image is acquired, it is processed into a final product which is delivered to the customer and/or archived for later use. Processing includes:

- Video editing
- Video duplication
- Chemical film processing (photographic film and paper)
- Computer enhancement and manipulation (electronic scanning and printing)

Image Distribution
The complete products are delivered to customers and/or archived for later use. Distribution includes:

- Customer viewing
- Packing and shipping of materials to customers
- Hand delivery of materials to customers
- Customer pickup of materials
- Electronic distribution of materials (computer networks)

WBS: 3. IO. 3 (Continued)

- Long-term archiving and storage of finished products and original image acquisition materials.

Standard	*Title*	*SIT Application Note*
29 CFR 1910.1200	Hazard Communication	
United States Geological Survey (USGS)	Camera Lens Standards For Aerial Vertical Photography Used For Aerial Mapping Purposes	Gathering, processing and distributing images is considered a creative endeavor as well as a technical one. There are no specific standards for creativity in the industry. Formal education and experience comprise a "skill of the craft" standard. Technically, industry standards are applicable and commonly used. Work activity and production standards are determined by internal standards, customer defined requirements. Federal OSHA requirements and local government regulations. In addition, this work activity will also be governed by other applicable program requirements developed through other WBS elements.

WBS: 3.10.4 Radiochemical

Work Activity Description:

Radiochemical service activities are performed at the NTS for "onsite" and "off-site governmental" clients who require quality radiochemical analysis. The activities performed and processes utilized parallel those found in the commercial radiochemical service industry with the exception of the capability to perform classified work.

Radiochemical services consist of three components: sample management, laboratory operations, and office/clerical support described in the following:

Sample Management: These activities include assisting clients in establishing data quality objectives (DQOs); developing data quality plans; developing sampling and analysis plans (S&AP) and statements of work (SOWs); receiving and tracking samples with the laboratory information management system; initiating, maintaining, and assuring rigorous sample chain-of-custody; verifying laboratory deliverables against client SOWs; preparing legally defensible data reports and statements of service for billing purposes, billing laboratory work, and maintaining the laboratory billing system; serving as liaison between clients and laboratory production personnel; assisting in the

WBS: 3.10.4 (Continued)

acquisition, qualification, and surveillance of subcontract laboratories; preparing samples for shipment to subcontract laboratories and verifying subcontract laboratory data reports for clients; preparing analyzed samples and their residuals for disposal; archiving client data as required; and providing radiological, RCRA, CERCLA, and waste characterization sampling services.

Laboratory Operations: These activities include sample preparation, chemistry, and radio-counting. Ancillary to these activities is laboratory supply and material acquisition; equipment calibration, maintenance, and repair; process quality control; and implementation and oversight of the laboratory personnel health and safety program.

Office/clerical support: These activities are those associated with the operation of a commercial radiochemical production laboratory.

Standard	*Title*	*SIT Application Note*
10 CFR 835	Radiation Protection for Occupational Workers	10 CFR 835, "Radiation Protection for Occupational Workers" establishes requirements for detection limits for the bioassay program.
29 CFR 1910.1450	Occupational Exposure Hazardous Chemicals in Laboratories	Required for safe laboratory operations.
40 CFR 261.4(d)	Exclusion, d, "Solid Wastes which are not Hazardous Waste"	Important to sample management is the hazardous waste exemption for laboratory samples, stated in 40 CFR 261.4, which are collected for the sole purpose of testing for characteristics or components are not subject to any of the requirements of 40 CFR 262 through 268 as long as the: sample is being transported to a laboratory for testing, sample is being transported back after testing sample is bern stored before transport to a laboratory, sample is being store 8 in a laboratory before testing, sample is being stored after testing but before it is returned, and sample is being stored temporarily in a laboratory for a specific purpose. The exception to this exemption is, once the laboratory determines the characteristics or components and labels the sample hazardous, the laboratory is no longer in the testing phase and has to treat the sample as hazardous waste.

WBS: 3. IO. 4 (Continued)

40 CFR 61 Subpart H	National Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities	Application sections of 40 CFR Subpart H, "National Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities" establish the laboratory QA/QC program.
Performance Objective for the Certification of Non-Radioactive Mixed Waste, DOE Office of Environmental Management (EM-30)	Performance Objective for the Certification of Non-Radioactive Mixed Waste	
EPA Environmental Monitoring System Laboratory Intercomparison Standards Program, or Equivalent	EPA Environmental Monitoring System Laboratory Intercomparison Standards Program, or Equivalent	
Nevada Administrative code (NAC) 444.850 - 444.8746	Disposal of Hazardous Waste	This includes the exemption provided by 40 CFR 261.4(d).
Nevada Revised Statutes (NRS) 459.400 - 459.600	Disposal of Hazardous Waste	This includes the exemption provided by 40 CFR 261.4(d).

WBS: 3.11 Custodial Services

Work Activity Description:

Custodial services are provided for the DOE/Nevada operations. Custodial services are provided by the host facility at the remote sites. This work activity only includes work at the NTS. Custodial services are also provided for fours, special projects, and Yucca Mountain Project offices. Custodial service activities for the Nevada locations are similar to commercial custodial services and include management and planning for custodial services and subcontractor oversight which requires constant review of management practices. Success rests in the ability to apply modern techniques to technical and management problems.

The type of facilities serviced at the NTS are offices, laboratories, medial facilities, warehouses, workshops, interior public areas, and front of the house dining commons.
The types of services available are vacuuming, sweeping, mopping, stripping and waxing floors, shampooing, buffing, cleaning toilets and fixtures, window cleaning, dusting, washing walls, emptying waste baskets, sanitizing and hantavirus cleanup.

WBS: 3.1 I (Continued)

Standard	*Title*	*SIT Application Note*
29 CFR 1910.1030	Blood Borne Pathogens	Requirements for mitigation of blood borne pathogens (as implemented through WBS 4.2.2, Industrial Hygiene).
29 CFR 1910.132	Personal Protective Equipment	
Center for Disease Control and Prevention (CDC)	Hantavirus Infection - Southwestern United States: Interim Recommendation for Risk Reduction	CDC's, "Hantavirus Infection - Southwestern United States: Interim Recommendation for Risk Reduction" (as implemented in WBS 4.2.2).

WBS: 3.12 Explosives Storage

Work Activity Description:

Explosive storage magazines are made available to NTS users, e.g., National Laboratories, Department of Defense, and other groups. All magazines are assigned to the user through a facility use permit program.

This work activity is for operations, storage, and inventory:

- Operations includes off loading and loading of explosives.
- Storage includes the storing of explosives.

Inventory includes the monitoring and inventory of explosives.

Standard	*Title*	*SIT Application Note*
29 CFR 1910.109	Explosives And Blasting Agents For General Work	29 CFR 1910.109, Explosives and Blasting Agents For General Work -except for 1910.109 (d) (1) (iv) which prohibits transportation of blasting caps and explosives over the highway on the same vehicle.

WBS: 3.12 Continued)

29 CFR 1926 Subpart U	Blasting and Use of Explosives	Applicable parts of 29 CFR 1926, Subpart U, Blasting And Use Of Explosives, for construction work - except for 1926.902(d) which prohibits transportation of blasting caps and explosives on the same vehicle.
Institute for Manufacturers of Explosives (IME) Safety Library Publication No. 22	Applicable Standards	IME Safety Library Publication No. 22 (incorporated reference in 49 CFR 177.835) for the packaging and transportation of explosives and blasting caps.

WBS: 4.1.1 Fire Protection: Emergency Response

Work Activity Description:

Fire Protection Services (FPS) provides emergency response to the Nevada Test Site (NTS) and Yucca Mountain Project (YMP). FPS also responds to vehicle fires and accidents on U.S. Highway 95 between Indian Springs and Beatty, Nevada, and Highway 160 to the Pahrump, Nevada town line through a verbal agreement with the Nye County Sheriff, and can be called upon to help fight wildland fires on and adjacent to the NTS and YMP through a written mutual aid agreement with the U. S. Bureau of Land Management.

Other DOE/NV-managed locations in Las Vegas and North Las Vegas, Nevada, Los Alamos, New Mexico, Goleta and San Francisco, California, and Andrews Air Force Base, Maryland, are covered by local and host fire departments.

Response to emergencies begins with the receipt of an alarm by telephone, radio, walk-ins, or automatic detection systems at the Area 23 tire station alarm room and dispatch center. This center is manned 24 hours a day, seven days a week.

All issues related to the maintenance of fire protection equipment and apparatus are addressed under other WBS documentation packages.

The emergency response activity includes:

Fire fighting
This is the control, confinement and extinguishment of fires in structures, vehicles, as well as victim search and rescue, salvage and overhaul operations, ventilation of toxic gases during a fire and augmentation of a facility's sprinkler system at both the YMP and the NTS. In addition, FPS provides control, confinement and extinguishment of wildland fires on and adjacent to the NTS and YMP, when necessary, combining forces with the Bureau of Land Management fire fighters.

WBS: 4.1.1 Continued)

Hazardous material response
Mitigation of hazardous materials releases within structures or the environment is provided at the technician level. This includes identification of the hazardous material, plugging and patching of containers, diking and/or absorption of liquid spills and victim retrieval and decontamination.

Air craft rescue and tire control and aircraft standbys
This activity includes control, confinement and extinguishment of aircraft fires on the NTS as well as rescue of personnel on board. FPS also provides standby fire fighters and equipment during refueling operations, landings and takeoffs.

Rescue
Fire fighters provide confined space rescue and vehicle extrication service. Equipment for these specialized tasks includes hydraulic spreaders, cutters, rams, air bags, special backboards, rope, ventilating fans, tripod with hoist and body harnesses.

Medical assist
Medical and fire personnel provide a dual response on all emergencies. FPS also renders support to medical personnel on the NTS, YMP and the adjacent State highways by providing ambulance drivers and Emergency Medical Technician (EMT) service during certain medical emergencies. Most fire fighters are EMT certified and can render immediate assistance to injured workers in the absence of medical personnel.

Alarm board monitoring and tire dispatch
The alarm board and watch desk is where all requests for emergency assistance under the jurisdiction of the fire department are received and translated into an appropriate response. Further, the watch desk is structured to provide logistical support to the responding units until the situation is under control as well as providing notification of the emergency to appropriate parties. In addition, the alarm board operator monitors automatic detection devices such as sprinkler systems, smoke detectors, heat activated devices and tamper switches. The alarm board operator is the single point of contact for shipments of hazardous materials to and from the NTS, acting in an advisory capacity in the event of an accident involving the transporting vehicle.

Standard	***Title***	***SIT Application Note***

WBS: 4.1.1 (Continued)

14 CFR 139.325	Airport Emergency Plan	Requirements for response to the types of emergencies which may be encountered at airports, the notification of mutual aid personnel, medical assistance, equipment and resources, and the mitigation of an aircraft incident.
29 CFR 1910.120(q)	Hazardous Waste Operations and Emergency Response	Describes activities for first responders.
29 CFR 1910.146(k)	Permit - Required confined Space	Equipment and training necessary for making rescues from permit required confined spaces.
29 CFR 1926.353(b)	Ventilation and Protection in Welding, Cutting, Heating in Confined Spaces	Equipment and training necessary for making rescues from permit required confined spaces.
29 CFR 1926.65(q)	Hazardous Waste Operations and Emergency Response	Describes activities for first responders.
49 CFR 172.600	Emergency Response Information and Telephone	Directs shippers and receivers of hazardous materials to maintain a 24-hour information phone number with a person trained.
49 CFR 383	Commercial Driver's License Standards; Requirements And Penalties	
National Fire Protection Association (NFPA) 1221	Standard for the Installation, Maintenance, and Use of Public Fire Service Communication Systems	Paragraphs 2-I .8 through 2-I .99 only.

WBS: 4.1.1 (Continued)

National Fire Protection Association (NFPA) 1500	Fire Department Occupational Safety and Health Program	NFPA 1500, Fire Department Occupational Safety and Health Program, and its incorporated standards (listed below). NFPA 1001, Section 3-14 (live fire training) is expected due to lack of a facility. NFPA Standards incorporated by reference: 472 - Professional Competence of Responders to Hazardous Materials incidents 1001 - Fire Fighter Professional Qualifications 1002 - Fire Apparatus Driver/Operator Professional Qualifications 1003 - Airport Fire Fighter Professional Qualifications 1021 - Fire Officer Professional Qualifications 1041 - Fire Service Instructor Professional Qualifications 1403 - Live Fire Training Evolutions in Structures 1500 - Fire Department Occupational Safety and Health Program 1521 - Fire Department Safety Officer 1561 - Fire Department Incident Management System 1581 - Fire Department Infection Control Program 1582 - Medical Requirements for Fire Fighters 1901 - Pumper Fire Apparatus 1902 - Initial Fire Attack Apparatus 1911 - Service Tests of Pumps on Fire Department Apparatus 1962 - Care, Use, and Maintenance of Fire Hose Including Couplings and. Nozzles. 1971 - Protective Clothing for Structural Fire Fighting 1972 - Helmets for Structural Fire Fighting 1973 - Gloves for Structural Fire Fighting 1974 - Protective Footwear for Structural Fire Fighting 1975 - Station/Work Uniforms for Fire Fighters 1976 - Protective Clothing for Proximity Fire Fighting 1977 - Protective Clothing and Equipment for Wildland Fire Fighters 1981 - Open Circuit Self-Contained Breathing Apparatus for Fire Fighters

WBS 4.1.1 (Continued)

		1982 - Personal Alert Safety Systems (PASS) for Fire Fighters 1983 - Fire Service Life Safety Rope, Harnesses, and Hardware 1991 - Vapor Protective Suits for Hazardous Chemical Emergencies 1992 - Liquid Splash Protective Suits for Hazardous Chemical Emergencies 1993 - Support Function Protective Garments for Hazardous Chemical Operations 1999 - Protective Clothing for Emergency Medical Operations
National Fire Protection Association (NFPA) 414	Aircraft Rescue and Fire Fighting Vehicles	
National Fire Protection Association (NFPA) 471	Recommended Practices for Responding to Hazardous Materials Incidents	

WBS: 4.1.2 Fire Protection: Fire Prevention Activities

Work Activity Description:

Fire Protection Services (FPS) provides fire protection and prevention activities for all agencies on the Nevada Test Site (NTS), the Yucca Mountain Project (YMP) and DOE/NV-managed facilities m North Las Vegas and Las Vegas, Nevada. These activities are performed as additional duties by the same firefighters who respond to emergencies covered by the WBS 4.1.1 documentation package.

The tire protection and prevention activities include conducting facility fire inspections and entering inspection data in the computer, conducting visual inspections of installed fire detection, alarm and suppression systems, conducting fire investigations, maintaining a current fire protection reference library, preparing and reviewing facility prefire plans, providing fire extinguisher and life safety education presentations and demonstrations, delivering and removing Digital Alarm Radio Transmitting Stations (DARTS) and portable Fire-Pac/Alarm Station units, serving in standby situations for confined space entry and hot work, and testing firefighting equipment. FPS also does inspections, maintenance and service on approximately 5,000 tire extinguishers throughout the NTS, YMP and Las Vegas facilities. Mandatory maintenance includes annual/6-year breakdown and 5 or 12 year hydrostatic testing of each extinguisher cylinder. All fire extinguishers are tracked by a bar code system.

WBS: 4.1.2 *(Continued)*

Issues related to the installation, detailed inspection, testing and maintenance of fire protection systems (i.e., remote DARTs, Fire-Pats, alarm stations, and fire detection and suppression systems) are addressed under other Work Breakdown Structures.

Fire protection and prevention activities at other DOE/NV-managed locations at the Nellis Air Force Base, Nevada; Los Alamos, New Mexico; Goleta, and San Francisco, California, and Andrews Air Force Base, Maryland; are covered by local and host fire departments or other jurisdictions.

Standard	***Title***	***SIT Application Note***
Nevada Administrative Code (NAC)	State Fire Marshall	Nevada Administrative Code (NAC) Chapter 477, Nevada State Fire Marshal Regulations, and the Uniform Fire Code, Uniform Building code, and NFPA Codes which are incorporated by reference, with the following considerations: 1) portions of the NAC detailing responsibilities and authorities of the state fire marshal are pertinent only to the North Las Vegas and Las Vegas! Nevada, facilities as the state fire marshal is the Authority Having Jurisdiction for these facilities. This is due to the fact that local fire departments would respond to emergencies at these facilities. 2) for NTS facilities, the Authority Having Jurisdiction. is the DOE/NV manager or designee. The requirements for certain state examinations, tests, licenses, etc., and other authorities and responsibilities of the state fire marshal will not apply to NTS operations.

WBS: *4.2.1* ***Occupational Safety and Health Program***

Work Activity Description:

Systematically, prepare, implement, validate and revise policies, procedures and practices that will ensure continuous evaluation, identification, and prevention or control of general, specific and potential work place hazards.

Assist management in performing a variety of work site evaluations to identify existing hazards and operations where changes could create additional hazards. Identification goes beyond the specific requirement of the law to address all hazards.

WBS: 4.2. I (Continued)

Participate in project planning activities at the onset so that hazards are identified and prevented through effective design which incorporates safety and health concerns as an integral part of the project from inception. This would include design package review, preliminary hazard analyses, etc.

Assist managers in integrating safety and health training into other training including performance requirements and job practices.

Provide identification, exposure monitoring, and technical advice to managers to eliminate or adequately control employee exposure to toxic or hazardous substances and other unhealthful conditions.

To the maximum extent possible, employees affected by these actions are involved with OSH professionals in safety assessments, including

- Conducting comprehensive baseline work site surveys.
- Analyzing and planning OSH requirements for new facilities or modification to existing facilities, processes, materials, and equipment.
- Assisting with the conduct of job hazard analyses.
- Performing regular site safety and health inspections.
- Promptly responding to employee concerns or complaints regarding their safety and health.
- Investigating accidents and near misses to identify causes and means to prevent them.
- Analyzing injury and illness statistics over time to identify and prevent trends with common causes.

Establish controls and provide technical assistance in correcting current and potential hazards in a timely manner.

Interface with other operations and managers to assure other program elements effectively contribute to the safety and health of the work environment to include procurement, maintenance of facilities and equipment, medical departments, engineering, etc.

Interface with DOE and other outside organizations, including professional societies and standards committees.

WBS: 4.2.1 ***(Continued)***

Perform periodic comprehensive program audits to evaluate the whole set of safety and health management measures, methods, and processes to determine their adequacy in protecting against hazards and if the policy and procedures are properly implemented and are meeting the objectives of the program.

Processing requests for variations, exemptions, etc.

Ensuring standards, statistical information related to the programs, program elements, etc., are either posted for employee viewing or are available on request.

Standard	*Title*	*SIT Application Note*
29 CFR 1904	Record Keeping for Occupational Injuries/Illness&	Establishes record keeping requirements for injury and illness data. Provides for annual posting of data for employee information.
29 CFR 1905 Subpart B	Applications for Variances, Limitations, Variations, Tolerances, Exemptions and Other Relief	Prescribes methodologies for seeking temporary or permanent relief from the OSHA standards adopted under the overall program. Hazards for work that is accomplished where an OSH standard cannot be met or in situations where compliance would cause a greater hazard are addressed through the safety analyses and the controls implemented. A variation or exemption request also addresses the interim or equivalent level of protection until final approval is granted. In this context application for the variances, limitation, variations, tolerances, exemptions and other relief would be submitted to DOE, as the federal agency of jurisdiction.
DOE M 231.1 Chapter II	Environmental Safety and Health Reporting Instructions	

WBS: 4.2. I (Continued)

DOE 0 231 .1 Contractor Requirements Document (CRD)	Environmental Safety and Health Reporting	Provides injury/illness reporting for collecting data, and forms the basis for documenting fundamental accident investigation data. Provides access to a DOE operated data base that will assist in trending and analyzing injury/illness data and comparing performance to other DOE sites.
29 USC 651	Occupational Safety and Health Act	This WBS provides the overall programmatic structure for worker protection. It is supplemented by the incorporation of specific protective measures uniquely applicable to each separate WBS. These OSHA standards represent current commercial practices. Individual WBS evaluations have verified that the cited OSH standards adequately mitigate identified hazards or additional protective measures are identified therein. In the aggregate, these standards and the accompanying implementation considerations enable an acceptable comprehensive worker safety program.

WBS: 4.2.2 Industrial Hygiene

Work Activity Description:

The industrial Hygiene program is designed to protect the occupational work force and the non-occupational (visitors, etc.) work force from exposure to chemical, biological and physical hazards resulting from activities conducted at the Nevada Test Site and with other Nevada operations to include the Losee Road Operations (North Las Vegas, Nevada), Remote Sensing Laboratory (Nellis AFB, Nevada), Los Alamos Operations (Los Alamos, New Mexico), Special Technology Laboratory (Goleta, California), Amador Valley Operations (San Francisco, California) and the Washington Aerial Measurement Operations (Andrews AFB, Maryland). All the sites have common industrial hygiene requirements.

The major elements of the Industrial Hygiene program are to: anticipate potential work place hazards; recognize potential work place hazards; evaluate potential work place hazards; and control potential work place hazards. Each activity is explained below.

Anticipate Potential Work Place Hazards: Potential work place hazards are anticipated by reviewing construction and maintenance work packages, engineering plans and drawings, project work activity plans, and project health & safety plan. Through this review process, industrial hygiene recommendations are identified to the originating agency for inclusion in the project to minimize personnel exposures

WBS: 4.2.2 (Continued)

associated with the project. The anticipated work place chemical hazards result from activities conducted with toxic and hazardous substances including, but not limited to, asbestos, lead, formaldehyde, isocyanates, silica and numerous solvents and cleaners. The anticipated work place biological hazards result from activities conducted with bloodborne pathogens, rodents and their excreta, and exposures to humans with communicable diseases. The anticipated work place physical hazards result from noise, non-ionizing radiation (including lasers), heat & cold stress and ergonomic-related work activities. Note that ionizing radiation is covered under Radiological Protection.

Recognize Potential Work Place Hazards: Potential work place hazards are recognized through periodic work place health hazard inventories and health hazard assessments. The health hazard inventories identify potential health hazards. The health hazard assessments are qualitative evaluations of work place hazards using professional judgment, along with information on the potential hazards of the agent and its likelihood of release to the work place environment. From these health hazard assessments a priority list of monitoring requirements is established.

Evaluate Potential Work Place Hazards: Potential work place hazards are controlled by hazard control methods implemented by line management. Hazard control methods are selected based upon the following hierarchy: engineering controls (e.g., substitution, isolation and ventilation); work practices and administrative controls (e.g., employee rotation, back shift scheduling, etc.) that limit worker exposures; use of personal protective equipment (e.g., respirators).

Standard	*Title*	*SIT Application Note*
29 CFR 1910.1000	Air Contaminants	If conflict exists between PELs and the TLVs, professional judgment will be used.
29 CFR 1910.1001	Asbestos	Asbestos abatement activities except design and actual abatement (asbestos removal) are implemented under the industrial Hygiene Program.
29 CFR 1910.1020	Access to Employee Exposure and Medical Records	Redesignated 29 CFR 1910.1020, Federal Register 31427, June 20, 1996.

WBS: 4.2.2 (Continued)

29 CFR 1910.1025	Lead	The Lead Management Program as defined in this standard is used to minimize worker risk of lead exposure through the use of engineering controls and good work practices. The program includes worker protection requirement that involves performing exposure monitoring of operations that generate lead dust and fume in the work place. Medical Services is responsible for the medical monitoring requirements outlined in this standard.
29 CFR 1910.1048	Formaldehyde	Work place monitoring and practices specified in this standard are used to control formaldehyde exposure to workers.
29 CFR 1910.1200	Hazard Communication	Programmatic requirement applicable to all WBS elements.
29 CFR 1910.134	Respiratory Protection	The program elements include the selection and extent of respiratory protection, fit-testing and training of the users, procurement, and maintenance and issuance of respirators Occupational Medicine is responsible for medically qualifying respirator users. Line Management is responsible for ensuring the proper use of the respirator in the work place. Medical Services performs medical evaluations for employees who wear respirators.
29 CFR 1910.95	Occupational Noise Exposures	
29 CFR 1926.103	Respiratory Protection	The program elements include the selection and extent of respiratory protection, fit-testing and training of the users, procurement, and maintenance and issuance of respirators. Occupational Medicine is responsible for medially qualifying respirator users. Line Management is responsible for ensuring the proper use of the respirator in the work place. Medical Services performs medical evaluations for employees who wear respirators.
29 CFR 1926.1101	Asbestos	Asbestos abatement activities except design and actual abatement (asbestos removal) are Implemented under the Industrial Hygiene Program.

WBS: 4.2.2 (Continued)

29 CFR 1926.1148	Formaldehyde	Comply with the provision of 29 CFR 1910.1048, Federal Register 31427, June 20 1996.
29 CFR 1926.33	Access to Employee Exposure and Medical Records	See 29 CFR 1910.1020, Federal Register 31427, June 20, 1996.
29 CFR 1926.59	Hazard Communication	See 29 CFR 1910.1200, Federal Register 31427, June 20, 1996.
29 CFR 1926.62	Lead	The Lead management Program as defined in this standard is used to minimize worker risk of lead exposure through the use of engineering controls and good work practices. The program includes worker protection requirement that involves performing exposure monitoring of operations that generate lead dust and fume in the work place. Medical Services is responsible for the medical monitoring requirements outlined in this standard.
29 CFR 763 Subpart E	Asbestos Containing Materials in Schools	Contains the required actions necessary to perform operations involving the identification, sampling, analysis, assessment, response actions, operations & maintenance, record-keeping and labeling of friable and non-friable asbestos-containing materials in the work place.
American Conference of Governmental Industrial Hygienists	Threshold Limit Values (TLVs) for Chemical Substances and Physical Agents and Biological Exposure Indices	The Threshold Limit Value (TLV) standards are used in the work place to contribute to the overall improvement in worker protection, especially when there is no OSHA counterpart standard. Industrial Hygiene also uses the applicable TLVs relating to heat & cold stress, non-ionizing radiation, ergonomics and noise to protect workers from their respective effects in the work place.
American National Standards institute (ANSI) 2136.1	Safe Use of Lasers	Methods defined in this standard are used to ensure the safe use of lasers and laser systems.
American National Standards Institute (ANSI) 288.2	Practices for Respiratory Protection	For 29 CFR 1926 respiratory programs.

WBS: 4.2.2 (Continued)

Center for Disease Control and Prevention (CDC)	Hantavirus Infection - Southwestern United States: Interim Recommendations for Risk Reduction	These CDC guidelines are used for conducting inspections of work places, prevention & control of hantavirus infections in the work place, and Hantavirus Awareness training in conjunction with the Hazard Communication (HAZCOM) Training program. These CDC guidelines are used because they contain the only defined prevention and control measures published by a government agency.
Nevada Administrative Code (NAC) 618	Abatement of Asbestos	Establishes Nevada State license and operational requirements for Industrial Hygiene personnel and all others who work with asbestos, especially on asbestos abatement projects. Failure to comply with this standard in the Sate of Nevada will result in potential fines and/or imprisonment. (Applies to Nevada operations only.)

WBS: 4.3 Medical Programs

Work Activity Description:

The Occupational Medicine Program (OMP) provides occupational medical care, emergency medical services, non-occupational 'first visit' medical care, drug testing program support, an employee assistance program (EAP), Wellness services, and medical waste management to DOE personnel and contractors working at the Nevada Test (NTS), the Yucca Mountain Site Characterization Office (YMSCO), and the Las Vegas Area Offices (LVAO), as well as facilities located outside the state, but under the management of DOE/Nevada. These sites are referred to as outlying areas or remote locations. Facilities and their locations include: Amador Valley Operations, Pleasanton, CA, Special Technologies Laboratory, Santa Barbara, CA, Washington Aerial Measurements Department, Andrews Air Force Base, MD, and Los Alamos Operations, Los Alamos, NM.

Smaller scale contract medical programs, similar to the program provided at the Las Vegas Area medical facility, are established at these outlying area sites. Medical personnel from the Medical Services Section in Nevada, conduct periodic visits of these sites to ensure medical services are adequately provided by contract medical and EAP providers. The medical records for the employees assigned to off-site facilities are maintained by local contract providers of care.

Occupational health physicians, registered nurses, clinical psychologists and other health professionals provide the care, treatment, and support services to these different programs.

WBS: 4.3 (Continued)

The functional aspects of each of these programs are discussed in greater detail below.

Medical Records
29 CFR 19 10.1020 and 1926.33 Access to Employee Exposure Medical Records

Medical records are established and maintained for each employee to provide a complete record of medical care while the employee is assigned. They are required to ensure an accurate record of medical care is maintained to document and protect a worker's health, and protect the company in the event of litigation or health related injury or illness claims. Medical personnel interface with Industrial Hygiene and Health Physics personnel who provide employee exposure data and radiation exposure information which is tiled in each medical record, as required in the cited reference.

Emergency Medical Services Program
- 29 CFR 1910.132 and 1910.1030, Bloodborne Pathogens, Regulations for Health care Workers.

- Nevada Revised Statute 450B.015 to 450.93b, Emergency Medical Services.

Emergency Medical Services (EMS) are not normally a part of most occupational medicine programs. They are usually established when hazardous work is done in remote locations. Examples are offshore oil rigs, oil field drilling, mining, and heavy construction At the NTS, EMS have been established due to the type of work done, and the distance to the nearest community with definitive medical care facilities.

The OMP provides a State of Nevada-certified industrial ambulance service with paramedic-level care to employees and visitors at the Nevada Test Site in accordance with the cited reference. This service is provided 24 hours, 365 days per year at the Mercury, Nevada base camp, and during various working hours at forward area aid stations. It is the only advanced level, 24 hour EMS in Nye County, Nevada. It is for this reason that paramedic crews also respond to emergencies on nearby U.S. Highway 95 as requested by civilian authorities and rural communities. The EMS maintains a mass casualty response capability by deployment of a special purpose vehicle/trailer.

Paramedic crews also provide standby support for fire suppression activities and special operations projects. On occasion, firefighters who are Emergency Medical Technicians (EMT), assist in driving ambulances when manpower shortages occur among paramedics or two paramedics are needed to attend a patient. A select team of paramedics is assigned to the Department of Energy's Nuclear Emergency

WBS: 4.3 (Continued)

Search Team for medical support during actual deployments and training exercises.

Medical Surveillance Program (MSP)

- 29 CFR 1910.1001 and 1926.1101 Asbestos
- *29* CFR 1910.1020 and 1926.33 Access to Employee Exposure and Medical Records
- *29* CFR 1910.95 and 1926.52 Occupational Noise Exposure
- *29* CFR 1910.120 and 1926.65 Hazardous Waste Operations and Emergency Response
- *29* CFR 19 10.1025 and 1926.62 Lead
- *29* CFR 1910.48 and 1926.1148 Formaldehyde
- *29* CFR 1910.134 and 1926.103 Respiratory Protection
- ANSI Z136-1 Standard American National Standard for Safe Use of Lasers.

The above standards are the main reason why industry, government agencies, and government contractors find it necessary to have an OMP. These standards are designed to protect the worker. The primary reason for having an MSP is to protect workers' health through the use of medical evaluation and monitoring of individuals potentially exposed to hazardous substances on the job. Continuous monitoring and surveillance are the most effective ways of complying with the requirements. They are the foundation of any occupational medicine program. In addition, physicians make periodic visits to work sites in Nevada and outlying area locations to enhance their knowledge of workplace stresses and hazards.

Clinical Medicine

The daily operations of the OMP also involve clinical medicine. The important aspects of this facet of the work activity are described below.

- Physicians, nurses and paramedics participate in clinical medicine activities that include assessment, diagnosis, treatment and referral (if

WBS: 4.3 (Continued)

necessary) for occupational injuries/illnesses and non-occupational injuries/illnesses.

- Medical administrative personnel provide appropriate documentation for notification of occupational illnesses/injuries to safety, industrial hygiene and risk management offices to fulfill requirements for Worker's Compensation, OSHA, and DOE's Computerized Accident and Injury Reporting System (CAIRS) reporting.

- Medical Services personnel provide specimen collection and administrative support for alcohol and substance abuse programs, and provide similar support of programs which require drug testing of employees \involved in safety sensitive positions, such as commercial drivers and Personal Assurance Program personnel.

Employee Assistance Program (EAP)
EAP personnel provide confidential assistance in the form of counseling and referral for employees with-alcohol and drug abuse problems, family/marital conflicts, and interpersonal/social relationship problems that may interfere with the employee's ability to function on the job. The work activity for the EAP is centered on the identification and resolution of productivity problems associated with employees potentially impaired by mental health issues and work concerns which may affect employee performance and job safety.

There are no federal or state regulations requiring an employer to provide EAP services to its employees. It is a common industry and business practice to provide these services as either a part of an occupational medicine program or a benefit managed by the Human Resource activity.

A company with a formal OMP has an advantage if it offers such a service as part of its "whole person" concept of preventive medicine. A positive state of mental health is an important medical component and is recognized industry-wide as necessary for proper job performance.

Wellness Program
As with the EAP service, there are no federal or state statutes requiring a Wellness Program. However, the mission of the OMP is to protect the worker's health. Prevention is the key element in occupational or preventive medicine. The Wellness Program personnel apply preventive medical measures toward the maintenance of the physical health of employees through health promotion and education. Wellness Programs are a common component of medical programs nationwide. Hospitals and managed care programs use the preventive nature of Wellness activities to improve health and reduce costs. They have become necessary to medical programs today.

This worksite-based program addresses health issues with emphasis on lifestyle-

***WBS: 4.3** (Continued)*

related risk factors and includes assessment, promotion, education, counseling, and behavior modification of lifestyle practices. Wellness personnel also conduct annual health screens to supplement ongoing medical programs. Additionally, they conduct the Firefighter Physical Fitness program based on NAPA Standard 1500, the Standard First Aid and CPR Program, and they have the primary responsibility for developing and implementing the company's Back Injury Prevention Program.

Medical Waste
Environmental Protection Agency (EPA) Title 40 CFR, Parts 260-27 1

Medical personnel have responsibility for the disposal of medical waste collected at the NTS and the Las Vegas medical facilities. Full medical waste containers are collected by a state licensed hazardous waste disposal contractor who disposes of them. OMP personnel operate a hazardous waste satellite accumulation area (SAA) for expired adrenaline. The SSA is operated and controlled in accordance with federal law.

Standard	*Title*	*SIT Application Note*
29 CFR 1910.1030	Blood Borne Pathogens	
29 CFR 1910.132	Personal Protective Equipment	Emergency Medical Services Program
29 CFR 260-271	Federal Hazardous Waste Management Program	Medical Waste Program
American National Standards Institute (ANSI) 2136.1	Safe Use of Lasers	Medical Records and Medical Surveillance Program
National Fire Protection Association (NAPA) Standard 1500	Fire Department Occupational Safety & Health Program, Section 8-3.1 Physical Fitness	Wellness Program
Nevada Revised Statutes (NRS) 4508.015 - 450B.93b	Emergency Medical Services	Emergency Medical Services Program

WBS: 4.4 Radiation Protection

Work Activity Description:

WBS: 4.4 (Continued)

The Radiation Protection Program at the Nevada Test Site is designed to protect occupational workers from unnecessary exposure to ionizing radiation using the principle of As Low As Reasonably Achievable (ALARA).

Elements of this program are: Exposure Control, Monitoring, Records, training, and Radioactive Materials Control. Each activity is explained below:

Exposure Control: Radiation exposure is controlled such that radiation exposures are well below regulatory limits. This is accomplished by reducing time spent in radiation areas, controlling distance to a radiation source, by shielding of the radiation source, and by access/entry control to radiological area. Exposure control is accomplished through the use of signs and barricades, locked entrance ways, conspicuous visual/audible alarms, administrative procedures, engineering and design processes, the use of Radiological Work Permits (RWPs), and by direct surveillance.

Monitoring: This activity identifies the radiological hazards in the workplace. Workplace monitoring is accomplished by conducting radiation and contamination surveys, by use of constant air monitoring systems (CAMS) as applicable, air sampling, soil sampling, water sampling, and area dosimetry. Personnel monitoring is accomplished by performing radiation surveys, by use of personnel dosimetry, and by implementation of the internal dosimetry program.

Posting, Demarcation, and Labeling are also included in this activity. Radiological areas and radioactive materials are posted and labeled. Radiological areas are posted to alert personnel to the presence of external radiation or contamination.

Radiation protection instrumentation is an element of the monitoring activity. This activity involves choosing the right instruments for the expected radiation, maintenance and calibration, and field checks. The maintenance and calibration of these mstruments will be discussed by the infrastructure Standards Identification Team (SIT) in WBS 3.10.

Records: A radiological records program is maintained. These records are used to track doses received by personnel, provide personnel exposure histories, determine work area histories, and provide other radiological information that might be needed to assess situations. Dose reports are also made available to workers to inform them of their exposure. Radiological performance goals and indicators are maintained to determine program performance and trends.

Training: Personnel are trained on the hazards of radiation up to the appropriate level of radiological hazards to which they are expected to be exposed. Radiological safety training instructs personnel on the hazards of radiation and what to do in radiological work situations. The

WBS: 4.4 (Continued)

levels of radiation training received are used to determine access eligibility to the different levels of radiological areas.

Radioactive Materials Control: This activity includes the survey and release of equipment and material from radiological areas, tracking of stored radioactive material and equipment, the decontamination of contaminated equipment and material, and source accountability.

Radiation protection of the environment will be discussed in WBS 4.9, Environmental Monitoring Program.

Standard	*Title*	*SIT Application Note*
10 CFR 835	Radiation Protection for Occupational Workers	This Federal Rule establishes radiation protection standards, limits. and programs for protecting individuals from ionizing radiation at DOE facilities.

WBS: 4.5 Environmental Protection Program

Work Activity Description:

The Environmental Protection Program of DOE/NV-managed facilities and sites at the NTS, Las Vegas Area Offices (LVAO), and satellite locations in California, New Mexico and Maryland is based on Federal and State environmental protection regulations and requirements. Implementation of these requirements is documented in individual company procedures of instructions and integrated into the work processes. Specific environmental requirements not described by procedures or instructions are applied directly form the Federal or State regulations. Functional activities, to assist in the success of the program implementation, include scheduled and unscheduled compliance assessments and a variety of regulatory support services. The assessment process and ongoing regulatory support are the tools used to verify a working environmental protection program at DOE/NV facilities. The functional aspects of each of these programs are discussed in greater detail below:

Regulatory Compliance Assessments. Compliance status relating to the environmental regulations referenced in this document is determined using assessments. These assessments can consist of location-focused facility assessments or more broad programmatic assessments. The information gathered during the assessment process is used within the context of the Environmental Protection Program to identity any possible areas of concern or regulatory violations that require immediate attention and to track any developing or existing trends that may indicate a recurrent negative environmental condition.

Regulatory Support. The Environmental Protection Program identifies the appropriate environmental laws and regulations and provides

WBS: 4.5 ***(Continued)***

environmental regulatory support to project and functional managers. These environmental professionals assist in interpreting regulatory requirements associated with the manager's scope of work. In this role, the environmental professional provides guidance to the manager as to which regulatory requirements apply to their facilities, projects, or operations and assists the manager in achieving compliance through day-to-day involvement and direction on how to conduct self-assessments.

The Environmental Protection Program supports DOE's NEPA program by evaluating the impacts of DOE's activities on the environment. Project managers are responsible for ensuring that NEPA requirements are met including the identification of projects requiring NEPA and the completion of all required NEPA documentation. Environmental professionals support the effort by assisting in: identifying NEPA requirements, developing NEPA compliance documentation, reviewing documents prepared by others, and tracking documents through the approval process. NEPA compliance involves protection of peripheral to traditional environmental resources (air, water, soil) such as wetlands, coastal zones, endangered, threatened, and protected species and items and facilities of archaeological and historic interest.

Standard	*Title*	*SIT Application Note*
10 CFR 1021	National Environmental Policy Act Implementing Procedures	NEPA/Endangered species/Historic Preservation Requirements
10 CFR 1022	Compliance With Floodplain/Wetlands Environmental Review Requirements	NEPA/Endangered Species/Historic Preservation Requirements
29 CFR 1910.106(b)	Flammable and Combustible Liquids Tank Storage	
29 CFR 1910.141(b)(2)(ii)	Sanitation -Water Supply - Non-Portable Water	Drinking Water Quality
29 CFR 800	Parks, Forests, and Public Property - Protection of Historic and Cultural Properties	NEPA/Endangered species/Historic Preservation Requirements
40 CFR 116	Protection of Environment - Designation of Hazardous Substances	Water Quality

WBS: 4.5 (Continued)

40 CFR 117	Protection of Environment - Determination of Reportable Quantities for Hazardous Substances	Water Quality
40 CFR 1500-1517	Chapter V - Council on Environmental Quality	NEPA/Endangered Species/Historic Preservation Requirements
40 CFR 152.175	Restricted Use of Pesticides	Currently (July 1996) not applicable as we are not using any of them..
40 CFR 302	Designation, Reportable Quantities and Notification	Spill Reporting and Emergency Response Coordination
40 CFR 355	Emergency Planning and Notification	Spill Reporting and Emergency Response Coordination
40 CFR 50	National Primary and Secondary Ambient Air Quality Standards	Air Quality
40 CFR 53	Ambient Air Monitoring Reference And Equivalent Methods	Air Quality
40 CFR 58	Ambient Air Quality Surveillance	Air Quality
40 CFR 60	Standards of Performance for New Stationary Sources	Air Quality
40 CFR 61	National Emission Standards For Hazardous Air Pollutants	Air Quality and Asbestos Management
40 CFR 761	Polychlorinated Biphenyl (PCB) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions	PCB Management
40 CFR 80	Requirements for Gasoline Detergent Additives	Air Quality

WBS: 4.5 (Continued)

40 CFR 82	Protection of Stratospheric Ozone	Air Quality
Executive Order 11593	Protection and Enhancement of the Cultural Environment	NEPA/Endangered Species/Historic Preservation Requirements
Executive Order 12843	Procurement Requirements and Policies for Federal Agencies for Ozone-depleting Substances	Order dated April 21, 1993. Waste Minimization/Recycling/Pollution Prevention.
Executive Order 12856	Federal Compliance with Right-to Know Laws and Pollution Prevention Requirements	Order dated August 3, 1993. Waste Minimization/Recycling/Pollution Prevention and Spill Reporting and Emergency Response Coordination.
Executive Order 12873	Federal Acquisition, Recycling, and Waste Prevention	Order dated October 20, 1993. Waste Minimization/Recycling/Pollution Prevention.
City of North Las Vegas, Municipal Code Title 4, Chapter 17	Drinking Water Quality	Drinking Water Quality, mandatory for operations within CNLV jurisdiction
City of North Las Vegas, Municipal Code Title 4, Chapter 8	Water Waste	Drinking Water Quality, mandatory for operations within CNLV jurisdiction
City of North Las Vegas, Municipal Code Title 4, Chapter 9	Water Conservation	Drinking Water Quality, mandatory for operations within CNLV jurisdiction
City of North Las Vegas, Municipal Codes, Chapter 4.14	Wastewater Collection and Treatment	Water Quality, mandatory for operations within CNLV jurisdiction.
City of North Las Vegas, Ordinance 1125	Regarding Backflow and Cross Connections	Drinking Water Quality, mandatory for operations within CNLV jurisdiction
Clark County Sanitation District (CCSD) Resolution 92-012	Water Quality	Water Quality, regulations governing grease and sand/oil interceptors discharging to CCSD facilities.
Clark County Sanitation District (CCSD) Resolution No. 83-012	Water Quality	Water Quality, amends regulations governing direct and indirect contributions into the waste treatment system of the CCSD.

WBS: 4.5 (Continued)

Nevada Administrative Code (NAC) 444.570 - 444.7499	Solid Waste Management	Solid Waste Management/Non-Hazardous Waste Management, applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.
Nevada Administrative Code (NAC) 444.600 - 444.700	Certified Applicator Regulations	Applies to Nevada only. Other states require comparable measures though their cites have not been specifically included. (Currently (July 1996), none of these materials are in use.)
Nevada Administrative Code (NAC) 444.750 - 444.840	Sewage Disposal	Water Quality,. applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.
Nevada Administrative Code (NAC) 444.850 - 444.8746	Disposal of Hazardous Waste	Hazardous Waste Management, Nevada Only
Nevada Administrative Code (NAC) 444.940 - 444.960	Polychlorinated Biphenyl (PCB)	PCB management, applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.
Nevada Administrative Code (NAC) 444.965 - 444.976	Disposal of Asbestos	Asbestos Management, applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.
Nevada Administrative Code (NAC) 445A.070 - 445A.348	Water Pollution Controls	Water Quality, applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.
Nevada Administrative Code (NAC) 445A.345 - 445A.348	Release of Pollutant	Applies to Nevada only. Other states require comparable measures through their cites have not been specifically included.
Nevada Administrative Code (NAC) 445A.450 - 445A.540	Public Water Systems - Water Quality	Applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.
Nevada Administrative Code (NAC) 445A.617 - 445A.652	Operators of Privately Owned Systems	Applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.
Nevada Administrative Code (NAC) 445A.655 - 445A.681	Public Water Systems - Water Supply	Applies to Nevada only. Other states require comparable measures through their cites have not been specifically included.

WBS: 4.5 (Continued)

Nevada Administrative Code (NAC) 445A.810 - 445A.925	Underground Injection Control	Drinking Water Quality, applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.
Nevada Administrative Code (NAC) 4458.001 - 4458.395	Air Pollution	Applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.
Nevada Administrative Code (NAC) 459.9921 - 459.999	Storage Tanks	Underground Storage Tanks, applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.
Nevada Administrative Code (NAC) 477.323	Permit to Store Hazardous Material	Applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.
Nevada Administrative Code (NAC) 503.10 - 503.80 and 504.510 - 505.550	Hunting Fishing; and Trapping: Miscellaneous rotective Measures	NEPA/Endangered Species/Historic Preservation Requirements
Nevada Administrative Code (NAC) 527.010 - 527.020	Protection and Preservation of Timbered lands, Trees, and Flora	NEPA/Endangered Species/Historic Preservation Requirements
Nevada Administrative Code (NAC) 555.250 - 555.530	Custom Application of Pesticides	Applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.
Nevada Revised Statutes (NRS) 444.440 - 444.645	Collection and Disposal of Solid Waste	Solid Waste Management/Non-Hazardous Waste Management
Nevada Revised Statutes (NRS) 445.030	Furnishing impure Water for Use Unlawful; Concentration of Fluoride in Water	Drinking Water Quality, applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.
Nevada Revised Statutes (NRS) 445.131 - 445.354	Water Pollution Control	Water Quality, applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.
Nevada Revised Statutes (NRS) 445.361 - 445.399	Public Water Systems	Water Quality, applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.

WBS: 4.5 (Continued)

Nevada Revised Statutes (NRS) 445.401 - 445.601	Air Pollution	Applies to Nevada only. Other states require comparable measures through their cites have not been specifically included.
Nevada Revised Statutes (NRS) 445.650	Evidence of Compliance: Exemptions from Requirements	Water Quality , applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.
Nevada Revised Statutes (NRS) 459.400 - 459.600	Disposal of Hazardous Waste	Hazardous Waste Management, Nevada Only
Nevada Revised Statutes (NRS) 459.800 - 459.856	Storage Tanks	Spill Reporting and Emergency Response Coordination, applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.
Nevada Revised Statutes(NRS) 501.105 - 501.243	Administration and Enforcement - General Provisions	NEPA/Endangered Species/Historic Preservation Requirements, applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.
Nevada Revised Statutes (NRS) 527.050, 527.100, 527.260, and 527.270	Protection and Preservation of Timbered Lands, Trees, and Flora	NEPA/Endangered Species/Historic Preservation Requirements, applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.
Nevada Revised Statues (NRS) 534.010 - 534.190	Underground Water and Wells	Drinking Water Quality, applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.
Nevada Senate Bill Number 360	Water conservation	Applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.

WBS: 4.6 Firearms Safety

Work Activity Description:

By contract with the Department of Energy, the mission of the security protective force at DOE/NV is to perform the following functions: protection of security areas against unauthorized access; staffing fixed security stations; patrolling designated areas and points of security interests; escorting personnel or materials; checking security repositories and areas during non-working hours; apprehending unauthorized persons or vehicles in security or controlled access areas; protecting special nuclear material within the NTS boundaries; preventing

WBS: 4.6 (Continued)

through the use of force as necessary, access to security areas or to classified matter and theft or destruction of classified matter, special nuclear material, or government property; furnishing protective force personnel for related security duties, such as destruction of classified waste, staffing a central security communications center, preparing required orders, instructions and reports in connection with administration of security functions; provide test event activities which include air and ground sweeps, area muster, manning screening stations and establishing designated roadblocks; and operating primary and secondary monitoring and emergency control centers. These activities and related hazards are addressed fully in WBS 3.7, Industrial Security.

In carrying out these responsibilities, it is not necessary that the security personnel be armed unless special nuclear materials or related information is involved. Firearms currently in inventory include handguns, machine guns, sub-machine guns, rifles and grenade launchers. Of utmost importance is to ensure that armed personnel use their firearm in a safe manner. Security personnel must qualify with assigned weapons periodically and demonstrate proficiency through performance tests. During routine work activities, security personnel are required to handle, load and unload assigned firearms. During training activities, security personnel are required to handle, load/unload and fire their assigned weapons. Training is conducted both indoors (shooting house) and outdoors on live-fire ranges. In addition, the Armorer and Assistant Armorer are required to make minor repairs to firearms and conduct functional tests to ensure operability. All armed employees are required to clean firearms after use.

Standard	***Title***	***SIT Application Note***
DOE 0 440.1, Attachment 1, Paragraph 3	Worker Protection Management for DOE Federal and Contractor Employees	Standards considered necessary and sufficient for an effective firearms safety program. Consistent with practices of law enforcement agencies.
DOE 0 440.1, Attachment 2, Paragraph 15	Worker Protection management for DOE Federal and Contractor	Standards considered necessary and sufficient for an effective firearms safety program. Consistent with practices of law enforcement agencies.

WBS: 4.7 Quality Program

Work Activity Description:

The activities associated with the Quality Program consist of 2 functions: the process/work activities and responsibilities performed by all personnel and those support activities performed by a performance assurance group or organization designated by management to perform specific oversight functions.

WBS: 4.7 (Continued)

Process/Work Activities (all personnel) - Functional organizations within DOE/NV contractors and subcontractors are responsible for evaluating their work processes using a systematic risk-based approach to identify and implement only the necessary requirements of the Quality Program. Personnel involved in any manner of direct or indirect support to the performance of organization responsibilities must individually ensure the quality of their work. The Quality Program applies to all work activities and will be implemented by employees in a graded manner based on the risk of those operations.

Performance Assurance Support Activities - The management-designated performance assurance group or organization is responsible for the following:

- Developing the basis for the Quality Program and coordinating the development of policies, procedures, and other implementing documents and management tools, e.g., performance indicators, deficiency tracking and trending systems, data analysis processes,
- Conducting independent oversight, compliance, and management assessments,
- Quality program implementation support for DOE/NV-managed operations.

Standard	*Title*	*SIT Application Note*
10 CFR 830.120	Quality Assurance Requirements for Nuclear Facilities	Applicable to activities at nuclear facilities only.
DOE Order 5700.6C	Quality Assurance	DOE 5700.6C provides the latitude to respond to the special needs of any work activity and any nationally recognized quality standard, such as NQA-1, SO 9000, Military Standard 98-58, etc., should they be adopted by any organization doing business on DOE/NV managed sites. This flexibility allows outside interests to locate operations at DOE/NV managed facilities and work to any nationally recognized quality standard and still comply with the requirements of a DOE/NV Quality Program.

WBS: 4.8 Emergency Management Program and System

WBS: 4.8 (Continued)

Work Activity Description:

Emergency Management (EM) is an institutional program and system designed to ensure that an effective emergency response organization and capability is developed and maintained to protect the safety and health of workers and the general public, limit any impact on the environment, minimize equipment and facility damage, and reduce facility down time in the event of a natural or technological emergency. This is accomplished through the development of necessary EM plans and procedures that implement applicable industry standards and practices, commensurate with the type of operations conducted and the risks and hazards of associated operational activities. The implementation and maintenance of an institutional EM Program and System (EMPS) is then supported by the development and maintenance of EM readiness assurance, training, drill, and exercise programs. Under these concepts, DOE/NV would be required to develop and maintain a baseline EMPS to support operations conducted under the cognizance at the Nevada Test Site, Mercury, NV; Tonopah Test Range, Tonopah, NV; in Las Vegas, NV; North Las Vegas, NV; Los Alamos, New Mexico; Goleta, CA; Washington, D.C.; and Andrews Air Force Base, Maryland. All of these sites and facilities have the same, common requirements for establishing the fundamental elements of an institutional EMPS.

The following provides a summary of the principle programmatic elements and associated work activities that are required to develop, implement, and maintain a contemporary and baseline EMPS under current industry standards.

- Emergency planning activities involving the identification, documentation, and analysis of credible operational risks and hazards; the mitigation of identified hazards and risks to the extent practical; and the development and maintenance of comprehensive EM plans, procedures, programs, systems, and other supporting interfaces and documents.

- Emergency preparedness activities involving the identification, acquisition, and maintenance of sufficient funding and resources for the management and administration of the EMPS. This includes the development and maintenance of an organizational infrastructure of emergency facilities, communications systems, specialized emergency response organizations, and the following supporting elements:

- Emergency readiness assurance activities involving the conduct and documentation of all EMPS assessments, appraisals, evaluations, and lessons learned to ensure that established EM plans, procedures, programs, and systems are adequate, and that funding and resources are sufficient to implement, improve, and maintain an-effective EMPS. These activities also include the tracking and correction of any identified deficiencies to ensure the continued maintenance of a satisfactory compliance status.

- Development and maintenance of an integrated EM Training Program that provides the appropriate level of training for general employees, supervisors, managers, and specialized emergency response organization personnel, units, and teams.

WBS: 4.8 ***(Continued)***

- Development and maintenance of an integrated EM Drill and Exercise Program that provides performance based training activities for general employees, supervisors, managers, and key emergency response organization personnel, units, and specialized teams. This Program is designed primarily to provide for the development and maintenance of an effective employee and organizational emergency response capability. The Program also provides a mechanism by which to validate and evaluate the effectiveness of the EM Training Program, as well as organizational EM plans, procedures, systems, and emergency response organizations.

- Emergency response activities involving the immediate and situation dependent deployment, command, and control of emergency response organizations and operations necessary to mitigate and recover from the consequences of a natural or technological emergency.

Standard	***Title***	***SIT Application Note***

WBS: 4.8 (Continued)

Standards To Be Developed	Standards To Be Developed	There is no specific industry standard to govern the development and maintenance of an EMPS, in the aggregate. In view of the fact that no single industry standard or guide provides for the comprehensive coverage of an institutional EMPS. a comprehensive EM standard will be developed to serve as the requirement for establishing the DOE/NV EMPS. The development of the standard will utilize the guidelines identified in prevention plans for Section 5.0, using the graded approach. This management approach and concept has already been successfully implemented at DOE facilities and operations located in Kansas City, Missouri. In general, the EM programs and systems that are developed by private industry are based strictly on applicable federal, State, or local regulations, laws, and ordinances; and are implemented only to the extent necessary to satiny mandatory requirements. The private sector relies almost entirely upon intrinsic organizational safety and engineering programs to reduce their operational risks, hazards, and liabilities; and the emergency res onse organizations and capabilities developed and provided by fe8eral, State, and local government agencies to mitigate and recover from the consequences of any natural or technological emergency.

WBS: 4.9 Environmental Monitoring Program

Work Activity Description:

The purpose of the Environment Monitoring Program (EMP) is to assist in the minimization of discharges to the environment and the identification of areas for improving environmental performance. Persons with responsibilities within the program provide the information data, and assessments necessary to comply with regulatory requirements and support DOE policies and objectives at the Nevada Test Site (NTS), and all other facilities managed by the DOE Nevada Operations Office (DOE/NV). These other DOE/NV-managed sites currently include the North Las Vegas Facility, the Remote Sensing Laboratory, Amador Valley Operations, Santa Barbara Operations, Las Alamos Operations, and the Washington Aerial Measurements Facility. Management of the Tonopah Test Range (TTR) is being transferred from the DOE Kirtland Area Office to DOE/NV, and complete transfer should be complete by October 1, 1996. Transfer of responsibility for

WBS: 4.9 (Continued)

environmental monitoring at the TTR, however, was expedited and completed in May 1996.

The EMP consists of two primary components: Effluent Monitoring; and Environmental Surveillance. Effluent Monitoring is designed to detect and quantify the release of effluents from specifically identified sources. Environmental Surveillance is designed to detect, quantity, an assess the potential impacts of biological, chemical, and physical agents in the ambient environment, independent of any specific release or activity. The common objectives of Effluent Monitoring and Environmental Surveillance are to:

- Verify compliance with applicable Federal, state, and local regulations, and with commitments made in environmental documents such as Environmental Impact Statements, or agreements with external parties, e.g., state of Nevada.
- Establish environmental quality baselines.
- Quantify existing or potential environment problems and evaluate the need for remedial or mitigative actions.
- Detect, characterize, and report unplanned releases.
- Provide a continuing assessment of pollution abatement programs.
- Evaluate the effectiveness of effluent treatment and control.

Additionally, Effluent Monitoring is necessary to spport specific permit reissuance or revision. Environmental Surveillance is necessary to characterize and define trends m the biological, chemical, and physical condition of ambient environmental media.

The conduct' of the EMP consists of five major elements: Design; Establishment of sampling/monitoring locations; Collection of samples ad/or data/ Assessment of data; and Reporting of results.

Design - The design of the EMP is based on obtaining the data and information necessary to meet regulatory requirements and DOE objectives. Factors in designing the EMP include specific regulatory or permit requirements, site accessibility, availability of utilities, available resources, meteorological conditions, potential transport pathways for contaminants, location of ecologically sensitive areas, and location of members of the general public. The EMP design is periodically reviewed and revised as necessary based on any changes in program objectives or design factors.

WBS: 4.9 (Continued)

Establishment of Sampling/Monitoring Locations - Specific sampling/monitoring locations are established based on the design of the EMP. These locations may be maintained for a specific period of time, or indefinitely until a change in program design.

Collection of Samples and/or Data - Samples and/or data are collected from established sampling/monitoring locations. The specific type of sample(s) and/or data collected, as well as the frequency of collection, is dependent on factors such as specific regulatory or permit requirements, anticipated or potential contaminant release, physical and chemical nature of contaminant(s), site accessibility, and available resources.

Assessment of Data - Data and information generated as a result of the EMP are reviewed and assessed to ensure: usability of the data and information; identification of any unusual or unexpected results; and support of EMP objectives. Assessment of EMP data is used to validate, or modify as necessary, the design of the EMP.

Reporting of Results - Reporting of results from the EMP is done to either satisfy a specific regulatory or permit requirement, or to document the performance of the EMP. In addition to reporting sampling and/or monitoring results, reports may contain information such as: a) bases for EMP design; b) procedures, techniques, or methodologies used in the EMP; c) data assessment, including potential exposure to members of the public; and d) quality assurance and quality control data.

Standard	*Title*	*SIT Application Note*
10 CFR 20.1302	Compliance with the Dose Limit for Individual Member of the Public	Provides standards for monitoring of releases of Nuclear Regulatory Commission-licensed materials to unrestricted areas. Although DOE/NV is not regulated by the NRC, this NRC citation was selected because 10 CFR 835 does not address public exposure.
40 CFR 61 Subpart H	National Emission Standards for Hazardous Air Pollutants	Subpart H provides requirements for monitoring the rails of radionuclides other than radon from Department of Energy facilities.
40 CFR Subpart Q	National Emission Standards for Hazardous Air Pollutants	Subpart Q provides federal standards for radon emissions from DOE facilities.

WBS: 4.9 (Continued)

DOE Order 5400.1, Section 11.4.c, and Chapter IV	General Environment Protection Program	DOE Order 5400.1, "General Environmental Protection Program," II.4.c., requires an Annual Site Environmental Report (ASER) which provides a comprehensive summary of all environmental activities at all DOE/NV-managed sites, including the TTR starting with the 1996 report. This report has been routinely distributed to a wide range of federal and state regulatory agencies, and public and private NTS stakeholders. This report is commonly used to demonstrate the general efficacy and compliance of environmental activities at DOE/NV-managed sites. Continuance of tliis report is necessary to ensure public trust in the overall scope of environmental protection activities'at Doe/NV-managed sites. DOE Order 5400.1, Chapter IV, "Environmental Monitoring Requirements," contains requirements for monitoring non-NRC licensed materials to protect the public from on- and off-site releases. This Chapter of the Order will be replaced by 10 CFR 834 when it is signed into law.
Nevada Administrative Code (NAC) 444.750 - 444.840	Sewage Disposal	Required for state permittin of sewage system effluent. DOE/NV-managed facilities outside of Nevada are subject to requirements of host state and local regulations.
Nevada Administrative Code (NAC) 444.8832	Disposal of Hazardous Waste - Compliance with Federal Regulations Adopted by Reference	Adopts by reference federal standards for disposal of hazardous waste including monitoring requirements. DOE/NV-managed facilities outside of Nevada are subject to requirements of host sate and local regulations.
Nevada Administrative Code (NAC) 445A.453 - 445A.459	Public Water Systems	Provides standards fro sampling and monitoring of potable water systems. DOE/NV-mana ed facilities outside of Nevada are subject to requirements of host state and local regulations.