



# Challenges of VPP on a Large Construction Project

Blue Grass Chemical Agent-Destruction Pilot Plant

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# Agenda

- Project Overview
- VPP Approach
- VPP Challenges
- Key VPP Program Elements
- Continuous Improvement



# Housekeeping

- Emergency exits
- Silence cell phones



# Project Overview

- The Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) is being built to safely and efficiently destroy a stockpile of chemical weapons currently in storage at the Blue Grass Army Depot in Richmond, KY. Utilizing neutralization followed by Supercritical Water Oxidation, the plant will destroy 523 tons of munitions containing blister and nerve agents.



# Joint Venture

## One Team, One Mission



**PARSONS**

- Project management
  - Business services
  - Safety and quality
  - Acquisition services
  - Construction
  - Public involvement
- Process and facility design
  - Process equipment fabrication
  - Support to systemization and operations through closure
  - Environmental compliance

**URS**

- Systemization
- Pilot testing
- Operations
- Closure

**Battelle**

- Laboratory management
- Science and technology support



- On- and off-site training
- Training documentation



- Design and support
- Technology support



# Project Information

- 2007 construction start
- 2015 construction complete
- 900 people on site (600 craft)
- 10 different trades in construction phase (iron worker, carpenter, etc.)



# BGCAPP

# Site Progression





# BGCAPP SITE 2013





# BGCAPP SITE 2014



# VPP Overview

- Bechtel Parsons Blue Grass started VPP journey in 2007.
- BGCAPP was awarded STAR status in 2011 for the construction phase of the project.
- OSHA to recertify BGCAPP in August 2014.
- Construction complete July 2015, upon completion of construction a new VPP application will submitted for systemization and operations of the plant.

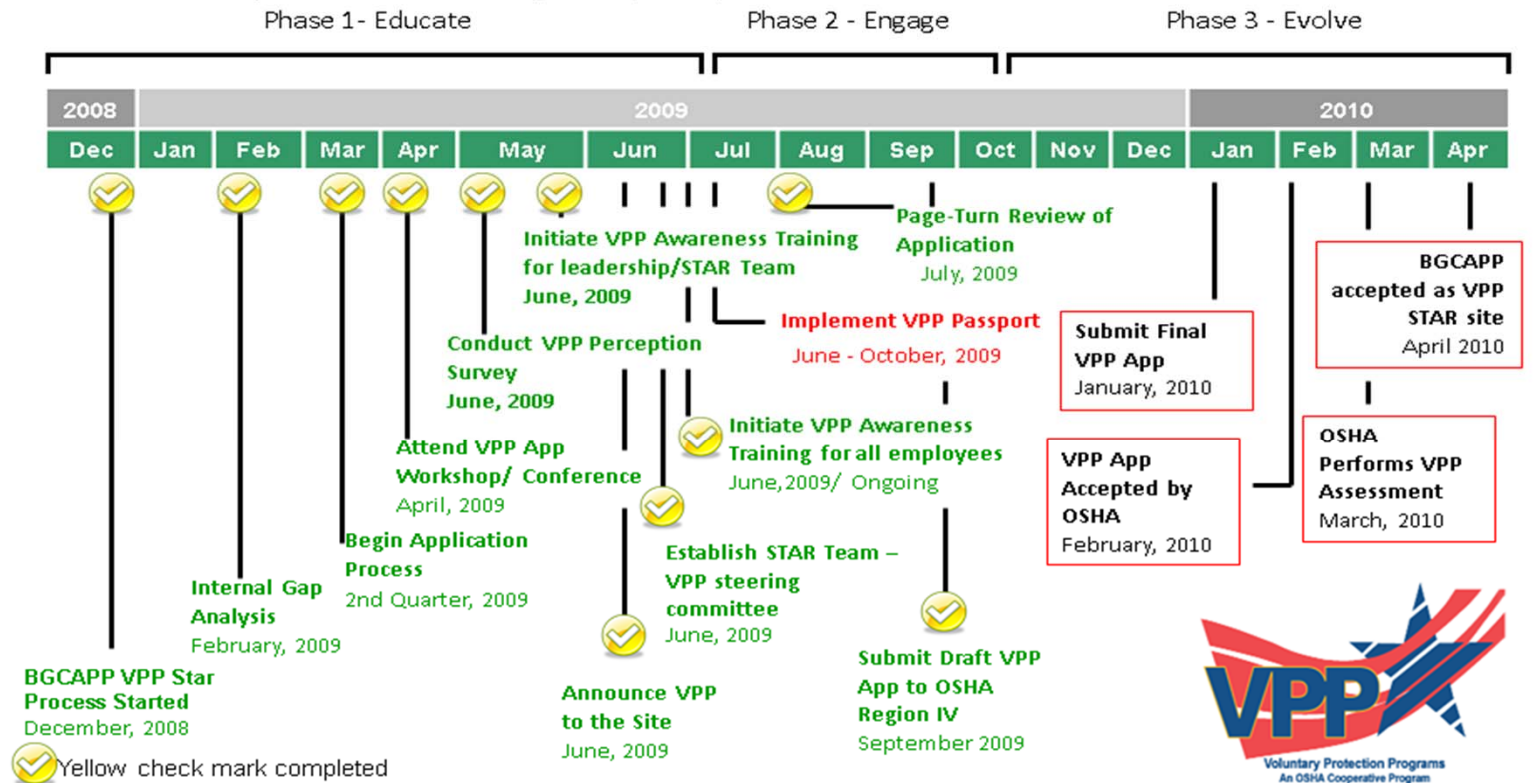


# VPP Approach

Bluegrass Chemical Agent Destruction Pilot Plant

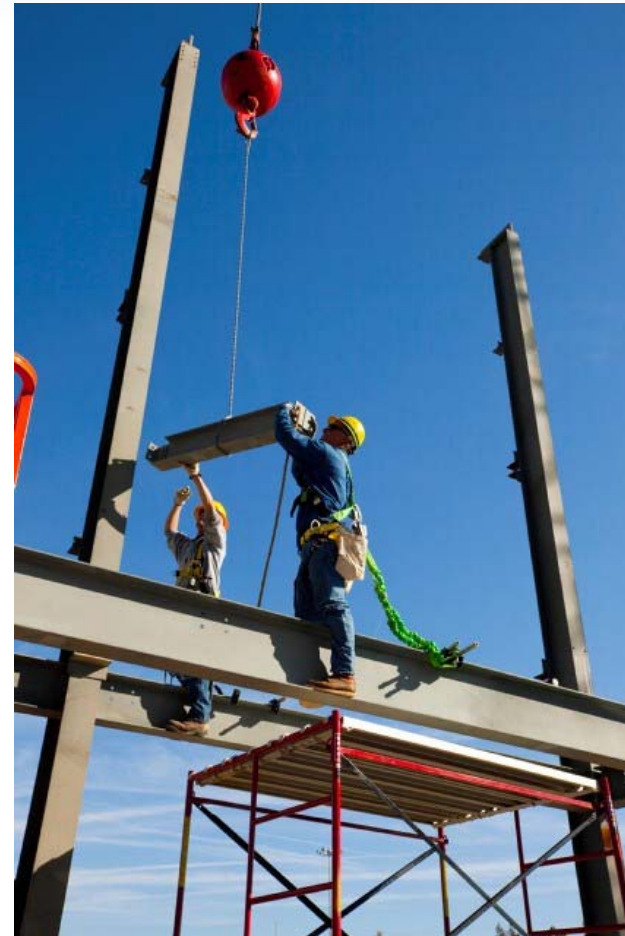
## Pathway to Star Status

Voluntary Protection Program (VPP) Timeline As of November 2009



# Challenges of a Construction Site

- Overhead hazards
- Scaffold changes
- Excavations





# Challenges of a Construction Site

- Crane lifts
- Laydown areas





# Challenges of a Construction Site

- Concrete work



# VPP Challenges

- Construction phases (site clearing and grubbing, civil, concrete, structural steel, piping electrical, instrumentation, etc.)
- Transient workforce – we’re constantly engaging new workers in our safety culture
- Workers bring safety knowledge from private/residential industry – may not live up to BGCAPP standards
- Traveling workers need to learn new procedures



# VPP Challenges

- 1 year membership term for Star Team
- Star Team is craft, non-manuals, subcontractors
- Confined worksite (19 acres, 4 large processing facilities)



# Safety Tool - STARRT

- Safety Task Assessment Risk Reduction Talk (STARRT) meetings are held every morning before any work is started or before beginning a new task
  - Each crew completes a STARRT Card and conducts a briefing before the start of work
  - Facilitators evaluate meetings and provide feedback







# STARRT Card Example

Ergonomic	<input type="checkbox"/> N/A	Y	N
Vibration?			
Repetitive motion?			
Awkward body positioning?			
Lift, push, pull > 50 lbs.?			
Contact stress? e.g., kneeling			
Pinch points?			
Proper access to work?			
If any boxes above have been checked "yes" how can the hazard be mitigated?			

Chemical Hazards	<input type="checkbox"/> N/A	Y	N
Reviewed the MSDS for chemicals/materials used?			
Waste management understood?			
Chemicals labeled and stored properly?			
Prepared for a spill?			
Other hazards/ Control measures/ Additional comments:			

Excavation / Trenching	<input type="checkbox"/> N/A	Y	N
Daily inspection performed & posted			
Properly shored/ sloped if above 4ft.			
Ladder/ramp within 25ft. if above 4ft.			
Nearby foot or vehicle travel			
Underground utilities			
Other hazards/ Control measures/ Additional comments:			

Environment	<input type="checkbox"/> N/A	Y	N
Extreme heat/cold?			
Wind			
Lighting			
Rain / Snow / Ice			
Insects / bees / spiders			
Excessive noise			
Inadequate lighting			
Traffic			
If any boxes above have been checked "yes" how can the hazard be mitigated?			

Additional Cards	<input type="checkbox"/> N/A	Y	N
HEART Card			
Winter Card			

Welding/ Cutting/ Burning	<input type="checkbox"/> N/A	Y	N
Welding screens			
Fire blanket			
Smoke eater			
Combustibles / flammables removed			
Cylinders secured			
Flashback arrestors on torch and gauges			
Hoses inspected			
Paint / coating to be removed			
Leads inspected			
Other hazards/ Control measures/ Additional comments:			

Elevated / Overhead Work	<input type="checkbox"/> N/A	Y	N
Safe access to elevated work			
Scaffolds / work platforms inspected			
Vertical / horizontal lifelines used			
100% tie-off policy discussed			
Rescue plan discussed			
Tools tethered			
Housekeeping at elevation			
Other hazards/ Control measures/ Additional comments:			

Equipment	<input type="checkbox"/> N/A	Y	N
Crane			
Personal lift			
Scissor lift			
Boom lift			
Forklift			
Inspection been performed?			
Potential to impact nearby work?			
Is pathway clear? (e.x. swing, travel, landing, 360 walk-around, etc.)			
Designated flagger/ spotter?			
Other hazards/ Control measures/ Additional comments:			

Tools Inspected: (List all inspected)

Crew members (I participated in the STARRT meeting)
1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.

Quarterly Inspection			
1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
Yellow	Green	Red	Blue






# Safety Tool - Activity Hazard Analysis

SDN: 24915-00-2HY-H03-10176	Revision: 2	Start Date: 1/13/14	Expiration Date: 1/12/15
Contract Number: 24915	Project: BGCAPP	Location: Richmond, KY	
Analysis Prepared By (print): Danny Hydriak	Analysis Reviewed By (print): Brad Dowell	USACE Review By (print): ROBERT E. HESS	
Signature:	Signature:	Signature:	9 JANUARY 2014

## General Construction Site

### General

Primary Step	Hazard	Controls	Consequences	Requirement
 General Requirements	Moving equipment; overhead work; uneven surfaces; construction activities	<ul style="list-style-type: none"> <li>The following personal protective equipment (PPE) are required outside the blue chain walkways during working hours:                             <ul style="list-style-type: none"> <li>Hard hat and safety glasses with side shields</li> <li>Sturdy work boots with steel/composite toes</li> <li>Long pants</li> <li>Shirt with sleeves a minimum of 4 inches in length</li> </ul> </li> <li>Do not roll up sleeves.</li> <li>High-visibility (reflective) vests must be worn when working near moving equipment.</li> <li>No open-toe shoes are allowed on site.</li> <li>For any work activity that requires a hot work permit (e.g., welding/grinding, exothermic [i.e., Cad] welding) and work that falls under National Fire Protection Agency (NFPA) 70E, all natural fiber clothing, or fire-retardant cover (e.g., welding jacket, fire-retardant hood, fire-retardant coveralls [NFPA 70E-certified where applicable]) will be required.</li> <li>All visitors are required to report to the Time Office and sign in for accountability purposes.</li> <li>All visitors are required to wear a reflective vest when on site.</li> <li>No PPE are required when traveling inside in the blue chain walkway.</li> <li>Anyone with a visitor's badge must be escorted by a badged employee at all times.</li> </ul> 	<ul style="list-style-type: none"> <li>Crush (body and/or hand)</li> <li>Eye damage</li> <li>Falling objects</li> <li>Serious injury</li> <li>Slips, trips, and falls</li> </ul> 	<ul style="list-style-type: none"> <li>New Employee Orientation and Safety Training (NEOST)</li> <li>CP 205</li> <li>EM 385-1-1, Section 5</li> </ul>



# Key Program Elements

- On-the-Spot recognition program
- Project website (Blue Cards)
- New hire training (NEOST) 30 hours or more
- Passports
- Brother's Keeper
- **Stop/Pause Work Authority**



# Key Program Elements

- Drop Free Culture/ tool tethering
- Single lockout/tagout program
- STARRT facilitators - iPad app developed for evaluation and tracking results





# Key Program Elements

- Designated walkways – separate workers from vehicles





# Key Program Elements

- High-Angle Rescue Team (HART)
- Craft Safety Advocates
- Safety advisories



The poster is titled "BECHTEL PARSONS BLUE GRASS Construction Safety Advisory" and is dated "30 January 2014". It features a yellow warning triangle icon on the left and a circular "NO ACCIDENTS" icon on the right. The main heading is "Equipment Spotters & Barricade Reminders". Below this, it lists "Spotter Responsibilities" and provides a detailed explanation of the role of a spotter, including a list of specific duties and safety tips.

**BECHTEL PARSONS**  
**BLUE GRASS**

*Construction Safety Advisory*  
*30 January 2014*

A Joint Venture of Bechtel National, Inc. and  
Parsons Infrastructure & Technology Group Inc.

 **Equipment Spotters & Barricade Reminders** 

**Spotter Responsibilities**

**Being a Spotter** - Spotters are an essential part of a number of work tasks on the project. With our work areas becoming more congested, we routinely rely on spotters to help "be our second set of eyes". There are several areas on the project that require a designated spotter, such as: operating vehicles/equipment in front of the tool room area, operating an aerial lift, helping an operator place materials, moving heavy equipment in congested areas, etc. Any one performing spotter duties must remember these tips:

- Remain focused the entire time, and watch all movements of the lift. Make sure you communicate an ALL CLEAR when the hazards are no longer present.
- In areas that impact other work, communicate to the other workers that there is an activity that may impact them.
- Wear a reflective vest when acting as a walking escort for lifts and other equipment around the site.
- **BE VOCAL, NOT HOPEFUL.** Communication is key when being a spotter. If you see a potential issue make sure you communicate this to the operator or others in the area as



# Key Program Elements

- CATS Team
  - Employee volunteers
  - Observe safe vs. at-risk behaviors
  - Leading indicators – used to forecast hazards that can be mitigated

## Top Three At-Risk Behaviors for 2013

- \* **Hearing Protection 95%**  
1331 Safe and 65 At-Risk
- \* **Barricading: 98%**  
1355 Safe and 21 At-Risk
- \* **Lifting: 98%**  
2910 Safe and 45 At-Risk

## 99% Safe for 2013 and 1% At Risk

60,677 Safe Behaviors Observed  
430 At-Risk Behaviors Observed



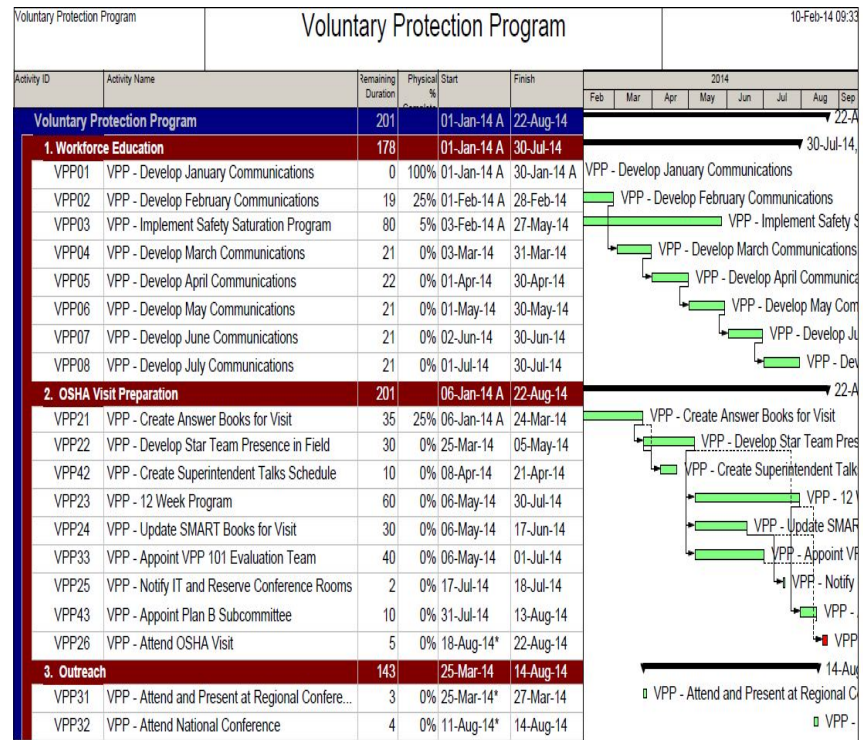
# Recertification

- Recertification in 2014
- Safety Saturation Plan
  - 12 week program
  - Reader boards/break room monitors
  - Videos – (Donning and Doffing)
  - OTS Program
- Star Team member development – training, teambuilding
- Continuous improvement – program evaluations



# 12 Week Program:

- Poster shuffle (banners)
- Why I work safe (photo badges)
- VPP “101” Guide
- Elements table cards
- LOTTO Cards (VPP Scratch Off)
- Poster shuffle (banners) Pt. 2
- VPP notepads
- Rotating pen (VPP)
- Element badges
- LOTTO Cards Pt. 2
- VPP stickers for hard hat
- VPP videos - education



# Project Transition

- Transition to systemization in 2015
  - Different project phase tied to operations
  - BPBG is committed to maintaining its focus on safety in systemization and operations
  - Many programs and processes will move forward to systemization and operations; there will also be new programs & processes to address new activities.
  - BPBG is committed to securing and maintaining STAR status during systemization and operations





Questions?

