



Analytical Technical Services Laboratory 222-S

Report from the DOE
Voluntary Protection Program
Recertification Review,
January 31, 2005 – February 2, 2005



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

Office of Corporate Performance Assessment
Office of Quality Assurance Programs
Washington, D.C. 20585

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"...Some of us will serve in government for a season; others will spend an entire career here. But all of us should dedicate ourselves to great goals: We are not here to mark time, but to make progress, to achieve results, and to leave a record of excellence."

— **George W. Bush**
President of the United States
October 15, 2001
Constitution Hall, Washington, DC

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Abbreviations and Acronyms

AED	Automated External Defibrillator
AJHA	Automated Job Hazard Analysis
APC	Accident Prevention Council
BLS	Bureau of Labor Statistics
CAIRS	Computerized Accident/Incident Reporting System
CH2M HILL	CH2M HILL Hanford Group, Inc.
CSP	Certified Safety Professional
DOE	Department of Energy
DOE-VPP	Department of Energy Voluntary Protection Program
EWP	Enhanced Work Planning
HSO	Hanford Site Operations
ISMS	Integrated Safety Management System
LAB	Analytical Technical Services 222-S Laboratory
ORP	Office of River Protection
OSHA	Occupational Safety and Health Administration
PER	Problem Evaluation Request
PPE	Personal Protective Equipment
S&H	Safety and health
SIP	Safety Improvement Plan
VPP	Voluntary Protection Program

Executive Summary

The Department of Energy Voluntary Protection Program (DOE-VPP) onsite review of the Analytical Technical Services 222-S Laboratory (LAB) for STAR recertification was conducted from January 31, 2005 through February 2, 2005 at the Hanford Site near Richland, Washington. The LAB was transitioned from the Fluor Corporation to CH2M HILL Hanford Group, Inc. (CH2M HILL) on October 1, 2003. The review team (Team) found the STAR quality of performance remains strong at the LAB. The following summarizes the Team's other observations and analysis.



Management Leadership

The Team found a high degree of management commitment to safety and health (S&H) by both LAB management and by CH2M HILL corporate management. At the LAB, managers at all levels are personally committed to the Voluntary Protection Program (VPP), and such commitment is clearly demonstrated in their day-to-day interaction with the staff. Observations and interviews demonstrated that the LAB leadership is capable, competent, and well directed. Overall, the Team found leadership (top management through first-line supervision) fully executed, both in the LAB facilities, and in the field. The Director of the LAB and other managers visibly participate in safety programs, and they have successfully implemented the Department's Integrated Safety Management System (ISMS) requirement, and the tenets of VPP. The LAB management advocates that all accidents are preventable, and they encourage a safety culture based on this "injury-free" philosophy. The LAB management staff considers VPP as directly complementary of the DOE ISMS requirement and an effective metric to gauge the success of ISMS implementation.

Employee Involvement

Employees are passionate about their work, the company, their community and their coworkers. They are mature, well seasoned, well qualified, and competent. They are aware of the hazards of their job(s) and how these hazards are mitigated. The team found that the workers at the LAB are cooperative and ready to follow safety and health procedures and processes. All employees understand that they have "Stop Work" authority if unsafe conditions exist. They have no fear of reprisal and are ready to raise safety issues through a variety of communication means. They continue to think in terms of each other's safety during work execution. The STARZ employee safety recognition program is continuing its

expansion, and has received greater emphasis since the corporate change. The LAB continues to satisfy the VPP requirements for Employee Involvement. The Accident Prevention Council (APC) remains a vibrant and useful means to continuously advance the scope and quality of employee involvement.

Worksite Analyses

The VPP onsite review team found that the LAB satisfies the requirements of DOE-VPP criteria. The worksite analysis processes are structured and implemented to control hazards to the workers, environment and public. Hazard analysis processes incorporated a variety of tools. A comprehensive baseline hazards analysis has been completed by S&H professionals for all facilities, accident investigation and lessons learned processes are developed and implemented. The site has established trending of injury and non-injury safety and health data; results are used for continuous improvement action development; results are communicated to employees. The Automated Job Hazard Analysis (AJHA) tool continues to be effectively used at the LAB. Processes remain in operation to identify, evaluate, and correct hazards. As before, these processes are based on evaluating new procedures, materials and equipment prior to their use, maintaining a baseline industrial hygiene survey, conducting routine planned safety inspections throughout the facility, and using the Problem Evaluation Request (PER) system to report and correct problems noted (Note: the PER system was implemented following transition to CH2M HILL). Employee-based procedures also support and encourage investigating events and sharing lessons learned. Additionally, they conduct a vigorous and comprehensive Annual Self Assessment with a companion Annual VPP Report, which in turn facilitates their development of an annual Safety Improvement Plan (SIP). The Team found that the excellent habits and methods established before the corporate transition remain in operation.



Hazard Prevention and Control

The Team found that the LAB satisfies the requirements of hazard prevention and control. It noted that ISMS remains as effective and thorough as it was before the corporate transition. Concern for meticulous job planning and execution remains the rigor at the LAB. The new CH2M HILL lock and tag out procedure has been fully implemented at the LAB. The LAB continuously examines opportunities for ergonomic improvements in the workplace; resulting in several successful improvement initiatives.

Safety and Health Training

The LAB continues to exceed all safety and health training requirements. The result of interviews with both management and staff members shows that S&H training is comprehensive at this facility. It addresses all types of managers, workers, and subcontractors. Employees stated in interviews that greater feedback is needed when using the PER system. Likewise, more attention is required to adapt the CH2M HILL first aid training program. The LAB Emergency/Drill Program was regarded as effective.

Conclusion

The Team noted that following the transition to CH2M HILL, the Lab elected to combine the best programs and procedures of both the old and the new organization. They retained the AJHA, the safety inspection program, and the STARZ safety recognition program. They adapted the Problem Evaluation Request (PER) system from CH2M HILL, tailgate communication meetings, their lock and tag out procedure, quality clocks, accident reporting and investigations, their STOP WORK authority, and the CH2M HILL Assessment program.

The Team concludes that the LAB has satisfied the requirements for participation in DOE-VPP, and recommends that DOE approve the recertification to STAR.



I. Introduction

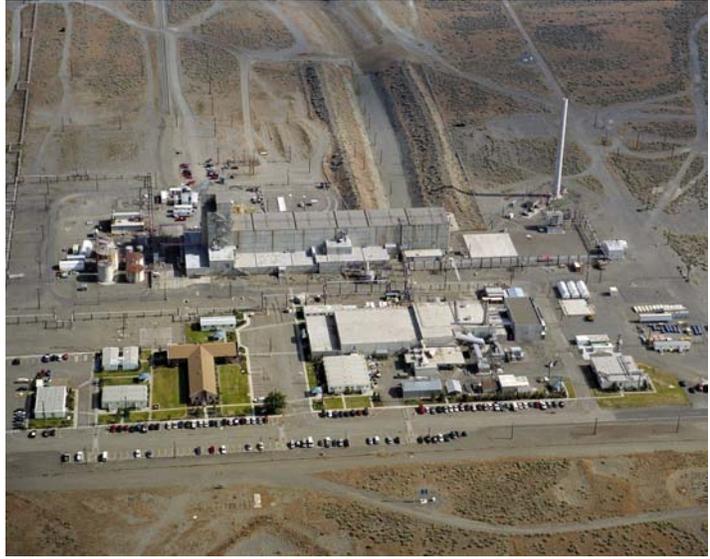
The DOE-VPP onsite review of the Analytical Technical Services 222-S Laboratory (LAB) for recertification was conducted from January 31, 2005 thru February 2, 2005 at the Hanford Site near Richland, Washington (Note: document reviews were conducted on January 28, 2005). The LAB is a facility that performs an analytical support function for tank farm operations for the Department of Energy in Richland, Washington. It is operated by CH2M HILL Hanford Group, Inc. (CH2M HILL). The Department of Energy's Office of River Protection (ORP) in Richland, Washington has oversight responsibility and provides guidance to the LAB on a regular basis. The LAB is a Hazard Category 3 non-reactor DOE nuclear facility.



The LAB is geographically centered on the 560 square mile Hanford site located north of the city of Richland, Washington. The LAB is a small organization that conducts chemical analyses of highly radioactive and hazardous tank waste in support of tank farm operations at the Hanford site. It performs laboratory analysis, technical analytical development support, and chemistry services for environment, waste, and facility process operations. There are approximately 200 LAB employees at this site. The STAR level recognition was initially awarded to the

site in March 2003, as a part of the Hanford Site Operations (HSO), managed by the Fluor Corporation. A reorganization, effective October 1, 2003, has since moved the LAB under the management of CH2M HILL, which is not part of the DOE-VPP. The LAB seeks to retain its STAR recognition, following its transfer to CH2M HILL, and conducted a self assessment in May 2004 which supports the LAB's continuation in VPP STAR status. Likewise, DOE-ORP conducted its own onsite VPP review, also in May 2004, and has recommended that the LAB retain its STAR recognition. The January 31 through February 2, 2005 onsite review performed by the DOE headquarters review team (Team) was intended to verify that the LAB has, based on these reviews and on the recommendation of DOE-ORP, retained STAR quality VPP performance. Assurances for the continuation of the VPP STAR by both management and the trades is provided by two letters provided in Appendix I.

The Team evaluated the safety programs of the LAB against the Protocol for DOE-VPP Star Site Recertification of the DOE-VPP. The DOE-VPP recertification Team consisted of safety professionals from the DOE Headquarters Office of Environment, Safety and Health (HQ/EH), the DOE Richland Operations Office, the DOE Office of River Protection, and two line employees from two different Hanford Site contractors. (See Appendix II for a roster of the Team). During the site visit, the Team reviewed relevant safety documents, and conducted interviews of approximately 120 employees (both bargaining and non-bargaining unit) and management to evaluate and verify the information necessary to perform the recertification review.



II. Injury and Illness Rate Information and Trends

A review of the Occupational Safety and Health Administration (OSHA) 200/300 logs was performed. The rates below include all LAB employees.

INJURY AND ILLNESS DATA FOR the LAB					
Calendar Year	Lost Workday Cases	Total Recordable Cases	Employee Hours	Lost Workday Case Incident Rate	Total Recordable Case Incident Rate
2002	0	4	431,533	0.0	1.85
2003	1	2	309,993	0.65	1.29
2004	0	7	409,508	0.0	3.42
3-Year Average	0.33	4.3	383,658	0.52	2.24
Bureau of Labor Statistics (BLS) average (2002) for SIC 4953 (NAICS 562211) (for CH2M HILL)				5.8	8.2
LAB percent below BLS rate				91 %	73 %

The information on the OSHA 200/300 logs supports the data provided in the LAB self-evaluations, the organization’s first report of injury forms and other recordkeeping documents. A CH2M HILL H&S professional is responsible for classifying all injuries and illnesses for OSHA recording and is responsible for maintaining the OSHA log. Injury/illness data is submitted for inclusion in the DOE HQ Computerized Accident/Incident Reporting System (CAIRS). Routinely, the data output from CAIRS is checked against the actual data reported and submitted. This ensures that accurate information is being presented in the CAIRS database. The staff understands the recordkeeping requirements, including the 29 CFR 1904 recordkeeping changes that went into effect in January 2002.

III. Summary of Performance Related to VPP Tenets and Sub-elements

The level of management leadership, employee involvement, worksite analysis, hazard prevention & control, and safety & health training found at this site meet or exceed DOE-VPP criteria for STAR level recognition. The sub-elements of the tenets and an evaluation of the LAB performance in selected areas are addressed and described below.

Management Leadership

The commitment of the management and staff members of the Analytical Technical Services Laboratory 222-S (LAB) is demonstrated in the strong safety and health policy statements, allocation of resources necessary to support all S&H program activities, attention to employee identified S&H concerns, and active participation in safety committee activities. LAB management demonstrates its commitment to a safe and healthful workplace for all employees through the effective implementation of ISMS and VPP. Additionally, top-level management from the LAB is clearly visible in the work place and actively participates in the LAB's S&H program.

The LAB is organized to support its roles, responsibilities, and policies. Roles and responsibilities for employees and managers are identified in position descriptions and the labor bargaining agreements. Accountability is demonstrated in performance evaluations for non-bargaining unit employees and managers, as well as through the means/methods identified in the union agreement for bargaining unit employees. Resources are budgeted and allocated at sufficient levels.

An integrated framework has been established to provide a template to ensure the S&H planning process is comprehensive. The LAB self assessment and the subsequent VPP Annual Report are fully integrated with a well developed scoring system that trends performance by sub-tenet.

These annual program evaluations have been conducted using VPP criteria, and ISMS core functions and guiding principles; the results of annual program evaluations and other S&H trending data are used by the LAB to develop improvement strategies/actions for the coming year. The last annual VPP program review was completed in May, 2004.

Employee orientations are well developed and implemented effectively at all levels, including employee notification of the LAB's participation in VPP.

The LAB fully satisfies the requirements of the Management Leadership tenet and its sub-elements as described above.

Employee 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 interviews of employees. Employees overwhelmingly feel that they own the safety culture. Employees at all levels feel comfortable to raise concerns, and willingly participate in their resolution. Employees in the bargaining unit feel that barriers to communication to and from management are minimal. All-employee communications are regarded as very effective. Workers were candid and showed no fear in talking with the Team during interviews. The Team interviewed approximately 120 employees. All employees indicated that they understood their rights and responsibilities, and are very knowledgeable about their specific responsibilities regarding safety and health. Interviews confirmed that a strong safety culture exists at all levels, and employees feel empowered to voice safety concerns. Taking safety home was voiced (by bargaining and non-bargaining unit employees) as a major improvement change over the past two (2) years.

Employees are actively involved in the LAB's safety council as well as the CH2M HILL President's APC. They are proud of their worksite and feel that safety is a priority in performing work.

The LAB fully satisfies the requirements of the Employee Involvement tenet and its sub-elements as described above.

Worksite Analysis

New or modified facility designs, operations, processes and training at the LAB are reviewed and analyzed to identify and mitigate potential hazards before work or training is started. Comprehensive baseline hazard surveys have been completed; updates/reviews are ongoing.

Inspections of the LAB work areas are performed by cross functional representation of laboratory staff; and results are documented. The LAB uses an institutionalized approach of marrying ISM disciplines with a "bench-top" perspective to control of the work site.

All work performed by LAB employees is planned using the Automated Job Hazard Analysis (AJHA) process. A daily pre-work briefing is held for all employees; additional pre-job briefings are held for maintenance and installation activities. Employees also use Enhanced Work Planning (EWP).

Employees are encouraged and expected to identify and report conditions that compromise, or are not in compliance with, company S&H programs. It is clear that this process is in place and effective, providing an important "feedback element" of the process.

The LAB systematically investigates injury and near-miss events, including first-aid type injuries and occurrences; and a formal lessons learned program is in place. Trending of safety & health event data is performed regularly and communicated.

The LAB fully satisfies the requirements of the Worksite Analysis tenet and its sub-elements as prescribed above.

Hazard Prevention & Control

The LAB has a certified safety professional (CSP) and an industrial hygienist on staff. Certified S&H personnel in a variety of areas are also immediately available from the CH2M HILL central safety organization. The LAB has strong S&H rules in the hierarchy of policies, procedures, and ISM plans. Safety and health rules are used to guide and enforce/reward conformance to policies and requirements.

Site policy regarding the use of personal protective equipment (PPE) is strong. PPE is made available including gloves, boots, safety glasses, hearing protection, and respirators. Where PPE is needed, those requirements are clearly delineated in associated work permits/documents (e.g. work package, containing AJHA, Radiological Work Permit, etc.).

The LAB has a strong emergency preparedness program. The LAB employees are routinely involved in drills and exercises. LAB employees follow the requirements of “host” facilities regarding radiation protection training and program requirements. The LAB has a strong medical program founded on a well-established and close relationship with the Site Occupational Medicine organization. LAB policies and procedures are based on appropriate DOE contract clauses, orders, contract documents, and industry standards.

The LAB fully satisfies the requirements of the Hazard Prevention & Control tenet and its sub-elements as described above.

Safety & Health Training

The safety & health training processes used at the LAB are structured and implemented according to ISM core functions and guiding principles; these processes adequately train workers, supervisors, and managers in recognizing hazards and performing work safely. Employees who were interviewed during this review, as well as observations made by the Team, confirmed that these processes are used and understood by the LAB employees throughout the organization.

The LAB fully satisfies the requirements of the Safety & Health Training tenet and its sub-elements as described above.

IV. Outreach

The LAB outreach effort has been strong and consistent throughout the past two years. The Team and the annual VPP Status report identified several ongoing programs. Listed below are a few that are commendable.

1. Work with the ATS VPP Champions
2. Assistance provided to VPP efforts at:
 - PTH
 - PNNL
 - WMP
 - FGG
 - PFP
 - Central Plateau

V. Strengths

During this review, the Team noted several strengths within the LAB that are indicative of a healthy and comprehensive safety culture. The ISMS principles and methodologies are evident in these behaviors and practices, and illustrate the depth and scope to which the LAB values the five main tenets of VPP. Listed below are the strengths noted by Team members during this review.

1. **The LAB practices a very strong safety culture.**
 - highly effective communications
 - high degree of confidence in existing safety programs
 -
2. **Enhanced worksite subcontractor work-activity awareness:** LAB personnel ensure subcontracted work is properly authorized and is conducted safely.
3. **LAB Management is very responsive to safety concerns**
4. **Effective workplace communications:** communications are timely, effective, and existing programs promote employee feedback and continuous improvement.

VI. Best Practices

The Team commends the LAB for its continuation as a STAR participant in the Department of Energy Voluntary Protection Program. The Team recognized a majority of LAB ES&H programs as long term assets, which provide excellent value and sufficient worker and management involvement. The LAB ES&H programs effectively integrate and implement best practices which have allowed LAB employee involvement to evolve and stabilize a strong safety culture. Examples of LAB best practice programs and processes are:

1. **Effective use of the existing Automated Job Hazard Analysis (AJHA) process,** and excellent worker participation in hazard identification and control development.
2. **Problem Evaluation Request (PER) system:** provides a zero-threshold reporting system, including corrective action management and trending functions.
3. **Collegial, creative work environment:** employees exhibited camaraderie in conducting daily work, and demonstrated a strong sense of teamwork to solve problems.
4. **Automated External Defibrillator (AED) exercises:** the routine drill program included exercises in the use of the AED, strengthening the training received by first aid responders.

VII. Areas for Improvement

Although the Team recognizes that the LAB has implemented many good programs and practices, as with any healthy continuous improvement program, there are areas for improvement within the safety arena. The Team noted the following opportunities for improvement:

1. **Examine/evaluate VPP Processes for Common Sense Use:** existing processes and programs are excellent; however, process efficiencies could be realized in a graded approach application of the AJHA process, and in streamlining pre-job briefs, more tailored to the experience of the workers and to known worker involvement in the planning process for the specific jobs.
2. **Enhance communications with the Tank Farm organizations from the working level up to senior management:** Improved communications and interactions with the LAB's main customer, Tank Farms, are warranted.
3. **Mentor CH2M HILL into VPP STAR:** The LAB is the only one of three major organizations within CH2M HILL that is in the VPP STAR program; the LAB's VPP outreach efforts should be focused on working with the other CH2M HILL organizations to work towards VPP application.
4. **Revise company (CH2M HILL) procedures for safety improvement plan (SIP) development** to assure greater challenges and specificity of objectives that are quantifiable; focus the SIP on capturing of individual elements of continuous improvement.
5. **Encourage participation of the radiochemistry group within the lab in VPP activities** (i.e. represented in the APC).
6. **Clarify the role and function of the event-free clock** – employees did not understand the purpose for the event-free clock.
7. **Improve consistency and responsiveness of industrial hygiene technical support during job execution** – recent events at the lab demonstrated that Industrial Hygienist and Industrial Hygiene Technician real-time support from the Tank Farms to the LAB was less than adequate (notably, when the resident Industrial Hygienist was unavailable).
8. **Continue to strive to maintain consistency in the support of external craft** – ensuring the same support craft workers participate in both the job planning and job execution can prevent unnecessary delays.
9. **Evaluate the effectiveness and efficiency of lengthy Pre-job briefs.**

10. **Improve teamwork with the other CH2M HILL organizations** – mediate and adjust the differences between the LAB and the balance of CH2M HILL communications and procedures to minimize inefficiencies and potential adverse impacts on safety and health.
11. **The Problem Evaluation Report (PER) process should be revised** to reduce the administrative burden to low and mid-level managers in addressing and closing PER's.
12. **Evaluate the assigned threshold for the Problem Evaluation Report (PER)'s initiation.**

VIII. Conclusion

The Team found that the LAB continues to meet and maintain a safety and health program addressing the basic tenets of DOE-VPP. The past two years since the award of the STAR recognition to the LAB have been significant and influential times for the LAB and its VPP.

The Team recommends that the LAB be recertified as a STAR.

Appendix I



CH2M HILL
Hanford Group, Inc.
Box 1500
Richland, WA 99352

January 28, 2005

Mr. David M. Smith
Office of Quality Assurance Programs
EH-31/270 Corporate Square Building
U.S. Department of Energy
1000 Independence Avenue S.W.
Washington, D.C. 20585-0270

Dear Mr. Smith:

CONTRACT NUMBER DE-AC27-99RL14047 - CH2M HILL HANFORD GROUP, INC.
COMMITMENT TO SAFETY AND THE FIVE TENETS OF THE VOLUNTARY
PROTECTION PROGRAM

The management of CH2M HILL Hanford Group, Inc. (CH2M HILL) fully supports and embraces the philosophy and tenets of the U.S. Department of Energy's (DOE) Voluntary Protection Program (VPP). While we manage our work on a daily basis using a fully "Integrated Safety Management System" (ISMS), we believe that VPP represents the essential human dimension necessary to establish and maintain a truly "Safe Work Environment". Ours is among the most hazardous of work environments, blending industrial, chemical and radiological concerns. Workers and management, fully engaged in an ISMS, using conduct of operations principles and operating through VPP tenets is exactly the combination needed to protect our workers while completing our mission. The primary driving force behind our commitment to the VPP process is simple: CH2M HILL values the safety, health, and welfare of its entire workforce, whether chemist, clerk, operator or engineer, and it is only working together that a Safe Work Environment can be achieved.

Throughout our company, managers and employees participate jointly in each element of safety and health programs. This includes safety committees, workplace safety inspections, hazard recognition and control, work planning, open exchanges of safety information, training, problem-solving efforts, and promotion of safety improvement initiatives.

CH2M HILL, an employee owned and operated company, recognizes that world-class performance in safety and health is a critical element in the overall success of its business. CH2M HILL also recognizes the compatibility and synergy of its corporate values and the DOE VPP process, and specifically supports the continuation of the DOE VPP STAR program at the 222-S Analytical Laboratory.

Mr. D. M. Smith
Page 2
January 28, 2005

CH2M-0500290

Should you have any questions regarding this matter, please contact Mr. D. L. Renberger at (509) 372-0877.

Very truly yours,

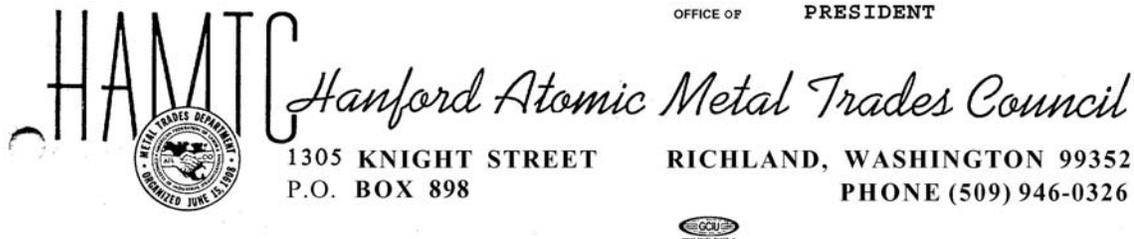


Edward S. Aromi, President
and General Manager
CH2M HILL Hanford Group, Inc.

mcr/llm

cc: ORP Correspondence Control
M. C. Brown, ORP
C. B. Reid, ORP
R. J. Schepens, ORP
T. Z. Smith, ORP

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January 11, 2005

Mr. Duane Renberger
222S Labs
CH2M Hill
P.O. Box 1500
Richland, Washington

Dear Mr. Renberger:

VOLUNTARY PROTECTION PROGRAM (VPP)

The Hanford Atomic Metal Trades Council (HAMTC) is deeply committed and dedicated to the safety and health of all of its members as well as all personnel at the Hanford site.

The officers and members of HAMTC fully support CH2M Hill, 22S Labs' commitment to at to achieve recognition in the Department of Energy Voluntary Protection Program (VPP).

HAMTC will work with CH2M Hill, 22S Labs to the best of our ability to keep the site at or above the VPP program standards.

Sincerely,

HANFORD ATOMIC METAL TRADES COUNCIL

James D. Bateman
James D. Bateman
President

JDB/ph
opeiu#11
afl-cio

cc: Jill Molnaa, CH2M Hill
ES Aromi, CH2M Hill
WB Engel, CH2M Hill
D Smith, DOE
R Schepens, DOE-ORP

Appendix II

DOE-VPP Review Team Assignments

The Analytical Technical Services 222-S Laboratory
 January 31 – February 2, 2005

Name	Contact Information	Organization	Areas of Responsibility
Rex J. Bowser	301-903-2641 rex.bowser@eh.doe.gov	DOE/EH - 31	Team Leader: Worksite Analysis
David M. Smith	301-903-4669 david.smith@eh.doe.gov	DOE/EH - 31	Asst. Team Leader: Management Commitment & S&H Training
Theo Martin	509-376-0125 Theo_jr_martin@rl.gov	DOE/RL	Employee Involvement
Noble K. Atkins	509-376-4199 Noble_j_jr_atkins@rl.gov	DOE/RL	
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George Boyd	509-373-0843 George_w_nick_boyd@rl.gov	HAMTC	Observer

