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Bechtel BWXT, Idaho, LLC



Idaho National Engineering and Environmental Laboratory

Report from the DOE Voluntary Protection Program Onsite Review, April 16-20, 2001



U.S. Department of Energy
Office of Environment, Safety and Health
Office of Safety and Health
Office of Regulatory Liaison

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Abbreviations and Acronyms

ALARA	as low as reasonably achievable
BBWI	Bechtel BWXT Idaho, LLC.
BLS	Bureau of Labor Statistics, U.S. Department of Labor
CAIRS	Computerized Accident/Incident Reporting Service
CEST	Company Employee Safety Team
CFA	Central Facilities Area
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
CSP	Certified Safety Professional
DOE	Department of Energy
DOE-VPP	Department of Energy Voluntary Protection Program
DO IT	define, observe, intervene, test
DZAC	Departmental Zero Accidents Committee
EH	Office of Environment, Safety and Health
EM	Office of Environmental Management
ES&H	Environment, Safety and Health
EST	Employee Safety Team
EWP	Enhanced Work Planning
HQ	Headquarters
ICARE	Issues Communication and Resolution Environment
INEEL	Idaho National Engineering and Environmental Laboratory

INEEL CAB	Idaho National Engineering and Environmental Laboratory Citizen's Advisory Board
INTEC	Idaho Nuclear Technology and Engineering Complex
ISM	Integrated Safety Management
ISMS	Integrated Safety Management System
IWCP	Integrated Work Control Process
JHA	Job hazard analysis
JSA	Job safety analysis
LO/TO	Lockout/Tagout
LWDI	Lost Workday Incidence
MCP	Management Control Procedure
MSDS	Material Safety Data Sheet
ORPS	Occurrence Reporting and Processing System
OSHA	Occupational Safety and Health Administration
PPE	Personal Protective Equipment
PM	Preventative Maintenance
PdM	Predictive Maintenance
RCM	Radiological Control Manual
RCIMS	Radiological Control Information Management System
RCRA	Resource Conservation and Recovery Act
RWMC	Radioactive Waste Management Complex
RII	Recordable Injury Incidence
SIC	Standard Industrial Classification

S&H	Safety and Health
TAN	Test Area North
TRA	Test Reactor Area
TRAIN	Training Records and Information Network
VPP	Voluntary Protection Program
WCB	Willow Creek Building
WERF	Waste Experimental Reduction Facility
WROC	Waste Reduction Operations Complex

Executive Summary

The Department of Energy Voluntary Protection Program (DOE-VPP) onsite review of BBWI of Idaho Falls, Idaho was conducted during the week of April 16-20, 2001. Bechtel BWXT Idaho, LLC (BBWI) is the prime contractor operating the Idaho National Engineering and Environmental Laboratory (INEEL) for the U.S. Department of Energy (DOE). BBWI is a partnership between Bechtel National Incorporated, BWX Technologies, and Inland Northwest Research Alliance. BBWI assumed responsibility for operating INEEL on October 1, 1999, and is responsible for site operations, maintenance of site infrastructure, site clean-up, environmental restoration, and decontamination and decommissioning of facilities.

Management Leadership

The DOE-VPP Onsite Review Team (Team) found strong evidence of safety and health (S&H) commitment from all levels of management. The Team noted that management demonstrated a very strong commitment to employee S&H and they held themselves both responsible and accountable for S&H in the workplace. All managers, supervisors and employees are evaluated as to their performance in the safety and health area. Top-level management is visible and actively participates in the S&H program.

Employee Involvement

The Team found that employees are actively involved in S&H in the workplace. Employee involvement not only occurs through their participation in the safety meetings and training activities, but also through the safety inspection processes, the worker observation program and in periodic self-assessments. Employees openly stated that they not only felt responsible for their own safety, but also for their peers' safety. The Team found during the interviews that employees usually spoke in terms "our" efforts when referring to their peers and management. This clearly demonstrates a strong sense of ownership and pride in S&H by the employees. The Team observed that employees are truly involved in the S&H program and a strong safety "culture" has developed at this site. Notably, employees are not only involved in hazard recognition, job hazard analyses, but also in hazard resolution.

Worksite Analyses

Various forms of self-inspections are conducted at this site. Job hazard analyses are thorough and extensively utilized. Employees are not only encouraged to report any unsafe conditions, but are expected to report and correct the situation(s), if safe to do so. Accident investigation processes involve employees and result in an analysis to determine the root cause. Identified hazards are immediately addressed with appropriate corrective actions are being taken in a timely manner. The site has conducted multiple,

comprehensive surveys covering this site. The site also conducts numerous inspections of all units and areas such that the entire worksite is covered at least quarterly.

Hazard Prevention and Control

BBWI has a full complement of safety and health professional staff. Safety and health rules have been clearly laid out for all employees and managers. The site employs a standard hierarchy of control to the prevention and mitigation of hazards in the work environment consisting of engineering controls, administrative controls, and personal protective equipment (PPE). The PPE program is an in depth program that is well integrated into the operations control, safety and health oversight and training portions of the site's programs. BBWI has implemented a comprehensive preventive maintenance (PM) program that uses a combination of preventive, predictive, and corrective maintenance to enhance the availability, operability, and reliability of plant structures, systems and components. The site has mature, well functioning emergency preparedness, radiation protection and medical programs.

Safety and Health Training

The Team noted from employee interviews and document reviews that employees at all levels knew how to identify and protect themselves and others from hazards associated with their jobs. As was noted on several occasions during the interviews, the training provided to employees has made them more conscious of health and safety issues not only in their work environment, but also in their everyday lives away from the site.

Management clearly supports the S&H training programs as evidenced by employee interviews, funding levels, documentation review, accreditation and nationally recognized awards. In addition, interviews with personnel, who conduct safety and health inspections and self-assessments, confirm that they provided in-depth hazard recognition training.

Conclusion

The Team concludes that the applicant has met and/or exceeded each of the five DOE-VPP tenets. Accordingly, our technical opinion as documented in this report will be presented to the DOE-VPP Program Administrator for consideration.

Site Overview

MISSION: The current mission of INEEL is to serve as a multi-program laboratory providing the nation with innovative nuclear technologies and with unique scientific and engineering capabilities in non-nuclear programs that provide commercialization potential or enhance the quality of the environment.

ACTIVITIES: The Federal government initially established INEEL as the National Reactor Testing Station in 1949. Its original purpose was to provide an isolated location where prototype nuclear reactors could be designed, built, and tested. Most of the reactors were phased out after completing their research mission; only the Advanced Test Reactor and the Advanced Test Reactor Critical Facility are now operating. In January 1997, the Idaho National Engineering Laboratory changed its name to the Idaho National Engineering and Environmental Laboratory (INEEL) to highlight Idaho's role in developing waste cleanup and other environmental technologies. Current site activities include nuclear reactor technology research and development, waste management and environmental restoration, advanced energy production, defense-related support, safety and health, technology transfer, education, and non-nuclear research and development projects.

LOCATION: INEEL covers 571,000 acres (893 square miles) in a rural, sparsely populated sector of southeastern Idaho. The eastern boundary is 23 miles west of Idaho Falls. INEEL also occupies numerous buildings and laboratories located in the city of Idaho Falls, Idaho.

STAFFING AND BUDGET: BBWI employs about 6,300 people. Annual funding for the INEEL site (less Argonne-West and Naval Reactors Facility) is about \$680 million. The DOE Office of Environmental Management (EM) provides about 60 percent of the INEEL budget. As a multi-program, national laboratory, INEEL also receives funding from the Office of Naval Reactors; the Office of Nuclear Energy (NE), the Office of Science and Technology (SC), and several other DOE offices, as well as accepting work for other programs.

VPP UNITS: The INEEL site has designated eleven "VPP units" within the overall site. The VPP units/facilities designated are as follows:

Specific Manufacturing Capability (SMC) Special, classified manufacturing program for the U.S. Army producing depleted uranium for the U.S. Army's Abrams battle tanks.

Test Reactor Area (TRA) Located in the south central part of the site, includes one operating test reactor (the Advanced Test Reactor), the operating critical facility reactor, four defueled reactors, storage of spent fuel, hot cells, consolidated storage of quantities

of special nuclear material, and the Nuclear Materials Inspection and Storage Facility (NMIS), a repository for unirradiated fuel.

Idaho Nuclear Technology and Engineering Center (INTEC) Formerly the Idaho Chemical Processing Plant (ICPP), in the south central part of the site has facilities and operations for wet and dry storage of irradiated and unirradiated nuclear fuel and storage and treatment of high-level waste.

Central Facilities Area (CFA) Located in south central portion of the site, it is the main service and support center. CFA supports transportation, maintenance, capital construction, environmental and radiological monitoring, security, fire protection, warehouses, calibration laboratories and a cafeteria.

Radioactive Waste Management Complex (RWMC) Located in the southwestern part of the site is a storage area with a variety of low-level, mixed, and transuranic wastes stored in burial grounds, retrievable storage pads, and enclosed storage facilities.

Waste Reduction Operations Complex (WROC)/Power Burst Facility (PBF)/Waste Experimental Reduction Facility (WERF) Facilities to provide the safe treatment, storage and recycling of radioactive, mixed and industrial/commercial wastes.

Idaho Research Center (IRC) Laboratory and research areas located in the town of Idaho Falls is involved in environmental and chemical sciences, biotechnology and physical sciences.

Engineering Research Office Building (EROB) Administrative offices

Willow Creek Building (WCB) Administrative offices

Test Area North (TAN) Located at the northern part of the site, supports hot cell work, cleanup, D&D activities, and fuel storage.

Technical Support-A (TSA), Technical Support-B (TSB), INEEL Supercomputing Center (ISC) Administrative office complex and supercomputer center.

HAZARDS: Hazards at INEEL include radioactive materials, non-radioactive hazardous materials, and general industrial hazards. Radioactive hazards include those associated with deteriorating spent fuel and stored high-level liquid wastes. Non-radioactive hazardous materials include chemicals, compressed gases, and biohazards. Industrial hazards include high voltage, lasers, high noise levels, confined spaces, cryogenic systems, inert and low-oxygen atmospheres, and construction activities.

COMMUNITY IMPACT: The benefits of INEEL and its employees to the state of Idaho are most significant. For example in 1999, approximately 7,727 jobs were needed throughout the local economy to meet INEEL demands for materials, supplies and support services. This equated to more than one job generated in the local community

per INEEL job. As a further example, in 1999, INEEL awarded about \$86 million in subcontracts to vendors in southeastern Idaho.

COMMUNITY RELATIONS: The Idaho National Engineering and Environmental Laboratory Citizen's Advisory Board (INEEL CAB) is a nonpartisan, broadly representative organization of independent citizens with concerns related to INEEL activities. It is a Federally chartered advisory board composed of 15 Board members from the State of Idaho. The Board is dedicated to providing informed recommendations and advice to DOE. The INEEL CAB was formed in March 1994. CAB Members are selected to serve initially for a two-year term with the option of serving up to three terms.

In addition to the 15 Board members, there are 3 ex-officio members who serve as non-voting members of the Board. These ex-officio members are appointed by the DOE Idaho Operations Office, the Environmental Protection Agency (Region 10), and the State of Idaho. Each voting member of the Board represents at least one of the following stakeholder perspectives:

- site-related workforce;
- affected local governments;
- environmental interests;
- business interests;
- natural resource users;
- educational community;
- health professionals;
- general public; and
- Shoshone-Bannock Tribes (this member of the Board is appointed to serve by the Tribal Council Members)

I. Introduction

The DOE-VPP onsite review of BBWI of Idaho Falls, Idaho was conducted during the week of April 16-20, 2001. BBWI is the prime contractor operating the Idaho National Engineering and Environmental Laboratory for the U.S. Department of Energy (DOE). Bechtel BWXT Idaho, LLC. (BBWI) is a partnership between Bechtel National Incorporated, BWX Technologies, and Inland Northwest Research Alliance. BBWI assumed responsibility for operating INEEL on October 1, 1999, and is responsible for site operations, maintenance of site infrastructure, site clean-up, environmental restoration, and decontamination and decommissioning of facilities.

The Department of Energy, Office of Environmental Management (EM) is the lead program secretarial office for INEEL and provides programmatic direction and funding for site clean-up, facility infrastructure, decontamination and decommissioning activities, and waste management functions. The DOE Office of Nuclear Energy (NE) and the Office of Naval Reactors also provide funding and programmatic direction for INEEL activities. The University of Chicago operates the Argonne National Laboratory-West at the INEEL site and reports to DOE's Chicago Operation Office. Bechtel Bettis, Inc., operates the Naval Reactors Facility on the INEEL site and reports to DOE's Pittsburgh Naval Operations Office.

BBWI was evaluated against the program requirements of the U.S. Department of Energy Voluntary Protection Program (DOE-VPP). The On-site DOE-VPP Evaluation Team consisted of a diverse cross section of individuals from the DOE Headquarters office, the Idaho Operations Office, an individual from the Nevada Operations Office and a representative from Westinghouse Savannah River Company's VPP team in Aiken, South Carolina. [See Appendix 1 for Team roster].

II. Injury and Illness Data Assessment

BBWI's injury illness rates are significantly below comparable private industry (SIC 495) rates, and therefore satisfy the basic criteria for VPP recognition. In general, safety performance, as indicated by the statistics, has improved during the 1999-2000 timeframe. For example, the incidence rate in 1998 was 4.55, and has decreased to 2.9 in calendar year 2000, according to the Computerized Accident/Incident Reporting Service (CAIRS) system at DOE headquarters.

However, this site has 100 to 150 subcontractor employees, and their injury illness rates may not be below the comparable private industry. The 1999 Annual Safety and Health Program Evaluation conducted by the site recognized this problem (see page I-82 of the VPP Application): "The recordable case rate of subcontractors is 13.02, which is higher than industry average". While the lost work day case rates (LWC) of the subcontractors are below those of the private industry, SIC 154 (Nonresidential building construction), they are not below the injury incidence rates (IIR) for the comparable private sector industry group.

The INEEL contractor is currently trying to improve subcontractor performance and they were honest in presenting the subcontractor data in detail in the VPP application. To decrease subcontractor IIR, specific actions have been developed and are in the process of being implemented. These are described in Section III of this report under the subheading, "Subcontractor Program." We note that the recent Office of Oversight's (EH-2) ISMS study, "Focused Safety Management Evaluation of INEEL", January 2001, indicated a similar subcontractor issue.

In addition, we note that 1998 may have been an exceptional year at this site. An accident involving a carbon dioxide (CO₂) automatic fire extinguishing/suppression system caused at least one death and several injuries and illnesses. Following this accident, several significant improvements in safety programs were made including major reorganizations, and establishing new procedures and policies. Accordingly, we feel that the data for the 1998 year may not be representative of site's true safety and health performance.

The INEEL is properly classified under the Standard Industrial Classification (SIC) Code 4953 of the Bureau of Labor Statistics (BLS). Since BLS did not publish data for this four-digit level industry, SIC 495 data were used for comparison purposes. Three-year injury/illness data for INEEL and BLS 495 are as follows:

INEEL

Year	Injury Incidence Rate (IIR)	Lost Work Day Case Rate (LWC)
1997	4.67	2.08
1998	4.55	1.91
1999	3.95	1.41
INEEL Three Year Average	4.38	1.79
BLS Average (1997-1999)	10.4	6.0

As shown above, the INEEL’s injury rates are significantly below the private industry rates. In the chart below, INEEL Construction Subcontractors injury illness rates are compared against the private industry SIC 154, Non-Residential Building Construction.

INEEL Subcontractors

Year	IIR	LWC
1997	6.96	0
1998	19.12	6.37
1999	12.25	4.08
INEEL Three Year Average	11.30	2.71
BLS Average (1997-1999)	9.4	4.1

These charts show a review of OSHA 200 logs for the current year as well as the preceding 3 calendar years. To calculate the lost workday incidence (LWDI) and recordable injury incidence (RII) rates, the team used two standard formulas:

$$\text{RII rate} = \frac{\text{No. of Recordable incidents [Col.(1) + Col.(2) + Col.(6)] x 200,000}}{\text{No. of employee hours worked}}$$

and

$$\text{LWDI rate} = \frac{\text{No. of LWD cases [Col.(2)] x 200,000}}{\text{No. of employee hours worked}}$$

According to CAIRS, the injury incidence rates of the Subcontractors in 2000 were 8.2, which is a significant improvement over the previous year. Please note that BLS data are not available for the year 2000. The injury illness rates presented in the INEEL VPP application may not be identical to the CAIRS data (higher than CAIRS). This may reflect that some updates made by the site are not yet available on CAIRS. Accordingly, we believe that the issue of subcontractor injury injury/illness rates should not be an obstacle to recognizing an outstanding site for excellence in safety and health.

III. Management Commitment

The level of management commitment found at this site meets all DOE-VPP criteria. The sub-elements of this tenet and an evaluation of the applicant's performance in these areas are addressed and described below.

VPP Commitment

A fundamental premise of the DOE-VPP is top level commitment from management. Review of the Bechtel Global Report 2000, published by Bechtel International, Inc., shows that a core principle for this corporation is to “do work safely.” Additionally, another core principle is to, “create a work environment, supported by leadership that fosters openness, trust, communication, teamwork, empowerment, innovation, and satisfaction.” Taken together, these core principles support the overall intent of the DOE-VPP.

These core principles set forth by Bechtel International, Inc. are translated into a working philosophy at the site by the INEEL contractor. BBWI management has consistently demonstrated a commitment to meeting the requirements of the DOE-VPP by active support of the overall safety and health efforts at this site. Management was also helpful in supporting the overall review, setting up formal interviews and in allowing a random selection of employees for informal interviews.

Leadership

The BBWI application presented a well thought out comprehensive program to support all the sub-elements of the DOE-VPP tenets. Management commitment to safety and employee involvement is implicit in the design of the program and systems that support safety at the site.

During the on-site review, the Team found management commitment to be solidly demonstrated from the President to directors and managers. BBWI's commitment is demonstrated in strong safety and health policy statements, the providing of resources necessary to support all safety and health program activities, attention to employee identified safety and health concerns, active participation in safety promotional activities, and leadership/mentoring for employee safety team activities.

BBWI has established a hierarchy of committees and teams that appear to effectively provide an opportunity for all employees to be involved in the safety program. Starting with the Company Employee Safety Team (CEST) working down to several Employee Safety Teams (EST) and sub-teams known as Departmental Zero Accidents Committees (DZAC), workers and managers cooperate to plan and administer the safety process.

The company president is a co-chairperson of the Company Employee Safety Team (CEST). The Environment, Safety, Health and Quality Assurance (ESH&QA) manager reports directly to the company president. Management personnel serve as a resource to support safety and health goals. Workers and management develop goals together and work cooperatively to succeed and improve.

Interviews of a significant number of employees and supervisors indicate that they have immediate access to top management throughout all facilities at the site to assist with safety and health concerns.

Organization

BBWI has established a comprehensive organization constructed to facilitate the efficient communication and integration of safety with production. Area safety and health managers, in a support role, are matrixed from the safety and health organization and plan their daily activities with the respective site area director. Additionally, this facility has a verified Integrated Safety Management system (ISM) complying with the organizational integration requirements of that Departmental policy.

Responsibility

Top management is prominently involved in the safety and health program and they are committed to the implementation of a well-coordinated safety and health program including the establishment of a clear line of communication with employees. Top management leads and supports the Environmental Safety and Health (ES&H) process and all other management personnel are tasked with responsibility for safety. Interviews confirmed that everyone understands and exercises their specific responsibilities for safety and health.

The site's ISM system and subsequent lower tiered, formal orders, manuals and requirements documents serve to provide a solid framework for assigning roles, responsibilities and accountability. The site has formal documents defining, "Roles, Responsibilities, Accountabilities and Authorities," and these are complimented by other documents such as the Site Operations Manual, PDD-1005, and the INEEL Integrated Safety Management System requirements document, PDD-1004 and a series of management control procedures.

Accountability

Management is committed to providing the leadership, direction, goals, training, resources, and standards to assist employees in the performance of their duties in a safe and healthful manner. Management and employees share in the responsibility to carry out individual duties in a safe manner. Managers are held accountable for safety by specific standards within their individual performance standards and they are accountable for the consistent enforcement of company safety policy. The company has a formal

written performance appraisal system with safety and health responsibilities as a critical element for management personnel.

Annual performance reviews are a key method used by the site to hold all employees, including managers and supervisors, accountable for their performance. The annual performance reviews, which are conducted for all employees, consider safety and health performance as a major element of the review. Employees have input to what their specific safety and health expectations are for the rating period. Additionally, the results of these reviews directly affect annual merit pay considerations. Management has an established policy allowing disciplinary action(s) for violations of rules, policy and requirements thereby ensuring day-to-day accountability on the job. Accountability is regularly communicated to all employees through staff meetings, safety meetings, training, site publications and annual performance reviews. All subcontractors are expected to follow BBWI safety and health requirements and they are held accountable for meeting these requirements both through formal contractual agreements and through the implementation of formal policies, procedures and directions. Failure to comply with these requirements and/or continued non-compliance can result in dismissal from the work site.

Authority and Resources

All employees are responsible for safety. All site employees are empowered by management with the authority to address safety concerns. This review indicated that the system utilized is effectively working. The General Manager has the ultimate responsibility with the assistance of full-time professional, technical and administrative employees, and the various safety teams. Adequate resources, including staff, equipment, materials, funding, training and professional expertise have been committed to workplace safety and health.

The site's overall budget is \$680 million with approximately 8 % of the total budget being devoted to safety and health. Safety goals are included in all managers and employee annual performance reviews. Safety accountability for represented employees is specifically addressed in their bargaining agreement. There are 32 Industrial Hygienists, and 33 Industrial Safety specialists at this site. In addition, the site has 194 Health Physicists devoted to radiation protection, 83 personnel dedicated to fire protection, 24 dedicated to emergency response and 39 people in their medical services department. BBWI has established a VPP support office to coordinate site-wide safety and health activities, support employee safety teams, and provide promotional materials.

There is evidence that identified safety and health hazards are prioritized and appropriately abated. While there has been a backlog of preventive and other maintenance activities, significant progress has recently been demonstrated in providing timely preventive maintenance and a reduction of time to complete other identified maintenance tasks. These actions clearly identify that the company has a strong, functioning infrastructure in-place to handle issues as they arise. VPP is not recognition

of perfect, trouble-free workplaces, rather it recognizes those companies that have exceeded basic compliance and built a strong S&H infrastructure while avoiding most S&H issues. Therefore, such organizations are capable of handling issues in the safest possible manner when they do arise. Accordingly, this key element of VPP is well demonstrated by the contractor in their handling of this issue.

Additionally, resources have been programmed into overall planning to sustain employee involvement in VPP activities. These resources are applied toward executing Employee Safety Team functions, coordinating community safety events (e.g. Safety Expo), increasing general employee awareness (through events like ‘Passport to Success’ and ‘Safety Bowl’), and sponsoring a broad cross-section of employees to participate in regional and national level VPP training and workshops.

Planning

As stated earlier in this section, the Bechtel corporate vision commits its subsidiaries to conduct business without compromising safety or the environment. At this site, this vision is supported by the use of the Department of Energy's ISM System. As a result of ISM system, safety is integrated at every level, not only within Environment, Safety and Health, but also into the planning, operating, maintenance, quality assurance, training, scheduling, and funding processes.

The inclusion of safety and health planning by management begins at the company or site level. The first guiding principle in the site's long-range Plan, which governs the site's mission and vision, is “environment, safety and health excellence.” At lower levels, managers of programs and projects are required to plan and outline safety and health support as part of their program or project scope of work. Overall, the Team found that the safety and health program is goal driven with annual review and modification of goals and objectives based on actual performance findings. Safety and health planning is extremely thorough and it is designed to ensure continuous improvement. Notably, it was confirmed that BBWI develops annual environment, safety and health management plans as part of the annual, site-wide budget process. These ES&H documents and plans support the overall budget process, identify crosscutting issues and needs, and document projected activities for ES&H.

Subcontractor Program

Subcontractors must pre-qualify, based on past safety and health performance before they are allowed to bid on work at this site. Subcontractors are then carefully screened using combined ISM and DOE-VPP criteria. Those accepted for work at the site must send their employees to the required site-entry training courses before beginning work. Once on-site, subcontractors are closely monitored through weekly and monthly surveillance to ensure compliance with site policy, standards and regulations. Deficiencies must be corrected in a timely manner and employees cannot be exposed to hazards during mitigation activities. Failure to comply with safety and health rules, regulations and policies can result in monetary penalties and/or dismissal from the site. Subcontractors

who repeatedly violate the same rules, policies or standards may be dismissed from the site and prohibited from bidding on future work at the site.

The management personnel interviewed during the course of this on-site evaluation who had a responsibility for either planning, supervising or working along with subcontractors indicated that subcontractors were all expected to follow BBWI safety and health requirements and that subcontractors were held accountable for meeting these requirements. In addition, a few random interviews with subcontractor employees confirmed that subcontractors and their employees were held accountable for safety and health performance on the job. These subcontractor employees all appeared to be knowledgeable in the site's safety requirements and actively participated in the site's DOE-VPP activities.

At least one subcontractor independently pursued VPP recognition through the Occupational Safety and Health Administration (OSHA) and found it to be an extremely beneficial business decision. This subcontractor noted that their VPP participation led to success not only at this site, but also at many other private sector locations.

Program Evaluation

Annual program evaluations have been conducted at this site using DOE-VPP criteria since 1997. Evaluations of the S&H program are conducted with participation by both management and employees. Self-assessments and annual reviews are used as a means for continuous improvements in the S&H program.

The results of annual program evaluations and other safety and health trending data are used by each of the 11 VPP units within the site to develop goals and objectives for the coming year. Employees conduct the annual evaluations and the results are formally documented. Every corrective action is then tracked to completion. Yearly goals and objectives for the overall site safety and health program and the individual units are developed and partially based on the results and findings of the annual program evaluations.

The last annual VPP program review was well documented, identified areas needing improvement, and included detailed corrective actions and goals to ensure the VPP effort and overall program is continuously improved at this site.

Site Orientation

A comprehensive, formal site orientation program including training and documentation applies to all persons entering this site. All new employees receive the New Employee Orientation training during their first week of employment. This training includes safety and health policy, regulations, requirements and instruction on ISM and VPP. All construction workers receive a specifically designed construction training course. Other specialized training is given based on the tasks that will be assigned. As an example, new employees in a radiological control area will receive radiological training. Interviews

and random review of training records show that employees are aware of training requirements for access to the different facilities at the site.

Employee Notification

The employee notification program surpasses the requirements for employee notifications contained in DOE Orders and guidance documents and these requirements exceed the OSHA (Federal and State) requirements for employee notification. This information is presented again during the annual safety and health refresher training required for all employee and it is re-enforced through various publications and other written materials. All areas visited had the required DOE worker safety and health posters properly posted. There is an extensive use of employee safety team publications and web-based materials to inform employees of their rights and responsibilities.

The General Manager and other personnel in the management structure have clearly accepted responsibility for the safety of their employees and the operations under their control by establishing Environment, Safety and Health (ES&H) policies. Both corporate and facility leadership have set high standards for safety excellence. These standards have been communicated to all INEEL employees through new hire orientation and ongoing mechanisms designed to continually reinforce ES&H requirements, rights and responsibilities. New hire checklists, Fact Sheets booklets, and briefings on VPP and ISM are provided. ES&H policies, plans and information are communicated through a series of media including postings, meetings, e-mail and training sessions. Safety and health authority and responsibilities are well integrated with the organization's management system. The management of the facility is fully committed to achieving an accident-free work environment.

Management Visibility

Top-level management is clearly visible and actively participates in S&H program. The General Manager regularly participates in various safety and health activities. Managers are held accountable for their S&H responsibilities and maintain a policy of accessibility with regards to S&H issues that arise in the workplace. An "open door" policy ensures that any employee at any time can express a S&H concern to any level of management. The Team confirmed this policy through formal and informal interviews and noted that most employees did not feel the need to raise concerns above their first-tier or immediate supervisor because any concerns raised were resolved almost immediately. Also, all employees felt that the area, department or zone safety committees did an outstanding job of addressing any safety concerns and facilitating corrective action(s) where needed. Accordingly, employees did not believe it necessary to take concerns to upper level management, as issues were effectively handled by the various safety committees and first line supervision.

Notable Practices

- **Injury/Incident Review Board** This process focuses on unsafe behaviors causing injury/illnesses; it has consequences to both manager and employee if an injury or illness is caused by an unsafe behavior; and it utilizes a mechanism to reverse consequences by demonstrating the proper or positive behavior.

IV. Employee Involvement

The on-site review clearly showed that employees are actively engaged in the safety and health program. In addition, review of program documents and the results of interviews showed that management has empowered employees to proactively administer the safety and health program at this site. The degree of employee involvement in safety and health found during the review clearly meets all DOE-VPP criteria for employee involvement.

Degree and Manner of Involvement

The information gathered for this portion of the report relies heavily on observations of employees in the workplace while conducting their routine duties and on both formal and informal interviews of employees. The anecdotal information gathered during interviews is often the most informative method of determining whether extensive, complicated methods and procedures are actually utilized and whether such well-intended programs are genuinely useable and effective for the workers. No review of workplace conditions or programmatic effectiveness can have a high degree of confidence without the gathering and analysis of this type of anecdotal information from the interview of workers. Formal, scheduled interviews are most useful when complimented by random, unscheduled interviews. Random interviews allow reviews to have a greater degree of confidence in the results obtained during formal interviews, and help to exclude any “rehearsed” information and they often result in a frankly candid opinion.

Formal employee interviews at this site were conducted by selecting employees from a list that was provided by BBWI. Additionally, random interviews were obtained by randomly selecting employees during the walk-through of work areas at the various site locations.

As an example, approximately 2,550 employees work at the Central Facilities Area (CFA), Waste Reduction Operations Complex (WROC), Radioactive Waste Management Complex (RWMC), and the Test Reactor Area (TRA). During this review, approximately 50 employees (management and non-management) were interviewed in these areas. The job categories of employees interviewed included: mechanical engineers; electrical foreman; electrical engineers; machinists; utility operators; shift supervisors; the facility landlord; craft maintenance; medical director; ES&H managers; site manager; VPP Champions and points-of-contact (POCs); department manager; fire chief; fire captain; security lieutenant; security captain; guards; safety engineers; plant operators; radcon technicians; emergency response planners; and the DOE Facility Manager.

Almost all employees interviewed were comfortable in talking with members of the DOE VPP Onsite Evaluation Teams. All employees indicated that they understood their rights and responsibilities, and are very knowledgeable about their rights and responsibility

regarding safety and health. Interviews confirmed that a strong safety culture exists at all levels and employees feel empowered to voice safety concerns.

Employees openly expressed support of the VPP effort at this site and several employees stated that they, “felt fortunate” to work for a company that is totally committed to safety and health. Almost all employees interviewed were very knowledgeable regarding their rights to request reports of inspections, accident investigation, and injury and illness records. All stated that they were given timely and complete written and/or oral feedback to safety and health questions and issues.

Overall, it is evident that the work force has enthusiastically welcomed the opportunity for increased participation in assuring their abilities to perform work safely. In most cases, workers demonstrated that they are accepting and actively participating in activities such as the Worker Applied Safety Program (WASP) observations, Employee Safety Teams (ESTs), completion of VPP Passports, iSTRETCH, and facility inspections to further their own involvement. When asked how the VPP process has impacted their work, most employees interviewed responded that their awareness level has increased, and their recognition of how their work may impact the safety of others has also been heightened. Notably, laboratory employees indicated that the Company’s VPP efforts have kept safety in the forefront through “constant vigilance”, and reminded employees that the most important safety tool is the one “between their ears”.

Safety and Health Committees

Employees are knowledgeable about the VPP effort at this site through several committees and programs including: Issues Communication and Resolution Environment (ICARE), WASP, EST, CARB; INOTES; VPP Homepage; Posters; emails; bulletin boards; safety meetings; all hands meeting; and other oral communication. Employees feel they own the committees and that management participates in the committees, but the employees have the ownership. Each unit at the site has their own committee and membership with goals and missions. A subcommittee is established through each committee and they are trained to conduct inspections and incident/accident investigations. Committee members understand their roles and have additional hazard recognition and incident investigation training. Committee meetings are held on a monthly basis and minutes are kept and posted for review by all employees. Employees are very knowledgeable and confident in the committees and program processes.

Most workers indicated that they have input into the procedures in their work packages. Many of them are involved in the development process and others have input after the development but always prior to implementation and use. Employees were very confident and enthusiastic, and feel they are part of the work development process at this site.

Employees are involved in both formal and informal reporting of hazards, they have stop work authority, and they have input into systems and procedures for incentive programs as well as the disciplinary procedures as they relate to safety and health issues. Of note is

their, “DO IT” (Define, Observe, Intervene and Test) program used to define critical behaviors, observe the work areas for such behaviors, intervene to change the behaviors and test the result. Employees are part of the formal “Integrated Work Control Process” that helps to streamline work by making work planning and execution both more efficient as well as safer.

The company has established ESTs company wide. A combined team known as the Company EST or “CEST” includes representatives from each of the 11 VPP units that comprise this site. Information moves back and forth between the CEST and ESTs. These teams were established in August of 1995. Interviews confirmed that employees have ample opportunity to serve on the teams and that management encourages their participation. Additionally, team members receive additional safety training including inspection techniques and hazard recognition as part of team membership.

The ESTs, both at the Company and Unit levels were observed to be active and energetic. The Team attended EST meetings at most of the INEEL’s VPP Units, and all ESTs have charters, goals and objectives defined and tracked at the Unit level. Some of the EST meetings were structured in presentation format for the Team; some were run as routine meetings. It is evident that the EST emphasis on communications, incident investigation, inspections, and tracking and trending of safety indicators is helping the site to continue the integration of safety and health into the site’s programs and operations and helping the site to move toward its’ goal of zero injuries.

As an example, one of the 11 VPP units at this site, INTEC developed an Employee Safety Team model that may be useful to other large-scale facilities. Because this unit is comprised of several operations with over 1200 workers located in various areas, the employees believed that a single EST could not comprehensively represent all facility employees. Therefore, INTEC created Department Zero Accident Councils (DZACs), a sub-tier to the Employee Safety Team. DZACs have helped to engage a broader set of the facility employees, and have taken safety management to a level that is clearly understood by the individual workers because the focus is on safety related to the specific work that they do everyday.

The Worker Applied Safety Program (WASP) is a worker driven process that is highly effective in reducing injuries and illnesses in the workplace and at home. It is designed to provide a behavioral observation and feedback process in which employees routinely observe one another while performing daily work activities. WASP observation and injury/illness data compiled in 2000 has allowed BBWI to identify four at risk areas within the Company, and observations in 2001 are now targeted to these four areas to help identify and encourage safe behaviors. Focused WASP observations are being completed each quarter and cover (1) slips, trips, and falls, (2) musculoskeletal injuries and general ergonomics, (3) lifting, and (4) material handling. It was noted that participation in WASP observations during the current calendar year has increased markedly across all 11 VPP Units at this site.

The Union Safety Summit was conceived and initiated by Bargaining Unit employees as a communications and issue resolution forum. The Union Safety Summit is a teaming effort among Unions, Company Management, and the Department of Energy, and provides an effective mechanism for all participants to identify safety related issues, to discuss possible solutions, and to assign responsibility for tracking and fixing identified problems. Actions taken to resolve issues identified in the Union Summit forum include:

- revised stop work authority to make it usable for crafts (issue: old procedures were overly complex);
- modified training process to ensure all subcontractors qualified to do work at INEEL had capacity to maintain training currency (issue: subcontractors not active on site were not aware of changes being made to processes and procedures);
- created work areas with computers so craft personnel could access ICARE (issue: craft personnel in field did not have assigned computers or convenient computer access);
- purchased lockout/tagout simulator to improve on-site LO/TO expertise (issue: continuing LO/TO incidents, particularly with individuals not regularly performing LO/TO); and
- revised qualifications for "incidental equipment operators to ensure competency (issue: many individuals had been trained to operate forklifts, etc., but did not operate such equipment frequently enough to keep skills current and operate safely).

Notable Practices

- **WASP Observation Process** a behavioral observation and feedback process in which employees routinely observe one another while performing daily work activities.
- **Union Safety Summit** Teaming among unions, contractor management and DOE to identify and resolve safety issues.
- **Department Zero Accident Councils** Safety team concept for a large facility or organization that takes safety management to a level that is clearly understood by the worker because the focus is on safety related to the work that they do.

V. Worksite Analyses

The on-site review clearly showed that BBWI meets the requirements for work site analysis found in the DOE-VPP criteria. The sub-elements of Worksite Analysis program at this site are described below.

The worksite analysis processes across the site are structured and implemented to adequately control hazards to the workers, the environment and the public. Formal worksite analysis processes for control of operations and the mitigation of hazards or potential hazards are in place. Personnel interviewed during this review and observations made by the Team confirmed that these processes are used and understood by the workers. Hazard analysis processes incorporate such tools as the Hazard Mitigation Checklists, Job Safety Analyses, Hazard Profile Screening Checklists, and require walkthroughs by planners, crafts, engineer/scientists, and subject matter experts to ensure a safe and functional work evolution is structured prior to work commencing.

Pre-use/Pre-startup Analysis

Pre-use/Pre-startup hazard reviews are an integral part of the S&H process at this site. All new or revised facilities, operations, and processes at BBWI are reviewed and analyzed to identify and mitigate potential hazards before work is started. Proposed construction designs and modifications are subjected to safety analyses. Safety and health professionals review requisitions for equipment and material to identify potential hazards before they are approved. Proposed laboratory experiments undergo hazard analysis before being conducted. S&H professionals participate in reviews of proposals for facility, process, or environmental restoration activities, and analysis of facilities and operations.

The site uses a formal procedure, the Integrated Work Control Process (IWCP) that governs all maintenance and construction work. The IWCP ensures that work is screened consistently to uniform criteria and that hazards are appropriately identified, analyzed and controlled. The IWCP is a formal system designed to match the five core elements of the ISM system: 1) define the scope of work, 2) identify and analyze the hazards, 3) develop and implement controls, 4) perform the work, and 5) feedback /lessons learned.

The site's formal Hazard Identification and Mitigation (HIM) process applies to new projects, activities and subcontractor services and to any processes, equipment, or controls where conditions have changed. The HIM process involves the use of the Facility Hazards List. The Facility Hazard Lists exist for all facilities at this site. The Facility Hazards Lists were initially developed via input from employees doing work at specific facilities. The information was validated, and subsequently collected in a site-wide database. This information is built into facility safety analysis documentation, it is used by work planners at the site to identify hazards in upcoming work activities, and used by other employees if questions arise about facility access and/or hazards within a

given facility. The HIM system utilizes these lists to generate a Hazard Profile Screening Checklist which is used by planning teams and reviewers to identify general hazards and necessary mitigation actions.

The Idaho Research Center actively uses the Independent Hazard Review (IHR) process to evaluate the hazards associated with proposed research activities within the various laboratories at the site. The principal investigator for a laboratory activity must submit an “experiment plan,” a risk analysis, and a hazard mitigation plan to the Independent Hazard Review Group (IHRG) for review and approval prior to starting work. Significant changes to experimental, research, or development activities require additional review and approval by the IHRG. Every laboratory employee interviewed described the IHR process, their input to the process, and that the diverse expertise represented on the review board has resulted in better identification of hazards, thus decreasing the chance of missing potential hazards.

Comprehensive Surveys

Comprehensive surveys are performed to identify existing or potential hazards to ensure adequate safety control. Inspections of each facility, process, task, project, or experiment are conducted routinely by qualified S&H professionals. Management control procedure MCP-3449, Safety and Health Inspections, directs managers to ensure that monthly S&H inspections of workplace processes occur and that quarterly inspections of the entire workplace are conducted. This formal procedure also requires that at least one non-supervisory employee or employee safety team member participate on each S&H inspection. Interviews confirmed that employees and management evaluate each facility, process, task, project, experiment or portion thereof to ensure its' safe operation/conduct. It was also confirmed through the Team's interview process that such activities are conducted at least quarterly for the entire workplace and smaller scale activities are conducted daily, weekly, monthly as appropriate.

Routine surveys include general safety, industrial hygiene exposure assessments, occupational medicine surveys, radiological reviews, personnel qualifications, and ergonomic analyses. Again, the previously mentioned Facility Hazards List database is utilized as an aid to those conducting inspections and surveys as it identifies hazards that could be expected to exist within a specific operation.

Data from a wide variety of comprehensive S&H surveys has been compiled and organized into separate databases. For example, industrial hygiene hazards are identified and characterized for facilities and for tasks/operations within the facilities. This material has been compiled and documented in the Hazard Analysis Sampling System (HASS) database. Confined space inventories for each facility and chemical inventories for each facility are maintained in the Integrated Chemical Management System (ICMS).

Self-Inspections

Self-inspections are used in all aspects of operations and results are available to all employees to identify areas of concern and those needing improvement. Results are documented and tracked to ensure resolution. Self-inspections is a formal, written process at this site as dictated by management control procedure, MCP-3449, Safety and Health Inspections. This procedure requires that inspections be performed by management, employee safety teams (or members), individual workers and S&H professionals. Inspections are conducted frequently so that the entire worksite is inspected at least quarterly. As S&H issues are discovered, they are documented and tracked to ensure resolution through the Issues Communication and Resolution Environment (ICARE) computerized tracking system.

Self-inspections at construction sites are conducted weekly as required by formal program requirements; PRD-1006, Safety Surveillance. Workers, supervisors, and management conduct these construction activity assessments. The site's Facility Excellence Program (FEP) is an inspection program to assess buildings, grounds and structures within the site. It also incorporates a formal reporting and tracking system to ensure adequate follow-up.

The Worker-Applied Safety Program (WASP) is a formal observation and feedback process that aides greatly in improving and maintaining a total safety culture. Employees are formally taught what behaviors are significant to improving safety and why the observation process aids the S&H overall program. In this program, employees develop observation checklists for observing co-workers. They utilize these checklists in observing other employees and enter the results into the WASP database for trend analysis. From the data, workers can develop interventions to improve behaviors and safe work conditions. The WASP functions well in identifying and eliminating at-risk behavior. Interviews with employees confirmed that this is a widely used, highly effective program.

Routine Hazard Analyses

Routine, multidisciplinary hazard analyses are performed with a frequency based on the hazard level inherent in the specific process, facility, or operation. Routine hazard analyses performed at the site are directed by formal, documented procedures; MCP-3562 for operational activities, STD-101 for maintenance, construction and D&D activities, and MCP-3571 for R&D research activities. Program Requirements Document PRD-25, Activity Level Hazard Identification, Analysis and Control, specifies the requirements for identifying, analyzing, and controlling environmental, safety and health hazards for all work performed at the site.

Job Safety Analysis (JSA) is one of the main tools used by the site to document hazard evaluations. When routine tasks are performed, provided the safety conditions have not changed since the JSA was approved, the JSA can replace the need to complete another

hazard evaluation. This allows activities such as routine maintenance to proceed without additional hazard analysis.

Notably, JSA's do not "authorize" the employees to start a project or task. JSA's must be used in conjunction with specific work authorizations before work is permitted to begin. Additionally, JSA's for "high hazard" activities are reviewed annually and updated as appropriate. All other JSA's are reviewed every 3 years, unless a task/job changes in which case they are reviewed and updated at that time. JSA's are significant part of the work control process. They are used to train workers in pre-job briefings and employees then utilize them from the initial walkdown of a task through to the post-job briefing.

Radiation Work Permits (RWP), Safe Work Permits (SWP), and Construction Work Authorizations (CWA) are additional forms of routine hazard analyses which are used to supplement existing hazard analyses such as work orders, project hazard analyses and other work control procedures. In addition to these work control procedures, it was noted that pre-job briefings and post-job reviews are required of all operational, maintenance, and construction activities. Besides ensuring that employees are aware of potential hazards before beginning work, this process also ensures that pertinent information is captured after the task is completed and used to improve safety and productivity.

This entire process is well integrated with the other aspects of the program. For example, as procedures and processes change, the Site Training Review and Implementation Board (STRIB) reviews documents such as JSA's to ensure that the appropriate training requirements are included. STRIB members work with site area directors to ensure that work control procedures are updated and current and that all employees are adequately trained in these procedures. Also, the Lessons Learned group reviews and collects operational experience information, prioritizes it by a risk-ranking method and places it on a site-wide data base for use by trainers, managers, and others.

Employee Reporting of Hazards

Employees are encouraged and expected to identify, without fear of reprisal, conditions that compromise or are not in compliance with company safety and health programs. The Corrective Action System, MCP-598, allows employees to document any potential safety issue, track the review of the issue and receive information on the resolution. Additionally, employees may directly enter an issue or concern into the Issues Communication and Resolution Environment (ICARE) computerized tracking system. Again, they may track the issue through to its' resolution. It is company policy that managers are required to respond to employee safety concerns and provide feedback to the initiator of any report involving a safety concern. Employees are encouraged to utilize this system, however, they are not required to use it as their only means of hazard reporting. Verbal notification of a manager/supervisor is specifically encouraged for those employees electing not to use the formal system. The manager in charge of the area where the hazard or potential hazard is located will then enter the appropriate information into the formal system for tracking through to resolution.

The ICARE computer system tracks safety concerns submitted into the system based on priority, hazard, consequence, and severity. It also shows identification of corrective actions and the scheduling of those actions. When corrective actions cannot be completed as scheduled, new actions and/or due dates are documented and must be justified. Concerns cannot be closed out until the necessary feedback is given to the initiator of the concern/entry. Notably, managers are required to respond to all employee safety concerns. When corrective actions are completed, the responsible manager provides feedback to the initiator on the status and the completion of actions.

All employees are trained to report any hazard or unsafe condition to management. The authority and procedures for doing this are re-enforced in staff and safety meetings, by issuance of Stop Work cards and by review of formal procedures. Employees are authorized and required by management control procedure, MCP-553, Stop Work Authority, to stop or shut down any work, process or activity that places the workers, public or the environment in imminent danger. Additionally, the official, Employee Handbook, GDE-10, states that, “any acts of retaliation against an employee for reporting a concern are strictly prohibited and, if confirmed, will be grounds for disciplinary action up to and including termination from employment.” Employees who believe that they have been the target of retaliation for reporting safety issues can report such concerns to the BBWI Ethics and Employee Concerns Program while maintaining complete anonymity. Employees may also elect to report such concerns through the DOE Idaho Operations Office, Employee Concerns process. The phone numbers for reporting such concerns are displayed on “Worker Protection for DOE Contractors” posters throughout all the facilities.

Accident Investigations

Line management is responsible for accident investigations, and employees can participate either as part of the initial investigation and/or as a member of the safety team conducting required follow-up evaluation(s). Management control procedure, MCP-49, Accident Reporting and Follow-up, is the company procedure. This procedure dictates that the investigation team include at least the affected employee(s), the supervisor, and a safety and health professional. All new employees receive training regarding their reporting responsibilities and injury and illness investigation training is given to members of Employee Safety Teams (EST).

The site utilizes a two tiered system for reporting of “near misses.” The Corrective Action System, MCP-598, is utilized for near misses of lesser significance, and the Event Investigation and Occurrence Reporting procedure, MCP-190, is utilized for reporting of more significant near misses. Both systems included well-defined steps for documenting the issues, ensuring professional review, providing feedback, and if merited, entering the documented issue into the site’s Lesson Learned program for use by all employees.

The Lessons Learned Program, MCP-192, provides a formal, computerized method of identification, generation, analysis, dissemination and implementation of lessons learned.

In addition, a company procedure, Incorporating Lessons Learned, MCP-73, addresses incorporating lessons learned into company training programs.

A cause analysis commensurate with the level of risk is performed on events or incidents. The analysis on routine, type C incidents is less formal than an Occurrence Reporting and Processing System (ORPS) incident investigation. ORPS incidents require a formal root-cause analysis with the accompanying report.

Trend Analysis

Safety and Health performance and trending data are available to both management and employees and it is used as the basis to modify, change, or establish safety processes. The data is also used to establish the overall company and unit safety goals and objectives from which employees develop their own safety and health action (tactical) plans. The Performance Analysis group prepares and distributes data covering occupational safety, industrial hygiene, radiological control, environment, deficiency and corrective actions, and prevention programs. In addition, the Occupational Medical Program issues monthly injury and illness reports covering type, severity and lost days involved in injuries and illnesses. Notably, employee safety teams also perform unit-specific trending of injury/illness experience; inspection/assessment results, reported concerns and root cause investigation results. The site also publishes its' Radiological Control Performance Indicator Report.

The site's Environmental, Safety and Health Performance Analysis Report is routinely published and available on-line to management and to employee members of safety committees. The EST's routinely retrieves unit trending information and utilizes this information to develop VPP unit-level goals and objectives. Unit trending information is displayed in five trending chart:

- Injury/illness by type;
- Injury/illness by body part;
- Inspection/assessment/employee-reported concerns and investigation results by discipline;
- Investigation results by root cause(s), and;
- Unit-specific severity index by month.

Safety and health trending information is communicated to line organizations using several formal mechanisms. As previously mentioned, the site's Environmental, Safety and Health Performance Analysis Report is available on the intranet and it is also available as a hardcopy document. The site's monthly Injury/Illness Summary is published on-line as an electronic document and it is available to management, employee safety team members, and VPP points of contact. The quarterly INEEL Radiological Control Performance Indicator Report is sent to all line managers electronically. Line management uses the trending information to:

- Determine safety and health goals and objectives;
- Provide focus for safety meetings and training;
- Implement processes or procedures to mitigate concerns;
- Budget resources to eliminate concerns;
- Determine the timeliness of corrective actions, and;
- Determine manpower needs for S&H professional staff.

Notable Practices

- The Independent Hazard Review Process (IHR) used to evaluate hazards associated with proposed research activities is an especially notable practice. This process effectively includes scientists, engineers, safety professionals, and craft personnel in S&H analysis of activities beginning with pre-job planning and continuing through to post-job briefings.

VI. Hazard Prevention & Control

The level and complexity of the hazard prevention and control program found at this site meets DOE-VPP criteria. Sub-elements of this tenet are addressed and described below.

Access to Certified Professionals

BBWI has a full complement of safety and health professional staff. The staff includes board certified physicians, registered nurses, certified industrial hygienists, safety engineers and health physicists, professional engineers, certified emergency medical technicians, fire protection specialists, and certified ordinance disposal experts. The site has ready access to these certified professionals for support of operations as needed. These professionals work closely with the organizations conducting operational work and tasks, and they are used in supervisory as well as in direct support staff positions. They are involved along with employees from beginning to end of projects and experiments. The site also has numerous other certified specialists that support operations as needed.

Communication from this extensive staff of technical experts to the employees is encouraged and supported by a number of processes and policies.

Methods of Prevention and Control

Hazards at this site are controlled using engineering controls, PPE, and work practice guidelines. These controls are reviewed and only need updating on an infrequent basis, as they are well characterized. All site safety rules, safe work practices, and PPE usage were found to meet requirements. The site has undertaken a program requiring all hazardous materials to be evaluated for suitable non-hazardous replacements, and to be centrally received so that they can be controlled, and so that Material Safety Data Sheets (MSDS) can be entered into a central computerized database for site-wide access. Hard copies of MSDS's are also maintained in the appropriate areas of chemical usage.

Tools and equipment used by workers are designed to minimize risk. For example, at the vehicle service shop located at CFA, equipment is designed to reduce and eliminate injury from lifting heavy parts and equipment such as bus tires/wheels, windshields, air driven tools, etc.

Subcontractors work closely with BBWI personnel to anticipate work hazards and provide precautionary protection to workers in potentially hazardous situations /conditions. All confined spaces, overhead work, and soil penetrations are screened by the contractor for the existence of potential hazards prior to the subcontractor beginning work. In many regards BBWI requires extraordinary measures that go beyond current OSHA standards in several ways to anticipate potentially hazardous conditions.

Examples of these more stringent controls can be found in the area of fall protection, heat stress, cold stress, and ergonomics.

Engineering Controls Engineering controls are the preferred method for eliminating/minimizing employee exposure to hazards. BBWI has a policy requiring the use of fall protection on job sites at any elevation in excess of six feet above an adjacent work surface, including scaffolding and ironwork. This is well in excess of current OSHA construction requirements. The company also has set policies for shutdown of operations in the event of lightning, thunderstorm activity and shutdown of crane operations in the event of high winds. These provisions also exceed OSHA requirements.

There have also been considerable resources expended in the area of ergonomics. Full-time ergonomic technicians conduct routine evaluations of work spaces and occupied areas throughout the facility. Ergonomic furniture, keyboards and other computer equipment were evident and in use in many office settings. Work areas where cases of potential ergonomic injury have occurred are evaluated as well as the entire work section associated with the area of concern. Ergonomic training is performed to all workers for awareness to potential exposures. This training includes a computer based training program, ERGO Buddy, which allows individuals to set up a work station according to ergonomic requirements. A trailer with ergonomically correct tools to be evaluated by managers, and an assessment process should problems develop. ERGO Buddy educates as well as defines a correctly set up workstation. The trailer allows for education of managers as well as demonstration of proper tools.

Administrative Controls The type of work being conducted at this site does not warrant administrative controls that entail time rotation or other exposure control strategies. There is extensive use of personal protective equipment on the work site. A rigorous program has been developed and followed for the control of heat stress hazards, which anticipates hazardous heat conditions. The program involves utilizing the medical and industrial hygiene staffs in training workers on hazardous heat conditions, the effects and treatments of heat illness, monitoring heat stress levels using known techniques and instrumentation, implementing work/rest regimens known to reduce affects of heat, and medically monitoring workers in potential hazardous high heat level conditions. Heat illness cases have been dramatically reduced as a result this proactive initiative.

Safety and Health Rules

Rules have been clearly laid out for all employees and managers. The company employees receive positive reinforcement as well as discipline when necessary. Senior management has the responsibility to establish and enforce disciplinary policy. Violations of safety and health procedures, activities or standards can result in disciplinary action up to and including dismissal. The *VPP Passport to Excellence* incentive program awards employees that get meaningfully involved in safety with prizes such as wristwatches. This program effectively emphasizes one-on-one interaction between employees and their supervisors. In the *Star Employees of the Month* award program, one unit submits names and stories of employees that they have observed doing

something safe, either at home or at work. Incentives such as gift certificates or prime, reserved parking spaces are awarded for such contributions at the unit level.

Overall, the Team found that the safety and health rules to be followed by all employees, including subcontractor employees, is well documented. Interviews with employees indicated they knew and understood the disciplinary process should these rules not be adhered to. Those interviewed felt this process was both fair and consistent, and gave examples of positive reinforcement received from supervisors and management for good work practices.

Personal Protective Equipment

The site policy is to provide the necessary PPE required to protect workers from hazards that cannot be otherwise eliminated or avoided by engineering or administrative controls. Hazards are usually anticipated and the personal protective equipment necessary for safe completion of a job is supplied by the contractor and, where necessary, for the employees of subcontractors. A variety of equipment is made available including gloves, boots, safety glasses, hearing protection, and respirators. The application indicated that employees must receive training and appropriate medical evaluation before being permitted to use PPE and this was confirmed in the interviews with employees. Training includes information about the maintenance, care, inspection, storage, disposal and use of PPE. Where PPE is utilized, instruction for its use is integrated into task-specific procedures (JHA & JSAs). The PPE program is an in depth program that is well integrated into the operations control, safety and health oversight and training portions of the site's programs.

PPE is required throughout the site with 29CFR1910.120 level D clothing required on all construction sites. BBWI mandates the use of a hardhat, safety glasses with fixed side shields, and safety footwear for work or visitation of all general work areas. Additional PPE including anti-contamination clothing, respiratory protection including full-face air purifying respirators, powered-air purifying respirators, and self-contained breathing apparatus, chemical-handling gloves and aprons, and Kelvar chaps for chain saw use, is required depending on the hazards or potential hazards that may be present. Observations in construction areas show universal use of hard hats, eye protection and steel-toed shoes for heavy equipment movement areas. The level of PPE above the level D requirements is specified through the work permit system including the radiological work permits. Use of anti-contamination clothing is restricted to only those who have completed appropriate radiological worker training. A computer-based system, RCIMS, verifies appropriate radiological training. In addition, respirator usage is restricted to only those who possess a current medical evaluation appropriate respirator training, and a respirator fit test. Respirator certification is verified before the respirator is issued for each entry into an area requiring the respirator usage. All employees interviewed on various projects at the site indicated that they were provided all personal protective equipment specified for the job. They also indicated that the company identified the equipment necessary for each job well in advance of its use and provided training to workers on its use and the reasons

for its use. Several workers remarked that they had been so sold on the use of PPE during employment at this site, that they found themselves using PPE at home on jobs they had not previously used it on, such as grinding and lawn trimming. This information clearly confirms that a “cultural” change is occurring among the employees at this site.

Preventive/Predictive Maintenance

BBWI has implemented a comprehensive preventive maintenance (PM) program. PM and predictive maintenance (PdM) is used to mitigate the chances and effects of unplanned equipment failure thereby enhancing safe and effective operations. BBWI's Maintenance Management Program, PDD-20, uses a combination of preventive, predictive, and corrective maintenance to enhance the availability, operability, and reliability of plant structures, systems and components. Employees can initiate work orders for maintenance more frequently than established intervals through the Integrated Work Control Process, STD-101. PM systems are computerized, facilitating scheduling, tracking and trending.

PM schedules are based on manufacturer's recommendations, plant operating experience, surveillance requirements, federal and state laws, and good engineering practices and industry codes. The Integrated Work Control Process (IWCP) at this site implements the provisions of the ISM system, the Enhanced Work Planning (EWP), and Voluntary Protection Program (VPP) for maintenance and construction work activities. Integrated Work Control puts all maintenance work of INEEL in a single process. All equipment is now screened consistently to uniform criteria to ensure that hazards are appropriately identified, analyzed, and controlled.

Predictive/Preventive Maintenance is initiated by the equipment “owner” as they evaluate the items and equipment on the Master Equipment List to determine which items require PM or PdM. The evaluation considers safety significance, mission objectives, and costs associated with failure. Integrated team planning and job site walk-downs are used to plan PM work orders. These teams consist of craft personnel, safety and health professionals, planners, and engineers. They identify and mitigate safety issues and develop a work document that contributes to safe, efficient work. Work packages are reviewed and approved by all cognizant, responsible personnel. Every employee has the responsibility and authority to stop any work activity and request additional work scope and job site reviews to improve work processes or to mitigate safety and environmental risks. Management has an aggressive program to resolve these employee-generated concerns promptly. The program also includes provisions to communicate the resolution back to the employee.

PM/PdM systems are computerized, facilitating efficient scheduling, tracking, and trending. The computerized systems incorporate:

- Online master equipment lists
- Recurring preventive maintenance scheduling calendars

- Surveillance inspections
- Instrument calibrations
- Repair work orders
- Spare parts and materials requisitions and inventories
- Equipment and parts usage, costs, and histories.

The master equipment lists used in PM/PdM include:

- Structures
- Programmatic equipment
- Utility systems and components
- Instrumentation
- Hoisting, rigging, and lifting equipment
- Accessories.

Each preventive maintenance action is scheduled at appropriate intervals and, when possible combined with corrective maintenance activities on the same equipment and with other related maintenance based on equipment similarity and proximity. The facility manager must approve preventive maintenance delays beyond the scheduled dates. Any maintenance backlog is monitored to ensure that critical and important jobs are not unnecessarily delayed and to keep the backlog to a minimum. In addition, scheduled preventive maintenance items that are backlogged show up as uncompleted in the Work Control System and are tracked until they are completed. PM associated with safety codes, hoisting and rigging and safety basis equipment may not be extended beyond the surveillance schedule without specific management approval and justification.

Emergency Preparedness and Response

The application describes a mature emergency preparedness program. They practice scenarios (drills and exercises), have coordinated exercises with offsite agencies and maintain a comprehensive response plan. The site has adopted the incident Command System as the model for managing emergency response on the site. The site's facilities, personnel, procedures and systems meet and/or exceed all requirements of DOE Order 151.1, Comprehensive Emergency Management System.

The Emergency Preparedness Program incorporates comprehensive emergency and Resource Conservation and Recovery Act (RCRA) contingency planning into the INEEL Emergency Plan RCRA Contingency Plan. This is the basic plan for emergency preparedness and readiness assurance for the site. It describes the Emergency Preparedness Program and explains the overall process developed to respond to and mitigate any consequences of emergencies that might arise at the site. This plan lists emergency response facilities and equipment, defines onsite and offsite relationships, outlines processes used to assess consequences and develop protective actions, and

describes program administration. It is also a “requirements based” document that is formatted as required by DOE Orders and procedures.

Facility-specific hazard assessment data are found in hazards assessments conducted for each separate facility. The INEEL Emergency Plan RCRA Contingency Plan facility-specific addenda also contain emergency action levels that give protective action recommendations for 13 types of events at three varying emergency levels that may occur at the site. As an Emergency Preparedness Program management document, the plan is not intended for operational use in providing specific, detailed procedures. The site’s Emergency Plan Implementing Procedures (EPIS) and position-specific checklists are the documents that provide detailed instructions to site personnel for protecting onsite and offsite populations and the environment during an emergency. The EPIS and checklists are located in the facility-specific implementing procedures manual, INEEL Emergency Plan RCRA Contingency Plan. Each facility develops specific criteria for implementing the RCRA Contingency Plan for incidents involving hazardous waste. This information is contained in the facility-specific addenda to the INEEL Emergency Plan RCRA Contingency Plan.

Employees interviewed were aware of emergency procedures, and effectively explained evacuation processes. Additionally, VPP Team members were briefed on site emergency procedures, and, although escorted during the VPP review, received orientation to site alarms, postings, and various INEEL hazards.

Radiation Protection Program

The site has implemented the As-Low-As Reasonably-Achievable (ALARA) program to maintain the highest standards of environmental, safety and health protection possible. The ALARA program has allowed the site to achieve and maintain exposure levels far below the applicable controlling limits of 10 CFR 835, Occupational Radiation Protection. The program ensures that all employees with potential for exposure are adequately trained and can demonstrate an understanding of the programs. Program documents are thorough and comprehensive. Program data and trends are monitored to ensure adequate performance.

Medical Programs

The site has integrated medical services with ES&H. There are five (5) satellite dispensaries and two (2) major clinics at this site. One major clinic is located in Idaho Falls, and the other is located on the site at the Central Facilities Area (CFA). Four (4) physicians in addition to the medical director provide the necessary medical evaluations supported by the rest of the medical staff. Medical staff is involved in hazard analysis, early recognition, and treatment. Walk-around observations often include medical staff so that they can get a first hand understanding of work place exposures.

As an example, medical programs include:

- Hearing Conservation
- Lead Respiratory
- HAZWOPER
- Asbestos
- Protection
- Beryllium

BBWI has developed and implemented a unique computerized paperless medical record retrieval system that provides instant access to patient information in a client server environment. An Industrial Hygiene database is integrated with this system to assure that medical personnel are immediately notified of any overexposures encountered by the industrial hygiene staff. Also, validation of medical services occurs electronically to guarantee appropriate enrollment of individuals into surveillance programs. The Team found these combined systems to be unique, and extremely efficient.

Notable Practices

This site has developed and implemented a unique computerized paperless medical record retrieval system that provides instant access to patient information in a client server environment. The Industrial Hygiene database is integrated with this system to give notification of overexposures encountered. Also, validation of medical services occurs electronically to guarantee appropriate enrollment of individuals into surveillance programs.

VII. Safety and Health Training

The safety and health training program, procedures and overall implementation meets the DOE-VPP criteria.

Safety and Health Training

Overall, the site provides formal, comprehensive, and documented safety and health training for all employees, supervisors and managers. Based on an employee's position description, a training plan is developed using such tools as the Facility Hazards list, the Training Requirements Matrix, and personal/professional knowledge. The overarching principle guiding the training program comes from the site's overall safety and health program, ISM. This guiding principle is that employees will be trained so that their competence is commensurate with the job responsibilities and tasks.

The Training Records and Information Network (TRAIN) system is a computer database in which all formal training is tracked for each employee at the site. For each employee the database information on:

- Individual training plans
- Training history
- Training scheduled
- Required training

Training is developed at the site through a systematic approach controlled by formal procedures. Initially, the job, process, or competencies to be mastered are determined by a Training Needs Analysis, MCP-35 and compared to the Job Analysis, MCP-36. This process identifies the training course objectives. Course design is controlled by guidance in the Personnel Qualification and Certification document, MCP-33, Designing Courses document, MCP-42, and in the Examination Banks document, MCP-45.

Two documents, Instructional Material Development, Revision, and Entry into TRAIN, (MCP-48) and On-the-Job Training Materials Development (MCP-52) control course development. Course implementation is controlled via the Conduct of Training document (MCP-57) and Conduct and Evaluation of On-the-Job Training (MCP-61). Final testing of employees is then controlled by the Performance Examinations, Written Examinations, or Oral Examinations documents, MCP-64, 65 and 66, respectively.

All employees receive a number of formal safety and health training sessions. As an example, all employees receive the Consolidated Safety, Health, and Environmental Training, General Hazard Communication, and General Employee Radiological Training. Additionally, special, job-specific training is also required for employees whose job requires that they work around certain hazardous materials or in hazardous environments. Examples of specific training provided for potentially exposed employees include; asbestos training, emergency response organization training, hoisting and rigging, nuclear safety training, fall protection and lockout/tagout training.

Over and above the formal training, the site has a Required Reading Program and Lessons Learned Program that is utilized to further train and educate employees. Program Requirements Document-Required Reading, MCP-2983, establishes a process whereby different organizations/operations within the site can designate documents as required reading for employees. Each item of required reading is assigned a unique tracking number and a completion date. Record sheets document completion of reading assignments and understanding of content.

Informal training methods used at the site include safety meetings, informal “tailgate” or “toolbox” sessions, and oral briefings by supervisors or managers. Other informal methods include various publications such as pamphlets, fliers, memos and alerts that are available in both hardcopy and in electronic format.

Overall, it was apparent during this review that sufficient safety and health related knowledge, skills and abilities are evident in the workforce. BBWI has a comprehensive method for ensuring that necessary training is identified for each employee in a Job Requirements Review, and that required training is reflected in Employee Training Plans. Managers indicated that the company’s training requirement matrix is currently under review to do a “hard scrub” to validate that the training identified is truly the training required for the given job function. Management stated that they envision a significant cost-savings resulting from this effort.

The supervisors and managers interviewed indicated that Supervisor and Manager (SAM) training was effective in conveying managerial roles and responsibilities related to the company’s VPP effort as well as overall implementation of the site’s safety and health program. Employee interviews indicated that training necessary to safely perform their work is clearly identified, and that management supported their training needs. Several employees and managers referred to the use of required reading and computer based training as methods the company uses to provide training in a cost-effective manner.

All employees interviewed indicated that they understood the training requirements related to their jobs, and indicated that if they felt identified requirements were not applicable, that they had a mechanism within the company to challenge the requirement.

Notable Practices

- Supervisor and Manager (SAM) Training: conveyance of key safety objectives in an interactive and entertaining format.
- The Required Reading program that establishes a process whereby different organizations/operations within the site can designate documents as required reading for employees. Each item of required reading is assigned a unique tracking number and a completion date. Record sheets document completion of reading assignments and understanding of content.

VIII. General Assessment

Safety and Health Conditions

The DOE-VPP On-site Review Teams made observations during walk-around activities, both as a group and individually, and conducted over one hundred interviews of INEEL personnel. The consensus of the team was that the site was well maintained and no major S&H issues were observed. All minor issues were immediately explained and/or resolved to the satisfaction of the Team.

Safety and Health Programs

The DOE-VPP team found the applicant's program to be highly effective. The overall program is comprehensive and well communicated. The Team believes that the contractor has developed a strong S&H infrastructure and with proper guidance and funding this program is expected to continually improve.

IX. Team Conclusion

The Team was able to reach a consensus opinion that the applicant has met or exceeded all technical requirements for participation in the DOE-VPP. Accordingly, the Team now forwards this report as formal documentation of their conclusion to senior management for their consideration in granting DOE-VPP recognition to BBWI.

X. References*

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Type A Accident Investigation Board Report of the July 28, 1998 Fatality and Multiple Injuries Resulting From the Release of Carbon Dioxide at Building 648, Test Reactor Area, Idaho National Engineering and Environmental Laboratory, September 1998.

* These documents were reviewed as a source of background information and comparative data during the Application Evaluation Review of the BBWI submittal for the DOE-VPP. This section is entitled "References" to guide those readers who wish to consult the documents that were reviewed by the Office of Regulatory Liaison, EH-51, along with the subject application. Although this list has been placed in a bibliographic format, it is not intended to imply that these documents are cited within the body of this report.

XI. Appendix 1: DOE-VPP Onsite Review Team

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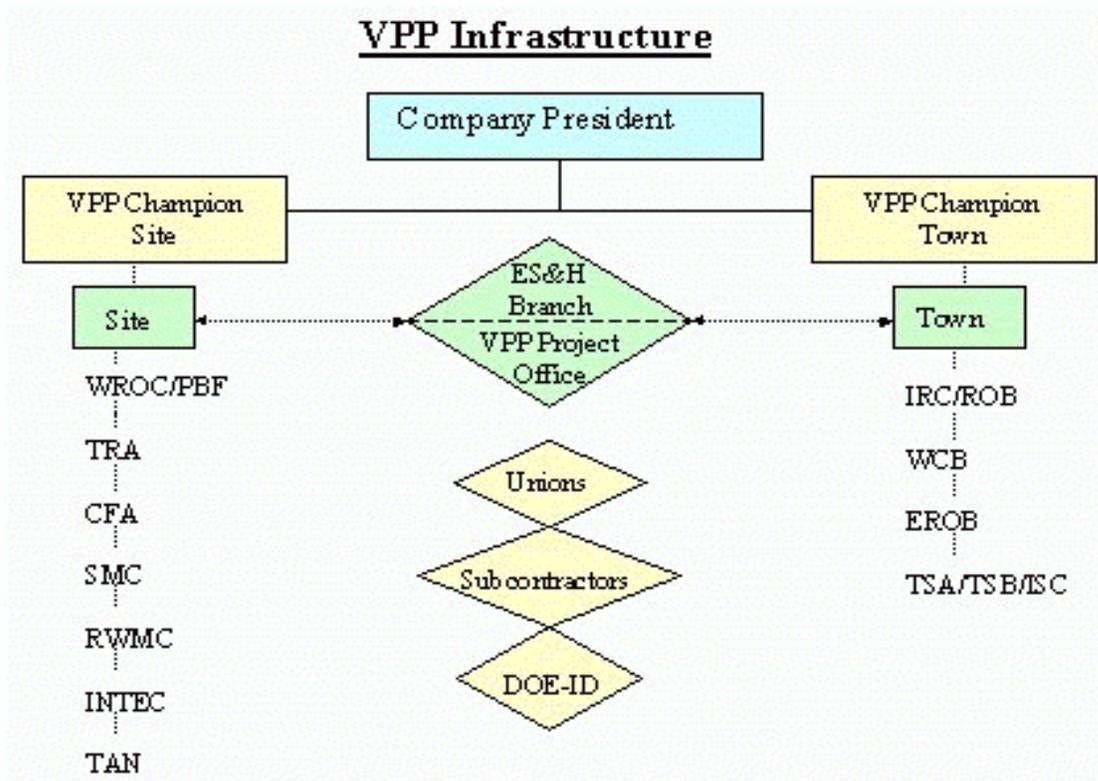
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XII. Appendix 2: INEEL VPP Infrastructure



XIII. Appendix 3: INEEL Site

