

# Cambridge Center for Behavioral Studies Safety Accreditation Site Visit Report

**To:**  
**Eric Biernbaum**  
**PBBS Management Representative**  
**Lytle Electric Company**  
**Workforce operating at Marathon Oil Co.**  
**Illinois Refining Division**  
**Robinson, IL**



**From:**  
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Site: Lytle Electric Company, Inc.  
1400 S. Eaton Street  
Robinson, IL 62454  
Workforce at Marathon Petroleum Company Illinois Refining Division

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 and it has earned accreditation and re-accreditation by the CCBS since 2005. The IRD program 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 Lytle Electric Company PBBS re-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 & Lytle Electric 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. 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. Lytle Electric Company's active participation in this group is commendable.

### Schedule of Events

Date/Time	Item	Location
8/20/2012 6:00am-7:00	Kick-Off: The IRD PBBS Leadership Team: Refinery GM, Managers/Leaders from all Sites	Training Building Main Conference room
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	SESCO 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	Bay Industrial Safety Services PBBS System. Interview Monica Piper, BBS Coordinator, XXXX Office Manager, and randomly selected workers	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 Administration Building Main conference room

### Summary

#### Lytle Electric Company Reaccreditation

The CCBS review team reviewed on-site operations to validate data and confirm that program descriptions in the application are accurate. We find that the program operates as described. Further, the program meets the 3 basic criteria of the Commission on Behavioral Applications for PBBS Accreditation: 1) it is a behavioral program, 2) the PBBS program has had a visible impact on safety performance, and 3) the program has produced sustained positive performance over 3 or more years.

History: Lytle Electric Company, Inc. adopted the behavior-based safety process used by the IRD Marathon refinery and incorporated it within its management of its workforce working at the Robinson Marathon refinery. The Lytle PBBS program began in 2005 and underwent an extensive rollout in 2006. In 2006 Lytle Electric Company placed a field electrician on the Marathon IRD

Behavioral Based Safety Contractor Advisory Panel (CAP) to actively coordinate its PBBS process with that of the Marathon refinery and other contractors. Lytle's PBBS process uses elements found in the Marathon IRD PBBS process (e.g., the observation protocol is similar) but adjustments have been made to customize the system to Lytle's operations. A notable alteration is that Lytle incorporated a 'Don't ask, just shoot me' policy wherein employees allow observations of their work at any time. In contrast, Marathon observers ask their employees to permit observation before any are made. This is a useful change and indicates the willingness of Lytle employees to receive feedback on their safety practices. Additionally, the Lytle observation card includes behavioral targets more specific to their craft. This is seen as a strength.

Evidence observed during the 2012 re-accreditation visit indicates that Lytle Electric Company, Inc. is continuing to execute the procedures as described in their application for re-accreditation. Data are verifiable and current and indicate a safety process that has resulted in sustained control of at risk behaviors and a low rate of incidents. Eric Biernbaum is a hands-on safety manager with a command of his PBBS process. The management systems (e.g., data collection, data entry, analysis, reporting) and training are responsive to the safety needs of the workforce. The PBBS process is part of a comprehensive safety program that manages the safety of Lytle employees and integrates well with the operations by other workforces occurring in the Robinson refinery. We did not examine Lytle's operations on other job sites as this accreditation extends only to their work on the IRD refinery.

The refinery is a large, 900 acre installation and Lytle's employees work across the environment. Thus they may encounter numerous hazards and engage in numerous at risk behaviors in a far-ranging operation. In addition to Eric Biernbaum, we spoke with several workers about the PBBS system. The following were notable:

- Lytle employees were familiar with the PBBS system of observation and feedback and how it is implemented.
  - The Lytle work force at the Marathon refinery fluctuates with work demand and the recruitment and training systems appear adequate to sustain the PBBS system as the workforce expands and reduces. It appears the Lytle Electric Company is having a positive effect on getting the region's electricians to adopt PBBS procedures.
- The Lytle employees work alongside Marathon employees and other contractors and their safety systems are coordinated in an effective manner.
  - Eric Biernbaum enjoys clear communications with the managers of Marathon's IRD safety program and other contractors and shares data and refinements during formal (BBS CAP meetings) and informal channels.
- The Lytle PBBS program is promoted with a variety of insignias and slogans. Hard hats, for example, display an array of markings indicating commitment to the PBBS system.
- Lytle has discontinued an incentive campaign ('biscuits & gravy') wherein employees were provided breakfast if no recordable injuries are incurred during a set time period. This action was responsive to recommendations from the 2009 CCBS accreditation report.

Lytle's PBBS program is well supported by management systems and integrated with routine operations. All in all...it is a coherent and coordinated effort to sustain critical safety practices. They have a good observation system which is being tailored to track important

behaviors, they complete observations, they provide timely feedback after observations, the data are entered in a timely way into an excellent data-base, and they generate useful and timely reports.

The incidence rates of critical safety events indicate an effective safety system that demonstrates sustained effectiveness (see their application). A lull in the rate of behavioral observations related to a major project is duly noted as well as evidence of success in elevating the rate to more useful levels.

#### Strengths:

- Lytle employees use a well-established behavioral observation protocol to monitor safety practices. With this they provide feedback to one another to maintain safety and correct at-risk variability. Observations focus on important risks in the refinery environment. Evidence shows that observations and feedback are being conducted. Employees interviewed were knowledgeable of the observation cards. Lytle is creating a new form for Short Shots PBBS observations to be more craft-specific. The new form added some PPE items and many procedures. The areas chosen are based on risk/hazard levels based on input from Lytle's PBBS steering committee. The new form also added "Quality" as an experiment to see if PBBS observations can also impact quality of work. Old timers like the quality of work item on the card.
- Employees interviewed were well versed in how to do the process. Evidence of integration with other safety management systems was apparent. Foremen really like the new cards and have already asked for more. They may see this as an opportunity to use PBBS to supervise workers.
- Lytle Electric Company, Inc. joins with other contractors to share the PBBS system with Marathon Oil personnel and was the first contractor to earn CCBS accreditation (2009). They occupy a leadership role in actively promoting and developing their PBBS process and demonstrate commitment to maintaining the safe operation of the refinery.
- According to statements in interviews, employees offer suggestions for improvements and control of hazards during feedback interactions. These suggestions are communicated to supervisors and management for corrective action.
- The observation data are entered in an excellent data-base for tracking progress. Data seemed to be entered in a timely fashion enabling rapid analysis and reporting.
- Eric Biernbaum is the PBBS manager for Lytle employees and coordinates efforts and shares data with Marathon safety personnel. Eric is fluent with procedures, reports, the BBS technology, and his craft. It was evident that Eric is a visible and attentive manager and enjoys the support of employees and management.
- The safety (PBBS) oversight procedures seem planned and routine such that follow-up actions are coordinated within and across work units.
- There is a variety of promotional items (caps, t-shirts, logos, etc.) that promote the PBBS process and appear to be effective in maintaining enthusiasm for the program.

#### Concern:

- Large contractor projects (e.g., the recent Shaw project) may provide incentives to employees for meeting task deadlines. Employees working on site on other projects are not included. The potential exists that this contingency may lead to morale problems within contractors as some workers do similar work but not under similar bonus conditions. This can undermine behavioral observations across work teams performing on separate projects.
  - Data reveal a decrease in PBBS activity when observations fell from 200 observations down to around 40 observations per month in July 2011. In March 2012 the count increased to 100 and seems to be going up. The main cause was apparently a drop in work because of project completion. We note the observations went well below Lytle's baseline during this lull.
  - Perhaps another reason that participation dropped during this period was because of the many incentives the general contractor used for safety and production during the project. In July 2011 the project stopped. Soon after Lytle's incentive system changed to delay payout incentives by 6 months. Meal tickets as incentives for observations were implemented in March. Such alterations in incentive operations can negatively affect adherence to PBBS procedures.
  
- During the Shaw project several workers were viewed engaging in at-risk practices and the 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 workers 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. Implementation data confirm a decrease in observations concomitant with this event. Observation rates have since risen likely in part due to small incentives motivating observations. The incident suggests that the critical aspects of the PBBS system (observation & feedback) are susceptible to interference from safety policies implemented during special projects that overlap PBBS operations.
  
- Lytle has experienced turnover in people working in a support roles to the safety coordinator which reduced the amount of time the safety coordinator can work on PBBS.

#### Future Challenges:

- The Lytle PBBS observation checklist has rather general response definitions (as does the Marathon checklist) and this is being revised. As observations discover more potential at-risk behaviors, more detailed descriptions of safety practices are added. This is useful to refine focus on important behaviors. Integrating these additional behavioral measures with the Marathon IRD data-base will require some change to the architecture of the data-base and may hamper analyses.
- On the observation cards, one barrier is listed as "personal choice" under "causes" on the checklist. This label is frequently used to attribute cause to the at-risk behavior. However, such a label may be too easy to choose as a cause and does not help identify

- environmental changes that should occur to reduce the at-risk behaviors (e.g., decreasing response costs, peer pressure, or confusing procedures).
- Engagement of the entire Lytle workforce (including those not working at the IRD refinery) in the PBBS program come up as a direction to expand the program throughout the region's workers. This is a desirable goal however the data from such observations are best kept isolated from the PBBS data obtained during work in the refinery otherwise these data will cloud analyses of refinery operations.
  - Economic challenges appear mounting to threaten sustaining PBBS operation as pay cuts are rumored to be coming to the contractors and this may undermine commitment to the PBBS operations.

Recommendations:

- The Lytle Electric Company, Inc. 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 operations be supported so that they continue. The Lytle PBBS process is integrated with the Marathon Petroleum Company IRD safety program and these linkages should continue.**
- **Drive toward employee leadership of safety teams (e.g., Area Safety Coordinators).** This will further emphasize and reinforce employee ownership of the program and will help reduce the time pressure on the safety officer of Lytle who could adopt more of a leadership role in managing teams' implementation of the PBBS process.
- **Alterations to the Lytle PBBS system (new target behaviors, extension to workers outside of IRD) should be done in consultation with the BBS CAP team so that integration does not contaminate existent systems at the refinery.** The Lytle 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.
- The contractor workforce including Lytle employees that use the PBBS observations may offer an organized method to detect variation in the refinery related to process safety management (PSM). Their eyes are on various features of the refinery especially during turnarounds. **We recommend consideration of adding a section to the PBBS SHORT SHOT form for employees to record any unusual variations (etc. leaks, spills, corrosion, vibration, etc.) as a way to collect such observations.** We temper this recommendation with the advice that this be done in collaboration of the BBS CAP team and the engineers responsible for PSM as the logistics for collecting and analyzing such data may complicate existent systems.
- **Using small incentives to promote individuals to conduct a quota of observations coupled with visible oversight activities that highlight the safety improvements prompted by the observations and feedback is recommended.** For example, workers could earn incentives if:
  - The workforce completed a set number of observations (peer or self) **and**
  - The work unit supervisor (foreman) conducted tail-gate meetings to review observations and coordinate hazard control, re-training, etc.

Incentive systems are best viewed as a short-term mechanism to promote 'buy-in' and establish new behaviors. Once a level of adherence is achieved (e.g., most or all are participating), change the focus of the incentives to solving current issues (e.g., observations while working on scaffolding). This is recommended as a way to continuously improve performance and set the stage for fading the incentive system.

- **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 BBS 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 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.
- BBS operations are challenging to develop, implement, and manage. Eric Biernbaum and the Lytle workers impressed us with their expertise, enthusiasm, and effectiveness. **We recommend that Lytle extend the PBBS system to their other operations (those not performed at the Marathon refinery) as the program is clearly effective in improving safety practices. This can be accomplished by developing a separate and independent tracking system to isolate these data from the Marathon IRD system.** The many effective elements of the Marathon IRD process provide a working foundation for this extension.

Conclusion:

It was a pleasure to view the performance of the Lytle team. Our impression was that people were open to showing all of what they do and constructive in discussing areas for improvement. The site visit indicates that they are indeed running an effective PBBS process and developing it carefully. Our recommendation to the CCBS is for re-accreditation of the Lytle Electric Company, Inc. PBBS program provided in the context of work performed at the Marathon gasoline refinery in Robinson, IL. This recommendation was (approved unanimously on September XXXXX). Lytle Electric Company Inc. PBBS program for work performed at the Marathon IRD refinery in Robinson, IL is re-accredited for three years (September 2012 – October 2015)

Respectfully Submitted,

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