



**U.S. Department of Energy**  
**Office of River Protection**

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01-OSR-0398

Mr. Ron F. Naventi, Project Manager  
Bechtel National, Inc.  
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Richland, Washington 99352

Dear Mr. Naventi:

CONTRACT NO. DE-AC27-01RV14136 – INDUSTRIAL HEALTH AND SAFETY  
INSPECTION REPORT, IR-01-005

From August 27 to September 26, 2001, the U.S. Department of Energy, Office of River Protection (ORP), Office of Safety Regulation (OSR) performed an inspection of the Bechtel National, Inc. (BNI) Industrial Health and Safety (IS&H) Program. The purpose and timing of this inspection were to assess the BNI IS&H program implementation and to support the authorization of initial limited construction activities planned to start in October 2000.

The inspectors identified no Findings; however, the inspectors observed a number of implementation deficiencies that required resolution and correction before the ORP Manager could authorize BNI to start limited construction. The significant number of inspection deficiencies identify that BNI must be more diligent in assuring its procedures incorporate applicable requirements. These deficiencies were described to your staff during the inspection in the Interim Inspection Briefing Meeting conducted on August 30, 2001, and during the Inspection Exit Meeting on September 26, 2001. By October 1, 2001, your staff had corrected the identified deficiencies. The OSR staff reviewed the actions your staff took and found them adequate. Details of the inspection are documented in the enclosed inspection report. No response to the report is required.

If you have any comments concerning the inspection report, you or your staff may contact me or Pat Carrier of my staff, (509) 376-3574. Nothing in this letter should be construed as changing the Contract, DE-AC27-01RV14136. If, in my capacity as the Safety Regulation Official, I provide any direction that your company believes exceeds my authority or constitutes a change to the Contract, you will immediately notify the Contracting Officer and request clarification prior to complying with the direction.

Sincerely,

Robert C. Barr  
Safety Regulation Official  
Office of Safety Regulation

OSR:WJP

Enclosure

**U.S. DEPARTMENT OF ENERGY**  
Office of River Protection  
Office of Safety Regulation

INSPECTION: INDUSTRIAL HEALTH AND SAFETY

REPORT No: IR-01-005

FACILITY: Bechtel National, Inc.

LOCATION: 3000 George Washington Way  
Richland, Washington 99352

DATES: August 27-September 26, 2001

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APPROVED BY: P. Carrier, Verification and Confirmation Official  
Office of Safety Regulation

**EXECUTIVE SUMMARY**  
Industrial Health and Safety  
Inspection Report Number IR-01-005

## INTRODUCTION

The purpose and timing of this inspection were to assess the BNI IS&H program implementation and to support the authorization of limited construction activities planned to start in October 2000. This inspection of the Bechtel National, Inc.'s (the Contractor's), Industrial Health and Safety (IH&S) program implementation covered the following specific areas:

- Bloodborne Pathogens Program (Section 1.2)
- Equipment and Tool Inspection Program (Section 1.3)
- Fall Protection Program (Section 1.4)
- Fire Protection Program (Section 1.5)
- Hazard Communication Program (Section 1.6)
- Hearing Conservation Program (Section 1.7)
- Lockout and Tagout Program (Section 1.8)
- Occupational Medicine Program (Section 1.9)
- Industrial Hygiene Program (Section 1.10)
- Respiratory Protection Program (Section 1.11)
- Safety Training Program (Section 1.12)
- Compliance Program for Subcontractors (Section 1.13)
- Electrical Safety Program (Section 1.14)
- Trenching and Excavation Program (Section 1.15)
- Cranes, Derricks, Hoists, Elevators, and Conveyors Safety Program (Section 1.16)
- Worker Protection Program (Section 1.17).

## SIGNIFICANT OBSERVATIONS AND CONCLUSIONS

- Bloodborne pathogens. A mechanism of permanent disposal of biohazard waste had not yet been identified as required by 29 CFR 1910, "Occupational Safety and Health Standards for General Industry," Section 1030(d)(4) (Section 1.2.3 in this report). A contract had been drafted for contracting with an occupational medical provider who would provide a mechanism for permanent disposal of biohazard waste; however, as of September 21, 2001, the contract had not yet received final signoff. A letter contract and Notice to Proceed<sup>1</sup> was approved and in place by October 2, 2001, and the observation was closed on October 3, 2001. A formal contract followed.
- Equipment tool and inspection. Procedures on using abrasive tools did not comply with the requirements of 29 CFR 1926, "Safety and Health Regulations for Construction," Section 303. Specifically, each of the four categories of the rule was not addressed, i.e., power safety, tool guards, tool use, and work rest devices (Section 1.3.3 in this report).

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<sup>1</sup> Letter Contract and Notice to Proceed for "RPP WTP Interim Medical Services," approved October 2, 2001.

While the Contractor had drafted a new procedure, *Construction Tool and Equipment Inspection*, as of September 21, 2001, the procedure was still in draft. Final approvals for the procedure were received on October 3, 2001. The inspectors determined the new procedure was adequate, and the observation was closed on October 4, 2001.

- Fall protection. The procedure, *Scaffolding*, did not address load capacity or minimum scaffold distances from power lines [29 CFR 1926.45(a) and (f)(6)]. While the procedure stated that scaffolds are to comply with 29 CFR 1926, Subpart L, the Contractor failed to specifically discuss these issues in the procedure to provide the safety guidance the procedure is required to convey (Section 1.4.3 in this report). The Contractor addressed this observation during the inspection, and the inspectors closed the observation on September 12, 2001.
- Fall protection. The procedures, *Scaffolding*, *Fall Prevention and Protection*, *Articulating Boom Platforms*, and *Roofing Work*, did not adequately identify the maximum and average wind speeds that should cause work activities to be discontinued because of high wind hazards [ORP M 440.1-2, Appendix A, Number 1a; 29 CFR 1926.451(f)(12); 29 CFR 1926.552(c)(17)(iii); and 29 CFR 1926.1053(a)(23)(ii)] (Section 1.4.3 in this report). The Contractor addressed this observation by drafting a new procedure, *High Wind Safety*, to address controls and stop-work because of high winds. The inspectors closed this observation on October 2, 2001.
- Fire protection. The Contractor was negotiating with the Hanford Fire Department to obtain emergency response and emergency preparedness services. Until a Memorandum of Agreement (MOA) or other mechanism was developed, the Contractor was not meeting the requirements of 29 CFR 1926.150 for sufficient and well-maintained fire fighting equipment with no delay in providing necessary equipment (Section 1.5.3 in this report). As of September 21, 2001, the Contractor had drafted a contractual mechanism with the Hanford Fire Department to obtain response in the event of a large fire and had received an e-mail confirmation that the Hanford Fire Department would provide support to the project. However, the Contractor was still negotiating the costs of Hanford Fire Department support, and final approvals of the contractual mechanism had not yet occurred. The Contractor provided Task Order 2001-001, "Emergency Response Services," and Task Order 2001-002, "Emergency Preparedness Services." The Contractor also provided MOA 091001-01, "For the Performance and Payment of Services Between Fluor Hanford, Inc., and Bechtel National, Inc.," which was signed on September 27, 2001.<sup>2</sup> The Contractor also indicated that the Hanford Fire Department received the letter for a Limited Notice to Proceed on October 1, 2001. The inspectors found the MOA, Limited Notice to Proceed, and task orders adequate to meet the requirements of 29 CFR 1926.150 and closed this observation on October 2, 2001.
- Fire protection. Lay down areas for large amounts of material were not identified as required in 29 CFR 1926.151 for combustible material management (Section 1.5.3 in this report). A contract was drafted between the Contractor and Energy Northwest to provide a warehouse for storing construction materials; however, as of September 21, 2001, BNI

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<sup>2</sup> BNI letter from A. R. Veirup to D. S. Merry, "Contract No. DE-AC27-01RV14136 – Memorandum of Agreement," CCN: 022892, September 27, 2001, with attached MOA.

had not signed the contract. This observation remains as an Inspector Follow-up Item (IR-01-005-01-IFI).

- Lock and tag. In Section 4.11 of the Contractor's *Nonradiological Worker Safety and Health Plan* (referred to as the *IH&S Plan*), the Contractor committed to adopt the Hanford lockout and tagout program. During the initial inspection, significant inconsistencies existed between the Contractor's lockout/tagout procedure and the Hanford lockout/tagout program (Section 1.8.2 of this report). The Contractor addressed these inconsistencies in Revision 1 to its procedure, *Lockout/Tagout*. The inspectors determined the changes to be adequate, and this observation was closed on September 28, 2001.
- Occupational medicine. No physician had yet been contracted, as required by ORP M 440.1-2. ORP M 440.1-2 requires a formal, written Contractor occupational medical program and a physician responsible for delivering medical services to oversee the program's planning and implementation. In addition, the Contractor's *IH&S Plan* states that the project will have an onsite medical facility, staffed with qualified licensed medical personnel to provide first aid, physical evaluations, or required tests. During the initial inspection, the capability did not yet exist (Section 1.9.3 in this report). A letter contract and Notice to Proceed, which met the requirements of ORP M 440.1-2, was approved and in place by October 2, 2001. This observation was closed on October 3, 2001.
- Industrial hygiene. Required industrial hygiene monitoring equipment was not available. ORP M 440.1-2, Section 15d, and 29 CFR 1926.55, .56, and .57 require industrial hygiene monitoring equipment (in particular, equipment to perform noise surveys) to be obtained before exposure monitoring and surveying of work areas can be conducted (Section 1.10.3 in this report). The Contractor addressed this observation during the inspection, and the inspectors closed the observation on October 4, 2001.
- Safety training. A reviewed, approved training program was not in place according to the requirements of ORP M 440.1-2 and 29 CFR 1926 during the initial inspection (as of August 30, 2001), although the program was well under way to completion. Some specific areas that required completion included training modules and the training matrix. In addition, some inconsistencies existed between the draft training modules and the subject matter procedures. Specifically, inconsistencies were identified in lock and tag and scaffolding use (Section 1.12.3). The Contractor addressed this observation during the inspection, and the inspectors closed the observation on September 21, 2001.
- Trenching and excavation. Early in the inspection, several inconsistencies were identified with the Contractor's procedure for trenching and excavation compared with the requirements of 29 CFR 1926, Subpart P (Section 1.15.3 in this report). The inspectors reviewed the revisions to the procedure, *Excavation and Backfill*, on October 1, 2001, and determined the changes were adequate. The observation was closed.
- Cranes, derricks, hoists, elevators, and conveyor safety. Early in the inspection, three Contractor procedures in this area were found not to specify 29 CFR 1926.550 required clearances for working in proximity to electrical power lines (Section 1.16.3 in this

report). Two deficient areas were addressed by the Contractor and closed during the inspection on September 12, 2001. The third deficient area was closed on October 2, 2001. The inspectors determined that revisions to the procedures adequately addressed the issues associated with proximity to electrical power lines. The observation was closed.

- Worker protection. An implementation mechanism for notifying employees of industrial hygiene exposure assessment results was not developed as required by ORP M 440.1-2, Appendix A, Sections 6f, 6g, and 15d (Section 1.17.3 in this report). This observation was addressed by the Contractor and closed out by the inspectors on September 12, 2001.

## Table of Contents

1.0	REPORT DETAILS.....	1
1.1	Introduction.....	1
1.2	Bloodborne Pathogens Program .....	2
	1.2.1 Inspection Scope .....	2
	1.2.2 Assessments .....	2
	1.2.3 Identified Issues .....	4
	1.2.4 Conclusion .....	4
1.3	Equipment and Tool Inspection Program .....	5
	1.3.1 Inspection Scope .....	5
	1.3.2 Assessments .....	5
	1.3.3 Identified Issues .....	6
	1.3.4 Conclusion .....	6
1.4	Fall Protection Program .....	7
	1.4.1 Inspection Scope .....	7
	1.4.2 Assessments .....	7
	1.4.3 Identified Issues .....	11
	1.4.4 Conclusion .....	12
1.5	Fire Protection Program .....	12
	1.5.1 Inspection Scope .....	12
	1.5.2 Assessments .....	12
	1.5.3 Identified Issues .....	15
	1.5.4 Conclusion .....	15
1.6	Hazard Communication Program .....	15
	1.6.1 Inspection Scope .....	15
	1.6.2 Assessments .....	16
	1.6.3 Conclusion .....	17
1.7	Hearing Conservation Program.....	17
	1.7.1 Inspection Scope .....	17
	1.7.2 Assessments .....	18
	1.7.3 Conclusion .....	19
1.8	Lockout and Tagout Program .....	20
	1.8.1 Inspection Scope .....	20
	1.8.2 Assessments .....	20
	1.8.3 Identified Issues .....	21
	1.8.4 Conclusion .....	21
1.9	Occupational Medicine Program .....	21
	1.9.1 Inspection Scope .....	21
	1.9.2 Assessments .....	22
	1.9.3 Identified Issues .....	23
	1.9.4 Conclusion .....	23
1.10	Industrial Hygiene Program.....	23
	1.10.1 Inspection Scope .....	23

1.10.2	Assessments .....	25
1.10.3	Identified Issues .....	28
1.10.4	Conclusion .....	29
1.11	Respiratory Protection Program.....	29
1.11.1	Inspection Scope .....	29
1.11.2	Assessments .....	29
1.11.3	Conclusion .....	30
1.12	Safety Training Program.....	30
1.12.1	Inspection Scope .....	30
1.12.2	Assessments .....	31
1.12.3	Identified Issues .....	33
1.12.4	Conclusion .....	34
1.13	Compliance Program for Subcontractors.....	34
1.13.1	Inspection Scope .....	34
1.13.2	Assessments .....	34
1.13.3	Conclusion .....	36
1.14	Electrical Safety Program .....	36
1.14.1	Inspection Scope .....	36
1.14.2	Assessments .....	36
1.14.3	Conclusion .....	37
1.15	Trenching and Excavation Program.....	37
1.15.1	Inspection Scope .....	37
1.15.2	Assessments .....	38
1.15.3	Identified Issues .....	40
1.15.4	Conclusion .....	40
1.16	Cranes, Derricks, Hoists, Elevators, and Conveyors Safety Program .....	41
1.16.1	Inspection Scope .....	41
1.16.2	Assessments .....	41
1.16.3	Identified Issues .....	42
1.16.4	Conclusion .....	42
1.17	Worker Protection Program .....	43
1.17.1	Inspection Scope .....	43
1.17.2	Assessments .....	44
1.17.3	Identified Issues .....	46
1.17.4	Conclusion .....	46
2.0	INTERIM INSPECTION MEETING SUMMARY.....	47
3.0	FINAL INSPECTION MEETING SUMMARY .....	47
4.0	REPORT BACKGROUND INFORMATION.....	47
4.1	Partial List of Persons Contacted at BNI .....	47
4.2	List of OSR Inspection Procedures Used.....	48
4.3	Summary List of Items Opened .....	48
4.4	List of Terms.....	48
5.0	REFERENCES .....	48

# INDUSTRIAL HEALTH AND SAFETY PROGRAM INSPECTION REPORT

## 1.0 REPORT DETAILS

### 1.1 Introduction

The River Protection Project Waste Treatment Plant (RPP-WTP) project was in the design stage during this inspection. The Contractor [Bechtel National, Inc. (BNI)] was actively in the process of designing the facility and training staff to continue progress on the design phase of the project and to begin limited construction activities.

In accordance with the RPP-WTP Contract,<sup>3</sup> the Contractor is required to develop and implement an integrated standards-based safety management program. The Contractor's safety management program shall reflect proven principles of safety management and work planning that promotes accident prevention, employee involvement, and sound hazard analysis and control. Further, the Contractor's nonradiological worker safety and health program is required by Standard 7(e)(1)(ii) of the Contract to conform to DOE's regulatory program, described in ORP M 440.1-2 (was RL/REG-2000-04), *Industrial Health and Safety Oversight Plan for the Waste Treatment Plant Contractor*. The Contractor is required to comply with 29 CFR 1910, "Occupational Safety and Health Standards for General Industry," and 29 CFR 1926, "Safety and Health Regulations for Construction," as invoked by ORP M 440.1-2, Appendix A, Numbers 12a and b.

The purpose of this inspection is to confirm whether the Contractor complies with the requirements of ORP M 440.1-2, Appendix A, and with Contractor-defined policies and procedures for protecting employees from conventional workplace hazards. At this stage of the project, the focus of the inspection was on establishing the program rather than on implementing it. The inspection also confirmed whether the Contractor's Industrial Health and Safety (IH&S) Program reflected proven principles of safety management and work planning that promote accident prevention, employee involvement, and sound hazard analysis and control. In accordance with ORP M 440.1-2, Section 4.3.2, "Periodic IH&S Program Review," the Office of Safety Regulation (OSR) Inspection Technical Procedure (ITP) I-160, "IH&S Program Inspection," was used to assess the program.

The inspection of the Contractor's IH&S program covered the following specific areas:

- Bloodborne Pathogens Program (Section 1.2)
- Equipment and Tool Inspection Program (Section 1.3)
- Fall Protection Program (Section 1.4)
- Fire Protection Program (Section 1.5)
- Hazard Communication Program (Section 1.6)
- Hearing Conservation Program (Section 1.7)
- Lockout and Tagout Program (Section 1.8)

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<sup>3</sup> Contract DE-AC27-01RV14136 between the U.S. Department of Energy and Bechtel National, Inc., dated December 11, 2000.

- Occupational Medicine Program (Section 1.9)
- Industrial Hygiene Program (Section 1.10)
- Respiratory Protection Program (Section 1.11)
- Safety Training Program (Section 1.12)
- Compliance Program for Subcontractors (Section 1.13)
- Electrical Safety Program (Section 1.14)
- Trenching and Excavation Program (Section 1.15)
- Cranes, Derricks, Hoists, Elevators, and Conveyors Safety Program (Section 1.16)
- Worker Protection Program (Section 1.17).

The results of the inspection of each area are summarized in the following sections.

## **1.2 Bloodborne Pathogens Program**

### **1.2.1 Inspection Scope**

During this inspection, the inspectors assessed the Contractor's IH&S program for compliance to the requirements of 29 CFR 1910 related to bloodborne pathogens. The program requirements in 29 CFR 1910.1030 require employers to educate and train their employees on the risk that pathogens, carried by body fluid, can be transmitted from an infected person to others on a construction site. Specific program attributes assessed included the following:

- a. A written exposure control plan [29 CFR 1910.1030(c)]
- b. Necessary engineering and work practice controls (e.g., elimination of sharp objects) that the Contractor provided and employee knowledge of when and how to operate these controls [29 CFR 1910.1030(d)(2), all subparts]
- c. Provisions for applicable personal protective equipment, including what types to use, when they should be used, and how to use them [29 CFR 1910.1030(d)(3), all subparts]
- d. Provisions to ensure that the work site is clean and sanitary [29 CFR 1910.1030(d)(4), all subparts]
- e. Training and education on the types of bloodborne pathogens; the transmission routes of the pathogens; precautions that employees must take to adequately protect themselves from infection; and methods of decontamination, waste disposal, and handling [29 CFR 1910.1030(g)(2), all subparts].

### **1.2.2 Assessments**

The inspectors reviewed the following documents and materials to verify that the Contractor had committed to developing a bloodborne pathogen program and had made provisions for implementing this program before the start of limited construction:

- a. Exhibit G, "Subcontractor Safety and Health Requirements," attached to all subcontracting documents for the RPP-WTP project
- b. Procedure 24590-WTP-GPP-SIND-011\_0, *Bloodborne Pathogens*
- c. Orientation modules for newly hired employees and subcontractors, "Bloodborne Pathogens" and "Housekeeping"
- d. Plan PL-W375-IS00001, *Nonradiological Worker Safety and Health Plan (IH&S Plan)*
- e. Statement of Work, "RPP-WTP On Site First Aid Facility"
- f. *Construction Training Matrix for Non-Manual Project Specific Training*
- g. *Construction Training Matrix – Required Position Procedure Training*, September 13 through September 17, 2001
- h. Job descriptions and resumes for the Senior Safety and Health Specialist<sup>4</sup> and the Industrial Safety Manager.<sup>5</sup>

The inspectors found a written bloodborne pathogen exposure control plan in the procedure, *Bloodborne Pathogens*, and verified that it adequately addressed the necessary elements of 29 CFR 1910.1030(c). Section 3.3.1 of *Bloodborne Pathogens* adequately addressed control methods and personal protective equipment. Section 3.3.4 of the procedure required employees who may be routinely exposed to bloodborne pathogens to be trained initially upon assignment and annually thereafter. The inspectors determined that the procedure adequately addressed engineering controls, personal protective equipment, and employee training as required by 29 CFR 1910.1030(c) [Attribute a].

The inspectors determined that Section 3.3.1 of *Bloodborne Pathogens* adequately addressed work practice controls, provisions for applicable personal protective equipment, and work site sanitation as required by 29 CFR 1910.1030(d) [Attributes b and c].

The inspectors reviewed orientation for new employees and subcontractors, specifically the training modules, "Bloodborne Pathogens" and "Housekeeping." The module, "Housekeeping," provided additional information important to minimizing the chance of exposure to bloodborne pathogens by keeping the work area clean. The *Construction Training Matrix* identified the required IH&S training for construction personnel, according to job position titles. Employees and subcontractors who routinely may be exposed to bloodborne pathogens received training on bloodborne pathogens as part of Red Cross first-aid training; the inspectors did not review the training content of Red Cross first-aid training and no conclusion regarding adequacy of this training could be made. The inspectors found that the training modules, "Bloodborne Pathogens" and "Housekeeping," adequately addressed the required elements of 29 CFR 1910.1030(g)(2) [Attribute e].

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<sup>4</sup> Steven Walter, dated February 13, 2001.

<sup>5</sup> Tom Meagher, dated January 23, 2001.

The Contractor indicated it plans to use a health care professional to evaluate any bloodborne pathogen exposure incidents and to staff the first-aid station at the limited construction site. These actions would be difficult to fulfill without a contract in place for a health care professional to provide occupational medical services. During the initial inspection, the Contractor indicated a contract with a subcontracted health care provider should be in place during the first quarter of 2002. The subcontractor who will provide medical services is expected to have its own bloodborne pathogens exposure control program; the inspectors found this was consistent with the way other contractors have addressed the issue for contracted medical services. The inspectors reviewed the Statement of Work, "RPP-WTP On Site First Aid Facility," and determined that the requirements for the medical services provider to have a bloodborne pathogens exposure control program were adequately addressed.

Number 16f(3) of Appendix A, ORP M 440.1-2, requires that immunization programs for bloodborne pathogens and biohazardous waste programs conform to Occupational Safety and Health Administration (OSHA) regulations and Centers for Disease Control guidelines for employees at risk to those forms of exposure. The inspectors determined that Section 3.3.2 of *Bloodborne Pathogens* adequately addressed immunization programs.

During the inspection, the inspectors noted that a mechanism for permanent disposal of biohazard waste had not yet been identified and therefore the Contractor was not compliant with 29 CFR 1910.1030(d)(4) [Attribute d]. This issue is identified in Section 1.2.3 and was closed shortly after the inspection concluded.

### **1.2.3 Identified Issues**

During the inspection, a mechanism for permanent disposal of biohazard waste had not yet been identified [29 CFR 1910.1030(d)(4)]. During an interview with key Contractor personnel on September 21, 2001, the inspectors were informed that a contract had been drafted for contracting with an occupational medical provider to provide a mechanism for permanent disposal of biohazard waste; however, as of September 21, 2001, the contract had not yet received final signoff. A letter contract and Notice to Proceed was approved and in place by October 2, 2001. A formal contract followed. The inspectors found the letter contract and Notice to Proceed adequate, and the issue was closed on October 3, 2001.

### **1.2.4 Conclusion**

With the closure of the issue identified in Section 1.2.3 in this report, the inspectors found that the Contractor's bloodborne pathogens program was adequate and met the requirements of 29 CFR 1910.1030.

### 1.3 Equipment and Tool Inspection Program

#### 1.3.1 Inspection Scope

During this inspection, the inspectors assessed the Contractor's IH&S program for compliance to the requirements for inspection of tools and equipment by a competent person as required in 29 CFR 1926.20(b). This inspection included the following:

- a. Criteria for determining when a tool or piece of equipment is unsafe based on the OSHA standard for that piece of equipment or tool (29 CFR 1926, Subpart I)
- b. Frequent and regular inspections of the job site, materials, and equipment made by a competent person [29 CFR 1926.20(b)(2)]
- c. Procedures for removing tools or equipment from service involving either lock and tag or physical removal from the workplace [29 CFR 1926.20(b)(3)]
- d. Provisions for permitting only employees qualified by training or experience to operate equipment and machinery [29 CFR 1926.20(b)(4)].

#### 1.3.2 Assessments

The inspectors reviewed the following documents to verify that the Contractor had committed to developing a program for equipment and tool inspection and had made provisions for implementing this program before the start of limited construction:

- a. Plan PL-W375-IS-0001, *Nonradiological Worker Safety and Health Plan (IH&S Plan)*
- b. Procedure 24590-WTP-GPP-SIND-024, *General Safe Work Practices*
- c. Procedure 24590-WTP-GPP-CON-2301\_0, *Construction Tool and Equipment Inspection*
- d. Procedure 24590-WTP-GPP-SIND-008, *Lockout/Tagout (BNI Lock and Tag)*.

The inspectors' review of the *IH&S Plan*, Section 6.3, verified that the Contractor had committed to implement an equipment and tool inspection program, which the construction department would administer and implement before the start of limited construction. The inspectors' review of the procedure, *General Safe Work Practices*, Sections 3.2.9 and 3.2.10, determined it met the requirements of 29 CFR 1926, Subpart I, "Tools-Hand and Power," Sections 300-302, including the criteria for determining when a tool or piece of equipment is unsafe, based on the OSHA standard for that piece of equipment or tool [Attribute a]. The one exception was that the procedure did not clearly address removing abrasive wheels and tools from service. The issue is discussed in Section 1.3.3 in this report and was closed shortly after the inspection ended.

The inspectors' review of Sections 3.2.9 and 3.2.10 also determined that frequent and regular inspections were required as evidenced by the statement, "Tools shall be inspected prior to each

use for defects such as.... Damaged tools shall not be used," which is required by 29 CFR 1926.20(b)(2) [Attribute b]. "Competent person" was defined as all trained and qualified workers, based on the statement, "Employees are required to report damaged and defective tools to their supervisor or return them to the WTP tool room for proper tagging and repair."

The inspectors' review of Sections 3.2.9 and 3.2.10 determined that tools or equipment were required to be removed from service either by lock and tag or by physical removal from the workplace. Section 3.2.6 stated, "Do Not Operate tags shall be utilized to prohibit the use or operation of defective tools and equipment." The inspectors determined this met the requirements of 29 CFR 1926.20(b)(3) [Attribute c].

Section 3.2.1, *General Safe Work Practices*, stated, "All WTP manual and non-manual employees, whether newly hired or re-hired will receive, as a minimum, a basic new employee ES&H orientation." The inspectors observed during this training that the Contractor acknowledges and documents the skill of the craft through the union; and whenever new skills are required, the craft are trained before using the equipment. The inspectors determined that this satisfied the requirement for permitting only employees qualified by training or experience to operate equipment and machinery as required by 29 CFR 1926.20(b)(4) [Attribute d].

### **1.3.3 Identified Issues**

During the initial inspection, the Contractor's procedures failed to address safety requirements for using abrasive wheels and tools. 29 CFR 1926, Subpart I, "Tools-Hand and Power," Section 303, "Abrasive wheels and tools," outlines a series of requirements dealing with power, guarding, use of abrasive wheels, work rests, and other requirements that were not addressed in the procedure, *General Safe Work Practices*.

The Contractor had drafted a new procedure, *Construction Tool and Equipment Inspection*; however, as of September 21, 2001, the procedure was still in draft. Final approvals for the procedure were received on October 3, 2001. Section 4.2 of the new procedure addressed hand, air, and electrical tools. Step 4.2.7 addressed portable grinders, Step 4.2.8 addressed bench grinders, and Step 4.2.1 addressed all electrically powered tools. The procedure required that before each use the employee must inspect tools for defects such as cracked handles, damaged cutting edges, splitting or cracked parts, and broken adjusting components. Based on review of the final procedure, the inspectors determined that the new procedure adequately addressed abrasive wheels and tools, and the issue was closed on October 4, 2001.

### **1.3.4 Conclusion**

With the closure of the issue identified in Section 1.3.3 of this report, the inspectors found that the Contractor's program for equipment and tool inspections was adequate and met the requirements of 29 CFR 1926, Subpart I, and 29 CFR 1926.20(b).

## 1.4 Fall Protection Program

### 1.4.1 Inspection Scope

During this inspection, the inspectors assessed the Contractor's IH&S program for compliance to the requirements of 29 CFR 1926 related to fall protection. While written programs and plans for fall protection are not required in 29 CFR 1926, Subpart M, documented certification of training is required. Additional fall protection attributes were inspected using ITP I-162, "Industrial Health and Safety Inspections." The inspectors verified that the fall protection training program met conventional fall protection requirements as specified in 29 CFR 1926.503. At a minimum, the training program shall include the following elements:

- a. Provisions for training each employee who is potentially exposed to fall hazards in recognizing and minimizing potential fall hazards [29 CFR 1926.503(a) all subsections]
- b. Provisions for training to be provided by a competent person [29 CFR 1926.503(a)(2)]
- c. Provisions for training for all affected employees [29 CFR 1926.503(b) all subsections]
- d. Provisions for retraining employees when the employer has reason to believe that any affected employee who has already been trained does not have the understanding and skill required by the program [29 CFR 1926.503(c) all subsections].

The inspectors verified that fall protection training contained the following information, at a minimum:

- e. The Contractor had a fall protection training program that enables each employee to recognize and minimize their exposure to fall hazards.
- f. A competent person was qualified in the following areas:
  - i. The nature of fall hazards at the work site
  - ii. The correct procedure for erecting, maintaining, disassembling, and inspecting fall protection systems to be used
  - iii. The use and operation of fall arrest systems, safety nets, guardrail systems, warning line systems, safety monitoring systems, controlled access zones, or other protection to be used
  - iv. Limitations on using mechanical equipment during roofing work on low-sloped roofs.

### 1.4.2 Assessments

The inspectors reviewed the following documents and training materials to verify that the Contractor had committed to developing a fall protection program and had made provisions for

implementing this program before the start of limited construction. Cranes, derricks, hoists, elevators, and conveyors (29 CFR 1926, Subpart N) are within the fall protection program but were evaluated separately in Section 1.16 of the inspection.

- a. Exhibit G, "Subcontractor Safety and Health Requirements," attached to all subcontracting documents for the RPP-WTP project
- b. Procedure K13P051, *Stop Work*
- c. Procedure 24590-WTP-GPP-CON-1201, *Construction Work Packages*
- d. Procedure 24590-WTP-GPP-SIND-002\_0, *STARRT/JHA*
- e. Procedure Change Request Revision A, #24590-WTP-GPP-SIND-004A for the procedure, *Scaffolding*
- f. Procedure 24590-WTP-GPP-SIND-006\_0, *Roofing Work*
- g. Procedure 24590-WTP-GPP-SIND-020\_0, *Floor and Wall Openings*
- h. Procedure 24590-WTP-GPP-SIND-024\_0, *General Safe Work Practices*
- i. Procedure 24590-WTP-GPP-SIND-025\_0, *Personal Protective Equipment*
- j. Procedure 24590-WTP-GPP-SIND-027\_0, *Fall Prevention and Protection*
- k. Procedure 24590-WTP-GPP-SIND-031\_0, *Portable Ladders – Control and Inspection*
- l. Procedure 24590-WTP-GPP-SIND-032\_0, *Suspended Personnel Platforms*
- m. Procedure 24590-WTP-GPP-SIND-033\_0, *Articulating Boom Platforms*
- n. Orientation modules for newly hired employees and subcontractors, "General Safe Work Practices" and "Fall Protection and Prevention"
- o. Training modules "Fall Prevention/Protection" and "Scaffolding – User Training"
- p. Plan PL-W375-IS00001, *Nonradiological Worker Safety and Health Plan (IH&S Plan)*
- q. Statement of Work, "RPP-WTP On Site First Aid Facility"
- r. Booklet, "Employee Safety and Health Practices"
- s. *Construction Training Matrix for Non-Manual Project Specific Training*

- t. Job descriptions and resumes for the Industrial Safety Manager<sup>6</sup> and the Senior Safety and Health Specialist.<sup>7</sup>

The inspectors' review of the *IH&S Plan* verified that the Contractor had committed to implementing a fall protection and prevention program in Section 4.12 as required by ORP M 440.1-2, Appendix A, Section 12b, and 29 CFR 1926.501. Exhibit G, "Subcontractor Safety and Health Requirements," contained the subcontractor safety and health requirements. The inspectors found that fall protection and prevention requirements of 29 CFR 1926, Subpart M, were not specifically identified in Exhibit G. However, Exhibit G did adequately impose all fall protection requirements of 29 CFR 1910 and 29 CFR 1926 on subcontractors.

The inspectors' review of the procedure, *General Safe Work Practices*, found that this umbrella procedure referenced procedures related to fall protection. The procedure mentioned that additional safe work practices were described in or by other construction health and safety plans, procedures, guides, and jobsite work rules, including practices for floors, roofs, wall, and platform openings, ladders, suspended personnel platforms, and safety nets. The inspectors determined that the procedures, *Scaffolding*, *Roofing Work*, *Floor and Wall Openings*, *Fall Prevention and Protection*, *Portable Ladders – Control and Inspection*, *Suspended Personnel Platforms*, and *Articulating Boom Platforms*, addressed issues of fall protection and fall hazards during the work planning phase as part of the Safety Task Analysis Risk Reduction Talk (STARRT)/Job Hazards Analysis (JHA) process.

The procedure, *Personal Protective Equipment*, was also another umbrella procedure. The inspectors found that the procedure was consistent with the procedure, *Fall Prevention and Protection*. *Personal Protective Equipment* briefly mentioned fall protection equipment in Section 3.10, which stated, "full body safety harnesses shall be used for work that is performed six feet or greater above the working floor level or over an impalement hazard," which was consistent with 29 CFR 1926, Subpart M. Section 3.5 of *Personal Protective Equipment* required hard hats at all times while on a construction facility with only a few exceptions; the inspectors found the requirement to wear a hard hat when an employee is exposed to falling objects to be consistent with 29 CFR 1926.501(c).

The procedure, *Fall Prevention and Protection*, addressed primary and secondary fall protection systems and briefly addressed erecting, maintaining, disassembling, and inspecting certain fall protection systems. The inspectors found that the procedure adequately described the use and operation of fall arrest systems, safety nets, guardrail systems, and warning line systems. The procedure was found to be consistent with 29 CFR 1926, Subpart M. Additional details for erecting, maintaining, disassembling, and inspecting specific fall protection systems were found in individual procedures, such as *Scaffolding*.

The inspectors found that the procedure, *Scaffolding*, addressed erecting, maintaining, disassembling, and inspecting scaffolding. At the time of the inspection, the procedure did not address load capacity or minimum scaffold distances from power lines as specified in 29 CFR 1926, Subpart L. This is noted as an identified issue in Section 1.4.3 of this report.

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<sup>6</sup> Tom Meagher, dated January 23, 2001.

<sup>7</sup> Steven Walter, dated February 13, 2001.

The inspectors found that the procedures, *Scaffolding*, *Fall Prevention and Protection*, *Articulating Boom Platforms*, and *Roofing Work*, did not adequately identify maximum and average wind speeds for discontinuing work activities because of high wind hazards. This issue related to defining when to stop work because of high winds is identified in Section 1.4.3 of this report.

The basis for this finding is Number 12b of Appendix A of ORP M 440.1-2, which requires compliance with 29 CFR 1926 (which includes Subparts L, M, N, and X). Specific regulations related to wind speed are found in 29 CFR 1926.451(f)(12), Subpart L, "Scaffolds"; 29 CFR 1926.552(c)(17)(iii), Subpart N, "Cranes, Derricks, Hoists, and Conveyors"; and 29 CFR 1926.1053(a)(23)(ii), Subpart X, "Ladders." Also, ORP M 440.1-2, Appendix A, Number 1a, states, "Implement a worker protection program that (a) provides a place of employment free from recognized hazards that are causing or are likely to cause death or serious physical harm to employees." Based on interviews with key personnel, the Contractor had identified the need to define wind speeds above which certain work activities would be discontinued. This could be a significant safety issue related to crane work, scaffold work, and any elevated work where material with large surface areas could endanger workers carrying the material.

The inspectors found that general limitations on using mechanical equipment during roofing work were addressed in the procedure, *Roofing Work*, in Section 3.3.2, as required by 29 CFR 1926.501(h)(2).

The inspectors found that the training module, "Fall Prevention/Protection," addressed the required elements of 29 CFR 1926.503 [Attributes a, b, and c]. Section 3.12 of the procedure, *Personal Protective Equipment*, required employees to be trained in properly inspecting, using, maintaining, and storing personal protective equipment. The inspectors found the training module, "Scaffolding – User Training," provided information on working on scaffolds and addressed the important elements of 29 CFR 1926, Subpart L. The inspectors attended the orientation for newly hired employees and subcontractors and reviewed two modules: "General Safe Work Practices," which addressed general hazards at a construction work site, and "Fall Protection and Prevention," which focuses on general fall protection. Based on reviewing training material, attending orientation, and reviewing procedures, the inspectors determined that the Contractor had a fall protection training program that enabled each employee to recognize and minimize their exposure to fall hazards as required by 29 CFR 1926.503(a), (b), and (c) [Attributes a, b, c, d, and e].

The procedure, *Scaffolding*, requires scaffolds to be erected, moved, tagged, or dismantled under the supervision of a competent person. Subcontractors are required to conform to the same standards. The inspectors determined that this was consistent with 29 CFR 1926, Subpart L [Attribute f].

The inspectors found the *Construction Training Matrix* identified the required IH&S training for construction personnel according to job position titles. Employees and subcontractors are required to receive basic training on fall protection. The inspectors attended orientation for newly hired employees and subcontractors on September 21, 2001, and determined that a competent person taught the course and the training material was adequate to address general fall hazards. The instructor informed students that additional training was required before fall protection equipment could be used. According to the instructor, either the manufacturer of the

fall protection equipment or a qualified instructor would teach this training. Either was considered a competent person [Attribute f].

### 1.4.3 Identified Issues

During the initial inspection, the inspectors noted that the procedure, *Scaffolding*, did not address load capacity or minimum scaffold distances from power lines. While the procedure stated that scaffolds are to comply with 29 CFR 1926, Subpart L, these issues should be specifically discussed in the procedure to provide the safety guidance the procedure is intended to convey. The procedure contained considerable detail on using scaffolds, and the reader might assume all the elements of Subpart L are covered. Load capacity and minimum scaffold distances from power lines should be specifically addressed because failure to comply with these particular requirements in Subpart L could pose an immediate and significant safety hazard [29 CFR 1926.451(a) and (f)(6)].

On September 12, 2001, the inspectors reviewed Revision A of the procedure, *Scaffolding*, approved September 11, 2001. The requirements for load capacity in 29 CFR 1926.451(a)(1)-(5) and clearance of scaffolds from power lines in 29 CFR 1926.451(f)(6) were incorporated into the procedure. The following was added to Section 3.3.1: "Scaffolds and their components shall be capable of supporting without failure, at least four times the maximum intended load applied or transmitted to it, with the following exceptions: ..." and "The clearance between scaffolds and power lines shall be as follows: Scaffolds shall not be erected, used, dismantled, altered, or moved such that they or any conductive material handled on them might come closer to exposed and energized power lines than as follows: ..."

The information added to Section 3.3.1 of *Scaffolding* was consistent with and in many cases was verbatim with the requirements in 29 CFR 1926.451(a) and (f). The inspectors determined that the addition of these paragraphs in the procedure was adequate to close the above issue.

The procedures, *Scaffolding*, *Fall Prevention and Protection*, *Articulating Boom Platforms*, and *Roofing Work*, did not adequately identify maximum and average wind speeds for discontinuing work activities because of high wind hazards [ORP M 440.1-2, Appendix A, Number 1a; 29 CFR 1926.451(f)(12); 29 CFR 1926.552(c)(17)(iii); and 29 CFR 1926.1053(a)(23)(ii)].

The Contractor addressed this issue by drafting a new procedure, 24590-WTP-GPP-SIND-041\_0, *High Wind Safety*, to address controls and stop work because of high winds. The procedure was approved on October 2, 2001. The inspectors found the new procedure adequately addressed high wind issues for construction activities and closed the issue on October 2, 2001.

#### **1.4.4 Conclusion**

With the closure of the two issues identified in Section 1.4.3 of this report, the Contractor's program for fall protection as described was adequate and met the requirements of 29 CFR 1926, Subparts L and M.

### **1.5 Fire Protection Program**

#### **1.5.1 Inspection Scope**

During this inspection, the inspectors assessed the Contractor's IH&S program for compliance to the requirements of 29 CFR 1926 related to fire protection. A program that describes and implements effective fire protection and prevention at the job site throughout all phases of the construction, repair, alteration, or demolition work is required by 29 CFR 1926.24 to implement specific requirements of 29 CFR 1926, Subpart F. Specific program attributes assessed included the following:

- a. Sufficient and well-maintained fire fighting equipment [29 CFR 1926.150(a)]
- b. A water supply to operate fire fighting equipment [29 CFR 1926.150(b)]
- c. Portable fire fighting equipment [29 CFR 1926.150(c)]
- d. Identification and mitigation of ignition hazards [29 CFR 1926.151(a)]
- e. Prohibitions on constructing temporary buildings such that the prohibitions would pose a fire hazard or inhibit emergency evacuation [29 CFR 1926.151(b)]
- f. Open-yard storage of combustible materials to avoid a fire hazard [29 CFR 1926.151(c)]
- g. Indoor storage of combustible materials to avoid a fire hazard [29 CFR 1926.151(d)].

A temporary or permanent water supply sufficient to operate the fire fighting equipment properly should be described in the program. The temporary system should be sufficient to support volume, duration, and pressure requirements [29 CFR 1926.150(b)].

#### **1.5.2 Assessments**

The inspectors reviewed the following documents and materials to verify that the Contractor had committed to developing a fire protection and prevention program and had made provisions for implementing this program and to verify implementation of commitments made in procedures before the start of limited construction:

- a. Exhibit G, "Subcontractor Safety and Health Requirements," attached to all subcontracting documents for the RPP-WTP project

- b. Procedure 24590-WTP-GPP-SIND-009\_0, *Safety Watches*
- c. Procedure 24590-WTP-GPP-SIND-013\_0, *Hazardous Work Permit*
- d. Procedure 24590-WTP-GPP-SIND-035\_0, *Welding and Cutting Safety*
- e. Procedure 24590-WTP-GPP-SIND-026\_0, *Housekeeping and Fire Prevention*
- f. Procedure 24590-WTP-GPP-CON-1201, *Construction Work Packages*
- g. Orientation modules for newly hired employees and subcontractors, "Fire Protection and Prevention" and "Housekeeping"
- h. Plan PL-W375-IS-0001, *Nonradiological Worker Safety and Health Plan (IH&S Plan)*
- i. Statement of Work, "Emergency Response and Emergency Preparedness Services"
- j. Booklet, "Employee Safety and Health Practices"
- k. *Construction Training Matrix for Non-Manual Project Specific Training*
- l. Job descriptions and resumes for the Senior Safety and Health Specialist,<sup>8</sup> the Fire Hazard Analysis Engineer Lead,<sup>9</sup> and the Industrial Safety Manager.<sup>10</sup>

The inspectors' review of the *IH&S Plan* verified that the Contractor had committed to implementing a fire prevention and protection program in Section 4.9 of the plan. The inspectors found flowdown of fire protection and prevention requirements to the subcontractor to be adequately covered through Exhibit G in subcontract requirement GR-9, "Fire Protection – General." This requirement contained general fire protection requirements that apply to all subcontractors. The inspectors determined the Contractor had provisions to flow down requirements to subcontractors that were adequate to implement effective fire protection and prevention at the job site throughout all phases of the construction, repair, alteration, or demolition work, as required by 29 CFR 1926.24.

The Contractor provided a written fire protection and prevention program in the procedure, *Housekeeping and Fire Prevention*. The inspectors determined that the procedure adequately addressed having sufficient and well-maintained fire fighting equipment, a water supply, portable fire fighting equipment, and identification and mitigation of ignition hazards as required by 29 CFR 1926.150(a), (b), and (c) [Attributes a, b, and c]. However, at the time of inspection, one issue was identified relating to procuring fire protection services and is discussed in Section 1.5.3 in this report and the paragraph below.

At the time of the inspection, the Contractor had drafted a statement of work for emergency response and emergency preparedness services to be provided by the Hanford Fire Department,

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<sup>8</sup> Steven Walter, dated February 13, 2001.

<sup>9</sup> Troy DeGarmo, dated August 28, 2001.

<sup>10</sup> Tom Meagher, dated January 23, 2001.

but the actual costs and the contracting mechanism were in the process of being negotiated. Fluor Hanford manages the contract for services provided by the Hanford Fire Department for the Hanford Site. Fluor Hanford had prepared a letter<sup>11</sup> that outlined what services the Hanford Fire Department would provide to the Contractor. Based on discussions with key personnel, the Hanford Fire Department agreed in principle to provide services to the Contractor if a fire emergency occurred before the contracting mechanism was finalized. The issue was closed on October 2, 2001.

The inspectors identified at least three different procedures that addressed identifying and mitigating ignition hazards: *Safety Watches*, *Housekeeping and Fire Prevention*, and *Welding and Cutting Safety*, as required by 29 CFR 1926.151(a). Section 3.2 of *Housekeeping and Fire Prevention* addressed general identification and mitigation of ignition hazards, including housekeeping, welding and cutting, construction site fire protection, flammable and combustible liquids, wildland fire precautions, and temporary facilities. *Welding and Cutting Safety* required a "hot work permit" before conducting hot work, suitable fire-extinguishing equipment, and a fire watch. The inspectors found that identifying and mitigating ignition hazards in the three procedures were adequate to meet 29 CFR 1926.151(a) [Attribute d].

The inspectors determined that the procedure, *Housekeeping and Fire Prevention*, adequately addressed temporary buildings, open yard storage, and indoor storage of combustible materials as required by 29 CFR 151(b), (c), and (d) [Attributes e, f, and g]. However, one Inspector Follow-up Item (IR-01-005-01-IFI), identified in Section 1.5.3 of this report, related to identifying adequate laydown areas of combustible material. The Contractor is currently in the process of locating an acceptable area or building for storing large amounts of construction material. This issue must be addressed before full-scale construction activities take place next calendar year in order to meet the requirements in 29 CFR 1926.151(c) and (d) so that open yard storage and indoor storage of combustible materials do not pose a fire hazard [Attributes f and g].

For the construction of temporary buildings, the Contractor identified drawing/data requirements and submittals and certain technical specifications that are included as Exhibits D, "Scope of Work," and E, "Technical Specifications," in all procurement documents. The inspectors found the specifications for temporary buildings adequately met 29 CFR 1926.151(b) [Attribute e].

The inspectors found the training modules, "Housekeeping" and "Fire Protection and Prevention," for orienting new hires adequately addressed how employees can prevent fires and respond to fires. Employees and subcontractors are required to receive these training modules. "Housekeeping" provided additional information important to fire prevention by keeping the work area clean. The inspectors found the *Construction Training Matrix* identified the required IH&S training for construction personnel, according to job position titles. The inspectors attended orientation for newly hired employees on September 21, 2001, and found that the training provided an adequate overview of fire prevention and protection techniques for general employees. During the orientation, the instructor informed students that additional training is required before employees can use fire extinguishers.

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<sup>11</sup> FH letter from J. D. Wood to R. F. Naventi, BNI, "Fluor Hanford Services to Bechtel National, Inc.," CC 020645, dated September 7, 2001, with attachments "Emergency Preparedness and Hanford Fire Department Summary of Work Scope."

### **1.5.3 Identified Issues**

During an interview with key Contractor personnel on September 21, 2001, the inspectors were informed that the Contractor had developed a contractual mechanism with the Hanford Fire Department to obtain response in the event of a large fire and had received an e-mail confirmation that the Hanford Fire Department would provide support to the RPP-WTP project. However, as of September 21, the Contractor was still in the process of negotiating the costs associated with providing Hanford Fire Department support and final approvals of the contractual mechanism had not yet occurred. A contractual mechanism to provide Hanford Fire Department services to the Contractor should be established before the start of limited construction [29 CFR 1926.150(a) and (b)].

The Contractor resolved this issue by providing two tasks orders and an MOA. Task Order 2001-001 was for emergency response services, and Task Order 2001-002 was for emergency preparedness services. The Contractor also provided MOA 091001-01, which described the agreements reached between Fluor Hanford and BNI for the performance and payment of services for emergency response. Both parties signed the MOA by September 27, 2001. The Contractor also indicated that the Hanford Fire Department had received the letter for a Limited Notice to Proceed on October 1, 2001. The inspectors found the MOA, Limited Notice to Proceed, and task orders adequate and closed the issue on October 2, 2001.

During an interview with key Contractor personnel on September 21, 2001, the inspectors were informed that a contract had been drafted between the Contractor and Energy Northwest to provide a warehouse for storage of construction materials; however, as of September 21, 2001, the contract had not yet received final signoff. Laydown areas for large amounts of material should be established before full-scale construction activities take place next calendar year. The Contractor should identify adequate laydown areas for combustible materials to meet 29 CFR 1926.151(c) and (d) so that open yard storage and indoor storage of combustible materials do not pose a fire hazard. This item remains as an Inspector Follow-up Item (IR-01-005-01-IFI).

### **1.5.4 Conclusion**

With the exception of the item identified as an Inspector Follow-up Item IR-01-005-01-IFI in Section 1.5.3, the Contractor's program for fire protection and prevention as described was adequate and met the requirements of 29 CFR 1926, Subpart F.

## **1.6 Hazard Communication Program**

### **1.6.1 Inspection Scope**

During this inspection, the inspectors assessed the Contractor's IH&S program for compliance with 29 CFR 1926.59 and 29 CFR 1910.1200 (29 CFR 1910.1200 is identical to 29 CFR 1926.59) related to hazard communication. The fundamental requirements listed in the OSHA standards are that the Contractor must inform employees of hazards that may be encountered in the workplace and of available protective measures to prevent adverse effects from those

hazards. At a minimum, the Contractor must maintain a written hazard communication program that contains the attributes listed in the following:

- 29 CFR 1910.1200(f)
- 29 CFR 1910.1200(g)(2)
- 29 CFR 1910.1200(g)(8)
- 29 CFR 1910.1200(h).

### 1.6.2 Assessments

The inspectors reviewed the following documents and materials to verify that the Contractor had committed to developing a hazard communication program and had made provisions for implementing this program and to verify implementation of commitments made in procedures before the start of limited construction:

- a. ORP M 440.1-2, *Industrial Health and Safety Oversight Plan for the Waste Treatment Plant Contractor*
- b. Plan PL-W375-IS-00001, *Nonradiological Worker Safety and Health Plan (IH&S Plan)*
- c. Procedure 24590-WTP-GPP-SIND-014\_0, *Hazard Communication*.

During the inspection, no physical activities were taking place at the proposed site of the WTP. Furthermore, no subcontracts had been awarded to begin any work. While the hazard communication program had not been implemented, the Contractor developed a program to address the requirements in preparation for start of construction. The inspectors reviewed the Contractor's program to determine if it was adequate.

Section 8.3 of the Contractor's *IH&S Plan* states that potential hazards of general interest and application would be reported routinely to employees as part of the general hazard communication program, which was consistent with 29 CFR 1910.1200(h). As new hazards are identified, the employees in the affected jobs will be informed of the potential hazards and the appropriate actions they should take to mitigate the hazards. Task-specific mitigation will be included in the pretask briefings.

Section 3.3 of the procedure, *Hazard Communication*, discusses a system to ensure that chemicals would be properly and legibly labeled and that a material safety data sheet (MSDS) would accompany each chemical shipment, which is consistent with 29 CFR 1910.1200 (f) and (g)(2). The procedure also discusses a system for keeping the hazardous material inventory updated and notes the inventory would be updated each time a potentially hazardous chemical is brought onsite. The MSDSs will be kept in a book that is maintained in the environment, safety, and health (ES&H) office and will be readily available to employees during all work shifts. The MSDS also must be present in the Contractor's or the appropriate subcontractor's MSDS book before a hazardous material can be used. Furthermore, the Contractor stated that when a new material is required, a purchase requisition (PR) is initiated. Block 12 on the PR asks whether the PR affects ES&H; if it does, the PR must be coordinated with ES&H staff. The Contractor

informed the inspectors that when ES&H receives a PR, the PR would not be approved by ES&H until an MSDS was obtained, consistent with 29 CFR 1910.1200 (g)(8).

Section 3.3.9 and 3.3.10 of the procedure, *Hazard Communication*, discusses employee information and training, which is consistent with 29 CFR 1910.1200(h). Initial information and training on the hazard communication program will be provided during new employee orientation, and job-specific training will be provided when new employees are first assigned to a work area where they may be exposed to hazardous material under normal working conditions or in a foreseeable emergency. Section 3.3.11 in the procedure lists training topics, which include employee rights; location and availability of the written hazard communication program, the hazardous material inventory, and MSDS; health hazards; labeling; and measures employees can take to protect themselves. The inspectors concluded that the program met the requirements of 29 CFR 1910.1200(h).

### **1.6.3 Conclusion**

Based on the documents reviewed by the inspectors and interviews with appropriate personnel, the Contractor's program for hazard communication as described was adequate and met the requirements of 29 CFR 1910.1200, and if implemented properly, should be effective.

## **1.7 Hearing Conservation Program**

### **1.7.1 Inspection Scope**

During this inspection, the inspectors assessed the Contractor's IH&S program for compliance to the requirements of 29 CFR 1910 related to hearing conservation. In Section 8.6, page 24, of the *IH&S Plan*, the Contractor indicated, "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." Even though the noise exposure requirements for construction are defined in 29 CFR 1926.52, the inspection is being performed to the requirements of 29 CFR 1910.95 because the Contractor had committed to this requirement through the *IH&S Plan*. Although the hearing conservation program does not have to be written, it must be communicated to all employees and subcontractors. Specific program attributes assessed included the following:

- a. Employees shall be protected against the effects of noise exposure when the sound levels exceed those in 29 CFR 1910.95(c), Appendix A, "Noise Exposure Computation," using Table G-16a [29 CFR 1910.95(a)].
- b. When employees are subjected to sound levels exceeding those listed in Table G-16a, feasible administrative or engineering controls shall be used to control the noise [29 CFR 1910.95(b)].
- c. If controls fail to reduce sound levels within the levels of Table G-16a, personal protective equipment shall be provided and used [29 CFR 1910.95(b)].

- d. The employer shall develop and implement a monitoring program and notify employees of results if exposures exceed the action level (50% of the permissible exposure) [29 CFR 1910.95(d)].
- e. The employer shall establish and maintain an audiometric testing program [29 CFR 1910.95(g)].

### 1.7.2 Assessments

The inspectors reviewed the following documents and materials to verify that the Contractor had committed to developing a hearing conservation program and had made provisions for implementing this program and to verify implementation of commitments made in procedures before the start of limited construction:

- a. Exhibit G, "Subcontractor Safety and Health Requirements," attached to all subcontracting documents for the RPP-WTP project
- b. Procedure 24590-WTP-GPP-SIND-012\_0, *Hearing Conservation*
- c. Procedure 24590-WTP-GPP-SIND-025\_0, *Personal Protective Equipment*
- d. Orientation module for newly hired employees and subcontractors, "Hearing Conservation Program"
- e. Plan PL-W375-IS00001, *Nonradiological Worker Safety and Health Plan (IH&S Plan)*
- f. Job descriptions and resumes for the Senior Safety and Health Specialist,<sup>12</sup> the Industrial Hygienist,<sup>13</sup> and the Industrial Safety Manager.<sup>14</sup>

The inspectors' review of the *IH&S Plan* verified that the Contractor had committed to implementing a hearing conservation program in Section 8.6. The inspectors found that the Contractor's commitments exceed the minimum requirements for occupational noise exposure for construction identified in 29 CFR 1926.52. The inspectors determined documents and training materials used to implement the Contractor's hearing conservation program to be comprehensive in that they addressed the requirements of 29 CFR 1910.95. The Contractor provided a written program in the procedure, *Hearing Conservation*.

Section 3.2 of the Contractor's procedure addressed noise exposure levels and limits. The inspectors determined that noise exposure limit values were consistent with those listed in Table G-16a of 29 CFR 1910.95 as required by 29 CFR 1910.95(a) [Attribute a]. Section 3.3 of the procedure stated, "all personnel exposed to noise equal to or greater than 85 dBA as measured by an 8-hour time weighted average (TWA) will be enrolled in the hearing conservation program," which was consistent with 29 CFR 1910.95(c).

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<sup>12</sup> Steven Walter, dated February 13, 2001.

<sup>13</sup> Scott Marko, dated February 13, 2001.

<sup>14</sup> Tom Meagher, dated January 23, 2001.

The inspectors reviewed Section 3.9 of *Hearing Conservation*, which addressed protective measures, including the use of personal protective equipment, and determined the protective measures to be consistent with 29 CFR 1910.95(b) [Attributes b and c].

The inspectors found that evaluation of noise levels and the requirements for a monitoring program in the procedure, Section 3.4, "Monitoring Program" were consistent with 29 CFR 1910.95(d) [Attribute d]. The inspectors' review of Section 3.7, "Audiometric Testing," determined the procedural requirements for baseline audiograms and periodic testing were consistent with 29 CFR 1910.95(g). Section 3.5, "Employee Notifications," required that employees exposed at or above an 8-hour time weighed average of 85 dBA be notified of results of noise monitoring, which was consistent with 29 CFR 1910.95(e).

The inspectors determined that the Industrial Hygienist was knowledgeable in the requirements of hearing conservation, had experience performing noise surveys, and participated extensively in writing the procedure. The Industrial Hygienist also is a Certified Industrial Hygienist.

The Contractor indicated in Section 2.3.3, page 8, of the *IH&S Plan*, that "the project will have an onsite medical facility, staffed with qualified licensed medical personnel...to provide physicals, evaluations, or tests as required for such programs as respiratory protection and hearing conservation." According to discussions with IS&H staff during the initial inspection, the Contractor did not yet have a contract in place with an occupational medical provider to meet the commitment in Section 2.3.3 of the *IH&S Plan* for limited construction. Employees who were required to participate in the hearing conservation program had up to six months to complete their baseline audiogram, which was consistent with 29 CFR 1910.95(g)(5)(i). The Contractor informed the inspectors that Kennewick General Hospital was providing baseline audiograms to employees who required it until an occupational medical provider was in place, which was acceptable for meeting the requirements of 29 CFR 1910.95(g)(5)(i) [Attribute e].

For newly hired employees, the orientation training module, "Hearing Conservation Program," provided a means to communicate the hearing conservation program to all employees and subcontractors, as required by 29 CFR 1910.95(k). The inspectors determined that the information presented in the training module met the required elements of 29 CFR 1910.95(k). The inspectors determined the requirement for training was adequately captured by the procedure, *Hearing Conservation*. Section 3.11 of the procedure stated, "...employees who are exposed to noise at or above an 8-hour TWA of 85 dBA will receive the training required by this program." The *Construction Training Matrix* identified the required IH&S training for construction personnel, according to job position titles. The inspectors attended orientation for newly hired employees on September 21, 2001, and determined that the orientation provided an adequate overview of the hearing conservation program.

### 1.7.3 Conclusion

Based on interviews with key Contractor personnel and the documents reviewed by the inspectors, the Contractor's hearing conservation program as described was adequate and met the requirements of 29 CFR 1910.95, and if implemented properly, should be effective.

## 1.8 Lockout and Tagout Program

### 1.8.1 Inspection Scope

The inspectors assessed the Contractor's lock and tag program for compliance with 29 CFR 1926.417 by comparing the program to DOE-RL-SOD-INST-L&T.001, *Hanford Site Lockout/Tagout Program*, which the Contractor had committed to in its *IH&S Plan* and which met 29 CFR 1926.417 requirements.

### 1.8.2 Assessments

The inspectors reviewed the following documents and materials to verify that the Contractor had committed to developing a lockout and tagout program and had made provisions for implementing this program and to verify implementation of commitments made in procedures before the start of limited construction:

- a. Plan PL-W375-IS00001, *Nonradiological Worker Safety and Health Plan (IH&S Plan)*
- b. Procedure 24590-WTP-GPP-SIND-008, *Lockout/Tagout (BNI Lock and Tag)*
- c. Program, DOE-RL-SOD-INST-L&T.001, *Hanford Site Lockout/Tagout Program (Hanford Lock and Tag)*
- d. Videotape, "Working Safely with Electricity."

The inspectors reviewed the Contractor's lock and tag procedure for compliance with the Hanford Site Lockout/Tagout Program. The inspectors found that the procedure, *Lockout/Tagout (BNI's lock and tag)*, complied with the Hanford Site program, with the following exceptions:

- a. Section 3.5, "Application and Removal of Locks and Tags," was not written in a systematic approach such that the central tagging authority could implement it in the field.
- b. Section 3.7, "Tagging Designations," did not refer to a picture of the tag nor define the minimum information for the tag. It was not clear that the BNI program used the same tags as the Hanford program.
- c. Section 3.7.2 introduced the use of the Caution Tag, which was not included in the Hanford program.
- d. Section 3.8, "Surveillance Requirements," did not have the same level of requirements as the Hanford program.
- e. In Step 3.1.5, the lockout definition used an "and/or" for the use of lock or tag. This option is not available in the Hanford program.

- f. The definition of "Safe-to-Work Check" in Section 3.1.7 was inconsistent with its use in Section 3.5.7. In Section 3.1.7, it was a planning step to see that everything had been considered, while in Section 3.5.7 it concerned field application use to ensure work is checked.
- g. Section 3.5.4 allowed use of a tag when a lockout should have been used. This was incompatible with the Hanford program.

The inspectors' review of the videotape, "Working Safely with Electricity," showed some disagreement on lock and tag policy relative to complex lockouts. In the video, a complex lockout required a plan; but in the procedure, only lockouts that could not be locked required a plan. This issue was later resolved in the training orientation by an instructor clarification following the videotape.

### **1.8.3 Identified Issues**

The *IH&S Plan*, Section 4.11, "Lockout/Tagout Program," stated the Contractor would adopt the Hanford Lockout/Tagout Program. During the initial inspection, the Contractor did not adopt the Hanford program as described in Section 1.8.2 above.

The Contractor addressed these inconsistencies in Revision 1 to the procedure, and final approvals for the procedure were received on September 27, 2001. The inspectors determined the changes were adequate, and the issue was closed on September 28, 2001.

### **1.8.4 Conclusion**

With the closure of the issue identified in Section 1.8.3 above, the Contractor's program for lockout and tagout as described was adequate and met the requirements of 29 CFR 1926.417 and adopted DOE-RL-SOD-INST-L&T.001, *Hanford Site Lockout/Tagout Program*.

## **1.9 Occupational Medicine Program**

### **1.9.1 Inspection Scope**

During this inspection, the inspectors assessed the Contractor's IH&S program for compliance with the requirements of ORP M 440.1-2 as they related to occupational medicine. The document requires the Contractor to have a comprehensive occupational medicine program to address injuries and illnesses, employee wellness, fitness for duty, and other relevant medical issues on the construction site. The Contractor is required to prepare a written plan that describes and implements an effective occupational medicine program at the job site throughout all phases of construction. The plan must implement the requirements of ORP M 440.1-2, Appendix A, Section 16, "Occupational Medical." Section 12 of Appendix A also requires the Contractor to comply with the worker protection requirements of 29 CFR 1926.50.

### 1.9.2 Assessments

The inspectors reviewed the following documents and materials to verify that the Contractor had committed to developing an occupational medicine program and had made provisions for implementing this program and to verify implementation of commitments made in procedures before the start of limited construction:

- a. ORP M 440.1-2, *Industrial Health and Safety Oversight Plan for the Waste Treatment Plant Contractor*
- b. Plan PL-W375-IS-0001, *Nonradiological Worker Safety and Health Plan (IH&S Plan)*
- c. Guide 24590-WTP-GPG-SIND-003\_0, *Medical Treatment and Medical Services*
- d. Procedure 24590-WTP-GPP-SIND-038\_0, *Occupational Medicine*

The inspectors reviewed the written medical program as described in the guide, *Medical Treatment and Medical Services*, and the procedure, *Occupational Medicine*. The inspectors found that the guide followed all of the required attributes of Section 16, "Occupational Medical," of Appendix A, ORP M 440.1-2, and 29 CFR 1926.50 and that the procedure adequately expanded on those requirements.

The inspectors noted that the *Medical Treatment and Medical Services* guide defined a medical services administrator who would be responsible for overseeing proper implementation of the program. Although the administrator had not been appointed, the Industrial Safety Manager was fulfilling those duties. The inspectors concluded that the manager was qualified to do so because of education (a BSN degree) and experience (the manager had administered such a program during construction of a large nuclear power plant complex).

Section 16.a.2 of Appendix A, ORP M 440.1-2, requires a formal, written Contractor occupational medical program, and Section 16.b requires the physician responsible for delivering medical services to be responsible for planning and implementing the occupational medical program. This had not been done at the time of the inspection.

Furthermore, Section 2.3.3 of the Contractor's *IH&S Plan* states that the project will have an onsite medical facility staffed with qualified licensed medical personnel to treat first-aid cases and minor injuries and to provide physicals, evaluations, or tests required for such programs as respiratory protection and hearing conservation. Contractor procedure, *Occupational Medicine*, which implements the requirements, states that an occupational medicine provider will be contracted to provide such services and the provider will be located at the construction site at a facility containing the necessary clinical equipment and supplies. The procedure also states that the occupational provider would be responsible for providing the physician who would be responsible for planning and implementing the occupational medicine program.

The inspectors determined that, at the time of the inspection, the Contractor had not contracted for a medical services provider and did not have a facility at the site containing the necessary equipment and supplies as required to meet the requirements of Appendix A of ORP M 440.1-2 and 29 CFR 1926.50. The Contractor informed the inspectors that, until a subcontractor was

obtained and permanent facilities were available onsite, interim plans were to use Kennewick General Hospital whenever physician or other services, such as hearing baseline measurements, were required. According to interviews with Contractor personnel, Kennewick General Hospital would provide these services on a walk-in basis. In addition, a temporary first-aid facility would be provided onsite and would be staffed with a registered nurse. The Contractor also stated that the services of the Hanford Fire Department would be used for transporting injured personnel to hospitals and for providing emergency medical services but that formal arrangements had not yet been finalized. Based on these findings, the inspectors concluded the Contractor was not meeting the requirements of ORP M 440.1-2, Appendix A, Section 16.

### **1.9.3 Identified Issues**

During the inspection, the inspectors identified that the Contractor had not contracted for an occupational medical provider, had no facility available at the site containing the necessary clinical equipment and supplies, and had not formalized arrangements with the Hanford Fire Department for using its services.

The Contractor and Fluor Hanford executed a letter contract and an MOA on September 27, 2001, for providing Hanford Fire Department services to the Contractor. The services included incident command, fire suppression, emergency rescue, emergency medical services, hazardous materials response, chemical/biological response, mutual aid response, fire system testing, self-contained breathing apparatus, powered air purified respirator maintenance and servicing, fire prevention program, and response readiness training. Second, a letter contract to WorkCare PLLC and Notice to Proceed, "RPP WTP Interim Medical Services," was approved and in place by October 2, 2001, followed by a formal contract. The statement of work provided the expectations for services that meet the requirements of Section 16, "Occupational Medical," of Appendix A, ORP M 440.1-2, and applicable standards of 29 CFR 1926.50. The inspectors concluded the letter contracts and statement of work were adequate and closed the issue subsequent to the inspection.

### **1.9.4 Conclusion**

With closure of the issues identified in Section 1.9.3 in this report, the Contractor's program for occupational medicine as described was adequate and met the requirements of ORP M 440.1-2, Appendix A, Section 16, and 29 CFR 1926.50.

## **1.10 Industrial Hygiene Program**

### **1.10.1 Inspection Scope**

During this inspection, the inspectors assessed the Contractor's IH&S program for compliance with the requirements of 29 CFR 1926 related to industrial hygiene. The sources of the industrial hygiene program for construction are ORP M 440.1-2, Appendix A, Section 15, and 29 CFR 1926.55 (gases, vapors, fumes, dusts, and mists), 1926.56 (illumination), and 1926.57 (ventilation).

Neither ORP M 440.1-2, Appendix A, nor 29 CFR 1926.55-57 requires the Contractor to have a written program to cover industrial hygiene. However, the Contractor is required to implement a program that contains the following attributes, at a minimum:

- a. Provisions for conducting baseline surveys of all work areas or operations to identify and evaluate potential worker health risks (ORP M 440.1-2, Appendix A, Section 15a)
- b. Provisions for Contractor industrial hygiene personnel to coordinate with planning and design personnel to anticipate and control health hazards introduced by the proposed facilities and operations (ORP M 440.1-2, Appendix A, Section 15b)
- c. Provisions for conducting periodic surveys and/or exposure monitoring as appropriate (ORP M 440.1-2, Appendix A, Section 15c)
- d. Provisions for conducting and documenting exposure assessments for chemical, physical, biological, and ergonomic stressors using recognized exposure assessment methodologies and accredited hygiene laboratories (ORP M 440.1-2, Appendix A, Section 15d and 29 CFR 1926.55, .56, and .57)
- e. Specification of appropriate engineering, administrative, work practice, and/or personal protective control methods to limit hazardous exposures to acceptable levels (ORP M 440.1-2, Appendix A, Section 15e)
- f. Provisions for worker education, training, and involvement (ORP M 440.1-2, Appendix A, Section 15f)
- g. Coordination with cognizant occupational medicine, environmental, health physics, and work planning professionals (ORP M 440.1-2, Appendix A, Section 15g)
- h. Provisions for using respiratory protection equipment tested under DOE's Respirator Acceptance Program when respiratory protection approved by the National Institute for Occupational Safety and Health (NIOSH) does not exist for DOE tasks (ORP M 440.1-2, Appendix A, Section 15h)
- i. Policy and procedures to mitigate the risk from identified and potential occupational carcinogens (ORP M 440.1-2, Appendix A, Section 15i)
- j. Provisions for using appropriate industrial hygiene standards (ORP M 440.1-2, Appendix A, Sections 15j and 12d)
- k. Provisions for professionally and technically qualified industrial hygienists to manage and implement the industrial hygiene program (ORP M 440.1-2, Appendix A, Section 15k).

### 1.10.2 Assessments

The inspectors reviewed the following documents and materials to verify that the Contractor had committed to developing an industrial hygiene program and had made provisions for implementing this program and to verify implementation of commitments made in procedures before the start of limited construction:

- a. Exhibit G, "Subcontractor Safety and Health Requirements," attached to all subcontracting documents for the RPP-WTP project
- b. Procedure K13P051, *Stop Work*
- c. Procedure 24590-WTP-GPP-CON-1201, *Construction Work Packages*
- d. Procedure 24590-WTP-GPP-SIND-002\_0, *STARRT/JHA*
- e. Procedure 24590-WTP-GPP-SIND-005\_0, *Back Injury Prevention*
- f. Procedure 24590-WTP-GPP-SIND-007\_0, *Heat and Cold Stress Prevention*
- g. Procedure 24590-WTP-GPP-SIND-010\_0, *Respiratory Protection*
- h. Procedure 24590-WTP-GPP-SIND-013\_0, *Hazardous Work Permit*
- i. Procedure 24590-WTP-GPP-SIND-014\_0, *Hazard Communication*
- j. Procedure 24590-WTP-GPP-SIND-024\_0, *General Safe Work Practices*
- k. Procedure 24590-WTP-GPP-SIND-025\_0, *Personal Protective Equipment*
- l. Procedure 24590-WTP-GPP-SIND-035\_0, *Welding and Cutting Safety*
- m. Orientation modules for newly hired employees and subcontractors, "Back Injury Prevention," "Confined or Enclosed Spaces," "General Safe Work Practices," "Hazard Communication," "Hazardous Work Permits," "Heat and Cold Stress Prevention," "Job Hazard Analysis," "Personal Protective Equipment," "Respiratory Protection," and "Safety Task Analysis Risk Reduction Talk (STARRT)"
- n. Plan PL-W375-IS00001, *Nonradiological Worker Safety and Health Plan (IH&S Plan)*
- o. Statement of Work, "RPP-WTP On Site First Aid Facility"
- p. Booklet, "Employee Safety and Health Practices"
- q. *Construction Training Matrix for Non-Manual Project Specific Training*

- r. Job descriptions and resumes for the Industrial Safety Manager,<sup>15</sup> the Senior Safety and Health Specialist,<sup>16</sup> and the Industrial Hygienist.<sup>17</sup>

The hazard communication program and respiratory protection program were assessed separately under Sections 1.6 and 1.11 of this report. Section 1.11 assesses requirements from ORP M 440.1-2, Appendix A, Section 15h [Attribute h] for using respiratory protection equipment tested under DOE's Respirator Acceptance Program when respiratory protection approved by NIOSH does not exist for DOE tasks.

During the initial inspection, two issues were identified for the industrial hygiene program. Section 1.10.3 in this report identifies one issue related to procuring industrial hygiene monitoring equipment. A second issue related to the responsibility of the Contractor to inform personnel of their monitoring results is identified in Section 1.17.3 under "Worker Protection Programs."

The Contractor provided a written procedure, *Air Monitoring Surveillance*, that addressed conducting baseline surveys of work areas or operations, conducting periodic surveys and/or exposure monitoring as appropriate, and conducting and documenting exposure assessments for chemical stressors. The inspectors found the procedure adequate to address the requirements of ORP M 440.1-2, Appendix A, Sections 15a, c, and d [Attributes a, c, and d].

During the initial inspection, key personnel informed the inspectors that industrial hygiene monitoring equipment was in the process of being procured. The inspectors identified at least two types of industrial hygiene monitoring equipment that should be obtained before the start of limited construction, specifically equipment to perform noise monitoring surveys and a confined space monitoring kit to evaluate whether an area meets the conditions of a confined space. Until this equipment was available, the Contractor would not have the capability to conduct any exposure monitoring and surveying of work areas and would not be meeting ORP M 440.1-2, Appendix A, Sections 15a, c and d [Attributes a, c, and d].

To address the requirements of ORP M 440.1-2, Appendix A, Section 15b, the Contractor indicated it plans to use IH&S staff to conduct frequent walkthroughs (up to daily impromptu surveillances) of the work areas to identify potential ergonomic, biological, chemical, or physical stressors. The Contractor had additional provisions for industrial hygiene personnel to coordinate with planning and design personnel to anticipate and control health hazards introduced by the proposed facilities and operations through the work control process. The work control process and identification of hazards was found primarily in the procedures, *Construction Work Packages*, *Hazardous Work Permits*, and *STARRT/JHA*. The inspectors found this was adequate to address ORP M 440.1-2, Appendix A, Section 15b [Attribute b].

The inspectors reviewed three other procedures to determine if provisions existed for conducting and documenting exposure assessments for chemical, physical, biological, and ergonomic stressors using recognized exposure assessment methodologies as required by ORP M 440.1-2, Appendix A, Section 15d [Attribute d]. The inspectors found the procedure, *Back Injury*

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<sup>15</sup> Tom Meagher, dated January 23, 2001.

<sup>16</sup> Steven Walter, dated February 13, 2001.

<sup>17</sup> Scott Marko, dated February 13, 2001.

*Prevention*, adequately addressed the most likely ergonomic stressor to be encountered during limited construction. The inspectors found the procedure, *Heat and Cold Stress*, addressed temperature extremes on the job. The inspectors found the procedure, *General Safe Work Practices*, adequately addressed general workplace hazards.

The Contractor provided information on selecting personal protective equipment in the procedure, *Personal Protective Equipment*. The inspectors found the procedure, *Roofing Work*, addressed having good illumination for work activities conducted on a roof as required by 29 CFR 1926.56. According to the Contractor, ventilated engineered controls are not expected to be required during limited construction activities; thus, the requirements of 29 CFR 1926.57 were not assessed during this inspection. The inspectors found that requirements in ORP M 440.1-2, Appendix A, Section 15e [Attribute e], for specification of appropriate engineering, administrative, work practice, and/or personal protective control methods to limit hazardous exposures to acceptable levels were adequately addressed through the work control process, frequent walkthroughs by IH&S staff, and procedures.

The orientation for newly hired employees included training modules, "Back Injury Prevention," "Confined or Enclosed Spaces," "General Safe Work Practices," "Hazard Communication," "Hazardous Work Permits," "Heat and Cold Stress Prevention," "Job Hazard Analysis," "Personal Protective Equipment," "Respiratory Protection," and "Safety Task Analysis Risk Reduction Talk (STARRT)," all of which addressed aspects of industrial hygiene and provided for worker education, training, and involvement. The inspectors attended orientation for newly hired employees on September 21, 2001, and found the information provided a good overview of industrial hygiene hazards that employees are likely to encounter. The instructor informed students that additional safety training included safety leadership training and behavior-based safety training; the inspectors did not review this training material during the inspection. The inspectors determined that the information provided in orientation modules was adequate to inform employees of industrial hygiene hazards, as required by ORP M 440.1-2, Appendix A, Section 15f [Attribute f].

The inspectors were not able to determine the adequacy of coordination with cognizant occupational medicine, environmental, health physics, and work planning professionals as required by ORP M 440.1-2, Appendix A, Section 15g [Attribute g] because no work was occurring.

The inspectors determined the Contractor had adequate policies and procedures to mitigate the risk from identified and potential occupational carcinogens as required by ORP M 440.1-2, Appendix A, Section 15i [Attribute i]. This was accomplished through the hazard communication program; MSDSs; work control process; and procedures, including *Air Monitoring Surveillance*.

The inspectors determined that the Contractor's *IH&S Plan*, Section 8.0, "Industrial Hygiene," indicated the use of appropriate industrial hygiene standards. The *IH&S Plan* indicated that NIOSH methodology and a laboratory accredited by the American Industrial Hygiene Association will be used whenever possible to promote consistency and uniformity of data. When NIOSH methodology has not been prescribed, U.S. Department of the Army, U.S. Department of Defense, or other nationally recognized protocols will be used for collecting and

analyzing samples, which was acceptable to meet the requirements of ORP M 440.1-2, Appendix A, Sections 15j and 12d, and 29 CFR 1926.55 [Attribute j].

The inspectors determined that the Industrial Hygienist was knowledgeable in the requirements of industrial hygiene, had experience performing industrial hygiene monitoring, and participated extensively in writing the procedures, *General Safe Work Practices, Personal Protective Equipment, Hazard Communication, Respiratory Protection, Air Monitoring Surveillance, Back Injury Prevention, and Heat and Cold Stress*. The hygienist is also a Certified Industrial Hygienist. The inspectors determined that the Contractor had provisions for professionally and technically qualified industrial hygienists to manage and implement the industrial hygiene program as required by ORP M 440.1-2, Appendix A, Section 15k [Attribute k].

### 1.10.3 Identified Issues

Industrial hygiene monitoring equipment must be obtained before any exposure monitoring and surveying of work areas can be conducted (ORP M 440.1-2, Appendix A, Section 15d, and 29 CFR 1926.55, .56, and .57). During the initial inspection, key personnel informed the inspectors that industrial hygiene monitoring equipment was in the process of being procured. The inspectors identified at least two types of industrial hygiene monitoring equipment that should be obtained before the start of limited construction, specifically equipment to perform noise monitoring surveys and a confined space monitoring kit to evaluate whether an area meets the conditions of a confined space. Until this equipment was available, the Contractor would not have the capability to conduct any exposure monitoring and surveying of work areas.

On September 12, 2001, the inspectors reviewed the following four PRs for procuring industrial hygiene monitoring equipment:

- a. PR #24590-101-4TC for a confined space meter kit and a confined space meter/photo ionization detector kit
- b. PR #24590-101-4TC for a personal air sampling pump kit
- c. PR #24590-101-4TC for repairing confined space meter model LTX310
- d. PR #24590-101-4TC for noise exposure monitoring kits.

The inspectors interviewed key personnel and were informed that the confined space monitoring kit was expected to be available on September 17 or 18, 2001. The noise exposure monitoring kits were expected to be available the week of September 17. The Contractor indicated that it anticipated having all industrial hygiene monitoring equipment in the process of being procured by the time limited construction begins. In a followup meeting with the Contractor on October 4, 2001, the inspectors verified that the confined space and noise monitoring equipment were received as expected.

Based on a review of PRs and interviews with key personnel, the inspectors determined that the Contractor had adequately addressed the issue and the issue could be closed. The Contractor had qualified personnel to determine the likely industrial hygiene-related hazards associated with

limited construction. The Contractor had procured the appropriate equipment required to be immediately available at the start of construction, and the procured equipment was delivered before the start of limited construction.

#### **1.10.4 Conclusion**

With the closure of the issues identified in Section 1.10.3 and Section 1.17.3 in this report, the Contractor's industrial hygiene program as described was adequate and met the requirements of ORP M 440.1-2, Appendix A, Section 15, and 29 CFR 1926.55, .56, and .57.

### **1.11 Respiratory Protection Program**

#### **1.11.1 Inspection Scope**

During this inspection, the inspectors assessed the Contractor's IH&S program for compliance with the requirements for an effective respiratory protection program as required by Appendix A, Section 12f, of ORP M 440.1-2, and 29 CFR 1926.103 (which references and is identical to 29 CFR 1910.134).

#### **1.11.2 Assessments**

The inspectors reviewed the following documents and materials to verify that the Contractor had committed to developing a respiratory protection program and had made provisions for implementing this program and to verify implementation of commitments made in procedures before the start of limited construction:

- a. ORP M 440.1-2, *Industrial Health and Safety Oversight Plan for the Waste Treatment Plant Contractor*
- b. Plan PL-W375-IS-00001, *Nonradiological Worker Safety and Health Plan (IH&S Plan)* Section 8.7
- c. Procedure 24590-WTP-GPP-SIND-010\_0, *Respiratory Protection*
- d. Procedure 24590-WTP-GPP-SIND-025\_0, *Personal Protective Equipment*
- e. ANSI Z88.2-1992, *Practices for Respiratory Protection*.

The inspectors reviewed the Contractor's respiratory protection and personal protective equipment procedures against the requirements of ORP M 440.1-2, Appendix A, Section 12f, and 29 CFR 1926.103.

The Contractor stated that the procedure, *Respiratory Protection*, served as the respiratory protection program as described in 29 CFR 1910.134. The inspectors reviewed the procedure and concluded that it was comprehensive and adequately addressed requirements. The

inspectors found that Appendix 8 of the procedure, which is a program flow chart, is useful in helping determine whether respirators would be required for any specified working conditions. The inspectors also determined the Industrial Hygienist was knowledgeable in the requirements for respiratory protection and participated extensively in writing the procedure.

The Contractor informed the inspectors that voluntary use of filtering face-piece devices would be permitted when there is no exposure at or above action levels. Only NIOSH-approved devices will be used, which was compliant with 29 CFR 1910.134(c) and ORP M 440.1-2, Appendix A, Section 15h.

The inspectors observed that Section 3.2.2 of the procedure, *Respiratory Protection* required the Contractor to appoint a Respiratory Program Administrator. While an administrator had not been appointed at the time of the inspection, the Industrial Safety Manager and the Industrial Hygienist were fulfilling the administrator's functions until a formal appointment was made. The inspectors discussed this with the Industrial Safety Manager and the Industrial Hygienist and determined they had adequate skills and experience to perform the Respiratory Program Administrator function and therefore met the requirements of the procedure.

### **1.11.3 Conclusion**

Based on the documents reviewed by the inspectors and interviews with involved personnel, the Contractor's respiratory protection program as described was adequate and met the requirements of ORP M 440.1-2, Appendix A, Section 12f, and 29 CFR 1910.134, and if implemented properly, should be effective.

## **1.12 Safety Training Program**

### **1.12.1 Inspection Scope**

During this inspection, the inspectors assessed the Contractor's IH&S program for compliance with the safety training requirements in ORP M 440.1-2, Section 11, and 29 CFR 1926. The requirements included the following:

- a. Training each employee in recognizing and avoiding unsafe conditions and the requirements applicable to his/her work to control or eliminate any hazards or other exposure to illness or injury [29 CFR 1926.21(b)]
- b. Training on specific requirements for fall protection, electrical safety, hazard communication, respiratory protection, industrial hygiene, excavation and trenching, etc., as specified in 29 CFR 1926 and/or the Contractor's *IH&S Plan*
- c. First-aid training for selected individuals, if the Contractor does not demonstrate that an infirmary, clinic, hospital, or physician is reasonably accessible in terms of time and distance to the work site [29 CFR 1926.50(c)].

### 1.12.2 Assessments

The inspectors reviewed the following documents and materials to verify that the Contractor had committed to developing a safety training program and had made provisions for implementing this program and to verify implementation of commitments made in procedures before the start of limited construction:

- a. Plan PL-W375-IS00001, *Nonradiological Worker Safety and Health Plan (IH&S Plan)*
- b. Procedure 24590-WTP-GPP SIND-022\_0, *Assessment of Construction Subcontractor's Safety and Health Compliance*
- c. Procedure 24590-WTP-GPP-SIND-002\_0, *STARRT/JHA*
- d. Procedure 24590-WTP-GPP-CTRG-002\_0, *Training*
- e. Procedure 24590-WTP-GPP-CON-1301\_0, *Construction Training*
- f. Procedure 24590-WTP-GPP-CON-1201, *Construction Work Packages*
- g. Exhibit G, "Subcontractor Safety and Health Requirements," attached to all subcontracting documents for the RPP-WTP project
- h. Job descriptions and resumes of EH&S personnel assigned to training and those likely to be used as trainers
- i. *Construction Training Matrix for Non-manual Project Specific Training*
- j. Draft plans for orientation and draft training modules, "Fall Protection," "Respiratory Protection," "Excavation and Trenching," and "Scaffolding and Confined Spaces"
- k. SMART MARK training booklets for personal protective equipment, materials handling, confined spaces, tool safety, stairways and ladders, electrical safety, scaffold safety, and fall protection.

The inspectors determined that the Contractor had defined an adequate program to train each employee in recognizing and avoiding unsafe conditions and the requirements applicable to their work to control or eliminate any hazards or other exposure to illness or injury as required by 29 CFR 1926.21(b) [Attribute a].

The *IH&S Plan*, Section 4.1, states, "Employees will receive adequate training for their work activities, and this will be documented." On September 12, 2001, the inspectors reviewed the final signoff package for the Safety and Health Orientation training, dated September 12, 2001. This orientation training was presented for the first time on September 14, 2001. On September 20, 2001, the inspectors reviewed the following documents:

- a. Form, "Non-Manual/Manual WTP Construction Site Request for Permanent Badge Form (DOE Security Badge)"

- b. Form, "Subcontractor/Vendor WTP Construction Site Request for Permanent Badge Form (DOE Security Badge)"
- c. LCAR Identified Personnel<sup>18</sup>
- d. *Employee Training Profile for the Waste Treatment Plant Project*
- e. *Construction Training Matrix – Required Position Procedure Training*
- f. "Training Attendance Record for Safety and Health Orientation" training.

In addition, the inspectors reviewed training attendance records and compared these records with the list of "LCAR Identified Personnel." As of September 20, 2001, the initial training had been given to 45 of the 59 personnel identified as requiring the Safety and Health Orientation. Interviews with key personnel indicated that personnel would be required to attend another module of training on September 21, 2001. A second Safety and Health Orientation training session was presented September 21.

The inspectors found that hard copies of project training records are maintained by the Project Training Department and are the official record of training. Information from project training records is then entered onto the project training database, which the Project Training Department is responsible for maintaining. Project Document Control maintains hard copies of construction training records, and the Construction Training Coordinator maintains the construction training database. The construction training database and project training database contain completed training information for all employees. Access to the database is controlled with passwords. Only the Construction Training Coordinator and one other individual identified as a backup have read/write access to the database. The inspectors determined that the training records and training database were adequately maintained.

The inspectors found that forms for permanent badges require non-manual personnel, manual personnel, subcontractors, and vendors to complete Hanford General Employee Training (HGET), the Safety and Health Orientation, and the security briefing before permanent badges for access to the RPP-WTP construction site will be issued. The inspectors determined that the process is adequate to ensure personnel receive the required minimum training before being allowed unescorted access to the construction site.

On September 21, 2001, the inspectors attended the Safety and Health Orientation training. The inspectors found the training to be an acceptable overview for personnel accessing the construction site. The orientation included overview modules on fall protection, electrical safety, hazard communication, industrial hygiene, and excavation and trenching as well as many other subjects. The Contractor's program required additional training for several areas including permit confined space entry, use of fall protection, use of scaffolding, use of respiratory protection, and others.

Based on review of training materials and training records and attendance at training sessions, the inspectors determined that the Contractor's training on specific requirements such as fall

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<sup>18</sup> List of LCAR Identified Personnel approved September 19, 2001.

protection, electrical safety, hazard communication, respiratory protection, industrial hygiene, and excavation and trenching met the requirements of 29 CFR 1926 and the Contractor's *IH&S Plan* [Attribute b].

Interviews with Contractor personnel indicated that supervisors of work crews would be required to be first-aid qualified. Until the permanent first-aid station is erected, the Contractor will ensure at least one member of the work crew will be first-aid qualified. The inspectors determined this adequately met 29 CFR 1926.50(c) requirements for first-aid training for selected individuals [Attribute c].

ORP M 440.1-2, Appendix A, Section 11, requires the Contractor to provide workers, supervisors, managers, visitors, and worker protection professionals with appropriate worker protection training. The procedure, *Construction Work Packages*, contains detailed instruction on ensuring the work will be ready to perform.

Based on the reviews described above and interviews with key personnel, the inspectors verified that, with the two exceptions noted below, the Contractor had developed a safety training program adequate to comply with the requirements of ORP M 440.1-2, Appendix A, Section 11, and 29 CFR 1926. The inspectors also determined that the Contractor had developed and/or implemented adequate training materials to implement these requirements.

### 1.12.3 Identified Issues

At the time of the initial inspection, an assessment of the crafts and manual activities during construction compared with the regulatory training requirements had not been completed. A matrix of training requirements existed in draft for non-manual personnel; however, a similar assessment for manual personnel was not provided as part of the initial training documentation.

Subsequently, management finalized and approved the Safety and Health Orientation training as well as the construction training matrices for manual and non-manual employees. The inspectors observed final signoff for seven construction training matrices and determined them to be complete. The managers of the employees had concurred that the training matrices specify the appropriate training classes and methods for employees they manage. Therefore, the inspectors determined that the completion and final approval of the Safety and Health Orientation training and construction training matrices for manual and non-manual employees were adequate.

In its *IH&S Plan*, the Contractor states, "Employees will receive adequate training for their work activities, and this will be documented. Each supervisor will ensure that employees working in their area of responsibility have received all their required training." Section 5 of the same document states, "ES&H training for workers will be accomplished through a number of programs, including the Smart Mark training received by workers before they arrive at the work site, new employee site-specific training, and topic specific safety training." At the time of the initial inspection, the topic-specific training program had not been fully evaluated for consistency with Contractor procedures on the same subject materials. A sampling of elements identified discrepancies between the training materials for electrical safety and scaffolding and the Contractor's subject matter procedures. In the scaffolding training, for example, 29 CFR 1926.454 states, the following:

"(a) The employer shall have each employee who performs work while on a scaffold trained by a person qualified in the subject matter to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards. The training shall include the following areas, as applicable:  
 (a)(1) The nature of any electrical hazards, fall hazards and falling object hazards in the work area"

The Contractor's procedures did not contain precautions for electrical hazards, but the training materials contained the required information.

Subsequently, the inspectors reviewed Revision A of the procedure, *Scaffolding*. Inconsistencies between the scaffolding procedure and training were corrected when it was revised. Inconsistencies within the lock and tag program and training were corrected with procedure revisions to the procedure, *Lockout/Tagout*, and minor revisions to the training program. On September 12, 2001, the inspectors reviewed the revised training for lock and tag. Inconsistencies between the National Fire Protection Administration (NFPA) video on lock and tag regarding complex lockouts were addressed during the standup portion of the lock and tag training. The inspectors therefore determined that this issue was satisfactorily resolved.

#### **1.12.4 Conclusion**

The inspectors found that the construction safety and health training program was developed, had received final review and acceptance by management, and met the safety training requirements in ORP M 440.1-2, Section 11, and 29 CFR 1926.

### **1.13 Compliance Program for Subcontractors**

#### **1.13.1 Inspection Scope**

The inspectors assessed the Contractor's IH&S program for compliance with the requirements of Appendix A, Section 13, of ORP M 440.1-2. Section 13 required that subcontractors performing work comply with the Contractor's own site worker protection standards.

#### **1.13.2 Assessments**

The inspectors reviewed the following documents and materials to verify that the Contractor had committed to developing a compliance program for subcontractors and had made provisions for implementing this program and to verify implementation of commitments made in procedures before the start of limited construction:

- a. ORP M 440.1-2, *Industrial Health and Safety Oversight Plan for the Waste Treatment Plant Contractor*

- b. Plan PL-W375-IS-00001, *Nonradiological Worker Safety and Health Plan (IH&S Plan)*
- c. Procedure 24590-WTP-GPP-SIND-022\_0, *Assessment of Construction Subcontractor's Safety and Health Compliance*
- d. Procedure K40P006A, *Preparing Purchase Requisitions*
- e. Exhibit G, "Subcontractor Safety and Health Requirements," attached to all subcontracting documents for the RPP-WTP project.

The basic attributes of the requirements in ORP M 440.1-2, Appendix A, Section 13, were that the Contractor had to ensure that all programmatic health and safety requirements referenced in Section 13 were formally transmitted to any subcontractors and that the subcontractors had to formally acknowledge, in writing, their receipt of the requirements. Because no subcontracts had been awarded yet, the inspectors were not able to verify implementation of the requirement. Nevertheless, the inspectors reviewed the Contractor's governing documents to determine how the process would work.

The *IH&S Plan*, Section 2.5, states that all subcontractors will be required to abide by the safety and health requirements specified in their contracts and that all subcontractors will be solely responsible for implementing a safety and health plan that meets or exceeds the requirements of the *IH&S Plan*. The section then listed numerous items that must be included in the subcontractors' plans. After the subcontractor has been selected, it must submit checklists on its safety program to the Contractor for review. The Contractor also will audit the subcontractor to ensure the subcontractor is performing work safely. The assessment of the subcontractors' plans was governed by the procedure, *Assessment of Construction Subcontractor's Safety and Health Compliance*. The inspectors reviewed the document and determined that if implemented properly, it would be adequate to assess the subcontractors' plans.

For the subcontractor to know what is required in the health and safety plans, the Contractor must provide such guidance. This guidance was provided through Exhibit G, "Subcontractor Safety and Health Requirements," which is attached to, and is part of, all subcontracts. The exhibit's "Introduction" stated in Section C.1 that in addition to the safety and health requirements listed in the exhibit, the subcontractor shall comply with 29 CFR 1910 and 29 CFR 1926. Section GR-2.A.C of Exhibit G required the subcontractor to submit to the Contractor documentation of its ES&H program for review. The Contractor must provide the subcontractor guidance on the preparation, content, and review of the ES&H program.

The guidance to be provided is determined during the Contractor's precontract award meetings during which involved Contractor personnel discuss, among other things, Exhibit G attachments. According to the Industrial Safety Manager, the safety and health requirements guidance would be attached to the contract at the meetings. In addition, the procedure, *Preparing Purchase Requisitions*, requires PR requestors to verify the accuracy of safety requirements and PRs and related documentation to be routed for approval by the appropriate organizations, which in this case would include the ES&H organization. That organization would be responsible to review and approve PRs and associated documents relating to items or services that may adversely affect public health and safety, industrial safety, the environment, or work force health and safety. After the subcontractor has been selected and the Contractor receives the written safety

and health program, the written program is forwarded to the Industrial Safety Manager for review and approval. The inspectors determined that this process was sufficient to provide adequate guidance to subcontractors.

### **1.13.3 Conclusion**

Based on the documents reviewed by the inspectors and interviews with involved personnel, the inspectors determined that the Contractor's program for ensuring subcontractors adhere to required safety and health requirements, met the requirements of ORP M 440.1-2, Appendix A, Section 13, and if implemented properly, should be effective.

## **1.14 Electrical Safety Program**

### **1.14.1 Inspection Scope**

The inspectors assessed the Contractor's IH&S program for compliance to the ORP M 440.1-2, Appendix A, Section 12h requirement for an electrical safety program. Section 12h requires that the Contractor comply with NFPA 70E, "Electrical Safety Requirements for Employee Workplaces."

### **1.14.2 Assessments**

The inspectors reviewed the following documents and materials to verify that the Contractor had committed to developing an electrical safety program and had made provisions for implementing this program and to verify implementation of commitments made in procedures before the start of limited construction:

- a. Plan PL-W375-IS00001, *Nonradiological Worker Safety and Health Plan (IH&S Plan)*
- b. Procedure 24590-WTP-GPP-SIND-024, *General Safe Work Practices*
- c. Videotape, "Working Safely with Electricity"
- d. NFPA 70E, Part II, "Safety-Related Work Practices."

The inspectors' review of the Contractor's *IH&S Plan*, Section 5.3, "New Employee Site Safety Orientation," verified that the Contractor had committed to providing all site workers with training, which included electrical safety (including lockout and tagout).

The inspectors observed a NFPA training videotape, "Working Safely with Electricity," and found that it contained the required NFPA 70E information. The inspectors interviewed the Construction Training Coordinator, who stated that this video was required training for all crafts before start of work. The inspectors interviewed the construction manager, who verified that the training activity was required before the craft was allowed access to the work site. Based on

these reviews and interviews, the inspectors concluded that the Contractor adequately met the electrical safety program training requirements of NFPA 70E.

### **1.14.3 Conclusion**

The inspectors concluded that the Contractor had training that complied with NFPA 70E, "Electrical Safety Requirements for Employee Workplaces," and had defined a program, which if implemented properly, should meet the requirements of ORP M 440.1-2, Appendix A, Section 12h.

## **1.15 Trenching and Excavation Program**

### **1.15.1 Inspection Scope**

This inspection assessed the Contractor's IH&S procedure for excavation and trenching activities for compliance with all relevant subsections of 29 CFR 1926, Subpart P, "Excavations." The assessment reviewed the Contractor's procedure to ensure that the following attributes had been adequately addressed:

- a. Provisions to identify and control all potentially hazardous surface encumbrances before and during excavation activities [29 CFR 1926.651(a)]
- b. Provisions for identifying underground installations before opening an excavation [29 CFR 1926.651(b)]
- c. Provisions for ensuring safe access and egress of workers from an excavation [29 CFR 1926.651(c)]
- d. Provisions for controlling and protecting workers from vehicular traffic [29 CFR 1926.651(d)]
- e. Provisions for protecting workers from the hazards presented by loose rock and soil, falling loads, operation of mobile equipment, and hazardous atmospheres within an excavation [29 CFR 1926.651(e), (g), and (j)]
- f. Provisions for controlling the hazards associated with water accumulation in an excavation and hazards associated with excavation activities near adjacent structures [29 CFR 1926.651(h) and (i)]
- g. Provisions for ensuring daily inspections, by a competent person, of all excavations, the adjacent areas and related protective systems [29 CFR 1926.651(k)]
- h. Provisions for ensuring the safe design of sloping and benching systems, support systems, shield systems, and other protective systems, including their installation and removal [29 CFR 1926.652(a), (b), (c), (d), (e), (f), and (g)]

- i. Provisions for controlling exposure to fall hazards [29 CFR 1926.651(l)].

### 1.15.2 Assessments

The inspectors reviewed the following documents for the purpose of verifying that the Contractor's excavation procedure provided accurate, compliant, and complete guidance for meeting regulatory requirements and ensuring worker safety during excavation activities:

- a. Form K90F009, "Sample Excavation Permit"
- b. Form K90F010, "Sample Daily Trench Safety Report Form"
- c. Procedure 24590-WTP-GPP-SIND-029, *Excavation and Trenching*
- d. Plan PL-W375-IS00001, *Nonradiological Worker Safety and Health Plan (IH&S Plan)*
- e. OSHA Instruction CPL 2.87 – *Inspection Procedures for Enforcing the Excavation Standard, 29 CFR 1926, Subpart P.*

During the initial inspection, inspectors reviewed the Contractor's procedure, *Excavation and Trenching*, for controlling excavation and trenching activities for compliance with 29 CFR 1926, Subpart P. During the inspection, the inspectors reviewed the procedure against the attributes in Section 1.15.1 above. The results of the review are summarized below.

The inspectors found that procedure did not specifically address surface encumbrances as required by 29 CFR 1926.651(a) [Attribute a]. Check box 19 of the trench safety report form states, "Trees, boulders, or other hazards in area," was the only location in the procedure where surface encumbrances were considered. No guidance was provided in the body of the procedure to assist or direct the user to other sections within the document that may address this issue.

The inspectors reviewed the excavation and trenching procedure and found that the Contractor provisions for identifying underground installations before opening an excavation were adequate [29 CFR 1926.651(b)] [Attribute b].

The inspectors found that the procedure contained provisions for ensuring safe access and egress of workers from an excavation. However, the procedure did not distinguish between structural ramps for use solely by workers or as access/egress for equipment. A competent person is required to design access/egress ramps used solely by workers from an excavation, according to 29 CFR 1926.651(c) [Attribute c]. Only a competent person qualified in structural design is permitted to design ramps for moving equipment into or out of an excavation. The procedure did not distinguish between the two.

The inspectors found that the procedure did not address controlling and protecting workers from vehicular traffic [29 CFR 1926.651(d)] [Attribute d].

The inspectors found that the procedure contained provisions for protecting workers from the hazards presented by loose rock and soil, falling loads, and other hazards within an excavation.

However, the procedure did not specify the soil type (i.e., Type "C") likely to be encountered during this project. A definition for Type "C" soil was included in Section 3.1.1 of the procedure; however, it was not complete. As defined in 29 CFR 1926, Subpart P, Appendix A, the Contractor's definition did not include "(v) Material in a sloped, layered system where the layers dip into the excavation or a slope of four horizontal to one vertical (4H:1V) or steeper."

The inspectors also found that the procedure did not address vertical walled excavated trenches relative to the location of excavation spoil and equipment. It also did not provide regulatory guidance for placing spoilage or equipment at a minimum of two feet from the edge of the excavation or by use of retaining devices that are of sufficient strength to prevent excavated material or equipment from falling or rolling into the excavation. This lack of information was inconsistent with 29 CFR 1926.651(j)(2) [Attribute e]. Appendix 2 of the procedure addressed only excavated surcharge locations for sloped excavations.

The inspectors found that the procedure did address, in a limited fashion, the maintenance of the stability of adjacent structures during excavation activities; however, it did not identify the requirement to have a registered professional engineer approve excavation activities that may involve excavation below the level of base or footing of a foundation, retaining wall, etc. A "competent person" may not approve this type of excavation activity [29 CFR 1926.651(i)(2)(i)-(iv)] [Attribute f]. In addition, the procedure did not address protection from hazards associated with water accumulation [29 CFR 1926.651(h)] [Attribute f].

The inspectors determined that the procedure did not provide adequate guidance concerning the requirement for daily inspection of trenches [29 CFR 1926.651(k)] [Attribute g]. For example, Section 3.3.1, paragraph 1, indicated that all excavations of a depth of four feet or more and that have a potential of developing a hazardous atmosphere will be classified as a confined space. A daily inspection requirement for this situation was not mentioned nor required or included in Appendix 1, "Sample Excavation Permit (K90F009)," or Appendix 2, "Sample Daily Trench Safety Report Form (K90F010)." (Note: In the procedure, the appendixes were denoted as "A" and "B" but on the form they are denoted as "1" and "2".)

The inspection issue was further confused by Section 3.3.2, paragraph 3, which required a daily safety report to be completed by a competent person for all trenches with a depth of five feet or more. However, Box 1 of the trench safety report form stated, "All open trenches were inspected." 29 CFR 1926.651(k), "Inspections," applies to all excavation activities regardless of depth. Additionally, 29 CFR 1926.652(a)(1)(ii) exempts excavation less than five feet in depth from mandatory installation of protective systems only if examination of the ground by a competent person provides no indication of a potential cave-in. At the Hanford Site, soil is classified as Type "C" following guidance contained in Appendix A of 29 CFR 1926, Subpart P. Additionally, many locations at Hanford have soil that has been previously excavated or backfilled and there are no records to identify these locations. Therefore, excavated vertical walled trenches less than five feet in depth cut in Type "C" soil or soil that has been previously excavated will normally require a protective system to be installed depending on the intended activities to be performed in the trench. The procedure only addressed this situation to trench depths of four feet or more. In the event of a cave-in of a trench of less than four feet in depth where worker exposure occurs, the Contractor would have potential compliance vulnerability with the requirements 29 CFR 1926.652(a)(1)(ii) and 1926.652(a)(2) [Attribute h].

The inspector's review of the procedure found that it did not adequately address the design of sloping and benching systems. The procedure referenced Appendixes B through F of 29 CFR 1926, Subpart P, and stated that all trenching systems will be constructed according to the guidance provided in these mandatory appendices. The procedure did not mention (1) allowable configurations and slopes, (2) protective systems designed by a registered professional engineer using tabulated data, and (3) protective systems designed by a registered professional engineer [29 CFR 1926.652(b)(1), (3), and (4)] [Attribute h].

In addition, the inspectors found the procedure did not specifically address (1) designs using Manufacturer's Tabulated Data, (2) designs by a registered professional engineer using other tabulated data, and (3) designs by a registered professional engineer [29 CFR 1926.652(c)(2), (3), and (4)]. The procedure also did not mention material and equipment used for protective systems [29 CFR 1926.652(d)] and did not address the installation of trench protective systems [29 CFR 1926.652(e)] [Attribute h].

The inspectors found that the guidance addressed in paragraphs 2-5 of the procedure, Section 3.3.4, "Trench Shields," deviated from and was not related to the subject of this section. This could confuse the user of this procedure in determining what is appropriate for trench systems and what is appropriate for shored or other engineered protective systems. In addition, the procedure did not adequately address protective trenching shield systems [29 CFR 1926.652(g)] [Attribute h].

Based on review of the procedure, the inspectors found that the Contractor provisions for controlling exposure to fall hazards were adequate [29 CFR 1926.651(l)] [Attribute i].

As a matter of format, the inspectors noted that the excavation permit and daily excavation safety inspection forms located in Appendixes 1 and 2 of the procedure were not annotated or supplemented by instructions for completing the documents. Failing to include instructional guidance may result in inconsistent information gathering and interpretation.

### **1.15.3 Identified Issues**

As described in Section 1.15.2 above, several inconsistencies were noted with the Contractor's procedure for trenching and excavation compared with the requirements of 29 CFR 1926, Subpart P.

The Contractor provided a major revision to the procedure with a revised procedure number (24590-WTP-GPP-CON-3202), and revised title, *Excavation and Backfill*. Final signoffs for the revised procedure were received on September 26, 2001. The inspectors reviewed the revisions on October 1, 2001, and determined the changes to be adequate and closed the issues raised above.

### **1.15.4 Conclusion**

Based on the evaluation described in Section 1.15.3, the inspectors concluded that the Contractor had fully addressed its regulatory responsibilities as required by 29 CFR 1926, Subpart P,

"Excavations."

## 1.16 Cranes, Derricks, Hoists, Elevators, and Conveyors Safety Program

### 1.16.1 Inspection Scope

The inspectors assessed the Contractor's IH&S procedures for use of cranes, derricks, hoists, elevators, and conveyors and activities for compliance with all subsections of 29 CFR 1926, Subpart N, "Cranes, Derricks, Hoists, Elevators, and Conveyors." The assessment reviewed the Contractor's procedures to ensure that the following attributes had been adequately addressed:

- a. Provisions to identify and control all potential hazards associated with using articulating boom platforms [29 CFR 1926.453]
- b. Provisions to identify and control all potential hazards associated with using cranes, derricks, hoists, elevators, and conveyors [29 CFR 1926.550(a)].

### 1.16.2 Assessments

The inspectors reviewed the following documents to verify that the Contractor had committed to developing a safety program for cranes, derricks, hoists, elevators, and conveyors and had made provisions for implementing this program and to verify implementation of commitments made in procedures before the start of limited construction:

- a. Procedure 24590-WTP-GPP-SIND-017\_0, *Crane Operator Qualification*
- b. Procedure 24590-WTP-GPP-SIND-016\_0, *Cranes Use and Operation*
- c. Procedure 24590-WTP-GPP-SIND-032\_0, *Suspended Personnel Platforms*
- d. Procedure 24590-WTP-GPP-SIND-033\_0, *Articulated Boom Platforms*
- e. Procedure 24590-WTP-GPP-SIND-018\_0, *Crane Load Test*.

During this assessment, the inspectors found the following.

The inspectors reviewed the procedure, *Articulated Boom Platforms*, and found that the Contractor had described a program adequate to control potential hazards [29 CFR 1926.453] [Attribute a].

The inspectors reviewed the Contractor's provisions to identify and control all potential hazards associated with using cranes, derricks, hoists, elevators, and conveyors [29 CFR 1926.550(a)] [Attribute b] and identified several issues. The procedure, *Articulating Boom Platforms*, did not specify appropriate clearances when working in proximity to electrical lines as defined in 29 CFR 1926.550(a)(15). As required in 1926.453(b)(2)(ix), the Contractor's procedure did not include requirements for both platform (upper) and lower controls for articulating booms and

extensible boom platforms, primarily designed as personnel carriers. Except for this issue, the procedure met the requirements of 29 CFR 1926.550 as it pertains to articulating boom platforms.

The procedure, *Suspended Personnel Platforms*, contained a table listing incorrect minimum clearances when working in a man basket near electrical lines. This table did not provide the guidance necessary to ensure complete compliance with the requirements of 29 CFR 1926.550(a)(15)(i)-(iii). Except for this issue, the procedure met the requirements of 29 CFR 1926.550 as it pertains to suspended personnel platforms.

The procedure, *Cranes Use and Operation*, did not specify appropriate clearances when working in proximity to electrical lines as defined in 29 CFR 1926.550(a)(15). Except for this issue, the procedure met the requirements of 29 CFR 1926.550 as it pertains to use and operation of cranes.

### **1.16.3 Identified Issues**

During the inspection, the inspectors noted that the Contractor's procedures for the area associated with suspended personnel platforms, articulating boom platforms, and use and operation of cranes safety did not address required clearances of 29 CFR 1925.550 for working in proximity to electrical power lines.

The inspectors met with key Contractor personnel to discuss changes to the procedure, *Articulating Boom Platforms*. Changes to the procedures *Cranes Use and Operation* and *Suspended Personnel Platforms* adequately addressed clearances when working close to electrical lines. The inspectors noted that similar changes to *Articulating Boom Platforms* were required. The Contractor provided a revision to the procedure, which was approved on September 27, 2001. The inspectors determined that the revised procedure adequately addressed proximity to electrical power lines for articulated boom platforms, and this issue was closed on October 2, 2001.

On September 12, 2001, the inspectors reviewed the revised procedure, *Suspended Personnel Platforms*, approved September 11, 2001. The requirements for clearing cranes and derricks from power lines in 29 CFR 1926.550(a)(15) were incorporated into this procedure. The inspectors determined this was adequate to resolve the issue.

On September 12, 2001, the inspectors reviewed the revised procedure, *Cranes Use and Operation*, approved September 12, 2001. The requirements for clearing cranes and derricks from power lines in 29 CFR 1926.550(a)(15)(i)-(vii)(b) were incorporated verbatim into Section 3.3.2.6 of the procedure. The inspectors determined that the information added to Section 3.3.2.6 was adequate to close this issue.

### **1.16.4 Conclusion**

With the closure of the issues identified in Section 1.16.3, the inspectors found that the Contractor's procedures associated with crane operator qualification, crane use and operations,

suspended personnel platforms, articulated boom platforms, and crane load tests were adequate and met the requirements of 29 CFR 1926, Subpart N.

## **1.17 Worker Protection Program**

### **1.17.1 Inspection Scope**

The inspectors assessed the Contractor's IH&S program for compliance to the requirements in ORP M 440.1-2, Appendix A, as it relates to worker protection. This document requires that the Contractor's program reflect proven principles of safety management and work planning that promote accident prevention, employee involvement, and sound hazard analysis and control. The inspectors considered the following attributes described in Appendix A:

- a. A written management policy that encourages input from workers and provides for the goals and objectives of the worker protection program policy
- b. Qualifications of the person who directs the worker protection program
- c. Performance evaluation of employees who are assigned for worker protection
- d. Provisions ensuring workers' rights to accompany DOE personnel, express concerns related to worker protection, and decline tasks because of a reasonable belief that they pose an imminent risk of serious bodily injury under the circumstances
- e. Worker access to DOE protection publications and contractor worker protection standards and/or procedures
- f. Worker observation of monitoring and/or measuring of hazardous agents and access to the results of exposure monitoring
- g. Provisions for qualified health and safety personnel to comment on designs, procedures, and major changes or modifications to operations
- h. Conduct of health and safety evaluations of the workplace
- i. A mechanism for prioritizing and tracking all identified IH&S hazards that have been brought to management's attention
- j. IH&S hazard analyses for each construction operation presenting hazards not experienced in previous project operations or work performed by a different subcontractor
- k. Provisions for a designated representative onsite at all times during periods of active construction to conduct and document daily inspections of the workplace
- l. Assurance that subcontractors at the facility comply with the requirements of ORP M 440.1-2.

### 1.17.2 Assessments

The inspectors reviewed the following documents and materials to verify that the Contractor had committed to developing a worker protection program and had made provisions for implementing this program and to verify implementation of commitments made in procedures before the start of limited construction:

- a. Desk Instruction K131002A, *Desk Instruction for Commitment Identification and Tracking*
- b. Form, "Bechtel Annual Review"
- c. Plan PL-W375-IS00001, *Nonradiological Worker Safety and Health Plan (IH&S Plan)*
- d. Policy Statement, *The River Protection Project – Waste Treatment Plant Health and Safety Policy*
- e. Policy 24590-WTP-G63-MGT-001\_0, *Integrated Safety Management System Policy*
- f. Job descriptions for EH&S personnel assigned to IH&S positions
- g. Procedure 24590-WTP-GPP-CON-1301\_0, *Construction Training*
- h. Procedure 24590-WTP-GPP-CTRG-002\_0, *Training*
- i. Procedure 24590-WTP-GPP-SIND-002\_0, *STARRT/JHA*
- j. Procedure 24590-WTP-GPP-SIND-003\_0, *Emergency Action Plan*
- k. Procedure 24590-WTP-GPP-SIND-005\_0, *Lessons Learned*
- l. Procedure 24590-WTP-GPP-SIND-019\_0, *Emergency Management Program*
- m. Procedure 24590-WTP-GPP-SIND-022\_0, *Assessment of Construction Subcontractor's Safety and Health Compliance*
- n. Procedure 24590-WTP-GPP-SIND-036\_0, *Air Surveillance Monitoring*
- o. Procedure K131007, *Review, Approval, Verification and Close-Out of Corrective Action*
- p. Procedure K13P003F, *Production of RPP-WTP Procedures*
- q. Procedure K13P051, *Stop Work*
- r. Procedure K13P054C, *Corrective Action*
- s. Procedure K15G003, *Corrective Action Database*

- t. Procedure K21C001B, *Code of Practice for Employee Concerns Program*
- u. Exhibit G, "Subcontractor Safety and Health Requirements," attached to all subcontracting documents for the RPP-WTP project.

The inspectors' review of the listed documents and interviews with key personnel from the Contractor's ES&H and construction departments found that all required elements of ORP M 440.1-2, Appendix A (described as Attributes a through l in Section 1.17.1, above) were not fully in place at the time of the inspection. Specifically, the Contractor's program did not have an implementing mechanism (e.g., procedural step) for notifying employees of industrial hygiene exposure assessment results and informing employees of their right to access the results of exposure monitoring [Attribute f]. This issue is identified in Section 1.17.3 in this report.

The inspectors found an adequate written management policy that encourages input from workers and provides for goals and objectives of the worker protection program policy in *The River Protection Project – Waste Treatment Plant Health and Safety Policy* [Attribute a].

The inspectors determined that position descriptions for ES&H personnel assigned to IH&S positions were adequate to specify the qualifications of the person who directs the worker protection program [Attribute b]. Performance evaluations of employees who are assigned for worker protection are conducted using "Bechtel Annual Review" form [Attribute c]. The inspectors found this to be adequate.

The inspectors determined the Contractor had adequate provisions to ensure workers' rights to accompany DOE personnel, express concerns related to worker protection, and decline tasks because of a reasonable belief that they pose an imminent risk of serious bodily injury under the circumstances [Attribute d]. These provisions were found in *The River Protection Project – Waste Treatment Plant Health and Safety Policy*; the *IH&S Plan*; and the procedure, *Code of Practice for Employee Concerns Program*.

The Contractor addressed worker access to DOE protection publications and Contractor worker protection standards and/or procedures in the following documents: *The River Protection Project – Waste Treatment Plant Health and Safety Policy*; the *IH&S Plan*; and the procedure, *Code of Practice for Employee Concerns Program* [Attribute e]. The inspectors determined this was adequate.

Based on interviews with the Industrial Safety Manager and the Site Manager, and a review of the *Integrated Safety Management System Policy*, the inspectors determined that the Contractor had adequate provisions for qualified health and safety personnel to comment on designs, procedures, and major changes or modifications to operations [Attribute g].

The Contractor also had provisions for conducting health and safety evaluations of the workplace through the *IH&S Plan*, *The River Protection Project – Waste Treatment Plant Health and Safety Policy*; position descriptions for EH&S personnel assigned to IH&S positions; and the procedure, *Assessment of Construction Subcontractor's Safety and Health Compliance* [Attribute h]. The inspectors determined these provisions were adequate.

The inspectors determined the Contractor had a mechanism for prioritizing and tracking all identified IH&S hazards that have been brought to management's attention [Attribute i]. The mechanism was provided through procedures, *Review, Approval, Verification and Close-Out of Corrective Action* and *Corrective Action Database*.

The inspectors reviewed the Contractor's procedure, *STARRT/JHA*, and determined that it was adequate in requiring IH&S hazard analyses for each construction operation presenting hazards not experienced in previous project operations or work performed by a different subcontractor [Attribute j].

The inspectors determined that the Contractor had adequate provisions for a designated representative onsite at all times during periods of active construction to conduct and document daily inspections of the workplace [Attribute k]. These provisions were identified in the *IH&S Plan* and in position descriptions for EH&S personnel assigned to IH&S positions.

The inspectors determined that Contractor's procedure, *Assessment of Construction Subcontractor's Safety and Health Compliance*, adequately ensured that subcontractors at the facility comply with the requirements of ORP M 440.1-2 [Attribute l].

### 1.17.3 Identified Issues

During the initial inspection, the Contractor's procedure, *Air Surveillance Monitoring*, did not contain provisions for informing employees of their right to access the results of exposure monitoring or notification of monitoring results when they were overexposed to hazardous materials.

ORP M 440.1-2 requires the Contractor to "Provide workers, without reprisal to:

- (f) Observe monitoring or measuring of hazardous agents and have access to the results of exposure monitoring
- (g) Be notified when monitoring results indicate they were overexposed to hazardous materials."

On September 12, 2001, the inspectors reviewed the revised procedure, *Air Monitoring Surveillance*, approved September 12, 2001. The following was added to Section 3.7: "Results of employee monitoring will be verbally reported to employees as soon as practical after the results have been established and reviewed. Employees are permitted to receive copies of their exposure records upon request for this information..." The paragraph also included time limits for when requested information is required to be reported to employees. The inspectors determined that the addition of this paragraph in the procedure was adequate to close this issue.

### 1.17.4 Conclusion

With the closure of the issue identified in Section 1.17.3 above, the inspectors determined that the Contractor's program reflected proven principles of safety management and work planning

that promote accident prevention, employee involvement, and sound hazard analysis and control and met the worker protection program requirements of ORP M 440.1-2, Appendix A, for limited construction.

## **2.0 INTERIM INSPECTION MEETING SUMMARY**

The inspectors presented the inspection results to members of Contractor management at an interim inspection meeting on August 30, 2001. The Contractor acknowledged the observations, conclusions, and items presented.

The inspectors asked the Contractor whether any materials examined during the inspection should be considered proprietary information. The only proprietary information identified had to do with personnel records, and none of that information is contained in this report.

## **3.0 FINAL INSPECTION MEETING SUMMARY**

The inspectors presented the final inspection results to members of Contractor management at the final inspection meeting on September 26, 2001. The Contractor acknowledged the observations, conclusions, and items presented.

## **4.0 REPORT BACKGROUND INFORMATION**

This section presents the partial list of persons contacted for the inspection, the OSR inspection procedures used, a summary list of open items, and the list of terms used in this report.

### **4.1 Partial List of Persons Contacted at BNI**

T. Meagher, Industrial Safety Manager  
S. Walter, Training Specialist  
M. Rosenthal, Safety Engineer  
S. Marko, Industrial Hygienist  
J. Morse, Safety Engineer  
M. Platt, Inspection Coordinator  
E. Smith, Inspection Coordinator Assistant  
F. Beranek, ES&H Manager  
T. DeGarmo, Fire Hazard Analysis Engineer Lead  
B. Clements, Site Construction Manager  
D. Lindsay, Commissioning and Training Area Program Manager  
S. Ployhar, Senior Engineer for BNFL  
D. Trybul, Purchasing Manager  
S. Thieme, Construction Subcontract Manager  
C. Herbert, Construction Training Coordinator

## 4.2 List of OSR Inspection Procedures Used

Inspection Technical Procedure I-160, "Industrial Health and Safety Program Inspection"

Inspection Technical Procedure I-106, "Personnel Training and Qualification Assessment"

Inspection Administrative Procedure A-106, "Verification of Corrective Actions"

## 4.3 Summary List of Items Opened

One Inspector Follow-up Item (IR-01-005-01-IFI) was identified that is open because of this inspection. All other issues were closed before this report was issued.

## 4.4 List of Terms

BNI	Bechtel National, Inc.
DOE	U.S. Department of Energy
ES&H	environment, safety, and health
HGET	Hanford General Employee Training
IH&S	industrial health and safety
JHA	job hazards analysis
MOA	Memorandum of Agreement
MSDS	material safety data sheet
NIOSH	National Institute for Occupational Safety and Health
NFPA	National Fire Protection Association
ORP	Office of River Protection
OSHA	Occupational Safety and Health Administration
OSR	Office of Safety Regulation
PR	purchase requisition
RPP-WTP	River Protection Project Waste Treatment Plant
STARRT	Safety Task Analysis Risk Reduction Talk

## 5.0 REFERENCES

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

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

ANSI Z88.2-1992, *Practices for Respiratory Protection*, American National Standards.

Booklet, "Employee Safety and Health Practices," March 1995.

*Construction Training Matrix – Required Position Procedure Training*, September 13 through September 17, 2001.

*Construction Training Matrix for Non-Manual Project Specific Training*, in final draft August 28, 2001.

Desk Instruction K131002A, *Desk Instruction for Commitment Identification and Tracking*, now 24590-WTP-GPG-SREG-004, rev. 0, U.S. Department of Energy, Office of Safety Regulation *Action Tracking*, September 28, 2001

DOE-RL-SOD-INST-L&T.001, *Hanford Site Lockout/Tagout Program* (Hanford Lock and Tag), Rev. 2, U.S. Department of Energy, Richland Operations Office, March 2000.

*Employee Training Profile for the Waste Treatment Plant Project*, September 19, 2001.

Form K90F009, "Sample Excavation Permit."

Form K90F010, "Sample Daily Trench Safety Report Form."

Form, "Bechtel Annual Review."

Form, "Non-Manual/Manual WTP Construction Site Request for Permanent Badge Form (DOE Security Badge)," Revision 0, September 19, 2001.

Form, "Subcontractor/Vendor WTP Construction Site Request for Permanent Badge Form (DOE Security Badge)," Revision 0, September 20, 2001.

Guide 24590-WTP-GPG-SIND-003\_0, *Medical Treatment and Medical Services*, Revision 0, September 28, 2001.

Memorandum of Agreement, #091001-01, "For the Performance and Payment of Services Between Fluor Hanford, Inc. and Bechtel National, Inc.," September 27, 2001.

NFPA 70E, "Electrical Safety Requirements for Employee Workplaces," National Fire Protection Administration.

Notice to Proceed and attached Statement of Work, "RPP WTP Interim First Aid Services," approved October 2, 2001.

Orientation modules for newly hired employees and subcontractors, August 30, 2001.

"Back Injury Prevention"

"Bloodborne Pathogens"

"Fall Protection and Prevention"

"Fire Protection and Prevention"

"General Safe Work Practices"

"Hazard Communication"

"Hearing Conservation Program"

"Heat and Cold Stress Prevention"

"Housekeeping"  
 "Respiratory Protection."

ORP M 440.1-2, *Industrial Health and Safety Oversight Plan for the Waste Treatment Plant Contractor*, Revision 0, effective August 10, 2001.

OSHA Instruction CPL 2.87 – *Inspection Procedures for Enforcing the Excavation Standard*, 29 CFR 1926, Subpart P, Occupational Safety and Health Administration, 1990.

Plan PL-W375-IS00001, Revision 1, *Nonradiological Worker Safety and Health Plan (IH&S Plan)*, issued March 12, 2001.

Policy 2450-WTP-G63-SIND-001, Revision 0, *The River Protection Project – Waste Treatment Plant Health and Safety Policy*, September 28, 2001.

Policy 24590-WTP-G63-MGT-001\_0, Revision 0, *Integrated Safety Management System Policy*, June 3, 2001.

Procedure 24590-WTP-GPP-CON-1201, Revision 0, *Construction Work Packages*, September 28, 2001.

Procedure 24590-WTP-GPP-CON-1301\_0, Revision 0, *Construction Training*, September 28, 2001.

Procedure 24590-WTP-GPP-CON-2301\_0, Revision 0, *Construction Tool and Equipment Inspection*, October 8, 2001.

Procedure 24590-WTP-GPP-CON-3202, Revision 0, *Excavation and Backfill*, October 12, 2001.

Procedure 24590-WTP-GPP-CTRG-002\_0, Revision 0, *Training*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-002\_0, Revision 0, *STARRT/JHA*, September 28, 2001.

Procedure 24590-WTP-GPP- SIND-003\_0, Revision 0, *Emergency Action Plan*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-004\_0, Revision 0, *Scaffolding*, September 28, 2001.

Procedure 24590-WTP-GPG-SIND-005\_0, Revision 0, *Back Injury Prevention*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-005\_0, Revision 0, *Lessons Learned*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-006\_0, Revision 0, *Roofing Work*, September 28, 2001.

Procedure 24590-WTP-GPG-SIND-007\_0, Revision 0, *Heat and Cold Stress Prevention*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-008\_0, Revision 0, *Lockout/Tagout* (BNI Lock and Tag), September 28, 2001.

Procedure 24590-WTP-GPP-SIND-009\_0, Revision 0, *Safety Watches*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-010\_0, Revision 0, *Respiratory Protection*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-011\_0, Revision 0, *Bloodborne Pathogens*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-012\_0, Revision 0, *Hearing Conservation*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-013\_0, Revision 0, *Hazardous Work Permit*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-014\_0, Revision 0, *Hazard Communication*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-016\_0, Revision 0, *Cranes Use and Operation*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-017\_0, Revision 0, *Crane Operator Qualification*, August 10, 2001.

Procedure 24590-WTP-GPP-SIND-018\_0, Revision 0, *Crane Load Test*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-019\_0, Revision 0, *Emergency Management Program*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-020\_0, Revision 0, *Floor and Wall Openings*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-022\_0, Revision 0, *Assessment of Construction Subcontractor's Safety and Health Compliance*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-024\_0, Revision 0, *General Safe Work Practices*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-025\_0, Revision 0, *Personal Protective Equipment*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-026\_0, Revision 0, *Housekeeping and Fire Prevention*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-027\_0, Revision 0, *Fall Prevention and Protection*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-029, Revision 0, *Excavation and Trenching*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-031\_0, Revision 0, *Portable Ladders – Control and Inspection*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-032\_0, Revision 0, *Suspended Personnel Platforms*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-033\_0, Revision 0, *Articulating Boom Platforms*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-035\_0, Revision 0, *Welding and Cutting Safety*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-036\_0, Revision 0, *Air Surveillance Monitoring*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-038\_0, Revision 0, *Occupational Medicine*, September 28, 2001.

Procedure 24590-WTP-GPP-SIND-041\_0, Revision 0, *High Wind Safety*, October 8, 2001.

Procedure K131007, Revision, *Review, Approval, Verification and Close-Out of Corrective Action*,

Procedure K13P003F, *Production of RPP-WTP Procedure*, now 24590-WTP-GPP-PADC-004 rev. 0, *Production of RPP-WTP Procedures*, August 20, 2001.

Procedure K13P051, Revision 3, *Stop Work*, January 31, 2001.

Procedure K13P054C, *Corrective Action*, now 24590-WTP-GPP-QA-201, rev. 0, *Corrective Action*, September 28, 2001.

Procedure K21C001B, *Code of Practice for Employee Concerns Program*, now 24590-WTP-GPP-HR-005 rev. 0, *Employee Concerns Program*, September 20, 2001.

Procedure K40P006A, *Preparing Purchase Requisitions*, now 24590-WTP-GPP-GPX-00205, rev. 0, *Requisitions*, October 1, 2001.

Procedure Change Request Revision A, #24590-WTP-GPP-SIND-004A for the *Scaffolding* procedure, approved September 11, 2001.

Procedure Change Request Revision A, #24590-WTP-GPP-SIND-016A for the *Cranes Use and Operation* procedure, September 12, 2001.

Procedure Change Request Revision A, #24590-WTP-GPP-SIND-032A for the *Suspended Personnel Platform* procedure, September 11, 2001.

Procedure Change Request Revision A, #24590-WTP-GPP-SIND-033A for the *Articulating Boom Platforms* procedure, September 27, 2001.

Procedure Change Request Revision A, #24590-WTP-GPP-SIND-036A for the *Air Monitoring Surveillance* procedure, September 12, 2001.

#### Inspection Technical Procedures

I- 160, Rev. 0, "IH&S Program Review"

I-162, Rev. 0, "Industrial Health and Safety Inspections"

SMART MARK training booklets for PPE, materials handling, confined spaces, tool safety, stairways and ladders, electrical safety, scaffold safety and fall protection.

Statement of Work, "Emergency Response and Emergency Preparedness Services," June 22, 2001.

Statement of Work, "RPP-WTP On Site First Aid Facility," August 27, 2001.

#### Subcontracting documents for the RPP-WTP project:

Exhibit D, "Scope of Work," Revision 0, May 1, 2001.

Exhibit D, Appendix D-1, "Drawing/Data Requirements and Submittals," Revision 0, June 6, 2001.

Exhibit E, "Technical Specifications," Revision 0, May 1, 2001.

Exhibit G, "Subcontractor Safety and Health Requirements," Revision 0, October 11, 2001.

Task Order, #2001-001, Revision 0, "Emergency Response Services," September 26, 2001, and attached Statement of Work.

Task Order, #2001-002, Revision 0, "Emergency Preparedness Services," September 27, 2001, and attached Statement of Work.

Training Attendance Record for Safety and Health Orientation training (Form 24590-F0005, Revision 0, August 16, 2001), presented September 14, 2001.

#### Training modules in final form as of August 30, 2001:

"Confined Spaces"

"Excavation and Trenching"

"Fall Prevention/Protection"

"Respiratory Protection"

"Scaffolding – User Training."

Training Package for the Safety and Health Orientation training, final sign-off dated September 12, 2001.

Videotape, "Working Safely with Electricity"

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