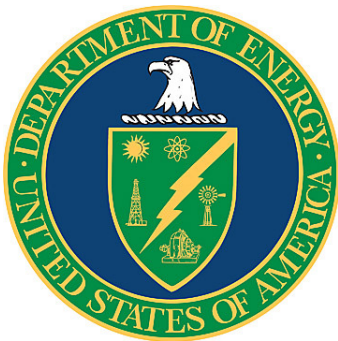


# CH2M HILL Analytical Technical Services

**Report from the DOE  
Voluntary Protection Program  
Onsite Review  
January 7-17, 2008**



U.S. Department of Energy  
Office of Health, Safety and Security  
Office of Health and Safety  
Office of Worker Safety and Health Assistance  
Washington, D.C. 20585

## Foreword

The Department of Energy (DOE) recognizes that true excellence can be encouraged and guided but not standardized. For this reason, on January 26, 1994, the Department initiated the DOE Voluntary Protection Program (DOE-VPP) to encourage and recognize excellence in occupational safety and health protection. The DOE-VPP closely parallels the Occupational Safety and Health Administration (OSHA) Voluntary Protection Program (VPP), which was established by OSHA in 1982 and has demonstrated that cooperative action among government, industry, and labor can achieve excellence in worker health and safety.

The DOE-VPP outlines areas where DOE contractors and subcontractors can comply with DOE orders and OSHA standards while also “stretching for excellence.” DOE-VPP emphasizes systematic and creative approaches involving cooperative efforts of everyone in the contractor or subcontractor workforce at DOE sites, including contractor managers and workers.

Requirements for DOE-VPP participation are based on comprehensive management systems, with employees actively involved in assessing, preventing, and controlling the potential health and safety hazards at their sites. DOE-VPP is designed to apply to all contractors in the DOE complex and encompasses production facilities, research and development operations, and various subcontractors and support organizations.

DOE contractors are not required to apply for participation in the DOE-VPP. In keeping with OSHA’s VPP philosophy, participation is strictly voluntary. Additionally, participants may withdraw from the program at any time.

DOE-VPP consists of three programs, which are based on and similar to those in OSHA’s VPP. These programs are Star, Merit, and Demonstration. The Star program is the core of DOE-VPP, and its achievement indicates truly outstanding protectors of employee safety and health. The Merit program is a steppingstone for contractors and subcontractors that have good safety and health programs but need time and DOE guidance to achieve Star status. The Demonstration program is expected to be used rarely; it exists to allow DOE to recognize achievements in unusual situations about which DOE needs to learn more before determining approval requirements for the Star program.

By approving an applicant for participation in DOE-VPP, DOE recognizes that the applicant is meeting, at a minimum, the basic elements of ongoing, systematic protection of employees at the site. The symbols of this recognition are DOE-provided certificates of approval and the right to fly the VPP flags (e.g., VPP Star flag for sites with Star status). The participant may also choose to use the DOE-VPP logo on letterhead or on award items for employee incentive programs. Further, each approved site will have a designated DOE staff person to handle information and assistance requests from DOE contractors, and DOE will work cooperatively with the contractors to resolve health and safety problems.

## TABLE OF CONTENTS

<b>ABBREVIATIONS AND ACRONYMS</b> .....	iii
<b>EXECUTIVE SUMMARY</b> .....	iv
<b>TABLE 1 OPPORTUNITIES FOR IMPROVEMENT</b> .....	v
<b>I. INTRODUCTION</b> .....	1
<b>II. INJURY INCIDENCE/LOST WORKDAYS CASE RATE</b> .....	2
<b>III. MANAGEMENT LEADERSHIP</b> .....	3
<b>IV. EMPLOYEE INVOLVEMENT</b> .....	5
<b>V. WORKSITE ANALYSIS</b> .....	7
<b>VI. HAZARD PREVENTION AND CONTROL</b> .....	10
<b>VII. SAFETY AND HEALTH TRAINING</b> .....	13
<b>VIII. CONCLUSIONS</b> .....	15
<b>Appendix A: Onsite VPP Audit Team Roster</b> .....	A-1

## ABBREVIATIONS AND ACRONYMS

AIHA	American Industrial Hygiene Association
ALARA	As Low As Reasonably Achievable
AMH	Advanced Med Hanford
ANSI	American National Standards Institute
APC	Accident Prevention Council
ASPC	Analytical Services Production Contractor
ATL	Advanced Technologies and Laboratories International, Inc.
ATS	Analytical Technical Services
BED	Building Emergency Director
CPR	Cardiopulmonary Resuscitation
DART	Days Away, Restricted, or Transferred
DOE	U.S. Department of Energy
DOE-VPP	U.S. Department of Energy Voluntary Protection Program
HAMTC	Hanford Atomic Metal Trades Council
HPI	Human Performance Improvement
HSS	Office of Health, Safety and Security
IH	Industrial Hygiene
JRG	Joint Review Group
OSHA	Occupational Safety and Health Administration
PER	Problem Evaluation Request
PPE	Personal Protective Equipment
TFC	Tank Farm Contractor
VPP	Voluntary Protection Program
WHA	Work Hazard Analysis

## **EXECUTIVE SUMMARY**

The CH2M HILL Analytical Technical Services (ATS) project is responsible for operation and maintenance of the 222-S laboratory (a hazard category 3 nuclear facility) and associated infrastructure at the Hanford site. The Star level recognition was initially awarded to ATS in March 2003 as a part of Hanford Site Operations, managed by the Fluor Corporation. A reorganization, effective October 1, 2003, moved ATS under the management of CH2M HILL, which was not then part of the Department of Energy Voluntary Protection Program (DOE-VPP). An onsite evaluation in January and February 2005 determined that ATS, under the management of CH2M HILL, had continued to perform at the Star level, and DOE-VPP Star status was retained.

Continuation of Star status in the DOE-VPP program requires an on-site review by the DOE Office of Health, Safety and Security DOE-VPP team (Team) every three years. Accordingly, the Team conducted a review during January 7-17, 2008, to determine whether ATS continues to perform at a level deserving DOE-VPP Star recognition. The purpose of this report is to document the results of the Team review and provide the Chief Health, Safety and Security Officer with the necessary information to make the final decision about ATS's DOE-VPP status.

Based upon discussions and interviews with approximately 100 workers, managers, and supervisors, as well as extensive observation of work activities, inspection of worksites and facilities within the project scope, and review of records, the Team determined that ATS has maintained the exceptionally strong safety culture expected of a VPP site. Led by a proactive and energetic Vice President, managers and employees at ATS embody the principles of total teamwork, complete employee empowerment, and equal ownership of and participation in the safety and health program. A commitment to safety excellence and continuous improvement is evident from the Vice President himself, to the newest member of the workforce.

Having observed first-hand that ATS continues to fully meet all VPP tenet requirements, the Team recommends that ATS retain its DOE-VPP Star rating

**TABLE 1**  
**OPPORTUNITIES FOR IMPROVEMENT**

<b>Opportunity for Improvement</b>	<b>Page</b>
Establish and plan to perform the detailed performance analysis on the approximately 150 other fume hoods in the facility to either verify that they are performing adequately or identify other potential performance problems.	7
Better communicate industrial hygiene sampling plans and results so that workers know when to expect sampling to occur and understand the overall sampling strategy and subsequent decisions on exposure monitoring.	9
Continue to look for acceptable methods to quantitatively demonstrate hood performance in accordance with ANSI/AIHA Z 9.5, American National Standard - Laboratory Ventilation.	10
Use the audit checklist contained in ANSI/AIHA Z 9.5 to evaluate the configuration and performance of all the hoods in the laboratory. Use the results of that audit to identify opportunities to improve hood performance and configuration.	10

## I. INTRODUCTION

The U.S. Department of Energy (DOE) Voluntary Protection Program (VPP) onsite review of CH2M HILL Analytical Technical Services (ATS) at the Hanford site was conducted January 7-18, 2008. The Star level recognition was initially awarded to the site in March 2003 as a part of Hanford Site Operations, managed by the Fluor Corporation. A reorganization, effective October 1, 2003, moved ATS under the management of CH2M HILL, which was not part of the DOE-VPP. An onsite evaluation in January and February 2005 determined that ATS, under the management of CH2M HILL had continued to perform at the Star level, and DOE-VPP Star status was retained. Later that same year, the Analytical Production Services Contract was awarded to Advanced Technologies and Laboratories International, Inc. (ATL), and ATS retained responsibility for operation and maintenance of the 222-S laboratory (a hazard category 3 nuclear facility) and associated infrastructure. Subsequent changes in CH2M HILL have resulted in addition of other site support functions to ATS, including management of the sampling crews and waste management services.

ATS employs approximately 190 people with another 15 employees matrixed from other CH2M HILL organizations. Employees perform many functions, including sampling tank wastes and transporting the samples to the laboratory; performing engineering, maintenance, and upgrades on the facility; developing analytical processes; sample management; and inspecting, certifying, and transporting wastes. Hazards include radiation and radioactive material handling, chemical hazards, and a full range of industrial hazards associated with operation of industrial machinery and facility operation and maintenance. Workers include chemical technologists, Teamsters, and a variety of other trades that are represented by the Hanford Atomic and Metal Trades Council (HAMTC), as well as a variety of exempt professionals, managers, and supervisors.

Recognition in the DOE-VPP requires an onsite review by the Office of Health, Safety and Security DOE-VPP team (Team) to determine whether the applicant is performing at a level deserving DOE-VPP Star recognition. The VPP Team evaluated ATS' safety programs against the provisions of the DOE-VPP. During the site visit, the VPP Team observed activities, evaluated relevant safety documents and procedures, and conducted interviews to assess the strength and effectiveness of ATS' health and safety programs.

During the review, the Team had contact with over 50 percent of the workforce during work observations, meetings, and interviews. Work activities that were observed included waste handling operations, maintenance activities to remove a hot cell manipulator, daily planning meetings, safety committee meetings, and other routine work activities.

**II. INJURY INCIDENCE/LOST WORKDAYS CASE RATE**

The Team conducted a review of the Occupational Safety and Health Administration (OSHA) 300 logs. The tables below summarize the OSHA reportable data for ATS employees.

**CH2M HILL Analytical Technical Services  
INJURY INCIDENCE / LOST WORKDAYS CASE RATE**

<b>Injury Incidence / Lost Workdays Case Rate</b>					
Calendar Year	Hours Worked	Total Recordable Cases	Total Recordable Case Incidence Rate	DART* Cases	DART Case Rate
2005	452,842	7	3.09	7	3.09
2006	379,841	1	0	0	0.52
2007	384,341	1	0	0	0.53
3-Year Total avg	1,217,024		1.3		1.38
Bureau of Labor Statistics (BLS-2006) average for NAICS Code [562211 Hazardous Waste Treatment and Disposal]			Total cases 3.9	3yr avg.	Total cases 2.2 3yr

\*Days Away, Restricted, or Transferred

**Total Recordable Case Incidence Rate: 1.3**

**Lost or Restricted Workday Case Incidence Rate: 1.38**

**Conclusion**

ATS injury rates are well below the averages for the comparable industry and meet the criteria for participation in the DOE VPP at the Star level.



### III. MANAGEMENT LEADERSHIP

Management leadership is a key element of obtaining and sustaining an effective safety culture. The contractor must demonstrate senior-level management commitment to occupational safety and health in general, and to meeting the requirements of the DOE-VPP. Management systems for comprehensive planning must address health and safety requirements and initiatives. As with any other management system, authority and responsibility for employee health and safety must be integrated with the management system of the organization and must involve employees at all levels of the organization. Elements of the management system must include clearly communicated policies and goals, clear definition and appropriate assignment of responsibility and authority, adequate resources, and accountability for both managers and workers. Finally, managers must be visible, accessible, and credible to employees.

The safety culture at ATS is one of excellence and pursuit of continuous improvement. Managers at all levels are absolutely committed to their employees and work tirelessly to enhance the safe working environment in the lab. Capitalizing on the various safety and health programs available in the parent company, CH2M HILL Hanford Group, ATS managers set the example by their proactive participation and encourage their employees to do so with a robust incentives and rewards program. Resources necessary to support all safety and health program activities are sufficient, and funding to meet emerging requirements is allocated rapidly. One recent example involved putting in a sidewalk between two of the lab's mobile structures to reduce fall/slip hazards before the onset of hazardous winter conditions.

Managers demonstrate their commitment by their actions. Top-level managers are clearly visible in the work place and actively participate in the ATS Safety and Health program, including the various safety councils/committees. Managers have an open door policy, and employees are neither hesitant nor afraid to voice their concerns. Managers listen and take corrective action as a matter of priority. The horizontal, distributed leadership organization is optimal to support ATS' roles, responsibilities, and policies. Accountability for safety is assured through the performance evaluations for exempt employees and managers.

ATS conducts comprehensive self-assessments, including the annual VPP program review, and uses the assessments to develop corrective actions for weaknesses noted, as well as to build upon program strengths. Sponsored by the project Vice President, the Accident Prevention Council (APC) is the primary ATS safety council and consists of managers, exempt and bargaining unit employees (see Section IV, Employee Involvement). The Safety Improvement Plan, developed by the APC, identifies specific goals and actions and tracks them to completion. ATS has a strong employee orientation program, which culminates in comprehensive, employee-specific training that must be completed before working in the lab spaces.

ATS managers are actively involved and demonstrate hands-on leadership for the health and safety program. Senior managers are visible in the workplace, and health and safety concerns are addressed and corrected in a timely manner. Management leadership and involvement were typified by one example during this assessment. Through numerous interviews, it was noted that the ATS Vice President was observed spreading ice melt on sidewalks early in the morning during a recent snowfall. Interviews with managers and employees clearly demonstrated a belief in senior management commitment, support, and leadership in ensuring that every employee has

the tools and training necessary to perform their work safely from the time they arrive at work until they go home. The Vice President actively encourages all managers within ATS to similarly lead by example.

Additionally, managers actively encourage workers to take safety home with them. For example, the VPP committee identified the hazards associated with experiencing a breakdown along the highway. The company procured and distributed to all employees vehicle safety kits that included high visibility vests and other equipment that would reduce workers' risks in the event of a problem.

A recurring theme throughout this assessment was the cultural change that has taken place within CH2M HILL over the past several years. ATS, as the first VPP site on the Tank Farm Contract has continued to be a leader within CH2M HILL to help continue and institutionalize those cultural changes. Overall, the Tank Farm Contract has had a history of unresolved employee concerns, inadequate assessment of worker exposures to chemical vapors, and numerous other problems. CH2M HILL's commitment to safety excellence, making workers a partner with managers to safely accomplish the mission, and determination to maintain DOE-VPP Star status have played a key role in effecting positive cultural changes.

## **Conclusion**

It is evident that employees feel very strongly that upper management supports a strong safety culture within ATS, one in which employees feel empowered to resolve health and safety concerns without fear of reprisal. ATS fully satisfies the requirements of the Management Leadership tenet.

#### IV. EMPLOYEE INVOLVEMENT

Employees at all levels must continue to be involved in the structure and operation of the safety and health program and in decisions that affect employee health and safety. In addition to employee participation, individuals must exercise their right to notify appropriate managers of hazardous conditions and practices. The information gathered by the review team during field observations, as well as through formal and informal interviews, indicates that ATS workers remain committed to their personal safety as well as the safety of their coworkers and plant visitors.

A high degree of employee involvement continues to be demonstrated throughout ATS by active participation in pre-job briefings, job walkdowns, and post-job briefings, and taking the opportunity to participate in the ATS APC and related programs, campaigns, and activities. Employees were candid and spoke freely in interviews with Team members. Workers displayed a very strong sense of empowerment to discuss and bring up issues with their immediate supervisors and/or managers. They were knowledgeable of their stop-work authority and felt that they could exercise their rights without any fear of retaliation from their supervisors, management, or other workers.

All employees are given the opportunity to participate in the ATS APC and its sponsored activities, and they are encouraged to participate and attend the annual Hanford Safety Expo. Some employees indicated that they do not always actively participate in monthly meetings because of scheduling conflicts or because they do not have enough interest to attend; however, they did feel that their supervisors and managers would be supportive if they wanted to attend. Furthermore, all interviewed employees indicated that they receive meeting minutes via email and know of the committee's activities. The review team had the opportunity to observe a pre-job meeting that took place the morning after a safety committee meeting. The topics that were discussed by the safety committee, which pertained to the workers, were mentioned by an attendee at the pre-job meeting.

ATS has a recognition and award system intended to promote employee involvement. The Safety STARZ Program is an activity-based award system that applies to all ATS organizations and employees, including the employees who are matrixed or assigned to ATS projects, as well as all 222-S ATL employees. Safety awards are awarded incrementally based on employee involvement and participation in specified activities submitted for recognition. Employees are required to submit proof of participation in a minimum of three safety activities to receive safety recognition awards. Additional awards may be earned at the seventh and twelfth submittal of an Employee Safety Recognition Form.

The team observed that ATS employees continue to be involved in the work planning process as needed. When the need for a planned job is identified, all crafts that are involved in the job are included in the work package or work procedure planning. Employees also participate in the meetings where jobs they are involved in are discussed. Employees indicated that they have the opportunity to provide recommendations and suggestions when they wish.

The ATS organization has retained the programs that help encourage employee involvement in the safety and health program. The APC provides information to the CH2M HILL President's Accident Prevention Council. These councils serve as an avenue for workers to raise safety issues and for managers and employees to work together to seek appropriate and timely solutions.

### **Conclusion**

Employees continue to be actively involved in the safety and health program at ATS and demonstrated boldness in taking responsibility for their safety and looking out for the safety of their colleagues, regardless of company affiliation.

## V. WORKSITE ANALYSIS

Management of health and safety programs must begin with a thorough understanding of all hazards that might be encountered during the course of work, and the ability to recognize and correct new hazards. There must be a systematic approach to identifying and analyzing all hazards encountered during the course of work, and the results of the analysis must be used in subsequent work planning efforts. Effective safety programs also integrate feedback from workers regarding additional hazards that are encountered, and they include a system to ensure that new or newly recognized hazards are properly addressed. Successful worksite analysis also involves implementing preventive and/or mitigative measures during work planning to anticipate and minimize the impact of such hazards.

Tank Farm Contractor (TFC) procedures ensure that facility and process hazards are known prior to the start of work. As determined by the risk and/or complexity of the work, planning and procedure development are performed using an integrated team approach. Management ensures that the team includes an appropriate mix of worker expertise and environment, safety, and health professional support. The team reviews planned work and develops necessary controls for the work hazards. Field work supervisors confirm that designated work controls are included in the work package. A graded approach is used to evaluate the hazards of proposed work activity and to confirm that controls are in place; a multidisciplinary team walkdown is part of this confirmation. The work hazard analysis (WHA) and the controls and work instructions that are developed for work control documents are communicated to the workforce in pre-job briefings.

Work planning walkdowns and pre-job briefings were found to be very effective and informative. Good communication was demonstrated between all personnel. The WHA process was demonstrated to result in clear identification of controls.

The Problem Evaluation Request (PER) process ensures that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective materials and equipment, abnormal occurrences, and non-conformances, are promptly identified and corrected. One example that the Team reviewed was a PER that was generated as the result of a lab worker detecting an unknown odor emanating from a fume hood. As a result of the worker raising the issue, a team of subject matter experts was formed to study the issue, including the fume hood flow pattern, and determine whether any other fume hoods had inconsistent flow patterns. The efforts to identify acceptable testing strategies for suspect hoods were well thought out to enable qualitative tests that would not affect subsequent analyses conducted in the hoods.

As a result of this review, the Team recommends the following opportunity for improving ATS's engineered controls.

**Opportunity for Improvement: Establish and plan to perform the detailed performance analysis on the approximately 150 other fume hoods in the facility to either verify that they are performing adequately or identify other potential performance problems.**

The PER process also provides a viable means for analyzing trends. PER data is compiled and presented to the Executive Safety Review Board weekly.

At the activity level, the workers are trained to identify and select the appropriate controls for a broad range of hazards that may be encountered in minor or standard work activities. These hazards and controls are provided in a WHA checklist, which is a tool that reminds workers of the types of hazards that may exist, and the controls identified for mitigating the hazards. Workers, supervisors, and subject matter experts use the WHA throughout the work processes. For complex work activities, a team is formed to identify the critical tasks, hazards, and error-likely situations. The team then discusses thought provoking questions to help determine the best way to approach the hazards and implement the controls. Technical procedures are developed for routine operations and incorporate task specific hazard controls. Additional requirements and special controls are also included, such as the need for any special work permits, checklists, or authorizations.

Employees are responsible for reporting unsafe conditions or practices to their manager or field work supervisor during work performance. Also, when appropriate, employees should take personal action to correct or mitigate the unsafe condition at the time it is discovered. Employees have the authority to stop work if an immediate threat to life or health exists, or to exercise a work clarification pause to temporarily suspend work activities when an error, omission, or other issue has the potential to adversely affect safety, quality, or the environment but does not represent an imminent danger.

Accidents are investigated by one of several means in accordance with the TFC event investigation process. Management initiates a critique meeting to evaluate near misses and other issues with real or potential impact to the environment, safety, health, and quality of the facilities and/or personnel and that are directly related to human performance issues. A critique—an assessment tool to record facts, develop an accurate timeline/sequence of events, identify potential causes, develop and share lessons learned needed for improving performance, and inform management of the findings—is conducted as soon as possible after a significant event in order to determine the facts and circumstances surrounding the event. A fact-finding activity is used to gathering facts by personal interview, written personal statements, documentation review, or pictures. The responsible manager investigates, performs causal analysis, and processes the deficiencies. An event investigation team is chartered after the critique meeting when a more in-depth investigation by subject matter experts or a team approach is desired; the responsible line organization director selects the team members. The event investigation team produces an investigation report to supplement the initial event investigation report generated from the critique meeting or fact-finding activity, supporting the causal analysis and corrective action plan development.

Industrial hygienists perform and document initial monitoring and exposure assessments and update this information periodically. Observations, monitoring results, testing, and exposure assessments are recorded, documented, and maintained by procedure. Industrial safety hazards are analyzed through walkdowns, self-assessments, and work control processes. ATS is required by contract to provide periodic industrial hygiene (IH) monitoring service to ATL, the Analytical Services Production Contractor (ASPC). Interviews revealed a difference in the IH

monitoring strategies used by the ASPC and ATS IH managers. ATL expressed the concerns that employee exposure to hazards was not being adequately monitored and that ATS relied extensively on tabletop analysis to justify minimum monitoring based on the presence of effective engineered controls. ATS has conducted IH sampling in the laboratory spaces, but the sampling strategy and plan were not clearly communicated to ATL workers in the laboratory. Additionally, the baseline hazards assessment for the laboratory is over ten years old. This issue was elevated to the senior manager level (ATS Vice President), and action has been taken to incorporate more active monitoring into the annual review/update of the IH baseline.

**Opportunity for Improvement: Better communicate industrial hygiene sampling plans so that workers know when to expect sampling to occur and understand the overall sampling strategy and subsequent decisions on exposure monitoring.**

### **Conclusion**

ATS has adequate worksite analysis processes and procedures in place. Hazard identification is thorough, and good housekeeping was evident throughout the laboratory. ATS meets the requirements of the Worksite Analysis tenet.

## VI. HAZARD PREVENTION AND CONTROL

Once hazards have been identified and analyzed, they must be eliminated (by substitution or changing work methods) or addressed by the implementation of effective controls - engineered controls, administrative controls, and/or personal protective equipment (PPE). Equipment maintenance, PPE, processes to ensure compliance with requirements, and emergency preparedness must also be implemented where necessary. Safety rules and work procedures must be developed, communicated, and understood by supervisors and employees, and followed by everyone in the workplace, to prevent mishaps or control their frequency and/or severity.

ATS is in the process of updating technical procedures to reflect the CH2M HILL WHA process. Procedures are over 50 percent completed, and all work is performed to the CH2M HILL WHA process. The WHA documents the integrated safety management system process for activities, work evolutions, and procedure development. Workers are expected to be familiar with and participate in the development of work packages.

ATS controls hazards effectively through several methods. ATS applied hazard elimination through a dedicated effort to reduce source term, reduce the number of material balance areas, and ensure careful process selection. Engineered controls were applied through the use of fume hoods, gloveboxes, hot cells, sample pigs, and transport carts. Administrative controls were applied through the use of procedures and postings. Selection of PPE was effective and applied to all work process activities observed by the Team during the review.

As previously discussed, a worker raised a concern regarding fume hood performance. Fume hoods are one of the primary engineered controls used in the laboratory to prevent worker exposure to both radiological and chemical hazards. Inspection of the fume hoods during this assessment demonstrated good housekeeping and hazard reduction within the hoods. However, it was also noted that ATS is using the 1988 American Conference of Governmental Industrial Hygienists standard for laboratory hood design and performance, rather than the more stringent and more recent American National Standards Institute/American Industrial Hygiene Association (ANSI/AIHA) Z 9.5 Laboratory Ventilation standard. Consequently, some features, such as a positive indication for the worker that hood flow is adequate, as well as a quantitative determination of hood performance, have not been implemented. IH sampling results have not shown any worker exposures in the laboratories, but there is an opportunity to provide greater assurance of hood performance, as well as a real time indicator to the worker that the hood is performing correctly each time it is used.

**Opportunity for Improvement: Continue to look for acceptable methods to quantitatively demonstrate hood performance in accordance with ANSI/AIHA Z 9.5, American National Standard - Laboratory Ventilation.**

**Opportunity for Improvement: Use the audit checklist contained in ANSI/AIHA Z 9.5 to evaluate the configuration and performance of all the hoods in the laboratory. Use the results of that audit to identify opportunities to improve hood performance and configuration.**



ATS has sufficient resources, including safety professionals, for the current level of activities. Managers ensure that sufficient budget is allocated to maintain safety programs. An incentives program is in place and has been used proactively and rapidly to reward safety improvements and participation by employees.

The facility has been successful in integrating the requirements of the radiological protection program into everyday operations in a positive supportive role. Radiation protection personnel at the facility were helpful and truly engaged in providing a service to the facility and its occupants. They were positive in their approach to evaluating radiological hazards and proactive in solving issues pertaining to work evolutions. As an example, a question was raised on an ALARA work sheet description for lab sink job relating to the use of finger rings. The author responded with a positive attitude and outlook, and corrections were made to the explanations for finger rings. The organization is very proactive and constantly strives for improvement

Several employees provided examples showing that they felt comfortable bringing safety suggestions to their management or peers and that their suggestions were often taken into consideration to improve the safety of a particular task. ATS employees were observed correcting and/or helping each other through the development of planning for work or pre-job briefings. During the VPP visit to the 222-S facility, employees were observed performing routine and non-routine activities during the course of the work day. In all cases, PPE was used correctly and appropriately for the hazards encountered. These observations clearly illustrate a strong sense of commitment, ownership, and pride in the safety and health culture within the laboratory, which has continued to develop over time.

Employee involvement is evident not only in participation in the safety meetings and training activities, but also in the hazards identification process. Employees are involved in hazard recognition, job hazard analyses, and resolution of conflicting controls. The selection of preventive controls was appropriate for the complexity and risk involved with job planning and work evolutions. Personnel engaged in planning and pre-job briefings constantly engaged the workers in discussion on ways to prevent or mitigate hazards anticipated at the work locations.

Employees provided several examples of how they actively participate in job planning. A Joint Review Group (JRG) meeting is convened to review the work evolution and steps involved for high or moderate risk work. The JRG is chaired by the facility manager and consists of first line managers; engineers/work planners; safety, health, and quality assurance representatives; and the employees who will perform the work. The Team had the opportunity to attend a JRG for an upcoming installation of new laser ablation equipment in the hot cell. All personnel involved were actively engaged and provided input. The facility manager openly questioned the attendees for approval or issues by work group or support staff. All participants offered input and approval for the task discussed. Following the comprehensive review, voting members of the JRG endorsed the work plan and voted to commence work contingent upon completion of employee-identified action items. Similarly, during several pre-job meetings, a post-job meeting, and the daily planning meetings, which the Team had the opportunity to attend, the workers demonstrated that they were very knowledgeable of facility status and any changes in facility condition.

Advanced Med Hanford (AMH) provides all medical services for ATS, including acting as the medical director, providing medical surveillance, maintaining medical records, providing medical evaluation, and performing other medical-related activities.

Workers with a potential exposure or minor injury/illness are evaluated by AMH. Emergency medical response service is provided by the Hanford Fire Department, and serious cases can be transported directly to the local hospital.

The emergency preparedness program goes beyond requirements and rotates Building Emergency Directors (BEDs) for exercises. (At one time, the best BED was chosen to run drills at the lab.) This approach allows for growth and experience for this job function and benefits the facility by having several highly qualified individuals capable of meeting facility needs. The laboratory documents the names of participants via a course completion roster so they get credit for drill and training; this degree of documentation is not required by order, rule, or written guidance. More than the one (required) graded drill is performed each year, promoting preparedness for upset conditions should they occur.

A preventive maintenance work evolution (manipulator removal) was observed that involved several worker specialties. Participants at all levels displayed good worker interface and attention to safety and worker well-being. This task went as planned, with no delays or problems. Everyone involved was engaged and sincerely concerned with helping each other.

## **Conclusion**

ATS has effective means to prevent and control hazards in the 222-S Laboratory and associated work spaces. The hierarchy of hazard elimination, engineered controls, administrative controls, and PPE was clearly evident. Team observations of work, attendance at various planning meetings, and formal and informal interviews of employees and managers confirmed that ATS continues to meet all of the requirements of the Hazard Prevention and Control tenet.

## VII. SAFETY AND HEALTH TRAINING

Training is necessary to implement management's commitment to prevent exposure to hazards. Managers, supervisors, and employees must know and understand the policies, rules, and procedures established to prevent exposure to hazards. Managers, supervisors, and employees must understand their safety and health responsibilities and know how to carry them out effectively.

The safety and health training programs and processes at ATS remain well structured and effectively implemented. The current programs and processes adequately train workers at all levels to recognize hazards and perform work safely. Team interviews and overall observations confirmed that the training programs are used and understood by appropriate personnel throughout ATS.

All employee interviews were straightforward and positive. Managers, supervisors, and workers indicate that they have ample opportunities for formal and informal training, and they felt that they would be supported if they requested additional training beyond what is required.

Ongoing, informal training continues to be provided through a variety of mechanisms, including lessons learned, tailgates, pre-job briefings, WHAs, Employee Accident Prevention Council and committee meetings, participation in safety walkarounds, all-hands safety meetings, required reading, and safety-related email. Some informal training also is provided through CH2M HILL and ATS newsletters, bulletins, fliers, and brochures.

Employees spoke freely of their awareness of the hazards associated with their jobs and the training they receive to help them identify those hazards. They also were very aware of the types of PPE that they are required to use and what to do in case of an incident. No employee who was interviewed felt that he or she has not been adequately prepared to identify hazards in the workplace and to work around potentially hazardous materials and conditions. All felt well trained and equipped to deal with those specific hazards. In addition, employees are encouraged to participate in the company-sponsored Stretch-For-Life program and the 13-week "Lose It!" nutritional education program. Senior ATS managers recognize the value of the Human Performance Improvement (HPI) initiative as an important resource in their goal to sustain a culture of safety excellence and continuous improvement. As a first step, all ATS personnel have received HPI training; however additional training may be needed to continue efforts to integrate HPI principles into everyday work and use them effectively during event reviews.

Several employees indicated that they would like to see some annual and bi-annual training requirements reevaluated; primarily some of the computer-based courses and some refresher training, specifically the Radiological Worker II, Mask Refresher, and Hazardous Waste 8-hour Refresher courses.

### Conclusion

The Team found that overall, managers continue to keep safety and health training a priority at ATS. This was evidenced by the active and effective involvement of managers and employees

throughout ATS to achieve an overall safe working environment. Workers appeared to be very proud of their worksite and felt that the safety and health training and commitment of the ATS management contributed to their safety at work and home.

## **VIII. CONCLUSIONS**

ATS has built upon the strong safety culture observed during previous DOE-VPP assessments. Employees and managers alike own the safety and health program and keep each other safe as a matter of practice and highest priority. Housekeeping at the site was the best seen at any of the DOE laboratory facilities observed to date. While some opportunities for improvement were identified, safety excellence and continuous improvement are fundamental values observed at all levels of managers and employees. The Team recommends that ATS retain its DOE-VPP Star rating.

**Appendix A****Onsite VPP Audit Team Roster****Management**

Glenn S. Podonsky, *Chief Health, Safety and Security Officer*  
 Michael A. Kilpatrick, *Deputy Director for Operations, Office of Health, Safety and Security*  
 Dr. Pat Worthington, *Director, Office of Worker Health and Safety*  
 Bradley K. Davy, *Director, Office of Worker Safety and Health Assistance*

**Quality Review Board**

Michael Kilpatrick      Dr. Pat Worthington  
 Dean Hickman          Robert Nelson

**Review Team**

<b>Name</b>	<b>Affiliation/ Phone</b>	<b>Project/Review element</b>
Bradley Davy	DOE/HSS 301-903- 2473	Team Lead Management Leadership
Carlos Coffman	DOE/HSS 301-903-6493	Employee Involvement/Safety Training
Mike Gilroy	DOE/HSS 301-903-5326	Worksite Analysis/Hazard Prevention and Control
Frank Greco	DOE/HSS 301-903-5522	Management Leadership/Employee Involvement
John Locklair	DOE/HSS 301-903-7660	Worksite Analysis/Hazard Prevention and Control