

REGULATORY UNIT ASSESSMENT OF THE NON-RADIOLOGICAL WORKER SAFETY AND HEALTH PLAN



August 24, 2000

Office of Safety Regulation of the RPP-WTP Contractor

U.S. Department of Energy
Richland Operations Office
P.O. Box 550, A4-70
Richland, Washington 99352

REGULATORY UNIT ASSESSMENT OF THE NON-RADIOLOGICAL WORKER SAFETY AND HEALTH PLAN



August 24, 2000

Office of Safety Regulation of the RPP-WTP Contractor

U.S. Department of Energy
Richland Operations Office
P.O. Box 550, A4-70
Richland, Washington 99352

Approved by: _____
Regulatory Official

Date: _____

PREFACE

The Department of Energy's (DOE) Richland Operations Office (RL) issued the *TWRS Privatization Request for Proposal* (RFP) for Hanford Tank Waste Remediation System (TWRS) Privatization in February 1996. Offerors were requested to submit proposals for the initial processing of the tank waste at Hanford. Some of this radioactive waste has been stored in large underground storage tanks at the Hanford Site since 1944. Currently, approximately 54 million gallons of waste containing approximately 240,000 metric tons of processed chemicals and 250 mega-curies of radionuclides are being stored in 177 tanks. These caustic wastes are in the form of liquids, slurries, saltcakes, and sludges. The wastes stored in the tanks are defined as high-level radioactive waste (10 CFR Part 50, Appendix F) and hazardous waste (Resource Conservation and Recovery Act).

The contract concept was for DOE to enter into a fixed-price contract for the contractor to build and operate a facility to treat the waste according to DOE specifications. The TWRS Privatization Program was divided into two phases, Phase I and Phase II. Phase I was a proof-of-concept/commercial demonstration-scale effort the objectives of which were to (a) demonstrate the technical and business viability of using privatized contractors to treat Hanford tank waste; (b) define and maintain adequate levels of radiological, nuclear, and process safety; (c) maintain environmental protection and compliance; and (d) substantially reduce life-cycle costs and time required to treat the tank waste. The Phase I effort consisted of two parts: Part A and Part B.

Part A consisted of a twenty-month development period to establish appropriate and necessary technical, operational, regulatory, business, and financial elements. This included identification by the TWRS Privatization Contractors and approval by DOE of appropriate safety standards, formulation by the Contractors and approval by DOE of integrated safety management plans, and preparation by the Contractors and evaluation by DOE of initial safety assessments. Of the twenty-month period, sixteen months were used by the Contractors to develop the Part-A products and four months were used by DOE to evaluate the products.

Part B was to consist of a demonstration period to provide tank waste treatment services by the TWRS Privatization Contractors who successfully completed Part A. Demonstration was to address a range of wastes representative of those in the Hanford tanks. Part B was to be 10 to 14 years in duration. Within Part B, wastes were to be processed during a 5- to 9-year period resulting in treatment of 6 to 13 percent of the Hanford tank waste.

Phase II was to be a full-scale production phase in which the remaining tank waste would be processed on a schedule that would accomplish removal from all single-shelled tanks by the year 2018. The objectives of Phase II were to a) implement the lessons learned from Phase I; and b) process all tank waste into forms suitable for final disposal.

In May 2000, DOE chose to terminate the privatization contract and seek new bidders under a different contract strategy. The program name was also changed from the Tank Waste Remediation System to the River Protection Project (RPP). The RPP is under the direction of the Office of River Protection, which was created by Congress in 1998 to assume programmatic responsibility for the entire Tank Waste Remediation System, including the waste treatment plant (WTP).

A key element of the River Protection Project Waste Treatment Plant (RPP-WTP) is DOE regulation of safety through a specifically chartered, dedicated Regulatory Unit (RU) at RL. This regulation by the RU is authorized by the document entitled *Policy for Safety Regulation of the*

RPP-WTP Contractor (referred to as the Policy) and implemented through the document entitled *Memorandum of Agreement for the Execution of Safety Regulation of the RPP-WTP Contractor* (referred to as the MOA). The Under Secretary of Energy; the Assistant Secretary for Environment, Safety and Health (ASEH); and the Assistant Secretary for Environmental Management (ASEM) signed the Policy. The MOA is signed by the ASEH and the ASEM. The nature and characteristics of this regulation are also specified in these documents. The MOA details certain interactions among RL, the ASEH, and the ASEM as well as their respective roles and responsibilities for implementation of this regulation.

The authority of the RU to regulate the RPP-WTP Contractor is derived solely from the terms of the RPP-WTP Contract. Its authority to regulate the Contractor on behalf of DOE is derived from the Policy. The nature and scope of this special regulation (in the sense that it is based on terms of a contract rather than formal regulations) is delineated in the MOA, the RPP-WTP Contract, and the documents, listed below, which are incorporated into the Contract. This special regulation by the RU in no way replaces any legally established external regulatory authority to regulate in accordance with duly promulgated regulations nor relieves the Contractor from any obligations to comply with such regulations or to be subject to the enforcement practices contained therein.

The Policy, the MOA, the RPP-WTP Contract, and the documents incorporated in the Contract define the essential elements of the regulatory program, which are being executed by the RU and to which the RPP-WTP Contractor must conform. The four radiological, nuclear and process safety-related documents incorporated in the Contract (and also incorporated in the MOA) are:

Concept of the DOE Process for Radiological, Nuclear, and Process Safety Regulation of the RPP Waste Treatment Plant Contractor, DOE/RL-96-0005,

DOE Process for Radiological, Nuclear, and Process Safety Regulation of the RPP Waste Treatment Plant Contractor, DOE/RL-96-0003,

Top-Level Radiological, Nuclear, and Process Safety Standards and Principles for the RPP Waste Treatment Plant Contractor, DOE/RL-96-0006, and

Process for Establishing a Set of Radiological, Nuclear, and Process Safety Standards and Requirements for the RPP Waste Treatment Plant Contractor, DOE/RL-96-0004.

The non-radiological safety document is:

Industrial Hygiene and Safety Regulatory Plan, RL/REG-2000-04.

In the execution of the regulatory program, the RU considers not only the relevant approaches and practices of DOE but also those of the U.S. Nuclear Regulatory Commission (NRC) and the Occupational Safety and Health Administration (OSHA). The Policy states that

"It is DOE's policy that the RPP-WTP Contractor activities be regulated in a manner that assures adequate safety by application of regulatory concepts and principles consistent with those of the Nuclear Regulatory Commission and the Occupational Safety and Health Administration."

To this end, the RU interacts with the NRC and the OSHA during development and execution of the regulatory program.

All documents issued by the Office of Safety Regulation of the RPP-WTP Contractor are available to the public through the DOE/RL Public Reading Room at the Consolidated Information Center, Room 101L, Richland, Washington. Copies may be purchased for a duplication fee.

This page left intentionally blank.

Table of Contents

1.0 INTRODUCTION 1

2.0 REGULATORY INTERFACES 2

3.0 REVIEW PROCESS 3

 3.1 Review Approach..... 3

 3.2 Review Chronology..... 3

4.0 FINDINGS 4

 4.1 Compliance with Contract Requirements 5

 4.1.1 Requirements..... 5

 4.1.2 Review Methodology 5

 4.1.3 Evaluation..... 6

 4.1.4 Conclusions 8

 4.2 Conformance to Core Requirements..... 8

 4.2.1 Management Roles and Responsibilities..... 8

 4.2.2 Emergency Services 11

 4.2.3 Fire Protection..... 14

 4.2.4 Work Analysis and Risk Mitigation..... 16

 4.2.5 Safety Meetings 18

 4.2.6 Site Walkdowns and Surveys 20

 4.2.7 Equipment and Tool Inspection..... 21

 4.2.8 Industrial Hygiene Monitoring Program..... 23

 4.2.9 Lockout/Tagout Program..... 25

 4.2.10 Training 26

 4.2.11 Site Control..... 31

 4.2.12 Inspections by Competent Persons..... 33

 4.2.13 Hoisting and Rigging..... 34

 4.2.14 Excavations and Shoring..... 35

 4.2.15 Fall Protection..... 36

 4.2.16 Scaffolding and Aerial Lifts..... 37

 4.2.17 Cranes, Derricks and Hoists..... 38

 4.2.18 Motorized Vehicles and Mechanized Equipment 39

 4.2.19 Concrete Construction..... 41

5.0 REFERENCES 42

6.0 LIST OF TERMS 42

APPENDIXES

[Appendix A. Education and Expertise of the IH&S Team](#) 45

[Appendix B. Review Questions](#) 47

This page left intentionally blank.

REGULATORY UNIT ASSESSMENT OF THE NON-RADIOLOGICAL WORKER SAFETY AND HEALTH PLAN

1.0 INTRODUCTION

The expectations of the non-radiological safety program of the River Protection Project Waste Treatment Plant (RPP-WTP) Contractor have been specifically defined in the RPP-WTP Contract.¹ The Contract requires the Contractor to be responsible for "providing safe and healthful working conditions for employees, and all other persons under the Contractor's control who work in the general vicinity of the Contractor site, including subcontractors."²

In establishing the regulatory basis for meeting this requirement, the Contract states the following:³

"The Contractor shall comply with all applicable Federal, State, and local safety and health regulations, including those of...OSHA."

The Contract also requires the following:⁴

"The Contractor shall develop and implement an integrated standards based safety management program that: (1) defines policies and procedures for protecting employees from conventional workplace hazards, and (2) ensures compliance with all applicable Federal, State, and local safety and health codes, regulations and standards including regulations of...the OSHA.

The Contractor's safety management program shall reflect proven principles of safety management and work planning that promote accident prevention, employee involvement, and sound hazard analysis and control."

The Contractor must develop, implement, and maintain an integrated standards-based safety management program that meets the Contract requirements described above. The Contract⁵ requires the Contractor to document this program and to submit the document to the U.S. Department of Energy's (DOE) Richland Operations Office (RL), Office of Safety Regulation of the RPP-WTP (Regulatory Unit [RU]), for review and approval. The RU is the DOE regulatory authority for industrial hygiene and safety (IH&S)⁶ for the Contract.

¹ Contract No. DE-AC27-96RL13308 between DOE and BNFL Inc., dated August 24, 1998.

² Ibid., Section C.3, "Regulatory Environment."

³ Ibid., Part I, Section C.3, pg. C-7.

⁴ Ibid., Standard 4, "Safety, Health, and Environmental Program."

⁵ Ibid., Modification No. A006, Table C4-2.1, item B-1-31.

⁶ The more commonly accepted term for the area of RU regulation is "industrial hygiene and safety" or IH&S. The RU considers the terms "IH&S," "non-radiological worker safety and health," and "occupational safety and health" to be equivalent.

The Contractor submitted its Non-radiological Worker Safety and Health Plan (Plan) for RU review on April 21, 2000.⁷ This Assessment Report (AR) documents the result of the RU's review of the Plan. The purpose of this AR is as follows:

- Describe the RU's assessment process.
- Describe the Contractor's Plan.
- Document the Contractor's response to the RU's questions from the assessment process.
- Document the conclusions of the RU assessment.

All letters and documents referenced in this AR are in the public record and are available through DOE, RL Public Reading Room at the Consolidated Information Center, 2710 University Drive, Richland, Washington.

2.0 REGULATORY INTERFACES

As the regulatory authority, the RU interfaced with several organizations to review the Plan and prepare this AR. The essential interfaces, and their roles in this AR, are as follows:

- Contractor's Manager of Industrial Safety – The Manager, Industrial Safety, is the head of the Contractor's organization responsible for preparing and maintaining the Plan. The Manager of Industrial Safety is also the primary contact for questions on the Contractor's IH&S programs, including the questions generated by this assessment (see Appendix B).
- DOE-Headquarters (HQ) – The RU works with DOE's Office of Occupational Safety and Health Policy (EH-51) to resolve policy questions, address technical issues, and interpret DOE worker safety and health and DOE-adopted Occupational Safety and Health Administration (OSHA) standards. EH-51 participated in reviewing the Plan and preparing this AR.
- OSHA and Washington State Department of Labor and Industries (L&I) – The RU provided the Plan to the staff of OSHA Region 10 and L&I. Their comments and questions are reflected in this AR.
- Tribal Nations – The RU informed staff of the Confederated Tribes and Bands of the Yakama Nation, the Nez Perce Tribe, and the Confederated Tribes of the Umatilla Indian Reservation on the availability of the Plan and the draft AR. At their request, copies of the Plan were provided to the Yakama Nation (the Yakama Nation reviewer had no comments).

⁷ CCN: 012740, Letter, S.R. Morgan, BNFL, to M.K. Barrett, DOE-RL, "Contract No. DE-AC06-96RL13308 – W375 – B-1-31, Nonradiological Worker Safety and Health," dated April 21, 2000.

- Stakeholders and the Public – The Plan was made available to stakeholders and the public through the RU’s website.⁸ Also, the draft of this AR was placed on the website for stakeholder and public review and comment.

3.0 REVIEW PROCESS

3.1 Review Approach

The RU developed RL/REG-2000-03, *Review Guidance for the Non-radiological Worker Safety and Health Plan*, to provide guidance on the content of the Contractor’s Plan. This Review Guidance forms the basis for the review documented by this AR. The RU structured the review guidance according to the requirements of the Contract.

The RU augmented the review guidance with RL/REG-2000-09, *Planning Handbook for the Non-radiological Worker Safety and Health Plan*. The Handbook provides the RU reviewers with specific acceptance criteria and a process to be used for their review. The Handbook also includes the following:

1. Charter of the review team
2. Roles and responsibilities of the team
3. Team schedule
4. Qualifications of the team members
5. Team orientation
6. Team process description
7. Preparation of the AR
8. Development of lessons learned.

The RU assembled a seven-person review team to evaluate the Plan. The review team composition and expertise are presented in Appendix A. The reviewers systematically evaluated the Plan using the review guidance and the acceptance criteria and process in the Handbook.

The purpose of this review was to determine whether the Contractor’s Plan adequately addressed the review guidance and the acceptance criteria established in the Handbook. The review assessed whether the Contractor’s Plan, if thoroughly implemented, was adequate to protect workers during planned construction activities. The Regulatory Official may use the results of the review as part of the subsequent readiness for limited construction and readiness for construction decisions.

3.2 Review Chronology

The chronology of the Contractor’s Plan and the RU review is shown in Table 1.

⁸ The RU’s website is located at <http://www.hanford.gov/osr/osr.asp>.

Table 1. Review Chronology

Activity	Date
Non-radiological Worker Safety and Health Plan received from the Contractor	April 26, 2000
Comments received from review team	May 12, 2000
RU written comments provided to the Contractor	May 15, 2000
Additional RU written comments provided to the Contractor	June 2, 2000
Response to RU comments received from the Contractor	June 22, 2000
Final comments and requests for clarification provided to the Contractor	July 17, 2000
Draft Report Issued for Public Review	July 17, 2000
Final responses received from the Contractor	N/A ⁹
Final Report Issued	August 24, 2000

4.0 FINDINGS

The Review Guidance identified 19 acceptance criteria that the Contractor’s Plan was to meet:

1. Management roles and responsibilities
2. Emergency services
3. Fire protection
4. Work analysis and risk mitigation
5. Safety meetings
6. Site walkdowns and surveys
7. Equipment and tool inspection
8. Industrial hygiene monitoring
9. Lock and tag
10. Training
11. Site control
12. Inspections by competent persons
13. Hoisting and rigging
14. Excavations and shoring
15. Fall protection
16. Scaffolding and aerial lifts
17. Cranes, derricks, and hoists
18. Motorized vehicles and mechanized equipment
19. Concrete construction.

⁹ On June 29, 2000, the Manager, Office of River Protection issued a “Notice of Termination” terminating all except specifically designated work under the contract effective with the date of the letter. Therefore, no responses were received from the Contractor. No public comments were received.

The degree of the Plan's conformance with Contract requirements and the established attributes and acceptance criteria of each of the above 19 criteria are discussed in the following sections.

4.1 Compliance with Contract Requirements

4.1.1 Requirements

The Contract requirements for the Plan's compliance are in Section 1.0 of this AR. The Code of Federal Regulations (CFR), Title 29, Parts 1910 and 1926, define the core requirements against which the RU evaluated the Contractor's non-radiological worker safety and health program. This evaluation is presented in Section 4.2 in this assessment.

This section contains the RU evaluation of the Contractor's compliance with the general program requirements of an integrated safety program. These general program requirements derive from the principles of integrated safety management (ISM). Table S4-1 of the Contract required the Contractor to submit an ISM Plan (ISMP). The ISMP content is defined, in part, as follows:

"The program documented in the ISMP contains appropriate features of integrated safety management (i.e., integration among safety, design, and operations interests; integration over the life cycle of the activities; and integration into work planning and performance)."¹⁰

The Contractor must perform work according to the process specified in its ISMP,¹¹ which includes the following commitment:

"[The Contractor] will have an OSHA-qualified Voluntary Protection Program. [The Contractor] will obtain STAR status during construction and operation."

OSHA's Voluntary Protection Program (VPP) recognizes outstanding safety performance. Safety programs that achieve Merit or STAR status exemplify the principles of ISM, with an emphasis on employee ownership of safety and safety improvement. A VPP requires extensive involvement by management and workers. This commitment meets or exceeds many of the worker involvement goals of OSHA and ISM.

The requirements of this section are, therefore, derived from, and consistent with, the principles of ISM and VPP.

4.1.2 Review Methodology

The reviewers evaluated the Contractor's Plan for conformance to the criteria contained RL/REG-2000-09, Table 2, under "General Non-radiological Program Requirements." Specifically, the reviewers assessed the Plan according to the following attributes:

¹⁰ DOE/RL-96-0003, *DOE Process for Radiological, Nuclear, and Process Safety Regulation of the RPP Waste Treatment Plant Contractor*, Section 3.3.1, p. 5.

¹¹ Section 7.2, "Occupational Health and Safety Interface."

1. Whether the scope of the Contractor's program and the methods, approaches, and systems used were adequate.
2. Whether the Contractor's rationale and methods for identifying and mitigating workplace hazards and hazardous working conditions were identified.
3. Whether the Contractor indicated its evaluation of hazards was facility and/or task specific.
4. Whether the Contractor acknowledged its responsibility for safety.
5. Whether the Contractor clearly articulated the authority of individuals to stop work in situations of immediate hazard.

4.1.3 Evaluation

The reviewers evaluated the Contractor's Plan for general program requirements and considered that the Plan fully met three of the five attributes listed in the Handbook, partially met one attribute, and did not adequately meet one attribute. Evaluations of the attributes are discussed below (citations refer to the applicable section of the Plan):

1. The reviewers evaluated the scope of the Contractor's program and the methods, approaches, and systems used to implement the program and considered them to be acceptable. The Contractor defined a program that begins with a commitment to comply with all relevant legislation and to conform to DOE's top-level standards ("Health and Safety Policy," p. v). The program's essential elements were defined as written programs, employee training workplace monitoring, and enforcement (Section 1.4, "Compliance"). Responsibilities for the program were assigned to the General Manager, the head of Operations and Safety, and the Safety and Regulatory Manager; and the role of employees was defined ("Health and Safety Policy," p. vi).

The program description required every subcontractor to use the elements of the Contractor's program in developing and implementing their individual plans (Section 1.2.1, "General Requirements of the Plan") and to submit a written safety plan for acceptance before starting work (Section 1.3, "Planning"). The Contractor committed to both auditing for compliance and regular program reviews ("Health and Safety Policy," p. vi).

2. The reviewers evaluated the Plan's rationale and methods used to identify and mitigate workplace hazards and hazardous working conditions and considered them to be acceptable. The Contractor's Safety and Regulatory Manager was tasked with developing and implementing a hazard identification and mitigation process that assesses risks, involves employees, and eliminates or controls hazards ("Health and Safety Policy," p. vii). The Contractor proposed several processes to accomplish these goals, including standardized work plans and procedures (Section 1.7, "Zero Accident Process"). The Contractor's approach used an escalating series of controls based on the significance of the identified hazard. These controls started with the Safety Task

Analysis Risk Reduction Task and proceed through job hazard analyses to hazardous work permits. All jobs were subject to some level of safety control (Section 3.4, "Risk Assessment"). Deviations from the process were allowed only where written requests for waivers were received and approved (Section 3.6, "Request for Waiver or Deviations"). Authorities for the waiver process were clearly defined.

3. The reviewers evaluated the Contractor's process for considering task-specific hazards and considered it to be acceptable. Line managers were tasked with reviewing individual jobs and tasks under their jurisdiction for safety and health hazards. They were also responsible for ensuring that the necessary controls were in place (Section 2.2.2, "Line Managers"). Employees were provided information on the specific hazards of each work activity (Section 2.5.1, "Subcontractors") and were responsible for participating in hazard identification (Section 2.2.2). The ES&H Department reviewed tasks as they were scheduled. The Plan clearly stated the preferred application of hazard control measures (Section 3.2, "Hazard and Prevention Control").

The hazard identification and mitigation process requires tracking and publicizing safety issues ("Health and Safety Policy," p. vii), including a commitment to develop and post safety metrics (Sections 1.5, "Accident Prevention Policy," and 2.3.1, "Environmental, Safety, and Health Manager"), reporting and investigating accidents, and following up with appropriate corrective action (Section 1.7). Controls were augmented with weekly safety meetings (Section 4.2, "Safety Meetings").

4. The reviewers evaluated the extent to which the Contractor acknowledged responsibility for safety and considered that it was inadequate. The Plan did not appear to be consistent with the ISMP, Section 3.2, "Safety Responsibilities," which places responsibility for safety with the Contractor and the General Manager. The Plan did not clearly vest safety responsibility with a single position or organization. Rather, "site management" was cited as being responsible for effectively implementing the IH&S program (Section 1.2.1). The "project management team" was assigned responsibility for the safety and health of the employees' work environment (Section 2.1, "General"). The Site Manager's role was presented as "safety's champion" and was responsible for ensuring that work was conducted according to applicable standards (Section 2.2.1, "Site Manager"). The Plan specifically stated that the project only monitors subcontractor implementation of their safety plans (Section 2.5.1). The Contractor must clearly specify who has ultimate responsibility for safety.
5. The reviewers evaluated whether the Plan specifically required and empowered employees to participate and act in matters affecting their safety and health ("Health and Safety Policy," p. vii) and considered it to be conditionally acceptable, as noted below. Employee stop-work authority statements appear several times in the Plan. However, the statements were not fully consistent, variously giving the employee the right to stop work for imminent danger (Sections 2.2.3, "Employees" and 2.4, "Engineering and Administration Personnel"), to stop work for unsafe acts or conditions (Section 2.5, "Contracts"), and to refuse work that they believed was unsafe (Section 3.3, "Stop Work Authority"). The Contractor must clearly define and consistently use the terms "stop work," "imminent danger," and "unsafe acts or conditions" to ensure employees clearly understand their authority for each situation.

4.1.4 Conclusions

On the basis of the evaluation described in this section, the reviewers concluded that the Contractor met the Contract requirements with two exceptions:

1. The Contractor must clearly state within the Plan who has ultimate responsibility for safety.
2. The Contractor must clearly define and consistently use the terms "stop work," "imminent danger," and "unsafe acts or conditions."

In addition, the reviewers noted in Question 00-IH&S-037-Q that the Plan was silent with respect to the committed OSHA Voluntary Protection Program defined in the ISMP. The reviewers asked that the Contractor state its level of commitment to achieving VPP.

4.2 Conformance to Core Requirements

4.2.1 Management Roles and Responsibilities

4.2.1.1 Requirements

In this area, 29 CFR 1926, Subpart C, Section 20, and OSHA's VPP Policies and Procedures Manual, Chapter 6, Part H4, provide that employers shall initiate and maintain programs to ensure that any laborer or mechanic will work under conditions or in surroundings that are sanitary and free of hazards or danger to health and safety. The regulations further require that the programs shall provide for employer-designated competent persons to perform frequent and regular inspections of the job sites, materials, and equipment.

The Contract, Sections C.3 and C.5, contains requirements for an integrated, standards-based program for non-radiological worker safety and health.

4.2.1.2 Review Methodology

The reviewers evaluated the Contractor's Plan for conformance to the criteria contained in RL/REG-2000-09, Table 2, Criterion 1 (Management Roles and Responsibilities). Specifically, the reviewers assessed the Plan according to the following attributes:

1. The Contractor described its approach to construction management of an IH&S program, including the method for overseeing and assessing the safety adequacy of any construction activity assigned to a contractor or subcontractor as required by 29 CFR 1926.20(a)(1) and (b)(2) and OSHA's VPP Policies and Procedures Manual, Chapter 6, Part H4(c).
2. The Contractor's policies and requirements of its management system will provide for the systematic development of measures that ensure that workers and project supervisors and management understand, support, and seek consistently to implement the relevant IH&S

program aspects as required by 29 CFR 1926.20(a)(1) and (b)(2).

3. The Contractor has management policies and requirements for assessing the adequacy of the construction task procedures to ensure worker safety and health as required by 29 CFR 1926.20(a)(1) and (b)(2).
4. The Contractor's organizational structure for IH&S personnel responsible for developing and implementing the IH&S program has adequate lines of communication and sufficient influence as required by 29 CFR 1926.20(a)(1).
5. The Contractor's management commitment for IH&S includes developing both an implementation plan and a procedure to ensure the IH&S program's currency and relevance by providing, for example, periodic program reviews, demonstrations of adequacy, program changes, and methods for approving program documentation as required by the Contract, Part I, Section C, Standard 4.C.1.
6. The Contractor's IH&S program describes the function and responsibilities of each contractor and subcontractor organization as required by the Contract, Part I, Section C, Standard 4.C.1.
7. The Contractor has management provisions for adequate contractor and subcontractor communications as required by the Contract, Part I, Section C, Standard 4.C.1.
8. The Contractor's management program provided for resolving inconsistencies and differences among any of the organizations, contractors, and subcontractors involved in construction as required by the Contract, Part I, Section C, Standard 4.C.1.
9. The Contractor's management program has provisions for worker and workplace safety goals and objectives as required by the Contract, Part I, Section C, Standard 4.C.1 and OSHA's VPP Policies and Procedures Manual, "Introduction," Parts A.1, C.1, C.3(a), and C.5.
10. The Contractor adequately describes the functions and obligations of employees-assigned safety-related responsibilities as required by 29 CFR 1926.20(a)(1), (b)(1), and (b)(2).

4.2.1.3 Evaluation

The reviewers evaluated the Contractor's Plan for management roles and responsibilities and considered that the Plan met all 10 of the attributes listed in the Handbook. Evaluations of the attributes are discussed below:

1. The reviewers evaluated the Contractor's approach to construction management of an IH&S program and considered it to be acceptable. The Contractor's approach to IH&S program management and construction activity oversight and assessment was described in Sections 1.2.1 ("General Requirements of the Plan"), 1.3 ("Planning"), 1.4 ("Compliance"), and 1.5 ("Accident Prevention Policy"). Section 2.0 ("Responsibilities and Accountability") adequately described how site management, line management, and

employees were involved in implementing the IH&S program and assessing the safety adequacy of construction activities.

2. The reviewers evaluated the Contractor's policies and requirements of its management system and considered them to be acceptable. The management system policies and requirements for developing measures to ensure that all workers understand, support, and implement program requirements were adequately described in Sections 1.2.1, 1.4, 1.5, 1.6 ("Zero Accident Criteria"), and 1.7 ("Zero Accident Process"). Section 2.0 adequately described how workers, project supervision and management would ensure that everyone understands, support, and implement the necessary IH&S program aspects. The individual responsibilities and accountabilities in this regard were clearly established.
3. The reviewers evaluated the management policies and requirements for assessing the adequacy of construction task procedures to ensure adequate worker safety and health provisions and considered them to be acceptable. These policies and requirements were described in Sections 1.4 and 1.6. The Plan adequately provides for assessing construction task procedures and assigned functional responsibilities in Section 2.2.2 ("Line Managers").
4. The reviewers evaluated the provisions for communication lines and sufficient influence of the IH&S personnel and considered them to be acceptable. Sections 1.2.1, 1.5, 2.2.2, 2.2.3 ("Employees"), and 2.3 ("Environmental, Safety, and Health Management") clearly provided IH&S personnel and all employees with sufficient influence. Responsibilities and plans for communications were adequately addressed in position responsibility statements and the flow chart in Section 2.0.
5. The reviewers evaluated the provisions for developing an IH&S implementation plan and procedures and considered them to be acceptable. Section 1.2 ("Purpose of the Non-Radiological Worker Safety and Health Plan") established the plan and procedures, and Section 1.2.1 adequately established the plan requirements. Requirements for program reviews were adequately specified in Sections 1.2.1 and 1.4, and responsibilities for program reviews were assigned in Section 2.0.

The requirements for demonstrating the adequacy of the plan were adequately established in Sections 1.2.1 and 1.4. The responsibilities for ensuring plan adequacy and currency were included in Section 2 through the Contractor's program review commitments.

6. The reviewers evaluated the provisions for the function and responsibilities of each contractor and subcontractor organization and considered them to be acceptable. The Plan ensured that adequate organizational functions, interfaces, and responsibilities were provided, including authority levels, in Sections 1.2.1, 1.5, 1.6, and 1.7. Details on individual position responsibilities in this regard were adequately described in Section 2.0. Interfaces were described in the flowchart and included position descriptions.
7. The reviewers evaluated the provisions for communications between contractors and subcontractors and considered them to be acceptable. The Plan discussed

communications in Sections 1.2.1, 1.5, and 1.7. Communications were adequately described by flowchart in Section 2.0 and Sections 2.2.2, 2.2.3, and 2.3.

8. The reviewers evaluated the provisions for resolving inconsistencies and deficiencies and considered them to be acceptable. Resolving inconsistencies and deficiencies was adequately described in the Plan in several sections, namely, through a "Zero Accident" goal, with details regarding criteria and processes for achieving the goal.
9. The reviewers evaluated the provisions for worker and workplace safety goals and objectives and considered them to be acceptable. The Plan adequately ensured the assignment of responsibility and accountability for job safety improvement (i.e., worker and workplace safety goals and objectives) (Sections 1.2.1, 1.5, and 1.6). Position responsibilities were adequately described in Section 2.0.
10. The reviewers evaluated the functions and obligations of employees' assigned safety-related responsibilities and considered them to be clearly and adequately described throughout Sections 1.0 ("Introduction") and 2.0.

4.2.1.4 Conclusions

On the basis of the evaluation described in this section, the reviewers concluded that the Contractor's Plan met the contractual and regulatory requirements for management roles and responsibilities.

4.2.2 Emergency Services

4.2.2.1 Requirements

In this area, 29 CFR 1926.35 and .50 provide that employers shall establish programs for providing an emergency action plan, first-aid services, and medical care.

4.2.2.2 Review Methodology

The reviewers evaluated the Contractor's Plan for conformance to the criteria in RL/REG-2000-09, Table 2, Criterion 2 (Emergency Services). Specifically, the reviewers assessed the Plan to determine whether the Contractor's plan for first-aid and medical services addressed the following:

1. The availability of medical personnel for advice and consultation on occupational health matters, as required by 29 CFR 1926.50(a).
2. The establishment of provisions for prompt medical attention in case of serious injury, as required by 29 CFR 1926.50(b).

3. The availability at the work site of first aid performed by a person trained in first aid techniques, as required by 29 CFR 1926.50(c).
4. The availability of first aid supplies, as required by 29 CFR 1926.50(d)(1).
5. The placement of first aid kits in weatherproof containers with individual packages for each item, as required by 29 CFR 1926.50(d)(2).
6. The checking of first aid kits by the Contractor before being sent out on the job and weekly on the job to ensure that expended items are replaced, as required by 29 CFR 1926.50(d)(2).
7. The provision of equipment for prompt transportation of injured persons to a physician or hospital or a communication system for contacting necessary ambulance service, as required by 29 CFR 1926.50(e).
8. The posting of telephone numbers of the physicians, hospitals, or ambulances in areas where 911 is not available, as required by 29 CFR 1926.50(f).
9. The provision, for immediate emergency use, in the work area, where eyes or body of any person may be exposed to injurious corrosive chemicals, of suitable facilities for drenching or flushing of the eyes and body, as required by 29 CFR 1926.50(g).
10. The provision of an Emergency Action Plan including emergency escape procedures and route assignments, as required by 29 CFR 1926.35(b)(1), and the duties of rescue and medical personnel, as required by 29 CFR 1926.35(b)(4).

4.2.2.3 Evaluation

The reviewers evaluated the Contractor's Plan for emergency services and the responses to specific questions and considered that the Plan met all 10 attributes listed in the Handbook. Evaluations of the attributes are discussed below:

1. The reviewers evaluated the Contractor's programs for ensuring the availability of medical personnel for advice and consultation and considered them to be acceptable. The Plan committed to making medical personnel available onsite for advice and consultation on occupational health matters in Section 2.3.4 ("Medical Staff"), which discussed in detail the functions of the medical staff.

Section 4.8 ("Medical") provided for at least one qualified person at the onsite medical facility whenever 25 or more manual personnel are onsite. This appeared to be inconsistent with Part 1926.23, which requires that medical care shall be provided for every employee covered by the regulations. This inconsistency was the subject of a Question (Number 00-IH&S-007-Q) to the Contractor that requested the Contractor to justify the Plan's apparent inconsistency with regulatory requirements. The Contractor

- replied to the question by letter, dated June 21, 2000,¹² and resolved the issue by clarifying that the onsite medical facility would be provided whenever 25 or more manual personnel are onsite and that personnel trained in first aid would be onsite to effect conformance with the regulations of Part 1926.23. The reviewer considered this issue to be acceptably resolved by the Contractor's commitment in its response to the question.
2. The reviewers evaluated the provisions for prompt medical attention in case of serious injury in Section 2.3.4 and considered them to be acceptable. The Contractor committed to stabilizing serious injuries onsite before the person was transported by ambulance to an offsite emergency facility.
 3. The reviewers evaluated the provisions for performing first aid at the work site and considered them to be acceptable. In Section 2.3.4, the Plan made provisions for performing first aid at the work site by using qualified medical personnel located at the onsite medical facility. This section implied that the onsite medical facility would be supplied with sufficient supplies to initially treat minor injuries and more serious injuries until more thorough treatment could be rendered at an offsite emergency facility.
 4. The reviewers evaluated the Contractor's provisions for first-aid supplies but did not find them addressed in the Plan. The placement of first-aid containers was the topic of Question 00-IH&S-005-Q to the Contractor, requesting clarification on its intent to conform to these requirements. The Contractor replied to the question by letter, dated June 21, 2000, and resolved the issue by committing to following the OSHA requirement and describing the general methodology of conformance. The reviewer considered that the issue was acceptably resolved by the Contractor's commitment in its response to the question.
 5. The Plan did not address the weatherproofing of first-aid containers. However, the reviewer considered the Contractor's commitment in Section 1.2.1 ("General Requirements of the Plan") and obligations to comply with the federal regulations to resolve this oversight and expected that first-aid containers would be weatherproofed, as required by federal regulations. This was further reinforced by the Contractor's response to Questions 00-IH&S-001-Q and 00-IH&S-002-Q, which together committed to conform to the regulation. The reviewer considered that this issue was acceptably resolved by the Contractor's commitment in its response to the questions.
 6. The reviewers considered that the Contractor did not address checking first-aid supplies in the Plan. The checking of first-aid containers was also the topic of Question 00-IH&S-005-Q (with item 4 above) to the Contractor. The Contractor replied to the question by letter, dated June 21, 2000, and resolved the issues by committing to follow the OSHA regulation.

¹² CCN 013986, Letter, S.A. Morgan, BNFL, to D.C. Gibbs, RU, "Contract No. De-AC27-96RL13308 - W373 - Response to Regulatory Unit Questions on the Non-radiological Worker Safety and Health Plan," dated June 21, 2000. Unless otherwise footnoted, this letter contains all of the Contractor's responses to the RU's questions on the Plan.

7. The Plan did not address the provisions for prompt transportation of injured persons to a physician or hospital and, instead, invoked the provision for providing a communication system for contacting the necessary ambulance service, as allowed by the federal regulations.
8. The reviewers evaluated the Contractor's provisions for posting telephone numbers of the onsite medical facility, the local hospital, the local emergency medical service, and fire protection services (Section 4.8) and considered them to be acceptable. The 911 telephone number for emergency services is available in the area and was covered by Hanford General Employee Training; accordingly, this provides an additional means for implementing the regulatory requirement.
9. The reviewers considered that the Plan did not address providing suitable facilities for drenching or flushing the eyes and body of anyone who may be exposed to injurious corrosive chemicals for emergency use in work areas. This oversight was the topic of Question 00-IH&S-005-Q regarding the Contractor's intent to conform to these requirements. The question was resolved by Contractor letter, dated June 21, 2000, with the commitment to provide emergency flushing facilities as required by the regulations where caustic, acidic, or other types of materials requiring flushing facilities are handled. The reviewer considered that the Contractor's commitment in its response acceptably resolved the issue.
10. The reviewers evaluated the Contractor's provisions for an Emergency Action Plan (Section 4.9, "Construction Fire Prevention Plan") and considered them to be acceptable. The Emergency Action Plan included the need to define escape procedures and routes.

4.2.2.4 Conclusions

On the basis of the evaluation described in this section, the reviewers concluded that the Contractor's Plan met the regulatory requirements for emergency services.

4.2.3 Fire Protection

4.2.3.1 Requirements

In this area, 29 CFR 1926.150, .151, and .152 provide that employers shall establish a program and plan for fire protection and prevention and provide their implementation requirements.

4.2.3.2 Review Methodology

The reviewers evaluated the Contractor's Plan for conformance to the criteria contained in RL/REG-2000-09, Table 2, Criterion 3 (Fire Protection). Specifically, the reviewers assessed the Plan according to the following attributes:

1. Maintaining access to all available fire fighting equipment at all times, as required by 29 CFR 1926.150(a)(2).
2. Conspicuously locating all fire fighting equipment, as required by 29 CFR 1926.150(a)(3).
3. Periodic inspection of, and maintaining in an operable condition, all fire fighting equipment, as required by 29 CFR 1926.150(a)(4).
4. Immediately replacing all defective fire fighting equipment, as required by 29 CFR 1926.150(a)(4).
5. Providing a trained and equipped fire fighting brigade, as required by 29 CFR 1926.150(a)(5).
6. Providing a water supply of sufficient volume, duration, and pressure required to properly operate the fire fighting equipment, as required by 29 CFR 1926.150(b)(1).
7. Providing, as soon as practicable, underground water mains for use in fire fighting, as required by 29 CFR 1926.150(b)(2).
8. Providing portable fire fighting equipment, as required by 29 CFR 1926.150(c), and fixed fire fighting equipment, as required by 29 CFR 1926.150(d).
9. Providing fire alarm devices, as required by 29 CFR 1926.150(e).
10. Providing for the minimization of ignition hazards, as required by 29 CFR 1926.151(a).
11. Providing of any temporary buildings in a manner conforming with the requirements of 29 CFR 1926.151(b).
12. Providing open yard storage areas in accordance with the requirements of 29 CFR 1926.151(c) and indoor storage areas in accordance with the requirements of 29 CFR 1926(d).
13. Provisions for the control and storage of flammable and combustible liquids in accordance with the requirements of 29 CFR 1926.152(a), 29 CFR 1926.152(b) for indoor storage, and 29 CFR 1926.152(c) for storage outside buildings.
14. Provisions for fire control of storage areas for flammable or combustible liquids, as required by 29 CFR 1926.152(d).
15. Providing for dispensing and handling flammable or combustible liquids, as required by 29 CFR 1926.152(e) and (f), respectively.
16. Provisions for controlling flammable or combustible liquid service and refueling areas, as required by 29 CFR 1926.152(g).

17. Provisions for the handling, storage, and use of flammable and combustible liquids with a flash point below 200 degrees F, as required by 29 CFR 1926.152(h) through (j).

4.2.3.3 Evaluation

On the basis of the review, the reviewers concluded that the Contractor's Plan adequately described the Contractor's fire protection program and the attributes outlined here, with one exception: the Plan only briefly described the Construction Fire Prevention Plan in Section 4.9 ("Construction Fire Prevention Plan") and referred to implementing procedure PP-212. The lack of detail resulted in Question 00-IH&S-006-Q, requesting the Contractor's intentions to conform to the regulatory requirements. The Contractor's response was provided by letter, dated June 21, 2000, and provided a clear statement of commitment to implement the requirements of the regulations of 29 CFR 1926.150, 1926.151 and 1926.152. The reviewer considered that the Contractor's response acceptably resolved the issue.

4.2.3.4 Conclusions

On the basis of the evaluation described in this section, the reviewers concluded that the Contractor's Plan met the regulatory requirements for fire protection.

4.2.4 Work Analysis and Risk Mitigation

4.2.4.1 Requirements

In this area, 29 CFR 1926 provides that employers shall initiate and maintain programs to ensure that any laborer or mechanic will work under conditions or in surroundings that are sanitary and free of hazards or danger to health and safety. Specifically, 29 CFR 1926 requires, in part, that workers be provided with personal protective equipment (PPE) and with a way to resolve employee complaints. In part, 29 CFR 1903 requires that provisions be made for abating and correcting any unsafe, hazardous, or unhealthy working conditions. Also, in part, 29 CFR 1904 requires that provisions be made for recording, reporting, and logging occupational injuries and illnesses. OSHA's VPP Policies and Procedures Manual, Appendix B, Part A, "Merit Programs," requires provisions for investigating all lost-time accidents by a joint labor-management committee. The Manual further provides for employer-designated competent persons to frequently and regularly inspect the job sites, materials, and equipment.

4.2.4.2 Review Methodology

The reviewers evaluated the Contractor's Plan for conformance to the criteria contained in RL/REG-2000-09, Table 2, Criterion 4 (Work Analysis and Risk Mitigation). Specifically, the reviewers assessed the Plan according to the following attributes:

1. Provisions for providing construction workers with PPE, as required 29 CFR 1926.95(a), Criteria for Personal Protective Equipment; 29 CFR 1926.96, foot protection; 29 CFR

1926.100, head protection; 29 CFR 1926.101, hearing protection; 29 CFR 1926.102, eye and face protection; and 29 CFR 1926.104(a), (b), (d), (e), and (f), regarding safety belts, lifelines, and lanyards; and 29 CFR 1926.105(a), safety nets.

2. Provisions for abatement and correction of any unsafe, hazardous, or unhealthy working condition, as required by 29 CFR 1903(c) and (d).
3. Provisions for the investigation of all lost or restricted time accidents by a joint labor-management committee, as specified by OSHA's VPP Policies and Procedures Manual, Appendix B, Part A, "Merit Programs."
4. Provisions for handling employee complaints, as required by 29 CFR 1926.11.
5. Provisions for recording and reporting occupational injuries in accordance with 29 CFR 1904.2 (log and summary of injuries and illnesses), 29 CFR 1904.4 (supplemental record), and 29 CFR 1904.6 (retention of records).

4.2.4.3 Evaluation

The reviewers evaluated the Contractor's Plan and responses to the questions indicated for work analysis and risk mitigation and considered that the Plan conformed to the requirements for all five of the attributes listed in the Handbook. Evaluations of the attributes are discussed below:

1. The reviewers evaluated the Contractor's provisions for providing and using PPE in Section 8.5 ("Personal Protective Equipment") and considered them to be acceptable. Hearing protection was adequately described in Section 8.6 ("Noise Control and Hearing Conservation"). Both sections provided for training on using PPE. Fall protection provisions were adequately addressed in Section 4.12 ("Fall Protection Program"); accordingly, the provisions were adequate to address safety nets and belts. Although the Plan did not specifically address the provision of foot, head, eye, and face protection for construction workers, in Section 5.4 ("Visitor Briefings") the Plan did require that such protections be provided for all site visitors. The Plan referred to a procedure (PP-201) as containing the requirements for appropriate construction attire. Accordingly, the reviewer considered that the foot, head, eye and face protection required for site visitors would, by the Contractor's commitment to conform to federal regulations (Section 1.2.1, "General Requirements of the Plan") and standard practice on construction sites, be required for construction workers. This was further reinforced by the Contractor's response to Questions 00-IH&S-001-Q and 002-Q, which together clearly demonstrated the Contractor's intention to conform to regulatory requirements for foot, head, eye, and face protection. The reviewer considers that the Contractor's Plan and commitment in its response to the above questions acceptably resolved these issues.
2. The reviewers evaluated the Contractor's measures for abating and correcting any unsafe, hazardous, or unhealthy working conditions in Section 6.1 ("ES&H Department Overview and Surveillance") and considered them to be acceptable.

3. The reviewers evaluated the Contractor's measures for investigating all lost- or restricted-time incidents by a joint labor-management team in Section 7.0 ("Incident Investigation") and considered them to be acceptable.
4. The reviewers evaluated the Contractor's measures to resolve employee complaints in Section 6.1 and considered them to be acceptable.
5. The reviewers evaluated the Contractor's provisions for recording, logging, and reporting occupational injuries and illnesses in Section 6.2 ("Occupational Illness and Injury Reporting") and considered them to be acceptable. The Plan also referenced procedures to accomplish the tasks.

4.2.4.4 Conclusions

On the basis of the evaluation described in this section, the reviewers concluded that the Contractor's Plan met the regulatory requirements for work analysis and risk mitigation.

4.2.5 Safety Meetings

4.2.5.1 Requirements

In this area, 29 CFR 1926.21(a) provides that employers shall establish and supervise programs for educating and training employees to recognize, avoid, and prevent unsafe conditions. Specifically, Section 21(b) requires, in part, that workers be instructed on the safety measures necessary for several potentially hazardous situations.

4.2.5.2 Review Methodology

The reviewers evaluated the Contractor's Plan for conformance to the criteria contained in RL/REG-2000-09, Table 2, Criterion 5 (Safety Meetings). Specifically, the reviewers assessed the Plan according to the following attributes:

1. Provisions of programs for education and training of employers and employees in the recognition, avoidance and prevention of unsafe conditions, as required by Part 29 CFR 1926.21(a).
2. Provisions for instructing each employee in the recognition of and avoidance of unsafe conditions and the applicable regulations, as required by 29 CFR 1926.21(b)(2).
3. Provisions for instruction of employees, who handle or use poisons, caustics or other harmful substances, regarding the safe handling and use of those substances, as required by 29 CFR 1926.21(b)(3).

4. Provisions for instruction of employees regarding the presence, potential hazards, and applicable first aid techniques, of harmful plants and animals on the job site, as required by 29 CFR 1926.21(b)(4).
5. Provisions for instruction of employees required to handle or use flammable liquids, gasses, or toxic materials in the safe handling and use of these materials, as required by 29 CFR 1926.21(b)(5).
6. Provisions for instruction of employees required to enter enclosed or confined spaces regarding the nature of the hazards, necessary precautions, and the use of protective and emergency equipment, as required by 29 CFR 1926.21(b)(6).

4.2.5.3 Evaluation

The reviewers evaluated the Contractor's Plan for safety meetings and considered that the Plan met all six of the attributes listed in the Handbook. Evaluations of the attributes are discussed below:

1. The reviewers evaluated Contractor's commitment to educating and training employers and employees in Section 5.0 ("Environmental, Safety, and Health Training") and considered it to be acceptable. Section 5.0 adequately described the measures to ensure training of the staff and provided details on the specific training to be provided.
2. The reviewers evaluated the Contractor's measures to ensure that each employee will be instructed in recognizing and avoiding unsafe conditions and in recognizing the applicable regulations in Section 5.1 ("Smart Mark Training") and considered them to be acceptable.
3. The reviewers evaluated the Contractor's provisions for instructing employees who handle or use poisons, caustics, or other harmful substances on safely handling and using those substances (Section 4.3, "Safety Task Analysis Risk Reduction Talk") and considered them to be acceptable. The Contractor also referenced procedures to accomplish the tasks.
4. The reviewers evaluated the Contractor's measures for instructing employees on the presence, potential hazards, and applicable first-aid techniques of harmful plants and animals on the job site (Section 4.3) and considered them to be acceptable. The Contractor also referenced procedures to accomplish the tasks.
5. The reviewers evaluated the Contractor's measures for instructing employees who are required to handle or use flammable liquids, gasses, or toxic materials in safely handling and using these materials in Section 4.3 and considered them to be acceptable. The Contractor also referenced procedures to accomplish the tasks.
6. The reviewers evaluated the Contractor's measures for instructing employees required to enter enclosed or confined spaces on the hazards, necessary precautions, and use of

protective and emergency equipment in Section 4.3 and considered them to be acceptable. The Contractor also referenced procedures to accomplish the tasks.

4.2.5.4 Conclusions

On the basis of the evaluation described in this section, the reviewers concluded that the Contractor's Plan met the regulatory requirements for safety meetings.

4.2.6 Site Walkdowns and Surveys

4.2.6.1. Requirements

In this area, 29 CFR 1926.416 and .651 provide for worker safety practices through effective site walkdowns and surveys to prevent exposure to hazards that could cause injuries to employees.

4.2.6.2. Review Methodology

The reviewers evaluated the Contractor's Plan for conformance to the criteria contained in RL/REG-2000-09, Table 2, Criterion 6 (Site Walkdowns and Surveys). Specifically, the reviewers assessed the Plan to determine whether it addressed provisions for the following:

1. Provisions for preventing the employee from working in the proximity to any electrical power circuit, which could be contacted during the course of work, unless the employee is protected, as required by 29 CFR 1926.416(a)(1) and (b)(2).
2. Provisions for the employee working in areas where electrical circuits are unknown who are using jack-hammers, bars, tools, etc., with protective equipment, as required by 29 CFR 1926.416(a)(2).
3. Provisions for assuring, prior to work start, that electrical power sources are located, and posting proper warning signs of location, hazard and precautions, as required by 29 CFR 1926.416(a)(3).
4. Provisions for restricting personnel passage where electrical equipment areas are identified, as required by 29 CFR 1926.416(b)(1).
5. Provisions for assuring a safe and acceptable means of approaching and determining the exact location of underground electrical installations, as required by 29 CFR 1926.651(b)(3).
6. Provisions for daily inspections of excavations and adjacent areas by a competent person for hazards if personnel entry is anticipated, as required by 29 CFR 1926.651(k)(1).

4.2.6.3. Evaluation

The reviewers evaluated the Contractor's Plan for site walkdowns and surveys and considered that the Plan met all of the six attributes listed in the Handbook. Evaluations of the attributes are discussed below:

1. The reviewers evaluated the Contractor's provisions for preventing employee contact with any electrical circuit and considered the Plan did not address this area. This oversight resulted in Question 00-IH&S-013-Q regarding whether the Contractor's procedure PP-218 addresses all requirements of 29 CFR 1926.651. The Contractor's response detailed the aspects of the requirements of 29 CFR 1926.651(b) that are met by procedures PP-318, PP-309, and PP-218 and areas where a procedure did not cover the requirements and personnel were expected to follow the OSHA regulation. The reviewer considered that the issue was acceptably resolved by the Contractor's commitment in its response to the question.
- 2-5. The Plan adequately addressed these attributes in answering Question 00- IH&S-009-Q, which asked the Contractor to clarify how it will provide for employee protection per 29 CFR 1926.416 during site preparation and construction phases. Of specific concern was the initial clearing of the site and unknown electrical power sources and how this hazard will be checked and mitigated? The Contractors' response explained that PP-318, "Utility Clearance," requires that construction management first review all available documents; contact the owners for information; contact any "one-call" systems used in the area; walk the area down to visually inspect for any signs of underground utilities, not only electric; and use an appropriate geo-physical method, such as a pipe locator or metal detector before commencing excavation. The reviewer considered that the issue was acceptably resolved by the Contractor's commitment in its response to the question.
6. The reviewers evaluated the Contractor's provisions for daily inspections, by a competent person, of excavations and adjacent areas for hazards if personnel entry is anticipated, and considered the provisions to be acceptable. The acceptability was based on PP-218 ("Excavation and Trenching"), the matrix, and Section 1.2.1 ("General Requirements of the Plan"), which committed to compliance with all applicable laws and regulations.

4.2.6.4. Conclusions

On the basis of the evaluation described in this section, the reviewers concluded that the Contractor's Plan met the regulatory requirements for site walkdowns and surveys.

4.2.7 Equipment and Tool Inspection

4.2.7.1 Requirements

In this area, 29 CFR 1926 provides for worker safety practices for equipment and tool inspection to prevent exposure to hazards that could cause injuries to employees.

4.2.7.2 Review Methodology

The reviewers evaluated the Contractor's Plan for conformance to the criteria contained in RL/REG-2000-09, Table 2, Criterion 7 (Equipment and Tool Inspection). Specifically, the reviewers assessed the Plan according to the following attributes:

1. Provisions for assuring power operated tools are designed and specified to be equipped with guards, and guards are in place, approved and functioning as required by the manufacturer, as required by 29 CFR 1926.300(b)(1).
2. Provisions for assuring guarding is provided for exposed belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, and chains if such items are exposed to contact by employees or if they otherwise create a hazard, as required by 29 CFR 1926.300(b)(2).
3. Provisions for evaluating methods of machine guarding and providing stabilization to protect the operators, as required by 29 CFR 1926.300(b)(3) and (b)(6).
4. Provisions to assure that tools are provided with workable switches, with "lock-off" devices, where authorized, or pressure release switches on equipment such as circular saws, chain saws, etc., as required by 29 CFR 1926.300(d).
5. Provisions to assure that issued tools are safe to use and are free of defects, as required by 29 CFR 1926.301.
6. Provisions to assure that electric power tools are either double insulated or grounded, as required by 29 CFR 1926.302.
7. Provisions to assure protective devices are installed on pneumatically driven nailers and other like equipment which prevents fasteners from being ejected unless contact has been made with the working surface, as required by 29 CFR 1926.302(b)(3).
8. Provisions to assure that tools will be operated at safe operating pressure for hoses, valves, pipes, etc., as required by the manufacturer and 29 CFR 1926.302(b)(7).
9. Provisions to assure that air receivers will be properly placed (above ground) with appropriate drains, gages and valves, as required by 29 CFR 1926.306(b)(1).
10. Provisions to assure that mechanical transmission devices such as belts, gears, spokes and other "nip points" on pulleys or belts will be appropriately guarded and, where necessary, personnel passageways will be restricted to protect the workers, as required by 29 CFR 1926.307.

4.2.7.3 Evaluation

The reviewers evaluated the Contractor's Plan for equipment and tool inspection. Although none of ten attributes, above, were addressed specifically by the Contractor's Plan, the Plan generally described an equipment and tool inspection program (Section 6.3, "Equipment and Tool

Inspection Program"), provided generalities of equipment and tools that would be inspected, and provided generalities of the attributes to be used during those inspections. The Plan also described general examples of defects that would be unacceptable. However, the Plan did commit to daily documented inspections of equipment and tools and that action would be taken if defects were discovered.

The lack of specificity in the Plan resulted in Question 00-IH&S-014-Q, which requested specifics regarding which equipment and tool inspection regulatory requirements would be included in the Contractor's program. The Contractor's response to the question noted that the program will be "construction implemented" and is not in place at this time. The response also noted that the Safety and Health organization would audit the program to ensure compliance with applicable regulations. For clarification, the reviewers asked the Contractor to confirm that the equipment and tool inspection program would be completed before start of construction.

The reviewers determined that the equipment and tool inspection attributes were conditionally acceptable, subject to completion and implementation of the equipment and tool inspection program before start of construction. This determination was based on the description of the equipment and tool inspection program (Section 6.3); the matrix provided by the Contractor, which provides a listing of the regulatory requirements that would be implemented by specific project procedures; and the commitment to comply with all applicable laws and regulations (Section 1.2.1, "General Requirements of the Plan").

4.2.7.4 Conclusion

On the basis of the evaluation described in this section, the reviewers concluded that the Contractor's Plan met the regulatory requirements for equipment and tool inspection with one exception:

- Completion and implementation of the equipment and tool inspection program must occur before start of construction.

4.2.8 Industrial Hygiene Monitoring Program

4.2.8.1 Requirements

In this area, 29 CFR 1910 and 29 CFR 1926 require that employers protect their employees from job-related exposures (e.g., inhalations, ingestions, and skin absorptions) to any material or substance at concentration levels at or above those specified in 29 CFR 1910.1000, Tables Z-1, Z-2, and Z-3. These regulations further require that an employer must also attempt to control employee exposure to harmful physical or biological agents.

4.2.8.2 Review Methodology

The reviewers evaluated the Contractor's Plan for conformance to the criteria contained in RL/REG-2000-09, Table 2, Criterion 8 (Industrial Hygiene Monitoring). Specifically, the reviewers assessed the Plan according to the following attributes:

1. Provisions for satisfying the established employee exposure standards for the various air contaminants, as required by 29 CFR 1910.1000(a), (b), (c), and (d), and 1910-1000, Tables Z-1, Z-2, and Z-3, as applicable.
2. Provisions for use by workers, who must be in zones or areas where air contaminants pose potential inhalation, skin absorption, or ingestion hazards, of appropriate items of PPE, as required by 29 CFR 1926.55(a) and (b) and 29 CFR 1910.1000(e).
3. Provisions for use by workers, who must be in zones or areas where potentially high noise levels exist, of appropriate hearing protection devices, as required by 29 CFR 1926.52(a), (b), (c), and (d); and 29 CFR 1910.95(a), (b), (i), and (j).
4. Provisions for establishing a hearing conservation program, as well as an audiometric testing program for all workers who must be in zones or areas where the average noise level exceeds the level specified in 29 CFR 1910.95(c), (g), and (h).
5. Provisions for monitoring noise levels in any construction area or zone where the various categories of ambient noise exceed the standards specified by 29 CFR 1910.95(d) and (f).

4.2.8.3 Evaluation

The reviewers evaluated the Contractor's Plan for industrial hygiene monitoring and considered that the Plan met each of the five attributes listed in the Handbook. Evaluations of the attributes are discussed below:

1. The reviewers evaluated the Contractor's provisions for satisfying the established employee exposure standards for the various air contaminants in Sections 2.5.1 ("Subcontractors") and 8.1 ("Monitoring Strategy") and considered them to be acceptable.
2. The reviewers evaluated the Contractor's provisions for using PPE equipment based on Section 8.0 ("Industrial Hygiene") and considered them to be acceptable. Section 8 states, "when hazards are identified, control will be effected according to the following hierarchy: engineering controls, administrative controls, and then the use of PPE.."
3. The reviewers evaluated the Contractor's provisions for establishing appropriate hearing protection devices for workers who must be in zones or areas with potentially high noise levels and considered them to be acceptable. The acceptability is based on Section 8.6, which stated, "[employees] shall receive annual training regarding...proper utilization of hearing protection devices."

4. The reviewers evaluated the Contractor's provisions for a hearing conservation program and considered it to be acceptable. The acceptability is based on Section 8.6 ("Noise Control and Hearing Conservation"), which indicated that "employees whose noise exposures [warrants it] shall be placed into the Hearing Conservation program."
5. The reviewers evaluated the Contractor's provisions for monitoring noise levels in any construction area or zone where the various categories of ambient noise exceed the standards and considered them to be acceptable. The acceptability is based on Section 8.6, which stated, "Noise exposure is expected to be a major stress at the job site and will be evaluated in accordance with 29 CFR 1910.95 using standard measuring techniques."

4.2.8.4 Conclusion

On the basis of the evaluation described in this section, the reviewers concluded that the Contractor's Plan met the regulatory and contract requirements for the industrial hygiene monitoring program.

4.2.9 Lockout/Tagout Program

4.2.9.1 Requirements

In this area, 29 CFR 1926.417 and 29 CFR 1910.147 require that employers protect all construction employees from the hazards of uncontrolled release of energy by implementing an effective lockout/tagout program.

4.2.9.2 Review Methodology

The reviewers evaluated the Contractor's Plan for conformance to the criteria contained in RL/REG-2000-09, Table 2, Criterion 9 (Lock and Tag). Specifically, the reviewers assessed the Plan to determine whether the program for protecting the worker by locking and tagging unwanted energy sources addressed provisions for the following:

1. Provisions for assuring that deactivation of energized equipment or circuits is in place and that tagging of those systems is being provided for both energized and de-energized systems, as required by 29 CFR 1926.417.
2. Provisions that attest to rendering of de-energized equipment and circuits inoperative and the proper attachment of tags, as required by 29 CFR 1926.417.
3. Provisions are in place that demonstrate proper tagging requirements, as required by 29 CFR 1926.417.
4. Provisions are made that demonstrate that procedures or plans will be provided, as required by 29 CFR 1910.147, Appendix A.

4.2.9.3 Evaluation

The reviewers evaluated the Contractor's Plan for lock and tag and considered that the Plan had acceptably established the necessary provisions of the four attributes listed above. The Plan adequately addressed the program by adopting, in Section 4.11 ("Lockout/Tagout Program"), the Hanford Site Lockout/Tagout Program (DOE-RL-SOD-INST-L&T.001). The reviewers observed that the program adopted by the Contractor for lock and tags is comprehensive and covers all forms of unwanted sources of uncontrolled energy, i.e., pressurized liquids and electricity. It exceeds the requirements and is an appropriate standard to be used on the Hanford site. The reviewers concluded that the Hanford Site Lockout/Tagout Program formed an acceptable basis to accept the Contractor's commitment.

The reviewers observed that the Contractor intended to write a site-specific procedure for a lockout/tagout program and it was not clear that the site-specific procedure would fully implement the Hanford program. The reviewers wrote Question 00-IH&S-015-Q to resolve whether the site-specific procedure (PP-221) would incorporate the provisions of DOE-RL-SOD-INST-L&T.001 as it applies to site preparation work on the construction site. The Contractor replied that it would. This reply indicated that site procedure PP-221 does not conflict with any parts of the Hanford Site Lockout/Tagout Program.

4.2.9.4 Conclusion

On the basis of the evaluation described in this section, the reviewers concluded that the Contractor's Plan met the regulatory requirements for lockout/tagout.

4.2.10 Training

4.2.10.1 Requirements

In this area, 29 CFR 1910, 29 CFR 1926, and DOE/EH-0433, *U.S. Department of Energy Voluntary Protection Program*, require that each employee be trained to recognize and avoid unsafe conditions and to recognize the regulations applicable to his/her work environment to control or eliminate any hazards or other exposure to illness or injury.

4.2.10.2 Review Methodology

The reviewers evaluated the Contractor's Plan for conformance to the criteria contained in RL/REG-2000-09, Table 2, Criterion 10 (Training). Specifically, the reviewers assessed the Plan according to the following attributes:

1. Provisions to conduct needs assessments for site-specific training programs, as required by 29 CFR 1926.65.
2. Using competent instructors ("qualified person") to perform all safety training, as required by 29 CFR 1926.65.

3. Providing a means for obtaining information feedback to aid in evaluating and improving the effectiveness of the training program, as required by 29 CFR 1926.65, Appendix C, 1(6) and Appendix E(7).
4. The instruction of employees who may encounter any chemical product, other harmful substances, or encounter harmful animals or plants regarding the hazards, and personal protective measures, as required by 29 CFR 1926.65(e); 29 CFR 1926.59; 29 CFR 1910.1200(h)(3) training; 29 CFR 1926.21(b)(4); and the VPP safety and health training tenet in DOE/EH-0433.
5. The instruction of employees, who are required to enter into confined or enclosed spaces, as to the nature of the hazards involved, the necessary precautions to be taken, and in the use of protective and emergency equipment, as required by 29 CFR 1926.21(b)(6)(i) and (ii) and 29 CFR 1910.146.
6. The provisions of first-aid training to selected individuals if the Contractor does not demonstrate there is an infirmary, clinic, hospital, or physician, that is reasonably accessible in terms of time and distance to the worksite, as required by 29 CFR 1926.50 and 29 CFR 1910.151(b).
7. Provisions for implementing an accident prevention plan that permits only those employees who are qualified by training or experience to operate power tools, equipment and machinery, as required by 29 CFR 1926.20(b)(4).
8. The provisions of a respiratory protection program to ensure all employees who may be exposed to contaminated atmospheres or who are required to wear respirators in contaminated atmospheres or enclosed spaces shall be instructed as to the nature of the hazards involved, the necessary precautions to be taken, and in the use of applicable respirators, as required by 29 CFR 1926.103; 29 CFR 1910.134(c)(1); and VPP safety and health training tenet in DOE/EH-0433.
9. Provisions to ensure employees who perform work while on a scaffold are trained on the potential dangers of rigging up and rigging down, and to work safely on or around scaffolding, as required by 29 CFR 1926.454(a), Appendix D.
10. Provisions to implement a Fall Protection Program that will provide training to prevent injuries from falling for each employee who might be exposed to fall hazards, as required by 29 CFR 1926.503(a)(1) and (a)(2).
11. Provisions to ensure that workers who operate powered industrial trucks are properly trained to operate safely such vehicles, as required by 29 CFR 1926.602(b) and 29 CFR 1910.178(l)(1)(ii).
12. Provisions for a training program to ensure employee safety in using or in working around ladders and stairways, as required by 29 CFR 1926.1060(a)(1).

13. Provisions for implementing an electrical safety training program, to prevent injury from electrical shock, for those employees who may face a risk of electrical shock, as required by 29 CFR 1910.332(a).
14. Provisions for training sufficient numbers of persons to assist in the safe and orderly emergency evacuation of employees before implementing the emergency action plan, as required by 29 CFR 1926.35 and the VPP safety and health training tenet in DOE/EH-0433.
15. Provisions for implementing a Lockout/Tagout training program for affected employees to prevent injury from the uncontrolled release of energy, as required by 29 CFR 1926.417 and 29 CFR 1910.147(c)(1).
16. Provisions for providing safety and health training pertaining to Supervisors, as required by the VPP safety and health training tenet in DOE/EH-0433.

4.2.10.3 Evaluation

The reviewers evaluated the Contractor's Plan for training and considered that the Plan met all 16 of the attributes listed in the Handbook. Evaluations of the attributes are discussed below:

1. The reviewers evaluated the Contractor's provisions for conducting training needs assessments contained in Section 3.4 ("Risk Assessment"), and considered them to be acceptable. Section 3.4 states that when job hazard analysis is completed, the information will be used to determine additional hazard control methods such as training. Also, training needs assessment is addressed in the ISMP (Section 3.15), which states, "Each person is assessed on training needs, in conjunction with their line management and training personnel." Furthermore, Question 00-IH&S-027-Q asked if the provisions of the ISMP, Section 3.15, applied to the Plan training program. The Contractor's reply, by letter, dated June 21, 2000, indicated the ISMP, Section 3.15, was applicable.
2. The reviewers observed that the Plan did not address the use of competent persons to perform safety training. The reviewers wrote Question 00-IH&S-011-Q to resolve the issue. The Contractor replied by letter, dated June 21, 2000, that instructor's competency is in accordance with RPP-WTP procedure K20C009A, "Code of Practice for Training." Furthermore, Question 00-IH&S-002-Q asked if the procedures listed by the Contractor addressed all the OSHA requirements. The Contractor's reply to the question indicated that programs mandated by OSHA are contained in the project procedures. The reviewers considered the Contractor's commitment to this procedural content acceptable to resolve the issue.
3. The reviewers evaluated the Contractor's provisions for obtaining feedback to help evaluate training effectiveness and considered them to be acceptable. The reviewers' determination was based on Section 3.4 in which the Contractor indicated using feedback from job hazardous analysis to determine additional training. Providing training feedback also is addressed in the ISMP, Section 3.15, which states, "A feedback process is established to ensure current training needs are being met...." Question 00-IH&S-027-

Q asked if the provisions of the ISMP, Section 3.15, applied to the Plan's training program. The Contractor's reply by letter, dated June 21, 2000, indicated that the ISMP, Section 3.15, was applicable. The reviewers considered the Contractor's commitment in this response acceptable to resolve the issue.

4. The reviewers evaluated the Contractor's provisions for instructing employees on potential worksite hazards and considered them to be acceptable. The acceptability is based on Section 3.4 ("Job Hazard Analysis"), which states, "Based on the ...JHA, additional control methods will be identified such as training...."
5. The reviewers evaluated the Contractor's provisions for confined spaces and considered them to be acceptable. The acceptability of the contractor's provision is based on Section 4.3 ("Safety Task Analysis Risk Reduction Talk"), which states, "Each employee performing hazardous work shall be provided with specialized training, if applicable, prior to performing his or her activity. Specialized training may include...work in confined spaces...."
6. The reviewers determined that the Plan did not specifically address provisions for first-aid training of selected individuals if the Contractor does not have resources within reasonably accessible time and distance to the work site. Question 00-IH&S-005-Q was written in part to determine what parts of 29 CFR 1926.50 were applicable. The Contractor's reply by letter, dated June 21, 2000, indicated that applicable OSHA requirements would be followed including first-aid training. The reviewers considered the Contractor's commitment in this response acceptable to resolve the issue.
7. The reviewers determined that the Plan did not specifically address implementation of an Accident Prevention Plan that permits only employees who are qualified by training or experience to operate power tools, equipment, and machinery. Question 00-IH&S-001-Q was written to resolve which parts of 29 CFR were considered not applicable by the Contractor. The Contractor's reply confirmed that 29 CFR 1926.20 (b)(4) was applicable to the project and, accordingly, would be implemented. The reviewers considered the Contractor's commitment in this response acceptable to resolve the issue.
8. The reviewers evaluated the Contractor's provisions for a respiratory protection program and considered them to be acceptable. The acceptability is based on Section 8.7 ("Respiratory Protection") and the procedure matrix, which indicated compliance with all applicable regulations. Question 00-IH&S-002-Q asked if the procedures listed by the Contractor addressed all the OSHA requirements. The Contractor's reply by letter, dated June 21, 2000, indicated programs mandated by OSHA are contained in the project procedures. The reviewers considered the Contractor's commitment in this response acceptable to resolve the issue.
9. The reviewers evaluated the Contractor's provisions for safe work on or around scaffolding and considered them to be acceptable. The acceptability is based on the procedure matrix, which indicated compliance with all applicable regulations. Question 00-IH&S-002-Q asked if the procedures listed by the Contractor addressed all the OSHA requirements. The Contractor's reply by letter, dated June 21, 2000, indicated programs mandated by OSHA are contained in the project procedures. The reviewers considered

- the Contractor's commitment in this response acceptable to resolve the issue.
10. The reviewers evaluated the Contractor's provisions for training for fall protection based on Section 4.12 ("Fall Prevention Program") and considered them to be acceptable. Section 4.12 states that before using fall protection, the employee will be trained in its use.
 11. The reviewers determined that the Plan did not specifically address ensuring that workers who operate powered industrial trucks are properly trained. The procedure matrix includes the regulation for powered industrial trucks. Question 00-IH&S-002-Q asked if the procedures listed by the Contractor addressed all the OSHA requirements. The Contractor's reply by letter, dated June 21, 2000, indicated programs mandated by OSHA are contained in the project procedures. The reviewers consider the issue acceptably resolved by the Contractor's commitment.
 12. The reviewers determined that the Plan did not specifically address providing a training program to ensure employee safety in using or working around ladders and stairways. The procedure matrix includes a procedure for ladders and stairways. Question 00-IH&S-002-Q asked if the procedures listed by the Contractor addressed all the OSHA requirements. The Contractor's reply letter, dated June 21, 2000, indicated that programs mandated by OSHA are contained in the project procedures. The reviewers consider the issue acceptably resolved by the Contractor's commitment.
 13. The reviewers determined that the Plan did not specifically address implementing an electrical safety training program. Question 00-IH&S-001-Q was written to resolve which parts of 29 CFR were considered not applicable by the Contractor. The Contractor's reply by letter, dated June 21, 2000, confirmed that 29 CFR 1926.20 (b)(4) was applicable to the project and, accordingly, would be implemented. The reviewers considered the Contractor's commitment in this response acceptable to resolve the issue.
 14. The reviewers evaluated the Contractor's provisions for emergency evacuation training. Based on Section 5.2, which is the Hanford General Employee Training for all new site workers, the reviewers considered the provisions for emergency evacuation training to be acceptable. Hanford's program includes evacuation procedures in case of radiation release and other site emergencies.
 15. The reviewers evaluated the Contractor's provisions for lockout/tagout training. Based on Section 4.11 ("Lockout/Tagout Program"), the reviewers considered the provisions for lockout/tagout training to be acceptable. Section 4.11 states that the Contractor will implement Hanford's lockout/tagout program. Two sections in the Hanford program address training: (1) Section 3.3 ("Stop Work Authority") states, "The Operations and Maintenance Team...is responsible for the control of this program and ensures all training meet the requirements of this program"; and (2) Section 3.2 ("Hazard Prevention and Control") states, "Outside personnel will be trained as a Hanford authorized worker or will be provided with an Hanford authorized worker escort...."
 16. The reviewers evaluated the Contractor's provisions for supervisor training. Based on Section 4.6 ("Safety Leadership Workshop Program"), the reviewers considered the

provisions for supervisor training to be acceptable. Section 4.6 states that the safety leadership training course is designed to instruct supervisors in the basic safety and health requirements of construction and to provide them with the tools to identify and correct potential hazardous conditions.

4.2.10.4 Conclusion

On the basis of the evaluation described in this section, the reviewers concluded that the Contractor's Plan met the regulatory requirements for training.

4.2.11 Site Control

4.2.11.1 Requirements

In this area, 29 CFR 1910 and 29 CFR 1926 provide that employers have a duty to protect the public, all visitors, and all employees from the normal hazards associated with construction sites. These regulations further require that an overall site control plan must be addressed and implemented.

4.2.11.2 Review Methodology

The reviewers evaluated the Contractor's Plan for conformance to the criteria contained in RL/REG-2000-09, Table 2, Criterion 11 (Site Control). Specifically, the reviewers assessed the Plan according to the following attributes:

1. Provisions for a site control program, as part of the overall Worker Safety & Health Plan, that was completed during the planning stages, as required by 29 CFR 1926.65(d)(2).
2. Provisions for incorporating various modifications to this program whenever new information becomes available, as required by 29 CFR 1926.65(d)(2).
3. Provisions to assure that the overall program includes elements such as: a site map, identified work zones, and the use of a "buddy system," etc., as required by 29 CFR 1926.65(d)(3).
4. Provisions for the use of danger, caution, and safety instruction signs, as required by 29 CFR 1926.200(b)(1), (b)(2), (c)(1), (c)(2), and (e), and 29 CFR 1926.203(b).
5. Provisions for the use of barricades, as required by 29 CFR 1926.202 and 29 CFR 1926.203(a).
6. Provisions for maintaining the general security of the construction site, and for limiting site access to those individuals who have an actual need or requirement to be on location, according to common and widely accepted industry practices (not required).

4.2.11.3 Evaluation

The reviewers evaluated the Contractor's Plan for site control and considered that the Plan met all six of the attributes listed in the Handbook. Evaluations of the attributes are discussed below:

1. The reviewers evaluated the Contractor's provisions for a site control program as part of its overall Worker Safety and Health Plan. Chapter 8, "Industrial Hygiene" and Section 8.2, "Health Hazard Inventory" of the Plan provide for a site control program that includes documenting potentially hazardous materials and developing a sampling and monitoring program. The reviewers considered these provisions for a site control program to be acceptable.
2. The reviewers evaluated the Contractor's provisions for incorporating various modifications to its site control program whenever circumstances change or new information becomes available. In response to Question 00-IH&S-016, the Contractor committed to include all four basic types of lessons learned in its lessons learned program. The reviewers considered the Contractor's commitment in this response acceptable.
3. The reviewers evaluated the Contractor's provisions to ensure that the overall site control program includes elements such as a site map, identified work zones, and the use of a "buddy system." The reviewers determined that these elements are acceptably met.
4. The reviewers evaluated the Contractor's provisions for using danger, caution, and safety instruction signs as a part of the overall site control program and found them to be acceptable. In Chapter 3, "Work Control" the Contractor describes a system for work planning and hazard identification that meets the requirements of 29 CFR 1926.200(b)(1), (c)(1), (c)(2), and (e), and 29 CFR 1926.203(b). In addition, as noted in Section 4.2.9, "Lockout/Tagout Program," above, the Contractor has adopted a comprehensive lock and tag program.
5. The reviewers evaluated the Contractor's provisions for using barricades in areas of the construction site where access is to be controlled. The Contractor's response to Question 00-IH&S-013-Q specifically commits to following the OSHA requirements for identifying, marking and addressing hazards including surface encumbrances, vehicular traffic, falling loads, hazardous atmosphere, etc. The reviewers considered the Contractor's commitment in this response acceptable.
6. The reviewers evaluated the Contractor's provisions for general security and considered them to be acceptable. The acceptability was based on Section 2.3.5 ("Security"), which states, "The site will be controlled by the use of a site security subcontractor.... Emergency procedures are located in the Site Emergency Management Plan."

4.2.11.4 Conclusion

On the basis of the evaluation described in this section, the reviewers concluded that the Contractor's Plan met the regulatory requirements for site control.

4.2.12 Inspections by Competent Persons

4.2.12.1 Requirements

In this area, 29 CFR 1910 and 29 CFR 1926 provide that employers are required to protect all construction employees from the hazards of routine construction activities. These regulations further require that a competent person shall evaluate the sites at which construction activities occur to ensure that all worker safety considerations and programs have been addressed and/or implemented.

4.2.12.2 Review Methodology

The reviewers evaluated the Contractor's Plan for conformance to the criteria contained in RL/REG-2000-09, Table 2, Criterion 12 (Inspections by Competent Persons). Specifically, the reviewers assessed the Plan according to the following attributes:

1. Provisions for routine inspections of all facilities, work areas, tools, and equipment by representatives of OSHA, as well as by competent persons designated by the Contractor, as required by 29 CFR 1903.7(a), (b), (d), and (e); 29 CFR 1926.3(a); and 29 CFR 1926.20(b).
2. Provisions for the use by trained personnel of the appropriate equipment and instrumentation to be used in completing these routine inspections, as required by 29 CFR 1903.7(a) and (b).
3. Provisions for the evaluation, by authorized personnel, of the recommendations arising from any routine inspections so as to ensure that necessary changes have been or will be implemented, as required by 29 CFR 1903.7(e).

4.2.12.3 Evaluation

The reviewers evaluated the Contractor's Plan for inspections by competent persons and considered that the Plan met all three of the attributes listed in the Handbook. The acceptability was based on Section 3.9 ("Competent Persons"), which stated, "Certain OSHA regulations require a 'Competent Person' to inspect work processes such as, but not limited to, excavations, scaffolds, and cranes.... The Project will determine who is qualified...and shall give them the responsibility and accountability to survey the work area, determine if hazards exist, and if so, stop the work and have the hazardous condition corrected before work may continue." The Contractor commits (4.1, "Training Program") that "Adequate training shall be provided to employees for their work activities and shall be documented." In response to Question 00-IH&S-022-Q, the Contractor commits that findings from oversight (including routine inspection) will be tracked, assigned to a responsible person, and given a disposition date.

4.2.12.4 Conclusion

On the basis of the evaluation described in this section, the reviewers concluded that the Contractor's Plan met the regulatory requirements for inspections by competent persons.

4.2.13 Hoisting and Rigging

4.2.13.1 Requirements

In this area, 29 CFR 1926, Subpart C, Section 251, provides for the safe use of hoisting and rigging equipment during material handling to prevent exposure to hazards that could cause injury to employees.

4.2.13.2 Review Methodology

The reviewers evaluated the Contractor's Plan for conformance to the criteria contained RL/REG-2000-09, Table 2, Criterion 13 (Hoisting and Rigging). Specifically, the reviewers assessed the Plan according to the following attributes:

1. Providing for inspections by a competent person, of rigging equipment prior to use each shift and as necessary during each shift to ensure the equipment safety and that defective equipment will be removed from service, as required by 29 CFR 1926.251(a)(1).
2. Provisions for assuring that rigging materials are appropriately designed for the load that is lifted and used properly, as required by 29 CFR 1926.251(a)(2)-(a)(6), (b) (all subparts), (e) (all subparts), and (f) (all subparts) and 29 CFR 1910.184(a), (c) (subparts 2,3,7, and 10).

4.2.13.3 Evaluation

The reviewers evaluated the Contractor's Plan for hoisting and rigging and considered that the Plan met both attributes. The reviewers observed that the Contractor's Plan did not specifically address provisions for the required inspections of rigging equipment or ensuring that rigging materials would be designed for the load being lifted and used properly. Section 9.0 ("Project Procedures") referred to procedure PP-223 as containing the requirements controlling cranes and material-handling equipment, but it was not clear that the procedure would address the design, use, and inspection of rigging materials. Accordingly, the reviewers documented these issues in two questions (00-IH&S-011-Q and 012-Q) inquiring whether the requirements of the regulations in this area would be implemented and how.

The Contractor's response to Question 00-IH&S-011-Q indicated, "All applicable parts of Subparts H and N will be implemented. This procedure is only meant to enhance, augment and clarify the OSHA regulations." The Contractor's response to Question 00-IH&S-012-Q clarified the intent of Section 6.3 ("Equipment and Tool Inspection Program") as it applies to a multi-shift work environment.

The Contractor provided a matrix demonstrating that the regulations of 29 CFR 1926, Subparts H and N, would be implemented by particular project procedures. In addition, in Section 1.2.1, the Plan committed to complying with all applicable laws and regulations. The reviewers found these two sources, in conjunction with the answers to the above questions, to be an acceptable commitment to implement the regulatory requirements.

4.2.13.4 Conclusion

On the basis of the evaluation described in this section, the reviewers concluded that the Contractor met the regulatory requirements for hoisting and rigging.

4.2.14 Excavations and Shoring

4.2.14.1 Requirements

In this area, 29 CFR 1926, Subpart P, Section 651, provides for safe excavation and shoring work practices to prevent exposure to hazards that could cause injury to employees.

4.2.14.2 Review Methodology

The reviewers evaluated the Contractor's Plan for conformance to the criteria contained in RL/REG-2000-09, Table 2, Criterion 14 (Excavation and Shoring). Specifically, the reviewers assessed the Plan according to the following attributes:

1. Provisions for dealing with any surface encumbrance in the proximity of a necessary or planned excavation, as required by 29 CFR 1926.651(a).
2. Provisions for dealing with existing underground utilities such as sewer, telephone, fuel, electric, and/or water lines in any area where additional excavations are planned, as required by 29 CFR 1926.651(b).
3. Provisions for testing and maintaining suitably safe atmospheres in and around any excavation, as required by 29 CFR 1926.651(g) and (h).
4. Provisions for controlling all form and sort of loose surface materials in the vicinity of any excavation, as required by 1926.651(j).
5. Provisions for adequate sloping and/or benching of excavations, as required by 29 CFR 1926.652(b).
6. Provisions for the use and installation of various types of support, shield, or other categories of employee excavation protective systems (i.e., shoring of all types), as required by 29 CFR 1926.652(c), (d), and (e).

4.2.14.3 Evaluation

The reviewers evaluated the Contractor's Plan for excavation and shoring and considered that the Plan met all six attributes listed in the Handbook.

The reviewers observed that the Contractor's Plan did not specifically address provisions for excavation and trenching. The Plan referred to procedure PP-218 as containing the requirements controlling excavation and trenching, but it was not clear that the procedure would address the particular attributes being verified. Accordingly, the reviewers documented these issues in Question 00-IH&S-013-Q inquiring whether the requirements of the regulations in this area would be implemented and how. The Contractor's response to the questions committed to the adequate implementation of the regulatory requirements in this area.

The Contractor answered question 00-IH&S-013-Q with a detailed response that explained how the aspects of the OSHA regulations are met by PP- 318, PP-309, and PP-218. The Contractor specifically committed to the OSHA regulations for surface encumbrances, underground installations, access & egress, exposure to vehicular traffic, exposure to falling loads, warning system for mobile equipment, hazardous atmosphere, protection for hazards associated with water accumulation, stability of adjacent structures, protection of employees for loose rock or soil, and inspections of excavation and trenching.

The Contractor also provided a matrix demonstrating that the regulations applicable to excavation and trenching would be implemented by particular project procedures. In addition, in Section 1.2.1 ("General Requirements of the Plan") committed to compliance with all applicable laws and regulations. The reviewers found these two sources, in conjunction with the answers to the above questions, to be an acceptable commitment to implement the regulatory requirements.

4.2.14.4 Conclusion

On the basis of the evaluation described in this section, the reviewers concluded that the Contractor's Plan met the regulatory requirements for excavation and shoring.

4.2.15 Fall Protection

4.2.15.1 Requirements

In this area, 29 CFR 1926, Subpart M, Sections 500, 501, and 502, require employers to provide an adequate fall protection program for those working at a height of six or more feet above lower levels.

4.2.15.2 Review Methodology

The reviewers evaluated the Contractor's Plan for conformance to the criteria contained in RL/REG-2000-09, Table 2, Criterion 15 (Fall Protection). Specifically, the reviewers assessed the Plan to determine whether policies for fall protection addressed the following attribute:

1. Provision for use – by an employee whose work situation necessitates it – of suitable items of fall protection equipment and/or apparatus, as required by 29 CFR 1926.501(a) and (b); 29 CFR 1926.502(b); 29 CFR 1926.451(g) and (b)(2)(i); and 29 CFR 1926.452(b)(2)(v).

4.2.15.3 Evaluation

The reviewers evaluated the Contractor’s provisions for fall protection and considered them to be acceptable. The acceptability was based on the Plan’s Section 4.12 ("Fall Prevention Program") and the procedure matrix, which indicated the essential sections of Subparts L, M, N, P, S, and X of 29 CFR 1926 are included in a project procedure. Furthermore, Question 00-IH&S-002-Q asked if the procedures listed by the Contractor addressed all the OSHA requirements. The Contractor’s reply, by letter, dated June 21, 2000, committed that the programs mandated by the referenced provisions of 29 CFR 1926 are contained in the project procedures.

4.2.15.4 Conclusion

On the basis of the evaluation described in this section, the reviewers concluded that the Contractor’s Plan met the regulatory requirements for fall protection.

4.2.16 Scaffolding and Aerial Lifts

4.2.16.1 Requirements

In this area, 29 CFR 1926, Subpart L, Sections 451 and 453, and OSHA’s VPP Policies and Procedures Manual, Chapter III, Part F5b, provide that employers design, erect, use, and dismantle scaffolds and aerial lifts such that each facility and the procedures and methods associated with them minimize the hazards that any involved worker might be exposed to. Also, a safety specialist or engineer is required to verify that the hazards from using scaffold in each location have been minimized or managed.

4.2.16.2 Review Methodology

The reviewers evaluated the Contractor’s Plan for conformance to the criteria contained in RL/REG-2000-09, Table 2, Criterion 16 (Scaffolds). Specifically, the reviewers assessed the Plan according to the following attributes:

1. Scaffolding design provisions (for both basic and/or suspension scaffolds) that are consistent with the published capacity and strength parameters, as required by 29 CFR 1926.451(a).
2. Provisions for the proper set up and use of all types of scaffolds in any construction application, as required by 29 CFR 1926.451(b).

3. Provisions for the incorporation of suitable structural supports and planking in any type of scaffold, as required in 29 CFR 1926.451(c) and (d).

4.2.16.3 Evaluation

The reviewers observed that the Contractor's Plan did not specifically address provisions for scaffolding.

The Contractor provided a matrix that demonstrated how the regulations applicable to scaffolding would be implemented by a particular project procedure. Question 00-IH&S-002-Q asked if the procedures listed by the Contractor addressed all the OSHA requirements. The Contractor's reply by letter, dated June 21, 2000, committed that programs required by the referenced provisions of 29 CFR 1926 are contained in the project procedures. In addition, Section 1.2.1 ("General Requirements of the Program") committed to compliance with all applicable laws and regulations. The reviewers found this source, in conjunction with the answer to the above question, to be an acceptable commitment to implement the regulatory requirements.

4.2.16.4 Conclusion

On the basis of the evaluation described in this section, the reviewers concluded that the Contractor's Plan met the regulatory requirements for scaffolds.

4.2.17 Cranes, Derricks and Hoists

4.2.17.1 Requirements

In this area, 29 CFR 1926, Subpart N, Section 550, provides for the safe use of cranes, derricks, and hoisting equipment to prevent exposure to hazards that could cause injury to employees.

4.2.17.2 Review Methodology

The reviewers evaluated the Contractor's Plan for conformance to the criteria contained in RL/REG-2000-09, Table 2, Criterion 17 (Cranes, Derricks, and Hoists). Specifically, the reviewers assessed the Plan according to the following attributes:

1. Provisions that ensure cranes and other hoisting apparatus are operated within the parameters and specifications provided by the manufacturer, as required by 29 CFR 1926.550(a)(1).
2. Provisions ensuring that signals given to operators of this equipment are consistent with those prescribed by the applicable American Nuclear Standards Institute (ANSI) standard, as required by 29 CFR 1926.550(a)(4).

3. Provisions to confirm that the Contractor periodically inspects hoisting equipment and machinery, as required by 29 CFR 1926.550(a)(5), (a)(6), and (a)(7) (all subparts); ANSI Standard B30.5-1968; or the Society of Automotive Engineers J959-1966.

4.2.17.3 Evaluation

The reviewers observed that the Contractor's Plan did not specifically address provisions for cranes, derricks, and hoists. Section 9.0 ("Project Procedures") referred to procedure PP-223 as containing the requirements controlling cranes and material-handling equipment, but it was not clear that the procedure would address the particular attributes being verified. Accordingly, the reviewers documented these issues in two questions (00-IH&S-011-Q and 012-Q) inquiring whether the requirements of the regulations in this area would be implemented and how. The Contractor's response to the questions in a letter, dated June 21, 2000, committed to the adequate implementation of the regulatory requirements in this area.

The Contractor responded to Question 00-IH&S-011-Q, assuring that "All applicable parts of Subparts H and N will be implemented. This procedure is only meant to enhance, augment and clarify the OSHA regulations." The response to Question 00-IH&S-012-Q explained the inspection of equipment including cranes, derricks, and hoists in multi-shift operations.

The Contractor provided a matrix demonstrating that the regulations of 29 CFR 1926, Subparts H and N, would be implemented by particular project procedures. In addition, Section 1.2.1 ("General Requirements of the Plan") committed to complying with all applicable laws and regulations. The reviewers found these two sources, in conjunction with the answers to the above questions, to be an acceptable commitment to implement the regulatory requirements.

4.2.17.4 Conclusion

On the basis of the evaluation described in this section, the reviewers concluded that the Contractor's Plan met the regulatory requirements for crane, derrick, and hoist operations.

4.2.18 Motorized Vehicles and Mechanized Equipment

4.2.18.1 Requirements

In this area, 29 CFR 1926.600 through .603 require employers to provide all construction employees with a safe working environment when they are working with and around motorized vehicles and mechanized equipment.

4.2.18.2 Review Methodology

The reviewers evaluated the Contractor's Plan for conformance to the criteria contained in RL/REG-2000-09, Table 2, Criterion 18 (Motorized Vehicles and Mechanical Equipment). Specifically, the reviewers assessed the Plan according to the following attributes:

1. Provisions for providing safe devices for working on split rim (or equivalent) tires and systems for blocking truck beds and controlling the power source of vehicles when worked on them, as required by 29 CFR 1926.600(a)(2) and (a)(3)(i).
2. Provisions for assuring that motorized vehicles have all safety systems required by the specific types of vehicles such as service brakes, parking brakes, headlights, taillights, brake-lights, and warning devices, etc., as required by 29 CFR 1926.601(b)(1) through .601(b)(14).
3. Provisions for providing that operators check each assigned vehicle to ensure that it is in safe operating condition, as required by 29 CFR 1926.601(b)(14).
4. Provisions for controlling the operations of heavy equipment to those surfaces designated for safe movement and provided with emergency ramps, as required by 29 CFR 1926.602(a)(3)(i).
5. Provisions for providing earthmoving equipment which is equipped with functional braking systems, roll over protection, etc., as required by 29 CFR 1926.602(a)(4) and (a)(6)
6. Provisions for equipping machinery with horns and proper guarding of equipment scissor points or pinch points on front end loaders, as required by 29 CFR 1926.602(a)(9)(i) through (a)(10).
7. Provisions to provide necessary safety systems and devices to protect the operator and the mechanic and to control any modifications to equipment without the manufacturer's approval, as required by 29 CFR 1926.602(b)(3).
8. Provisions to provide high lift trucks which meet the most current safety design version for the manufacturing year of powered industrial trucks, as required by 29 CFR 1926.602.
9. Provisions to provide meeting all design and operational safety practices to adequately protect the operators while operating pile drivers, as required by 29 CFR 1926.603.

4.2.18.3 Evaluation

The reviewers observed that the Contractor's Plan did not specifically address provisions for motorized vehicles and mechanical equipment. Section 9.0 ("Project Procedures") referred to procedure PP-220 as containing the requirements controlling motorized vehicles and mechanical equipment; but it was not clear that the procedure would address the particular attributes being verified. Accordingly, the reviewers documented these issues in Question 00-IH&S-008-Q inquiring whether the requirements of the regulations (Part 1926, Subpart O) in this area would be implemented and how. The Contractor's response to the questions in a letter, dated June 21, 2000, asserted that the project would comply with all of subpart O. However, the detail necessary to assess the individual attributes was lacking.

The Contractor provided a matrix demonstrating that the regulations of 29 CFR 1926, Subpart O, would be implemented by particular project procedures. In addition, Section 1.2.1 ("General Requirements of the Plan") committed to compliance with all applicable laws and regulations. The reviewers found these two sources, in conjunction with the answer to the above question, and responses to Questions 00-IH&S-001 and 00-IH&S-002 assuring that the project will follow all OSHA regulations, to be an acceptable commitment to implement the regulatory requirements.

4.2.18.4 Conclusion

On the basis of the evaluation described in this section, the reviewers concluded that the Contractor's Plan met the regulatory requirements for motorized vehicles and mechanized equipment.

4.2.19 Concrete Construction

4.2.19.1 Requirements

In this area, 29 CFR 1926, Subpart Q, Sections 700 through 705, require that employers protect all construction employees from the hazards associated with concrete construction.

4.2.19.2 Review Methodology

The reviewers evaluated the Contractor's Plan for conformance to the criteria contained in RL/REG-2000-09, Table 2, Criterion 19 (Concrete Construction). Specifically, the reviewers assessed the Plan according to the following attributes:

1. Provisions for the utilization of all of the basic concrete construction methods and procedures, as required by 29 CFR 1926.701(a) and (b).
2. Provisions for the use and handling of all types of formwork shoring, as well as other types of related structural support, as required by 29 CFR 1926.703(c).
3. Provisions for the handling and tilting-up pre-cast concrete panels, as required by 29 CFR 1926.704.

4.2.19.3 Evaluation

The reviewers observed that the Contractor's Plan did not specifically address provisions for concrete construction. Section 9.0 ("Project Procedures") did not contain a reference to a procedure containing the provisions for controlling concrete construction. Accordingly, the reviewers documented these issues in Question 00-IH&S-020-Q inquiring whether the requirements of the regulations (Part 1926, Subpart Q) in this area would be implemented and how. The Contractor's response to the questions, provided by a letter, dated June 21, 2000,

stated that the project will follow the requirements considered in OSHA 29 CFR 1926 Subpart Q. The reviewers found the answer to the above question to be an acceptable commitment to implement the regulatory requirements.

4.2.19.4 Conclusion

On the basis of the evaluation described in this section, the reviewers concluded that the Contractor's Plan met the regulatory requirements for concrete construction.

5.0 REFERENCES

29 CFR 1903, "Inspections, Citations and Proposed Penalties," *Code of Federal Regulations*, as amended.

29 CFR 1904, "Recording and Reporting Occupational Injuries and illnesses," *Code of Federal Regulations*, as amended.

29 CFR 1910, "Occupational Safety and Health Standards," *Code of Federal Regulations*, as amended.

29 CFR 1926, "Safety and Health Regulation for Construction." *Code of Federal Regulations*, as amended.

ANSI Standard B30.5-1968, "Safety Code for Crawler, Locomotive and Truck Cranes," American National Standards Institute, 1968.

DOE/EH-0433, *U.S. Department of Energy Voluntary Protection Program, Part 1: Program Elements*, 1994.

Integrated Safety Management Plan (ISMP), BNFL-5193-ISP-01, Rev. 4, BNFL Inc., 1998.

Occupational Safety and Health Administration, Directive TED 8.1a, *Revised Voluntary Protection Program (VPP) Policies and Procedures Manual*, 1996.

RL/REG-2000-03, *Review Guidance for the Non-radiological Worker Safety and Health Plan*, Rev. 0, U.S. Department of Energy, Richland Operations Office, 2000.

RL/REG-2000-09, *Planning Handbook for the Non-radiological Worker Safety and Health Plan*, Rev. 0, U.S. Department of Energy, Richland Operations Office, 2000.

Society of Automotive Engineers, SAE J959, "Lifting Crane Wire-Rope Strength Factors," 1966.

6.0 LIST OF TERMS

ANSI American National Standards Institute

AR	Assessment Report
CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
EH-51	Office of Occupational Safety and Health Policy
HQ	U.S. Department of Energy-Headquarters
IH&S	industrial hygiene and safety
ISM	integrated safety management
ISMP	Integrated Safety Management Plan
L&I	Washington State Department of Labor and Industries
NRC	U.S. Nuclear Regulatory Commission
OSHA	Occupational Safety and Health Administration
Plan	Non-radiological Worker Safety and Health Plan
PPE	personal protective equipment
RL	Richland Operations Office
RPP-WTP	River Protection Project Waste Treatment Plan
RU	Regulatory Unit
VPP	Voluntary Protection Program

This page left intentionally blank.

Appendix A. Education and Expertise of the IH&S Team

Team Member	Education/Expertise
James Adams	BS Nuclear Engineering; more than 15 years experience in operations, oversight, startup testing, and operations; GE Operations Superintendent for Nuclear Startup with General Electric; 10 years experience with DOE nuclear oversight and surveillance with 3 years regulatory experience.
James Brown	BS Civil/Environmental Engineering, MS Safety; Certified Safety Professional Engineering Practice #7005; two credited publications; consultant for 16 years in occupational safety; safety engineer for 10 years; Associate Professor an Oklahoma State University for OSHA for 8 years.
Ken Ferrigno	Ph.D. Geology; Head of Safety and Training, SEG (94-96); Head of Hazardous Material Training Program for Columbia Basin College; 10 years of OSHA training as instructor.
Edward Finucane	BS Chemical Engineering, MBA, graduate study Nuclear Engineering; Professional Engineer, California, M-13749, Certified Safety Professional, No. 9517, Certified Industrial Hygienist, No. 3743, Qualified Environmental Professional, No. 0490042. Expert consultant for occupational safety and health with 20 years of experience and three publications; 20 years experience in design and operations of chemical industry.
Albert Hawkins	BS Chemical Engineering, MBA; more than 25 years experience in operations, oversight, safety, and quality assurance; former Manager of Compliance Assurance; and Director of Environment, Safety, Health and Quality Assurance.
Dennis Kirsch	BS/MS Electrical Engineering; Professional Engineer, California, NU685; 23 years experience with the U.S. Nuclear Regulatory Commission (NRC) in regulatory oversight of nuclear power with positions ranging from reactor inspector to Director of the Division of Reactor Safety and Projects; consultant subject matter expert in mechanical and electrical construction, quality assurance, program and project management, and regulatory oversight.
Jim Mohatt	BA Biological Science, M.P.A. Public Health, Ph.D. Environmental Health; Certified Industrial Hygienist #5993; Certified Safety Professional #4594; 32 years experience in the area of IH&S; Manager of IH&S for Rockwell Hanford; Associate Director of ES&H for Indiana University; Chief of Preventive Medicine for the U.S. Armed Forces in Honduras

This page left intentionally blank.

Appendix B. Review Questions

The questions the reviewers sent to the Contractor, and the Contractor's responses are shown on the following pages.

This page left intentionally blank.