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**Pacific Northwest National Laboratory
(PNNL)**

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Voluntary Protection Program
DOE-VPP

Changing Safety Culture, One Step at a Time

The Value of VPP at PNNL

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Voluntary Protection Program



Changing Safety Culture, One Step at a Time

The Value of VPP at PNNL

The primary value of the Pacific Northwest National Laboratory (PNNL) Voluntary Protection Program (VPP) is the ongoing partnership between management and staff committed to change Laboratory safety culture one step at a time. VPP enables PNNL's safety and health program to transcend a top-down, by-the-book approach to safety, and it also raises grassroots safety consciousness by promoting a commitment to safety and health 24 hours a day, 7 days-a-week. PNNL VPP is a dynamic, evolving program that fosters innovative approaches to continuous improvement in safety and health performance at the Laboratory.

While PNNL had good safety programs in place before VPP, the worker perspective provided by the VPP Steering Committee resulted in the identification of a variety of improvement opportunities that are helping catalyze the cultural changes necessary to progress to the next level of safety performance. Most of these improvement opportunities center on greater employee involvement in safety and health issues, and utilization of worker knowledge and expertise to improve safety and health at the Laboratory and beyond.

A key tool in PNNL's efforts to improve safety is the annual VPP Program Evaluation. The VPP Steering Committee performs an annual assessment of PNNL's safety programs, with senior management as the primary customer. The assessment is a critical, hard-hitting evaluation of safety from the perspective of employees. The leadership of PNNL has demonstrated that they value and respond to the results. Furthermore, the VPP Steering Committee is empowered by management to be a strong, independent voice representing employees' safety interests and perspectives.

VPP is not another layer of requirements or new tasks; rather, it is an approach by which safety and health-related activities can be more efficiently promoted through the joint support of staff and management. VPP principles foster communication, creativity, and innovation, and are helping to change the way PNNL staff members view safety and health – as a value that is ever-present.



PNNL's VPP History

Prior to considering VPP certification, PNNL had good safety and health tools, systems, and processes in place. Management systems deployed integrated safety management programs and requirements through a modern electronic infrastructure. However, PNNL's ES&H program did not strongly embrace the key element of employee involvement, which is the major strength of the VPP approach.

Traditional indicators of safety performance (i.e., injury and illness rates) prior to adoption of VPP were better than industry averages, yet the concept that all injuries can be prevented (i.e., "zero accidents") was not well-accepted at the Laboratory.

PNNL management and workers recognized that to advance to the next level of safety and health performance, employee involvement in safety and health was crucial. The PNNL VPP Steering Committee was established with representation from employees across the Laboratory as an independent, self-governing body that enjoys excellent management support. The primary goal of the VPP Steering Committee is to lead the development of safety performance improvement initiatives and secure employee commitment and involvement for worker safety and health improvement. In 2000 the VPP Steering Committee put together the first-ever electronic VPP Application documenting the process by which PNNL met DOE-VPP criteria. In 2001, PNNL achieved VPP STAR status.

The VPP Steering Committee continually evaluates PNNL worker safety and health programs in the context of VPP Tenets. In addition, the VPP Steering Committee conducts an annual Program Evaluation, performing interviews, a Lab-wide electronic survey, and a review of safety documentation to examine the health of PNNL's safety programs and identify opportunities for improvement. Gaps are identified and improvement initiatives pursued where needed based on a dialog between VPP employee representatives and senior management.

VPP is driving continuous improvement in worker safety and health at PNNL through regular, highly valued communications, assessments, and promotion of safety as a value. Improvements in PNNL safety programs continue through cooperation between PNNL management and the VPP Steering Committee. VPP initiatives and recommendations are a significant element of PNNL's Safety Performance Improvement Plan. In 2004 PNNL was re-evaluated by DOE-VPP and recertified as a DOE-VPP STAR site.

Current Safety Initiatives at PNNL related to VPP

The VPP Steering Committee has identified a variety of improvement opportunities that are helping catalyze cultural changes necessary to progress to the next level of safety performance. Most of those improvements center on greater employee involvement and the use of worker knowledge and expertise in improving health and safety at the Laboratory and beyond. Through improved employee involvement, PNNL is gaining the cultural impetus to drive PNNL's safety culture to the next level of operational excellence.

Employee Involvement

Employee involvement is the principle focus of PNNL VPP safety improvement initiatives. Since the VPP Steering Committee is concerned about all aspects of PNNL's safety programs (in accordance with the scope of VPP Tenets), it is uniquely positioned to enhance safety culture by promoting greater employee involvement. The VPP Steering Committee has influenced employee involvement through:

- **Communication** – Meaningful communication is a prerequisite for greater employee involvement. Given PNNL's diverse workforce and unique business processes, a variety of communication approaches are needed to achieve this objective. One of the most successful means of providing employees with meaningful and relevant safety communications is the Porcelain Press, a monthly VPP newsletter posted in PNNL restrooms. The Porcelain Press addresses a variety of topical safety issues each month, as well as concerns submitted by PNNL employees. The VPP website is another venue for distributing information and gaining employee involvement. A new approach to improve communications and employee involvement that is under development is the S@fetyDiaLOG, a web-based safety suggestions/concerns program designed to facilitate input, tracking and resolution of employee safety issues.
- **Worksite Analysis and Hazard Prevention & Control** – This aspect of employee safety is largely the domain of the Worker Safety & Health Management System and other management systems that deploy processes, tools, and expertise to help managers and staff to identify and mitigate hazards. In support of this aspect, the VPP Steering Committee was instrumental in identifying a previously unrecognized risk area related to soft tissue injuries experienced by maintenance workers. The VPP Steering Committee responded to the identified risk by teaming with maintenance workers and line management to obtain the services of an expert consultant to identify specific improvements for preventing soft-tissue injuries among certain maintenance groups. These improvement opportunities are being presented to management and action is underway to address them. A website (PREVENT) was created to share this insight and information with all laboratory staff.
- **Ergonomics** – Another improvement initiative recently undertaken by the Committee was acquisition of an ergonomic analysis and improvement tool that provides employees with better information regarding the control of ergonomic-related risks and collects data regarding how workstations and working conditions effectively meet ergonomic standards.
- **Safety Committees** – PNNL involves employees in a variety of safety committees, with the VPP Steering Committee assuming the preeminent role. According to employee feedback in the annual VPP Program Evaluation, safety committees need to be better integrated into PNNL's management infrastructure. To facilitate integration, charters have been written for all major safety committees, and these committees are now assuming an ever increasing responsibility to contribute to the continuous improvement of PNNL safety programs.

Safety Performance

As noted above, the principle focus of the VPP Steering Committee is to improve safety culture through greater employee involvement. In addition to increased employee involvement, the VPP Steering Committee annual Program Evaluations have resulted in development of several initiatives to improve PNNL safety performance. The VPP Steering Committee has influenced PNNL's safety performance through:

- Manager safety and health training – The annual VPP Program Evaluations concluded that managers often do not have formal training in safety management, and may not fully understand the expectations related to their role and/or the resources available to them (such as field deployed safety and health professionals). An initiative was just completed to provide immediate managers with training to better prepare them to be excellent managers and enablers of safety.
- Safety and health training for other key roles (e.g., Cognizant Space Managers and Product Line Managers in the near future, and other roles to follow) – In addition to managers, other key roles need to understand their roles, responsibilities, accountabilities, and authorities for safety. Training for Cognizant Space Managers is currently in development.
- Improved Trend Analysis – As the VPP Steering Committee worked to address injury and illness issues related to maintenance workers, it was discovered that the current injury and illness records system did not support easy trend analysis. An initiative is underway within the Worker Safety & Health Management System to upgrade trending capabilities of the injury and illness recordkeeping system.
- Integrated tools – PNNL uses a variety of electronic tools to support operations, including worker safety and health tools. The tools provide excellent support, but they also present numerous opportunities for improved integration and processes. The annual VPP Program Evaluation reviews tool performance and provides input on areas for improvement.

Initiatives

Some of the improvements discussed above are stand-alone efforts. However, as demand has grown over the past year for a quantum improvement in safety performance, a set of integrated initiatives has coalesced and become a priority for PNNL.

- Safety Performance Improvement Plan (SPIP) – The umbrella initiative guiding PNNL’s safety improvement agenda is the Safety Performance Improvement Plan, an integrated composite of a number of improvement initiatives. A principal source of the SPIP was the FY 2004 VPP Program Evaluation. Another significant contributor to the SPIP included the corrective action plan from FY 2004 OA-50 Integrated Safety Management assessment completed in December 2003. The primary activities of the SPIP and their incorporation of the improvement initiatives described above are listed below.
 - Management leadership and accountability – manager safety and health training
 - Employee involvement and accountability – safety and health training for other roles, and improvements in safety committee implementation
 - Feedback & improvement – self-assessment improvements to help the Laboratory achieve continuous improvement
 - Work S@fe (safety program improvements) – Improved trend analysis and safety management tools
 - PREVENT – see below.
- PREVENT – The PREVENT initiative, owned by the VPP Steering Committee, is a major part of the SPIP as it helps employees prevent injuries and illnesses. PREVENT is composed of a variety of safety improvement activities, with others being added as the program matures.

- S@fetyDiaLOG – As mentioned under “Communications” above, the S@fetyDiaLOG is a web-based tool managed by the VPP Steering Committee to help employees and management work together to identify, communicate, and resolve safety-related issues such as suggestions, questions, and concerns.
- Injury/illness & precursor analysis – The VPP Steering Committee has sponsored several analyses of trends in injuries and illnesses across the Laboratory. One recent analysis indicated a Lab-wide uptrend in the incidence of soft-tissue injuries. Resulting actions have led to a strong focus on preventing those types of injuries and illnesses.
- Lessons Learned/Best Practices – One of the communications approaches being used to raise employee awareness of safety risks is the development of a special series of PREVENT Lessons Learned/Best Practices. They are being planned and deployed on a regular basis through PNNL’s existing Lessons Learned/Best Practices program.
- Ergonomic analysis & improvement tool – As mentioned under “Worksite Analysis and Hazard Prevention & Control,” a commercial software product for ergonomic analysis and education was procured. Through the use of this tool employees will improve their understanding of how to achieve proper ergonomic configurations and Worker Safety & Health managers will better understand potential vulnerabilities associated with specific buildings, organizations, and individuals.
- Integrated Communication – An integrated communications campaign involving a variety of media such as the Porcelain Press, safety communications boards, posters, and electronic communications is being implemented. The goal is to have a planned and coordinated effort to keep safety in front of all employees, educate them on specific safety issues, and provide tools and information in a timely, effective manner.
- Cultural improvements – Changing culture involves more than formal, punctuated events. It requires changing the hearts and minds of a majority of the employee population so that safety is a conscious value. Two specific initiatives have been instituted to help make safety a part of the day-to-day background that is always present at PNNL. Employees are encouraged to continuously “keep your space ‘customer-ready’.” “Customer-ready” means maintaining work space in such a condition that employees would be proud to host their best customer at any given time. This initiative emphasizes housekeeping and other potential safety issues associated with work spaces. In addition, managers and meeting organizers are encouraged to “start each meeting with a safety topic.” This initiative helps all staff keep safety in their minds and consider timely safety topics such as seasonal risks and recent lessons learned.
- Future initiatives currently on the agenda include: a program to emphasize health and wellness (e.g., diet, exercise, healthy lifestyle choices); and a “24/7” safety program to emphasize safety in off-work venues such as home, play, daily transportation, etc.

Cost-Benefit of Safety Initiatives and the Value Proposition for VPP at PNNL

It is difficult to quantify “the accidents that didn’t happen.” It is also difficult to attribute safety improvements to a single source when there are many simultaneous improvement initiatives underway. Many initiatives in PNNL’s safety improvement agenda are related to VPP, but others are sponsored independently by management systems and line managers. The interactions between those initiatives are substantial and there are significant inter-dependencies.

Some of the benefits PNNL expects to realize from recent safety improvements include:

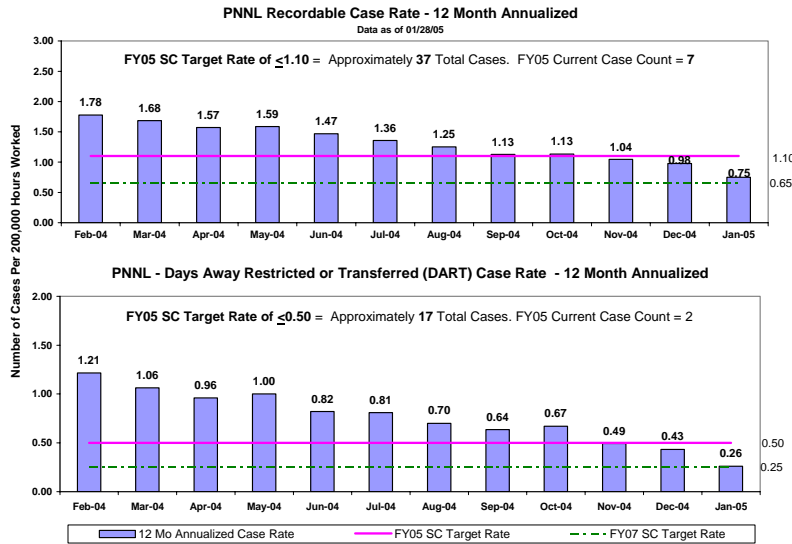
- Fewer injuries and illnesses. In addition to the ethical and quality of life issues associated with preventing employee injuries and illnesses, the change in injury/illness rates from pre-initiative conditions to the present can be estimated to result in over \$1 million/yr savings to PNNL (see analysis of PNNL Injury and Illness Rates below).
- Increase in output, productivity, completed work on schedule. Occupational injuries, illnesses, and other accidents can cost a substantial amount in terms of down-time, and staff/management hours spent on investigation and corrective action that could have been put to more productive uses.
- Better safety performance results in greater client satisfaction, which can bring more business to support the PNNL’s growth agenda.
- Greater safety for workers is one of the factors making PNNL the employer-of-choice in our community, improving worker satisfaction and retention. This improves PNNL’s productivity and ability to meet client needs.

PNNL Injury and Illness Rates

PNNL safety data reveals much improved metrics over the past five years since VPP was established at the Laboratory. Over the past year in particular, the Days Away, Restricted or Transferred (DART) and the Total Recordable (TR) case rates have declined substantially.

Year	Days Away, Restricted, or Transferred (DART) Case Rate	Total Recordable Case Rate
FY01	0.98	2.14
FY02	0.93	1.78
FY03	1.17	2.00
FY04	0.64	1.14

Many of the safety improvements over the past several years have recently gained traction, and increased management emphasis on accident prevention helped PNNL achieve an all-time record over a seven-month period in DART and TR case rates.



Current rates after implementation of the new safety performance improvement initiatives have plummeted to DART ~0.26 and TRC ~0.75. The substantial decrease in DART cases relative to TRC is a further indicator of the success of PNNL’s safety performance improvement initiatives at reducing the severity of cases that have occurred.

Although it is difficult to put a dollar value on safety, the National Safety Council (NSC) and DuPont Corporation have studied the average cost of accidents. On the basis of those estimates, the benefit of PNNL’s safety initiatives can be estimated to be over \$1 million/year.

Assume 6,500,000 worker-hours/yr	DART Rate	DART Cases (DART @ \$32k/case*) Cost	TRC Rate	TRC Cases (TRC-DART @ \$8k/case*) Cost [#]
Pre-initiatives	1.21	39	1.78	19 (58-39) [#]
After-initiatives	0.26	8	0.75	16 (24-8) [#]
difference		31		3
Annual Savings		\$988,000		\$20,800
				\$1,008,800

*Cost of DART and TRC cases is based on NSC and DuPont estimates
[#] TRC costs exclude DART cases to avoid double counting

Conclusion - How We Know VPP Adds Value

The recent DOE-VPP recertification noted “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 – overall – is in place and effective.”

The bottom line is that PNNL’s safety performance is good and is improving. PNNL safety performance has improved by a factor of 2 or more in the recent past indicating a safer work environment for our staff and cost savings on the order of around \$1 million/year.

The current Laboratory Strategy is to “Be World Class” and “Grow the Laboratory” by operating with excellence and managing operational risks. Instilling good safety behavior is key to achieving those goals. The primary vehicle for achieving an ever-improving safety culture at PNNL is the PNNL Voluntary Protection Program.

End of Report