

# Cambridge Center for Behavioral Studies Safety Accreditation Site Visit Report

**To:**  
**Monica Piper**  
**PBBS Manager**  
**Bay Industrial Safety Services**  
**Robinson, IL**



**working at:**

**Marathon Petroleum Co. LLC**  
**Illinois Refining Division**  
**Robinson, IL**

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**From:**  
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## Cambridge Center for Behavioral Studies Safety Accreditation Site Visit Report

Site: Bay Industrial Safety Services  
Marathon Petroleum Company, Illinois Refining Division  
100 Marathon Avenue  
Robinson, IL 62454

Date of Visit: August 20-24, 2012

Reviewers: Mark Alavosius, PhD (Chairperson of Team) & Tim Ludwig, PhD  
Commission on Behavioral Safety, Cambridge Center for Behavioral  
Studies

Overview: The Marathon Petroleum Company, Illinois Refining Division, (hereafter IRD) uses a behavioral safety process as part of a comprehensive safety program at the Robinson IL refinery. The Marathon IRD workforce initiated this process in 1996 and it has earned accreditation and re-accreditation by the CCBS since 2005. The IRD program also extends to multiple contractors who have adopted the PBBS process with their workforces operating in the refinery. During the week of 8/20/12-8/24/12 the CCBS review team examined ten (10) PBBS processes within the IRD. These included the Marathon refinery PBBS system and its extension into nine (9) contractors. **The Bay Industrial Safety Services accreditation review was included in this comprehensive site review.**

An important feature of the IRD PBBS process is shared elements of the system used by all parties: all participating units seeking CCBS accreditation during this review use a similar observation card, all observers are encouraged to make observations on any workers within the refinery (not just employees in their business unit), and all data stream to a central data base allowing examination of interlocking elements of the IRD workforce and contractors. The CCBS review team interviewed managers and workers from all ten units applying for accreditation (Marathon IRD & one contractor applied for re-accreditation) and critically assessed the elements of the PBBS system and its coordination during five (5) days on site. The review team scheduled focused interviews with managers of each unit's PBBS team and randomly selected workers to assess implementation of the PBBS system. The CCBS team examined outcomes achieved by each unit applying for accreditation as presented in their application to the CCBS. In many cases additional analyses were generated during the site review and these are added to the applications. Since all unit's behavioral observation data are streamed through a central data-base, Tim Meier, CAP Coordinator (CAP = Contractor Advisory Panel) was present during portions of all the interviews to query the data-base and provide reports as requested by the CCBS reviewers. These queries often revealed how the various contractors and Marathon IRD personnel observed each other within the refinery operations. Thus input on each company seeking accreditation was gathered both during the focused interviews of each applicant's personnel and in the review of other applicant's observation data.

It is noteworthy that our program reviews revealed the operation of the PBBS CAP (contractor advisory panel) that coordinates the PBBS program elements across 19 contractors (nine of which applied for CCBS accreditation during this review). This system appears essential for the continued development of the contractor workforce.

### Schedule of Events

Date/Time	Item	Location
8/20/2012 6:00am-7:00	Kick-Off: The IRD PBBS Leadership Team: Refinery GM, PBBS CAP Coordinator, Managers/Leaders from all Sites	Training Building Main Conference rm
7:00am-Noon	Marathon IRD PBBS system. Interview PBBS Coordinator (Dan Dix) & randomly selected workers	Training Building Conference room
Noon -4:30	Lytle Electric Co PBBS system. Interview PBBS Coordinator (Eric Biernbaum) & randomly selected workers	Training Building Conference Room
8/21/2012 7:00am-Noon	SENCO Construction Co PBBS system. Interview Resa Shaner & Chad Brown, co-owners, Curt Reimer, Safety Superintendent & randomly selected workers	Training Building Conference Room
Noon-4:30	Freitag-Weinhardt, Inc. PBBS system. Interview John Marts & Paul Maxwell, randomly selected workers	Training Building Conference Room
8/22/12 7:00am – 11am	Stewart Security Patrol, Inc. PBBS system. Interview Owners, Debbie Parker, PBBS coordinator, visit security video surveillance center & observe personnel	Training Building Conference Room; site visit to video surveillance post
11:00am-2pm	Gribbins Insulation Co. PBBS system. Interview Trevor Atherton, PBBS Coordinator and randomly selected workers	Training Building Conference Room
2pm-4:30pm	<b>Bay Industrial Safety Services PBBS System. Interview Monica Piper, BBS Coordinator, XXXX Office Manager, and randomly selected workers</b>	Training Building Conference Room
8/23/12 7am - noon	White Construction, Inc. PBBS system. Interview Nick Martin, PBBS coordinator and randomly selected workers	Training Building Conference Room
Noon-4pm	Brand Energy & Infrastructure Services, Inc. PBBS system. Interview Aaron Ikemire, PBBS Coordinator and randomly selected workers	Training Building Conference Room
8/24/2012 7:00am -noon	SDR Coatings, Co. PBBS program. Interview Tanner Holt and randomly selected workers	Training Building Conference Room
1:00-2:30	Closing Meeting: The MPC IRD Leadership Team. GM, ES Mgr., Managers/Leaders from all Sites.	IRD Admin Building Main conference room

### Summary

**Bay Industrial Safety Services**  
 performing work at  
**Marathon Petroleum Company, Illinois Refinery Division**  
**Accreditation Report**

The CCBS review team reviewed on-site operations to validate data and confirm that program descriptions as reported in the application are accurate. We find that the Bay Industrial Safety Services (hereafter "Bay") program operates as described and provides significant contributions to the IRD PBBS system. Bay Industrial Safety Services adopts the Marathon IRD PBBS system to maintain the safety of its own Bay employees' and plays an integral training role in extending the IRD PBBS process throughout the refinery by conducting much PBBS orientation and observer training. Bay employs three full-time safety consultants that work on the refinery providing safety observations and training. During turnarounds, Bay brings on approximately 50 temporary workers to provide additional functions related to behavioral safety – hole watch/fire watch observations and BBS observations. They are commended for integrating BBS with this safety service and probably stand as a leader in their field for doing so. Thus Bay has contributed substantially to the PBBS process at the Marathon IRD refinery as BBS implementation

specialists and technical supports. Bay employs a small group of fulltime employees and then expands greatly to meet demand during turnarounds. Thus their management has the challenge of a fluctuating workforce with many temporary workers joining their team to conduct safety observations within the context of refinery turnarounds. Bay has sustained a good safety record over 3 or more years and their incidence rate depicts an effective safety program.

History: In 2005 the Marathon IRD earned accreditation from the CCBS for their PBBS process. One of the CCBS recommendations from that accreditation was to involve the contractor workforce in PBBS at the refinery. IRD invited their contractor community to participate in their process. Bay Industrial Safety Services accepted the IRD's invitation and began adopting their PBBS process in 2008. Bay personnel joined the BBS CAP group and provide data entry support to the BBS program and assist during turnarounds. During turnarounds Bay personnel provide all training for the BBS process and manage daily functions of the PBBS CAP group. At the time of this review (2012), all Bay employees were trained to do observations.

Bay is seeking certification under the Voluntary Protection Program through OSHA. Their safety system includes routine training, safety meetings, appropriate PPE, a stretching program and other safety management initiatives.

Evidence observed during the 2012 accreditation visit indicates that Bay is executing the procedures described in their application for accreditation in terms of training large numbers of refinery workers in the PBBS process and applying the system to their own workforce. They conduct many observations on IRD workers and contractors. They conduct much fewer observations on their own Bay employees.

Monica Piper provided data depicting how Bay supports implementation of the PBBS observations, detection of at-risk target behaviors, and outcomes measured across IRD workers and contractors. Many receiving Bay services show sustained results in part attributable to their service delivery. The Bay management systems (e.g., team meetings, training, and communications) are integrated with the BBS CAP team (Bay provides much technical support to CAP) and appear responsive to the safety needs of the Bay temporary workforce.

Incidence rate data from Bay Industrial Safety Services are available from 2008-2012. See the application report for their data. Outcome data indicate a safety process that has resulted in sustained control of risks with no lost time injuries and a low rate of recordable injuries. The one recordable incident from the Bay workforce at IRD was in 2010 (a shoulder injury).

Bay workers provide safety observations of workers engaging in hazardous work (hole watch/fire watch). Bay personnel are exposed to a range of hazards and must comply with refinery safety precautions (e.g., PPE, line of fire, etc.) as they observe others on site. In their capacity as expert observers, they can and do complete PBBS observations

on workers across the refinery beyond hole watch/fire watch. Their top injury potentials (Bay) appear related to:

- **Slip/trip fall from uneven surfaces**
- **Exposures associated with refinery hazards (chemicals, vapors)**
- **Line of fire**
- **Body mechanics**

In addition to Monica Piper, we spoke with their business manager, a safety consultant and a worker conducting observations about the PBBS system to gauge its reach. The following were notable:

- Their employees have extensive engagement with the IRD PBBS system and train many workers outside of Bay employees in observations, reporting, and input to the system
- Bay workers are familiar with the IRD PBBS system of observation and feedback and how it is implemented.
- The PBBS operations by contractors are coordinated via CAP and Bay provides much technical support (e.g., data entry, observer training) to this process.
  - Communications among the managers of Marathon's IRD safety program and contractors are evident as they share data and refinements during formal (BBS CAP meetings) and informal channels.

Bay has a working and coordinated safety effort to manage safety practices across their workforce. They have a good safety record as evidence of effective management. Their incidence rates indicate an effective safety system that demonstrates sustained effectiveness (see their application for data illustrating results). Their OSHA recordable rate is significantly below the BLS data for general construction which appears to be a suitable benchmark for their operation. Since Bay safety personnel work onsite alongside IRD workers and contractors we discussed what constitutes the appropriate BLS comparison group. While Bay is technically listed as an HR consultant, the nature of their work exposes them to risk encountered by construction and their data are evaluated in light of that industry.

Strengths:

- Bay employees have adopted a well-established behavioral observation protocol to monitor safety practices. With this they provide feedback to many workers on site including one another to maintain safety and correct at-risk variability. Their observations focus on important risks (confined space and hot work) in the refinery environment and improve the safety of the entire operation. Employees interviewed were knowledgeable of the observation cards.

- Employees interviewed were versed in how to do the process. Evidence of integration with other safety management systems was apparent. Training in PBBS functions is ongoing and extensive. Participation in the PBBS observation process is tracked. Data indicate that workers conduct many observations per month. No incentives are used to promote observations.
- Monica Piper is the PBBS manager for Bay's employees. She attends BSN and educates herself on safety procedures, reports, and the PBBS technology. She provides much technical support to the BBS CAP group.

Concern:

During the Shaw project several workers were viewed engaging in at-risk practices and a Shaw safety observer elected to define this as a 'life-critical' event and initiated disciplinary action. The event (working at height without adequate fall protection) was generally seen by contractors as an at-risk behavior that could have been addressed via the PBBS system. In other words, the workers could have been apprised of their behavior and coached to use fall protection. This constructive feedback was not provided; rather disciplinary action ensued which is reported to have reduced use of the PBBS observation system by some contractors.

Implementation data confirm a decrease in some contractor observations concomitant with this event. The incident suggests that the critical aspects of the PBBS system (observation & constructive feedback & no disciplinary action) are susceptible to interference from safety policies implemented during special projects that overlap PBBS operations.

It appears the Shaw observer's choice to define the observed event as a 'life-critical' event entailed a decision in the field about the boundaries of the PBBS observations and the life critical policy that was not clearly understood across contractors. Thus some confusion was present among the workforce and this event had a negative impact on participation with the PBBS operations. That confusion suggests that training was incomplete or faulty regarding the PBBS/LCSR distinctions.

We are concerned this event may repeat and negatively impact participation in the BBS functions across contractors.

**General IRD System Recommendations:**

- The PBBS program is a properly designed, well-run behavior-based safety system. Impressive improvements in safety behavior and corresponding decrease in injuries and illnesses are noted in comparison to pre-PBBS data. **It is highly recommended that the current PBBS operations be supported so that they continue. The contractor PBBS processes are integrated with the Marathon Petroleum**

**Company IRD safety program and these linkages should continue. Bay Industrial Safety Services provides key supports to this process.**

- **Design for employee leadership of safety teams (e.g., Area Safety Coordinators) by having them routinely summarize and report PBBS observations and comments from their work team at tool-box meetings or other on-the-job meetings.** This will further emphasize and reinforce employee ownership of the program and will help generate higher quality (more detail & constructive suggestions) during implementation of the PBBS process. We recommend PBBS oversight functions be conducted by team members. Having hourly workers review and discuss the week's SHORT SHOT observations would be a good start on engaging more workers in the PBBS operation.
  - Consider a plan to rotate pinpoints after a number of weeks of 100% positive safe findings. New 'at-risk' behaviors can be generated by the safety teams and added to the SHORT SHOT forms. Switch those behaviors always measured as 'safe' to an intermittent schedule of observation (perhaps rotate these to the back of the observation card) and renew focus on them should data show increases in 'at-risk' findings.
  
- **Drop "Personal Choice" as a barrier on the observation form. Adopt an ABC Analysis Root Cause Analysis methodology to apply to the review of high at-risk behaviors in an attempt to go beyond "awareness" solutions toward more permanent environmental solutions.** With 'personal choice' being noted so frequently (~ 60% of barriers are listed as this), the PBBS program is missing out on the opportunity to identify the real root causes of the at-risk behaviors within the work process, environment, supervisory methods, tool/equipment availability, or other stimuli and consequences.
  
- **Reduce the tendency for workers to blame themselves for at-risk behavior.** Nearly every person interviewed during our review of all 10 PBBS programs described at-risk behavior as "wrong". This, along with the Personal Choice barrier can create an unintended "blame the worker" mindset. This may make the workers hesitant to list risk on their cards. Training should emphasize that *behavior is neutral* and there is no "wrong". Instead, the worker is concerned for the other worker enough to point out the risk.
  - **Consider re-training observers on identification of 'at-risk' behavior** and highlight that recording these will not result in disciplinary action. Identifying 'at-risk' variations is a desired function of the system and helps guide constructive coaching.

**Bay Industrial Safety Services Recommendations:**

- **Increase use of the PBBS observation system to observe target behaviors by Bay personnel. This may be best done as self-observations if these workers are solitary.**
- **Consult with the BBS CAP team so that the PBBS behavioral observations do not become confused with life-critical observations at the refinery.** Bay employees can and do provide valuable input to the Marathon safety program and contribute in important ways to sustaining the safety of the entire Marathon IRD workforce. They provide a highly visible model for others to follow and the focus of their observations (hole watch/fire watch) are central to preventing life critical events.
  - Add more specific definitions to what separates PBBS observations from life critical rule violations. The current IRD training materials provide excellent definitions of life-critical events but need more clarity to isolate LCSR violations from the peer coaching BBS observations. See appendix for IRD slide # 8 and suggested additions.
  - Train all PBBP managers in the distinctions & help coordinate re-training all personnel to use the PBBS observations to coach improvements in 'at-risk' behaviors.
- PBBS operations are challenging to develop, implement, and manage. The Bay team is commended for supporting the PBBS CAP group. The personnel we met impressed us with their expertise, enthusiasm, and interest in optimizing the system. **We recommend that Bay help refine the PBBS system as the program is clearly effective in improving safety practices.** The many effective elements of the PBBS process provide a well-tested and working foundation for this.

Conclusion:

Our observations confirm that the IRD system is effectively managing critical behavior by refinery workers and contractors and helps sustain the outstanding safety record at this refinery. It was a pleasure to view the performance of the Bay Industrial Safety Services team and their unique contribution to the refinery's safety. The site visit indicates that Bay supports an effective PBBS process and helps develop it carefully to achieve sustained results.

Our recommendation to the CCBS is for accreditation of the Bay Industrial Safety Service's PBBS program in Robinson, IL as it is operational and functional for Bay employees and contributes to the outstanding safety record across the refinery. We note that Bay is in a position to further develop training to integrate the PBBS procedures with the life-critical rules. This recommendation was approved unanimously on September 26, 2012.)

The Cambridge Center for Behavioral Studies invites Bay Industrial Safety Services to work on aligning the PBBS observations with the Life-Critical Safety Rules and we offer to review this action as part of our accreditation review. The Cambridge Center for

Behavioral Studies accredits the Bay Safety Services PBBS program at the Marathon IRD refinery in Robinson, IL for three years (September 2012 – October 2015)

Respectfully Submitted,

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Appendix:

Marathon IRD slide # 8 from "Life Critical Safety Rules"

## Life Critical Safety Rules & BBS Programs

- The Behavior based Safety (BBS) processes in place at the Refineries are critical to the success of the Safety Performance and safety culture at the plant.
- This Life Critical Safety Rules standard Practice is not to override any of the BBS processes in effect at the Refineries.
- Peer-to-peer observations conducted under the BBS Program are not subject to Life Critical accountability standards.

Note: Any activity in a peer-to-peer observation that involves an imminent hazard to the employee or contractor being observed must be stopped to ensure the safety of all persons involved.

Suggested additions:

### Triggers for LCSR

- BBS observations are often used to coach safer alternatives to 'at-risk' behaviors.
- When BBS coaching is offered and does not lead to safety behavior & imminent hazard is observed – **LCSR is triggered**
  - Stop the person(s) being observed
  - Secure the safety of all persons involved
- Examples & Discussion
- Role of Supervisor
- Disciplinary process