Application for Re-accreditation of Safety Programs Based On the Principles of Behavior

Marathon Petroleum Company LLC
Illinois Refining Division

April 2012
A. **Identifying information:**

**Name of the organization:** Marathon Petroleum Company LLC/ Illinois Refining Division

**Location of corporate office:** Findlay, Ohio

**Name of company representatives in charge of the application:** Dan Dix, Monica Piper, and Tim Meier

**Phone number(s) of the company representative:** 618-544-2121

**Address of the representatives:** 100 Marathon Avenue, Robinson, IL  62454

**E-mail addresses of the representatives:**

dldix@marathonpetroleum.com, mpiper@marathonpetroleum.com, and tameier@marathonpetroleum.com

B. **The background conditions in your company:**

**The divisions of the company involved in the PBBS program:** Illinois Refining Division

**Their geographic locations:** Robinson, Illinois

**Good/services provided at each site:** Petroleum refining, i.e., gasoline, diesel, etc.

**Kinds of jobs in which workers are involved:** Petroleum manufacturing operations, maintenance of operations, laboratory operations, technical operations support, clerical and management functions

**General Safety Methods:**

Dates in parentheses indicate when the particular safety methods were begun.

- **STEPS (Systems to Ensure Participation in Safety) (2001)** – The STEPS process has become an essential part of the overall safety program to reduce, and ultimately eliminate, injuries at the refinery. The process was implemented with the following Safety Mission Statement signed by the Division Manager, ‘*We will conduct all of our work in a manner that protects all employees and our community, while establishing a culture which values safety equally with the other aspects of our business.*’

The STEPS process was implemented after STEPS training was conducted by a recognized safety consultant for all employees and lead contractor representatives. STEPS are structured
safety programs emphasizing direct involvement and accountability of every employee, at every level of the organization. STEPS were meticulously tailored to meet the needs at our refinery and strengthen existing safety processes. A few key points from the STEPS process are explained below:

- All levels of management manage, lead and champion the STEPS process throughout his or her area of responsibility in order to achieve an accident-free work environment. A matrix has been designed for each level of management to track their responsibilities.

- Each employee and lead contractor representative is trained, learning his or her specific safety responsibilities, such as area inspection and ‘What-If’ drill frequencies. (See Appendix A for Area Inspection form and Appendix B ‘What-If’ Drill form) Each employee is held accountable for the quality execution of these assigned responsibilities.

- Sequential structures of safety meetings are implemented (i.e., Department, Area, Work Group). Every employee and routine contractor in the refinery participates in these safety meetings and is held accountable for participation by the Division Manager, who audits the program monthly. (See Appendix C for an example of a STEPS meeting agenda.)

- Maintenance of safe work conditions through engineering controls, inspections, etc., is structured and stringently audited for completion.

- All Work Groups are audited annually to evaluate compliance with the STEPS process.

- **Responsible Care® (2000)** - The Responsible Care® initiative is one of the frameworks that Marathon Petroleum Company (MPC) has chosen to demonstrate its commitment to the public and our employees. All members have one common vision of no accidents, no injuries and no harm to the environment. MPC was among the first companies in our industry to sign up for this volunteer initiative, which focuses on improvement through implementation of key environmental, health, and safety procedures, called the “Codes of Management Practices.”

  Responsible care emphasizes the following:

  - Community Awareness & Emergency Response
  - Pollution Prevention
  - Process Safety
  - Distribution
  - Employee Health & Safety
  - Product Stewardship
  - Security
For 2002, 2005 and 2011 the refinery was named the MPC President’s Award for Responsible Care®. This award is given to recognize exemplary implementation of the Responsible Care® program within the company. IRD has not only shown sustained excellence, but has taken it to a new level in many areas. As the winner for this award, IRD received a $10,000 community outreach grant for each year from the company to be donated to a qualifying local non-profit organization(s) chosen by our employees.

**Celebrating Safety Achievements:** IRD has numerous ways safety achievements are celebrated and recognized. The BBS program awards employees for conducting observations. From the observations collected, one IRD observer (plus the employee who was observed) are chosen weekly in a random drawing. IRD employees win a $20 HES points that they may collect and obtain gift cards from various establishments such as Cabela’s, Walmart etc. During a Turnaround or Outage we extend this to our Contractor workforce. Employees are drawn randomly and given an award for conducting quality observations and or safe work practices and given various pre-purchased merchandise not to exceed $25.00 (per MPC Corporate policy). The gifts include logo merchandise such as hats, soft side coolers, satchels etc. In addition to the weekly random drawings, each IRD observer that has completed 12 or more observations for the quarter receives a $20 gift certificate. Occasionally there are “Observation Blitz’s” held where the workgroup(s) that complete a preset number of observations receives a pizza party at work.

Each year in the spring, the refinery holds a luncheon for all employees and contractors, celebrating IRD’s anniversary for becoming a VPP Star site. A second luncheon is held in the fall, organized by the VPP STAR Team to convey the thanks of IRD Management for continued pursuit of safety excellence. Both luncheons include entertainment and prize drawings, which have included portable DVD players, televisions, fire extinguishers, etc. Also, t-shirts and meals are provided for each employee and contractor.

In addition to the plant-wide luncheons, there are several creative ways in which VPP awareness was promoted and celebrated in 2007. A children’s safety essay contest was held with submissions from children of both employees and contractors, with winners receiving prizes. Also, children’s toys with the VPP logo were give-a-ways at the annual Marathon company picnic, and a Valentine’s Day “Sweetheart Contest” was held with four winners receiving a Valentine’s Bouquet and a heart shaped box of chocolates. The STAR team develops weekly articles for the Division’s *Mainstream* newsletter. These articles include puzzles which promote safety. Small prizes are awarded to the winner of solving the word puzzle. Both IRD employees and contractors participate.

In 2005, an incentive program was developed for resident contract employees at IRD. The Division Manager’s Contractor Safety Excellence award was developed to highlight resident contractors in the refinery who have exceptional safety programs. Since the start of the program Twelve of our resident Contractor workgroups have successfully met all requirements every year.
• Are pursuing VPP Star status;
• Have an established behavioral-based safety program;
• Have an established job hazard analysis program;
• Conduct daily toolbox meetings;
• Have an established stretching program;
• Have an established employee incentive program;
• Have an established ergonomics program;
• Conduct STEPS sequential safety meetings;
• Have an established incident investigation program;
• Attend quarterly contractor meetings
• Have a 100% compliance score with NCMS (a third party audit company).

Other Division incentive programs support employee recognition for safe behavior that may or may not be related to the BBS or VPP programs. These include the KUDOS program, the PRIDE program, MarAward, and the STP Corporate Program. The Kaught You Doing Outstanding Stuff (KUDOS) program awards employees when they make a special effort in the completion of a task or project. These are small, monetary awards that are reimbursable at several business establishments within the surrounding community. In the Personal Responsibility in the Drive for Excellence (PRIDE) recognition program, each employee has activity points tracked quarterly. These points are used to purchase MPC shirts, coats, smoke detectors, etc. Employees earn points when they participate on a safety committee, report a first aid injury, report a near-miss, conduct BBS observations, etc. The MarAward Program is designed to provide supervisors with an effective way to formally recognize employees for special achievements. An example of a MarAward is $100 in Marathon gas coupons for employees who perform outstanding jobs, beyond their normal duties. These award applications are brought before Management Staff for approval. A monetary award is given, as well as company recognition. The Success through People Plan (STP) is a variable pay plan which is designed to align employee compensation with the achievement of MPC’s Corporate and business unit objectives. By focusing an element of compensation on the performance of the Company and individual business units, the Plan reinforces MPC’s safety, environmental, operational and financial goals. It challenges each employee to contribute to improved Company and business unit performance and provides a tangible financial reward when corporate or business objectives are achieved.

• Safety Training: IRD safety training meets all OSHA regulatory compliance topics, as well as site specific safety training, such as Voluntary Protection Program Awareness. Typical safety training includes the following topics:
  • Portable fire Extinguishers
  • Emergency Response Awareness
  • Anhydrous Ammonia Awareness
  • Benzene Awareness
  • Hearing Conservation
  • PPE Awareness
All hourly, management and support personnel who work in the refinery receive training, at a minimum, as required by the OSHA standards. A Training Matrix has been developed to identify the safety training requirements for each job description. For example, training includes topics such as Respiratory Protection, Hazard Communication, Hearing Conservation, Emergency Response Awareness, Asbestos, Confined Space Entry, and Benzene. Most of this training is conducted through computer-based training modules, with the exception of training that requires hands-on instruction, such as for Self-Contained Breathing Apparatus and Fire Extinguishers. The hands-on training is developed by safety professionals.

The Training Department manages the documentation of mandatory safety training by utilizing the VTA “Virtual Training Assistant”. Each employee’s progress can be monitored by the individual and by his or her Supervisors. A reminder notification is sent via e-mail to the individual within thirty days of the required completion date. Monthly status updates of completed training for all areas are presented during the STEPS sequential safety meetings.

The IRD training programs utilizes classroom, hands-on, and computer based training to meet the requirements set by OSHA standards. Web delivery ensures that the trainee receives their training in a timely manner and may be completed at a self-paced style. To insure that the necessary individuals have received information, an electronic tracking program, “OTIS”, records the training progress of individuals. Due dates are established at one, two, and three year intervals with a separate grouping for one time courses. All regulated safety training is verified as complete on a monthly basis.

The Operator Training manual provides instruction to assist operators in the safe and efficient performance of tasks, and to provide them with a sequential learning path preparing them for their respective unit operator progression. The manual was developed through the efforts of process specialists and unit training coordinators, with the assistance of the training department. Safety
and organizational training remains a priority and are completed prior to allowing employees in the field.

The Craftsman Training and Qualifications manual outlines a learning curriculum for new employees in the Maintenance Department. The manual also provides a personalized training plan for the following craft progressions: General Maintenance Craftsmen, Electricians, HVAC Technicians, Instrument Technician, Mobile Equipment Operators, Mechanics and Welders.

- **Observer training**: Behavioral Based Safety (BBS) observers receive formal, instructor-based training. This training includes hazardous behavior and condition recognition, safety awareness, explanation of the BBS observation form (see Appendix D), and how to use the BBS observation form in the field. Practical training on static job observations (photos or illustrations of workers), videos of actual jobs (previously recorded jobs for risk assessment), and conceptual analysis of individual jobs (self observation) are utilized to explain safe and ‘at-risk’ behaviors and conditions. Trainees fill out the observation forms, and then a classroom discussion is held of any identified ‘at risk’ and safe behaviors. Also discussed is the importance of timely and positive feedback, accuracy of observations, and instruction on the electronic observation forms. BBSCAP training utilizes the Facilitator Coaching Guide (see Appendix L) to assist new observers to conduct quality observations. IRD is considering adding a similar form in the future.

As covered in the training, a step-by-step outline for how to use the observation form at the work site is outlined below:

- Observers are trained to first ask for the worker’s permission to conduct an observation while they work.
- Each category, e.g., body mechanics, is reviewed in the field as covered during the training. Observers mark both safe and ‘at-risk’ behaviors by these categories.
- The observer talks with the employee being observed at the completion of the task. Safe behaviors are reinforced first. Then the each ‘at-risk’ behavior is discussed with the employee, identifying a barrier associated with each. All observations must have a barrier assigned to each “at risk” behavior identified. These barriers are recorded on the observation form. Two examples of barriers are Personal Choice and Culture.
- Comments and follow-up may be marked to further help explain a specific ‘at-risk’ behavior or condition, e.g., lighting was not sufficient at Unit 1, vessel C2. If follow-up was not corrected in the field, it would be noted and assigned to the ACTS Coordinator for follow-up.
- Positive reinforcement is utilized by the observer to encourage the employee to use safe behaviors the next time the job task is completed.
- Finally, the observation is entered into the electronic database for trend analysis.

- **Safety records**: A variety of safety records are kept throughout the Illinois Refining Division (IRD). The following are a few examples:

  - **Injury/Illness Records**
    All employees have access to an electronic database to input first-aid reports. These reports are followed-up by the Company Nurse and by the Safety Department. Also,
OSHA forms are completed on all injuries regardless of their severity. The Safety Department initiates the OSHA forms and tracks them to completion. Near miss and incidents/injuries (other than first-aid injuries) are input into an Incident Report database. These reports are discussed each morning at the daily Refinery Management Team (RMT) Staff meetings. Using our Safety Standard Operating Procedure for Incident Investigations, the incident/injury is designated by the RMT by category and follow-up action is assigned according to the following procedures:

- Injury/Illness records are recorded by body part and type of injury. They are tracked monthly, quarterly and annually. They are reviewed in the monthly STEPS safety meetings.
- BBS At-Risk Behaviors are tracked monthly, quarterly and annually. They are reviewed in the monthly STEPS safety meetings.
- Knowledge Management System (KMS) Incident Reports are completed per the Process Safety Management (PSM) standard. (See Appendix I for Incident Report form)
- Safety Opportunities Shared (SOS) near miss reports are published in the weekly refinery newsletter, The Mainstream. (See Appendix J for SOS form)

- Exposure Assessment Records
  Exposures to benzene, noise, welding fumes, asbestos and lead are kept as exposure assessment records.

- Job Hazard Analysis
  Each area develops JHA’s with emphasis on potentially high risk jobs. JHA’s are reviewed as scheduled for each work group, and routinely updated. JHA’s are scheduled and conducted as outlined in each supervisor’s STEPS matrix.

- Annual Safety Performance Reviews
  These forms are conducted with the end-of-year performance review, to rate the employee’s safety performance during the year.

- Area Inspections
  Each area completes these safety inspections monthly, and for the entire refinery quarterly. The inspections review housekeeping items, proper storage of chemicals, labeling, etc. The results are reviewed by the owning department foreman and any deficiencies are corrected.

- Fixed and Portable Safety Equipment Inspections
  These inspections are conducted by each owning department as required, i.e., weekly, monthly, etc., for equipment such as safety showers, fire extinguisher and first-aid kits. The owning department is responsible for the area inspections, these inspections are conducted by radar or by a web based tracking system. The Safety Department audits these inspections quarterly to ensure they are being conducted.

- Process and Maintenance Shop Audits
These audits are conducted by the Safety Department, covering the entire facility annually. They include topics such as electrical compliance, exit and egress, labeling, etc. Results are discussed with the owning department, and then sent to the Safety Supervisor for review. Any deficiencies are corrected.

- **OSHA Regulatory Compliance Audits**
  These audits, developed per OSHA standards, are conducted by the Safety Department at least annually for topics such as benzene, confined space entry and lockout/tag out. Any deficiencies are corrected and the results are reviewed by the Safety Supervisor.

- **Contractor Field Audits**
  These audits are conducted by the Safety Department, any deficiencies are corrected and the audit results are sent to the Safety Supervisor. A minimum of twelve field audits are conducted each quarter and cover topics such as confined space entry, excavation, and fall protection.

- **Contractor Compliance Audits**
  All resident contractors are audited every three years. This audit spot checks safety programs such as safety procedures required by the contractor, training conducted by the contractor, records of safety meetings, etc. Any deficiencies are corrected by the contractor, and the audits are reviewed by the Safety Supervisor.

- **STEPS Matrix Audits**
  These audits are conducted by each level of Management and the Safety Department for the completion of safety programs such as:

  - Required safety meetings,
  - JHA reviews,
  - Area inspections, and
  - Tool-box meetings.

  Each level of Management reviews the matrices of their subordinates on periodic intervals. Then the Safety Department audits these matrices quarterly, reviewing all levels of management annually. These audits ensure that the above listed topics are being completed.

**C. Descriptions of IRD workers:**

**Their ages:** Median age is 43. Range of ages is 20 – 65.

**Experience:** A median year of experience is 11 years. Range of experience is 0 - 41 years.

**Training:** Operators receive over 620hrs of Technical Training & on-the-job Training.

Warehouse personnel receive over 70hrs of training and various amounts of OJT.

Lab Personnel receive over 280hrs technical training and various amounts of OJT.
Marathon Petroleum instructs 8hr of RCRA training to required Contractor Employees

Marathon Petroleum provides 1hr RCRA Refresher CBT for required Contractor Employees

**Safety Training**

IRD ensures required individuals meet regulatory, company, and refinery training requirements through an annual review of its training plan. The training plan is housed in the Learning Management System and reviewed annually by the Refinery Training Coordinator and the Safety Supervisor. The training requirements for each job title are compared to the Corporate HES Training Matrix and evaluated to ensure the refinery training plan is accurate.

**Regulatory:** Priority 1 Regulatory Training for 2011 was 99.9% complete.

**Non Regulatory/Non-Company:** Examples of additional training conducted in 2011 included: BBS Training (53 IRD) (5 hour – MSAT, 10% of TA work groups), Catlettsburg Fire training for ERT members, MI refresher, Taproot, PSI, Risk Calibration, PHA Team member, PSM Tier I Audit team, Facility Sitting, VPP, Responsible Care®, Presentation Skills Training for the MPC BBS Teams, New Employee On-Boarding Program, Safety Procedure revision management plan (assures CBT’s and Lesson Plans affected by SP Changes are updated)

**Education:** All operators and maintenance employees have a minimum of a high school diploma, with several having college degrees. Employees such as safety professionals and engineers have a minimum of a four-year college degree.

**Health:** Employees are encouraged to participate in the company’s wellness program and are eligible for health care insurance as an employee benefit. A full-time nurse is on staff and available during the day shift. Employees trained in first-aid are available during evening hours and weekends. An on-site rescue team is always available for emergencies.

**Contractors:** The refinery hires an average of 200 contractors a day, during normal working operations, to complete a variety of job tasks. These tasks include concrete and foundation work, pipefitting, insulation removal and installation, and storage tank cleaning. Each contractor is responsible to ensure that each of their employees is educated for their specific task prior to working in the refinery. Contractors must follow all OSHA regulations, as well as IRD safety procedures. An independent third-party contract firm reviews contractor safety programs before they will be hired by IRD. The safety data of contractors is monitored by IRD. However, these data are not included herein in the data reported for IRD.

**D. Safety concerns:**

In 1995, the total OSHA recordable rate was 3.63 for refinery employees. This rate was unacceptable. The Division Manager set a goal in 1996 to implement an hourly-employee-run principle of behavioral-based (PBBS) safety team. The trust and communication between management and the hourly workforce was generally viewed to be low. The new team was
formed in 1996, implemented the program in 1997, and called themselves the Areas Communicating Trust in Safety (ACTS) Team.

E. **The PBBS data:**

- **Injury/Illness Records** - All employees have access to an electronic database to input first-aid reports. These reports are followed-up by the Company Nurse and by the Safety Department. Also, OSHA forms are completed for all injuries regardless of severity. The Safety Department initiates the OSHA forms and tracks them to completion. Injury/Illness records are trended by body part and type of injury. They are tracked monthly, quarterly and annually, being reviewed in the monthly STEPS safety meetings.

- **PBBS Data** – These data are pro-active not reactive information. PBBS data are collected by trained observers performing peer-to-peer job observations. These data include safe behavior as well as at-risk behavior, and the barriers that drive these actions. The data are entered into an in-house-developed database that has several trending options. Safe behaviors are reinforced (for example by approving comments by the observer), and at-risk behaviors are addressed at the time of the observation (for example by constructive feedback by the observer). Safety concerns are addressed through a follow-up system designed in the program and administrated by the ACTS Coordinator.

- **Incident Reports** – These reports include all incidents, from near misses to a lost time injury. They are recorded initially in the Knowledge Management System (KMS). These reports are discussed each morning at the daily Refinery Management Team (RMT) Staff meetings. Using our Safety Standard Operating Procedure for Incident Investigations, the incident/injury is designated by the RMT by category and follow-up action is assigned according to procedure. (See Appendix I)

- **Safety Opportunities Shared (SOS) reports** – These near miss reports are submitted by employee using the Safety Opportunities Shared form. The forms are sent through channels as indicated by flow chart in Appendix J.

1. **Why are these data important?**

   All safety data are trended with the objective to use the data to eliminate injuries. Ultimately the trends in lagging indicators, such as the overall OSHA recordable rates and lost time rates, indicate that the BBS program is making a positive impact on the safety at IRD (See graphs in Section H). The behavioral safety and injury data are reviewed in detail monthly, quarterly and annually during the STEPS safety meetings. Peaks in data indicating an increase in the number of injuries for a particular body part or type of injury are highlighted, discussed, and acted on.

   The at-risk behaviors observed during SHORT Shots are one of the leading indicators of potential developing problems at the refinery. The top at-risk behaviors are reviewed in detail during monthly STEPS safety meetings. This review heightens awareness of these behaviors and drives the ACTS committee to develop new programs to attack these trouble areas. The results are used to implement safety awareness activities through STEPS safety meeting topics, toolbox topics, and newsletter articles.
In addition to reviews during safety meetings, special teams have been formed to focus on the type of injury or body part affected in efforts to reduce the injuries. For example, an eye protection focus group was formed to review the types of safety glasses IRD provides. With employee input, changes were made to offer glasses that fit closer to the face, which offered better protection. Also, a hand safety focus group was formed when hand and finger injuries increased, as well as the at-risk behavior category of pinch points. Glove choices were modified with input from employees. This team developed a poster to educate employees and contractors on the type of glove best suited for specific jobs and management enforced the new glove usage. Finally, sprains and strains were noticed to be a leading type of injury at IRD in 2004. Therefore a plant-wide voluntary stretching program was rolled out in 2005 in which well over 50% of the employees participate.

2. How do you ensure that the data are accurate?

The Safety Supervisor determines injury classification, with assistance from MPC Corporate Safety as needed. OSHA reviewed IRD’s injury data during VPP on-site evaluation in 1999, 2002 and 2008 with no changes requested. A comprehensive MPC Corporate Internal Control Audit is typically conducted every three years and includes a review of injury data. MPC also conducts periodic Tier II and III HES audits which typically include Corporate HES representatives and may include independent third party auditors to conduct comprehensive E&S audits, which may include a review of injury data. BBS data are monitored by the ACTS Coordinator for consistency. Initial BBS training is conducted for all observers, emphasizing consistent interpretations of at-risk and safe behaviors. Observers are given refresher training tri-annually which includes hazard recognition, correct completion of observation forms and other similar activities and techniques.

F. Description of your PBBS program:

ACTS is the refinery’s BBS team. In this section, the effort of the ACTS team is provided in detail. The following are brief explanations the ACTS primary initiatives:

- **SHORT Shot Observations** - A field safety survey of an on-going task that are designed to increase hazard recognition skills and raise awareness. (See Appendix D)
- **ACTS observation video** - A planned taping of a job or task that provides reinforcement of safe behaviors or work practices. It can be used to evaluate task for at risk and safe procedures, behaviors or work practices (See Appendix E)
- **ACTS Safety Action Process (ASAP)** - A form used when appropriate avenues of communication have been exhausted, and the originating employee or group is not satisfied with the resolution. The completion of this form alerts management to focus on an identified hazard/problem. (See Appendix K)
- **Safety Opportunities Shared (SOS)** - This form informs others of an incident or occurrence that could have resulted in an accident or injury by communicating the near-miss. After making the SOS anonymous, the incident is communicated thru the weekly refinery newsletter, The Mainstream, and is evaluated during HAZOP reviews. (See Appendix J)
- **Weekly Mainstream Articles** - A short article or story used to try to influence the reader to behave safely.
- **ACTS presentation for the STEPS safety meeting** - A presentation given each month to inform and influence the behaviors of the workers in a group. ASAP up-dates and at-risk behaviors from the previous month’s observations are included.
- **ACTS Tool-Box Meetings at the Gates** - A brief peer-to-peer awareness discussion conducted at the main gates and office doors. Often these talks are accompanied by the handing out of inexpensive topic related incentives.
Chronology of the PBBS Program

Pre-1996:

Before 1996, the safety process was management driven. The Illinois Refining Division (IRD) had a goal of zero lost time injuries. There was very little hourly employee involvement. Compared to the industry standards, IRD was generally performing better than average, but the OSHA recordable rate was still unacceptable. Several different safety programs were used trying to get more employee involvement. Due to lack of communication and trust, the programs failed. Then IRD had a change in Division Management in 1994.

1996-1999:

The new Division Manager was very concerned about the OSHA recordable rate. He decided to create a safety team made up of hourly employees and safety representatives, focusing on developing a Behavior-Based Safety (BBS) program. An outside BBS vendor was hired to help set up a program at the refinery. The vendor identified a lack of trust between management and hourly employees. However, the employees who were chosen to start the BBS program decided that the vendor’s program was too structured for the mind-set of the refinery, at that time. The nine hourly employees and two safety employees decided to build their own program. They named the program ACTS (Areas Communicating Trust in Safety). Their mission statement was, ‘To develop and implement, by hourly employees, a process to promote a safer working environment for individual areas.’ This endeavor was not without risks to both management and the chosen hourly personnel. Management allowed the committee developmental freedom and protection from disciplinary actions by their direct supervisors, and ACTS now had the challenge of promoting the evolving BBS program to their peers.

The ACTS program was officially implemented in 1997. The ASAP (ACTS Safety Action Process) was soon rolled out, and the program still remains today. If an employee brings up a safety concern to their supervisor which goes unanswered, then they can use this process to obtain an answer. ASAP guarantees communication of safety concerns through the proper chain of command, with responses assured to the originator. No repercussions follow the use of this form. Trust was now beginning to develop at IRD.

The second program rolled out was the BBS Video Observation Program. These videos were filmed and viewed by the individual work group, where the at-risk and safe behaviors were pointed out and discussed. The tapes were then erased after the work group was finished viewing it. Again, no repercussions were seen by employees, and the lines of communication were opened further. Trust in the process continued to build, and ACTS continued to grow. Hourly employees were elected or appointed from each area or complex, and were trained to conduct safety meetings and promote the BBS process. These facilitators conducted monthly safety meetings with their
individual work groups. As the success of the process grew, other programs developed. SOS (Safety Opportunities Shared) was started. This form was a way to anonymously publish near misses in the refinery’s weekly newsletter, *The Mainstream*.

The injury rate was decreasing, and IRD set a goal to apply for VPP Star status in 1997, achieving it in 1999. Part of the VPP accreditation process included more formalized programs for JHA’s, area inspections and tool-box meetings. Also, a peer-to-peer observation program had to be implemented. ACTS was asked to develop and facilitate these programs at that time. Area Inspection form were designed and inspections were conducted. Tool-box meetings were conducted on-shift for Operations employees, and Maintenance started conducting tool box meeting every workday morning. An observation program was started with about twenty SHORT (Surveying to Help Observe Risk Today) Shot observers trained to perform peer-to-peer observations. In 1999, the first full-time ACTS Coordinator position was developed and has continued since annual terms. The ACTS Coordinator reports to the Safety Supervisor.

**2000-2004:**

In 2000, the need for management’s involvement to support and enforce these added safety programs was recognized. Up to this point, management had very little involvement in the ACTS programs. In 2000, management appointed a cross-sectional committee of nine employees both salaried and hourly to address a recommendation from the OSHA VPP accreditation process, to develop a program to organize all of the IRD safety efforts.

In 2001, STEPS was implemented. STEPS included every employee from the Division Manager to Operators and Clerical Staff. ACTS became a segment of STEPS. This change allowed ACTS to focus on its main goal, which is Behavior Based Safety. The philosophy of ACTS used to be that, ‘a worker should have the right to go home uninjured.’ Now ACTS is trying to personalize safety and to encourage each individual employee to get involved. Their overall mission is to challenge each person to examine their choices involving safety at home and at work. The philosophy is now, ‘You have the Right and the Responsibility to go home uninjured.’

To accomplish this mission, ACTS utilizes all of its safety programs and activities as tools to achieve this philosophy. These activities include developing and conducting a safety topic presentation at monthly STEPS safety meetings. ACTS representatives deliver the BBS portion of the STEPS safety meeting to all employees, from the Division Manager’s meeting to the hourly Work Group meetings on a monthly basis, with the Office employees meeting quarterly. The result is that ACTS team members directly interact with management and hourly employees on a regular basis, to educate and challenge them about BBS topics and data.

Other ACTS safety programs and activities include near miss recording and publishing, peer to peer observations, observation videos, BBS tool-box talks at the gates into the refinery for employees and contractors coming to work, writing articles for *The Mainstream* regarding BBS topics, tracking and analyzing observation data for trends, and tracking ASAP forms.
A major role of the ACTS Coordinator is to train facilitators to present the monthly/quarterly STEPS BBS safety topics. These facilitators bring employee feedback from these meetings to the ACTS Steering Committee members or ACTS coordinator for discussion. Other responsibilities of the ACTS Coordinator include organizing the agendas for monthly meetings with the Steering Committee and quarterly meetings with both the Steering Committee and the facilitators.

In 2004, due to the realization of inconsistent observation training, the ACTS team conducted refresher training for every employee that had been involved in the ACTS process. This training benchmarked our BBS concepts and goals. We now conduct refresher training every three years. In 2004, the ACTS team also trained contractor safety representatives, all maintenance employees, and all IRD leadership on BBS ‘awareness’ training.

2005:

In 2005, IRD implemented a new twelve-hour shift schedule for operations; products control operators, and some laboratory workers. With this new schedule, ACTS increased the number of facilitators trained so that each work group has their own representative. Facilitators rotate and are trained annually.

IRD employee awareness and observer training increased in 2005. For example, ACTS trained 104 maintenance employees to an awareness level with 43 of those becoming observers, several of which were foremen. This awareness training was a requirement of the IRD maintenance manager. This action has prompted other Departments to request awareness training in 2006.

The format of the ACTS data presentations for the STEPS meetings were improved in 2005. It was simplified to identify leading indicators separately, rather than showing them as cumulative data. This change has helped to identify trends of at-risk behavior for discussion during the meetings.

IRD continues to also set goals to improve contractor safety records. Safety meetings were already being conducted in the contractor’s own areas, and their coordinators/safety representatives attend a STEPS meeting monthly. In 2005, contract companies were invited to send their workers to IRD’s BBS ‘awareness’ and SHORT Shot training. They were encouraged to use IRD’s forms to be included in the ACTS observation data base.

2006

The ACTS team followed the Cambridge Center’s recommendation, which was made during their on-site visit in 2005, and is training supervision in the Awareness/Observation BBS programs. All Maintenance Foremen and Supervisors were trained in 2005. ACTS has also trained Operations and PDU Foremen in 2006. As of December 31, 2006, a total of 303 employees and 374 contractors are trained observers.

During both awareness and observer training for IRD employees, the Operations Manager (or a replacement) presented the topic of “Zero Tolerance”. He reinforced the following: first, don’t accept taking risks yourself, and second, don’t accept your co-workers taking risks. He
emphasized to be assertive to talk with co-workers if they are starting to take a risk. IRD’s goal is
to one day have a culture that co-workers will thank the person correcting them. Finally, the
Operation’s Manager reinforced to employees to bring up any unsafe conditions in the work areas
by going through the proper chain of command. The classes are generally 5-10 employees. The
small group environment gives everyone a chance to speak to Management personally and to ask
questions if they wish. It also shows Management’s commitment to the BBS programs.

In 2006, a full-time hourly IRD employee was dedicated to coordinate and expand the contractor
behavioral-based safety program. IRD views this addition as an opportunity to further enhance the
safety within each contractor company, as well as the overall safety of the refinery. ACTS
presented observer training to Craft Union officials to encourage them to add BBS training in their
Apprenticeship Programs. Also, the IRD “Contractor BBS Program” was formally implemented
in 2006 with two main components that are explained below.

- A written “BBS Commitment Pledge” to implement the contractor’s own BBS program was
developed with IRD’s support and assistance. It is signed by the Contractor Company and
IRD.
- The BBS “Contractor Advisory Panel” (BBS CAP) was developed to help facilitate and foster
the spread and impact of contractor BBS programs. BBS CAP is comprised of representatives
of the contractor companies (one per company) who have signed the BBS commitment pledge.
To date, IRD has eleven contractor companies who participate in the BBS CAP. Each
company is in various stages of building their own steering committees. These committees are
set up in various ways with some that have hourly employees only, some with salary only, and
some with a mix of hourly and salaried employees.

Training is conducted with all of the companies involved. IRD encourages that the individuals
who will execute BBS training within their respective company attend and assist with refinery
BBS training. The last class was conducted by BBS CAP member Freitag Weinhardt, who trained
the new local #157 pipe fitter apprentices. Since 2004, 578 contract employees have been trained
in the observation process.

During the Spring Turnaround in March and April, 2006, a “SHORT Shot Blitz” was conducted
by four full-time observers dedicated to provide twenty-four hour coverage for BBS. Instead of
the normal monthly average of 580 observations conducted by both IRD employees and
contractors in 2006, the average number of observations conducted by both IRD employees and
contractors for each of these months was 1,730. All observation data was entered daily and
reported within that same day for ‘real time’ data. This data was dispersed to all of the IRD and
contractor work groups for discussion during pre-shift tool box meetings. These full-time
observers are now implemented during every refinery turnaround.

The 2006 totals for contractors were 6,963 observations on 16,143 individuals. This increase was
dramatic from the first year of recording contractor data in 2005, which was a total of 1,981
observations on 5,074 individuals.
2007:

Tragedy struck the Robinson Refinery on January 20, 2007. An employee was making normal rounds around an open neutralization pit in the HF Alkylation Unit. An apparent small release of concentrated hydrogen sulfide (H2S) gas was liberated from a chemical reaction in the pit. The employee was wearing a personal H2S monitor on his hardhat, and employees are trained to leave an area immediately when a personal or area alarm sounds. It appears that this employee was overcome by H2S vapors and collapsed. The monitor was alarming when help arrived at the scene, and the instrument had been properly calibrated. Operators in the area tried to revive him, as well as the on-site Rescue Team and local hospital personnel. He was pronounced dead at the local hospital within a couple of hours. The Crawford County Coroner received two toxicology analyses and the autopsy report in subsequent months. Given the absence of any other findings, the death was ruled accidental due to hydrogen sulfide intoxication (i.e., H2S poisoning).

OSHA completed its incident investigation and employee interviews with six serious citations to be issued as a result of the incident. Of the six citations, five citations were in the Process Safety Management Category, and one citation is in the Air Toxic Contaminants category. IRD chose not to contest any of the citations.

The Cambridge Center for Behavioral Studies visited IRD to assist with evaluating the incident from a BBS perspective. The Refinery Management Team (RMT) has followed up with suggestions to look at ways to prevent low frequency/high severity incidents. To date, the steps listed below have been taken as a result of the incident investigation findings and the CCBS visit:

To identify the Division’s highest concerns, our Division Manager initiated the “Rededication Challenge” to the ACTS Steering Committee in late January 2007. He engaged all employees to list their chief areas of concern. The ACTS group established priorities based on input from the work group. Responsible persons were then assigned for each concern or group of concerns. These items are currently being tracked to completion with oversight by the RMT. As resolutions to the items are developed, the respective ACTS facilitator is reviewing the proposed plans with the appropriate work group(s) to ensure each issue has been properly addressed.

- Chartered a PSM Focus Team in early March led by our ES&S Manager. The team’s purpose was to develop a PSM improvement plan for the Division.
- Developed and executed a Process Safety Cultural Survey for all employees. Also developed and executed a follow-up Process Safety Cultural Survey to address specific areas more in depth. All results of the surveys are posted on the PSM website, available to employees. The PSM group is following up on areas of concern from both surveys.
- Strengthened management of Relief Devices under PSVs.
- Developed a draft procedure to strengthen Pre-Startup Safety Reviews when restarting units.
- Strengthened and conducted hot work permit training for applicable employees.
- Developed PSM Roles and Responsibilities for supervisory personnel.
- Sent safety bulletins and held tool-box meetings to reinforce existing procedures that all alarms from monitoring devices (both personal and fixed) must be taken seriously by immediately leaving the area, notifying appropriate supervision, testing the area for wearing
appropriate personal protective equipment, and then reporting each incident in the IRD KMS database. These reports are reviewed daily by the RMT.

- Sent additional safety bulletins reminding employees/contractors of the characteristics and potential hazards of H2S, the proper calibration of the personal monitors and the correct way to wear the monitors.
- Developed improved protocol for managing hazards of inadvertent chemical mixing.
- Completed a detailed Hazard Operability study on Alky Pit operation and Human Factors. An outside expert on Alkylation Units (UOP) was added to the hazard review team.
- Third Party Subject Matter Experts were consulted in order to modify our Chemical Reactivity Matrices.
- PSM Focus Team completed face-to-face PSM meetings with all employees.
- Strengthened the current incident reporting categorization to include a PSM Near-Miss reporting section.

As the PSM Group conducted face to face meetings with all employees this summer, a number of comments were received. The comments were noted and have been discussed with the RMT. The comments show three primary themes: Overtime/manpower concerns, training related concerns, and procedure related concerns. All three of these issues are being addressed in some fashion.

Additional Operations, Maintenance, and Engineering personnel have been hired to provide resources where needed.

  - Significant resources have been devoted to developing an enhanced Operations training program.
  - Dedicated coordination has been established for the Process Specialists and duties have been rearranged to allow the Process Specialist to have more focus on procedure development.

While the OSHA settlement and abatements along with the internal investigation report close the book on the incident, our Division Manager addressed all employees with the following statements: ‘We must never forget the painful lessons learned from this tragic event. We must each truly recommit ourselves to zero tolerance towards our HES shortcomings, coupled with changing our personal behaviors and the organizational behaviors which have been accepting of inordinate risk and a "normalization of deviance." Changing such cultural issues will not be easy, and making the necessary refinery modifications will not be quick. We have no choice, though, but to continue to move forward as our experience and industry history clearly show the consequences of failure are too high. I remain confident that through everyone's efforts in working together, staying focused and in recommitting to excellence in all we do, we can continue the march towards our vision of an injury-free and incident-free workplace.’

In February, 2008 an OSHA team conducted an on-site evaluation for the refinery’s normally scheduled recertification VPP evaluation. IRD has been recommended for VPP Star recertification with several best practices noted by the team, including our PSM programs, ACTS program and BBSCAP program. Also, OSHA has conducted an on-site VPP evaluation for four of our resident contractors. Senco Construction and White Construction have both achieved VPP.
Star status. OSHA has recommended IRD contractors Stewart Security and Gribbins Insulation for VPP Star status. (Senco Construction became the first resident contractor in the state of Illinois and within MPC to achieve OSHA VPP Star status in 2006.) IRD continues to mentor six additional other contractor companies, MPC’s Maleic Anhydride Plant and MPC’s Canton, Ohio refinery in the VPP process.

In 2007 there were 21,878 observations for both contractors and employees. For 2006, there were 11,641 observations. This increase in observations has significantly increased employee and contractor awareness. Lagging indicators are also showing improvement. Following the fatality, IRD’s total recordable incidence rate has steadily decreased to a rate of 0.40 through 2007, which is the second lowest total OSHA recordable rate ever for IRD.

In 2007, IRD implemented a new online ACTS Observation form. This new data base is capable of helping to further breakdown observation data, which in turn can proactively raise awareness of, and prevent "At Risk" behaviors. IRD’s observer training has included self observations for refinery employees and contractors since 2004. IRD has conducted a total of 876 self observations since that time. The Safety Department, working with the PBBS programs, is reviewing how to best re-focus on self observations in 2008. (See graph below)
The total refinery MSPI for 2008 was 0.09 which was a vast improvement from the 2007 MSPI of 6.25. IRD incurred a lost time injury in January 2008, when an employee struck his head on a valve causing injury to the neck. Through hazard recognition techniques and emphasis on employee attention to surroundings, IRD was successful in achieving the lowest OSHA Recordable Rate of 0.40 in the history of the refinery and a 28.5% improvement over 2007 performance. The refinery continues to expand its comprehensive Behavior-Based Safety Program. In 2008 the refinery workforce completed 28,779 observations on 63,201 employees which accounts for 120 manhours between observations.

In 2008, the contractor workforce achieved their lowest ORIR in the refinery’s history (0.43). The contractor workforce has not had a lost time injury since 11/13/06.

2008 focused on total observations and comments. Comments gave the overall picture to Management and employees on what to focus on. (Leading indicators). Comments were published in the Mainstream (Newsletter). During Turnaround activities a dedicated data entry person was hired to help enter all data to get a quick turnover of the data so the employees could see on a daily basis what the top risk were for the previous day.

A key element to the success of the contractor workforce is their engagement in OSHA’s Voluntary Protection Program (VPP). IRD currently has five contract companies that are VPP Star sites or are recommended Star sites which account for an impressive 50% of the contractor companies in the State of Illinois. An additional seven contractor companies working at IRD are actively pursuing VPP Star status. IRD was recognized by the OSHA Area Director who stated that IRD’s mentoring of contractors is, “an outstanding and unprecedented achievement in Region V, and that the Illinois Refining Division is a leader in our region and an example nationwide.”

IRD has several programs in place that demonstrate our continued commitment to safety excellence. In 2008 IRD was successful in achieving the lowest OSHA Recordable Rate of 0.40 in the history of the refinery and a 28.5% improvement over 2007. Safety data is communicated to IRD and contractor workforce through sequential safety meetings which includes the safety pyramid illustration for BBS data, near misses, first aids, refinery incidents, and OSHA recordables.

The refinery continues to expand its BBS Program. In 2008 the refinery workforce completed 28,779 observations on 63,201 employees which accounts for 120 manhours between observations versus 2007 observations of 21,882 on 50,331 employees which accounted for 147 manhours between observations. IRD earned Reaccreditation from the Cambridge Center for Behavioral Sciences (CCBS) for its BBS Process. The CCBS stated “IRD’s behavioral safety program enjoys widespread support among employees, reflecting strong commitments to safety at all levels of your organization.” IRD was also recognized by OSHA through the 2008 OSHA Best Practice Award for IRD’s Contractor BBS Program.

IRD continued its 9th year as a VPP Star Site and in 2008 achieved recertification as a VPP Star Site. During the recertification ceremony, IRD was awarded a Letter of Commendation from OSHA for outstanding efforts in mentoring contractors in the VPP process. OSHA stated in its letter, “As a result of your involvement and dedication to a safer workplace for all, IRD has become a dynamic model for the surrounding contractor community.” As a direct result of IRD’s leadership, the refinery currently has five contract companies that are VPP Star sites or are recommended Star sites which account for an impressive 50% of the contractor companies in the State of Illinois. An additional 7 contractor companies working at IRD are pursuing VPP Star status. In 2008, IRD mentored ORD, and the Maleic Anhydride Plant in their pursuit of VPP status.

IRD’s structured safety program (SRI) continued its 7th year. The program consists of sequential safety meetings, audits, area inspections, JHA’s, and What If Drills, and is the foundation for IRD’s safety program.
• In 2008, IRD completed hazard recognition training for all employees and introduced the “SLAM” technique as a method for individual employees to utilize.
• IRD shares lessons learned from incidents and near misses through sequential safety meetings for both IRD and contract employees. Safety bulletins are developed and sent to all IRD employees and contractors on incidents from other refinery locations.
• Formal incident investigations are reviewed with the RMT and corrective actions, deadlines and responsible person assigned and tracked through KMS. Open action items are tracked through the sequential safety meetings to assure due dates are met.
• Leading safety indicators include BBS data, FA data trends, area inspections, JHAs, tool box meetings, stretching program, and ergonomics program. These items are reviewed through the sequential safety meetings and/or are criteria for IRD’s Annual Contractor Safety Excellence Award.
• IRD tracks a number of PSM parameters which it utilizes to monitor the health of its PSM programs and to provide focused resources when merited. The parameters include a wide array of metrics concerning MOC, incident reporting and investigation, assignment and completion of HES&S recommendations, training compliance, and MI performance.
• IRD’s Significant HES&S Risk Assessment is conducted annually to reflect current refinery risks. The assessment includes division goals that correspond with the identified risks. These goals are incorporated into department and individual annual goals.

2009

• Joe Dagan was invited to IRD May of 2009, to further his university doctorate dissertation as it related to the refinery’s behavioral based safety program, in hopes that his studies would provide additional insight to IRD and others. November of 2009, the IRD has been participating in a BBS Feedback Study with a University of Nevada Doctoral student. The goal of the study is to determine if quick feedback specific BBS observation data to a specific workgroup will result in higher numbers of observations and/or higher quality of observations. This study will continue into February, 2010. At the end of the study, the results will be analyzed and a decision will be made as to whether to implement the BBS feedback plant wide. This study was continued into 2010, and the results of the study will be implemented plant wide in 2011
• March 23, 2009 letter sent on behalf of IRD to all contractor workgroups from Tracy Case IRD Division Manager, to reemphasize what Jon Swearingen had in place, the letter states if you as a contractor company are willing to make the commitment to implement a BBS program, please contact our Safety office to initiate the pledge process and submit candidates to represent your company on the BBS CAP.
• SDR Coating achieved VPP Star Status
• Lytle Electric CCBS Accreditation June 25, 2009
• On August 24, 2009 the IRD received the 2009 VPP Outreach Award at the 25th Annual National Voluntary Protection Programs Participants’ Association (VPPPA) Conference in San Antonio, Texas. The esteemed VPP Outreach Award goes to individuals or worksites that act as “VPP Ambassadors.” Winners of this award must have performed substantial outreach to promote the importance of occupational safety and health, the benefits of VPPPA, VPP and OSHA.
• Turnaround BBS Observers- 24 hrs per day there are two dedicated observers. (two major turnarounds without OSHA recordable) Encourage observation process through daily prize giveaway. Plant Manager and ACTS Coordinator have bi-weekly tours of the plant. Visibility in the plant is
important. Manager attends weekly Facilitator Meetings; Managers periodically attend toolboxes at the gate.


2010

- Trained 880 Observers on the MSAT project
- One Management Representative on the MSAT Project attends each project orientation class as well as Behavioral Based Safety Observer training to share their commitment to safety. This is the most important part of their day, it is above anything else that they may have scheduled.
- BBS Coordinator assists contract companies with data entry when needed.
- Encourage the participation of the Safety Opportunity Shared. (SOS- This form is designed for safety concerns that need to be addressed.) Entered into the KMS (Knowledge Management System). The Safety Opportunity Shared is then referred back to the BBS Coordinator for follow up and closing comments.
- Project Hand-out consisting of the BBS data to distribute to all employees in the field to ensure the employees see firsthand they are making a difference through the BBS Process. Weekly newsletter is an effort by all Shaw Eng. Marathon as well as the BBS coordinator. To present a safety topic, the overall BBS data (Top five Improvement opportunities) from the previous week, and any first aid reports, near misses so we can learn from them.
- trained 10% of transient contractors in the BBS process for Turnaround
- Continue with Joe Dagan study with selected workgroups
- In order to capture each individual work areas job tasks for video observations, ACTS purchased cameras for each workgroup. The goal is to obtain at least one ACTS video per quarter. These are then added to the ACTS video library.
- The Division has implemented Life Safety Solutions, a multi-gas personal monitor with GPS tracking for all Operations and Tank Farm personnel. This innovative approach allows for real time monitoring and tracking for employees. This detection/tracking system has identified LEL leaks that may have gone unnoticed and lead to larger incidents.
- IRD completed Safety1 training for 394 hourly MPC employees. Because we strive to treat our contract employees as our own, we piloted the Safety1 training for resident contractors (280 contract employees). In addition, MPC provided the 2 day Leadership Training to an additional 28 supervisory employees and the HES Leadership Module 2 training to 102 employees. Leadership Skills for Extraordinary Safety Performance refresher training was held for 175 supervisory employees.
The Division OSHA Recordable rate of 0.12 for Marathon employees and 0.31 total refineries are both new record lows. In addition the number of observations performed (28,883) was the second best year for the last 10 years.

The Behavior Science Technology’s (BST) Leadership Diagnostic Instrument was completed for each member of the Refinery Leadership Team. Leadership styles and leadership best practices were identified for each member. Each leader received individual coaching on how to improve their leadership effectiveness.

“STOP Work” cards were developed and issued to all Marathon and contractor personnel. This card reinforces the commitment that all employees have the authority to stop a job for any safety concern.

Weekly BBS Data sent to all Marathon workgroups.

IRD shifted its BBS Observation focus from total number of observations conducted to the percentage of employees engaged in conducting observations. A 100% increase in BBS participation was achieved.

The Division Manager established a weekly communication webcast. Environmental and safety, economics, and operational issues are covered in each webcast. Employee feedback has been overwhelmingly positive on this communication tool.

ACTS Steering committee came up with a challenge for each individual workgroup to create a slogan/sign for their area. The signs can be viewed at the Marathon walk in gate (West Pedestrian Gate). This allowed employees to collaborate and creatively design a personal safety message that represented their work area.

Safety1 training, which is a one day participative workshop on coaching, interpersonal engagement, and personal responsibility for self and others, was conducted by an outside consultant for all hourly employees. Leadership Skills for Extraordinary Safety Performance refresher training was held for all supervisory employees. Also, IRD piloted the Safety1 training for embedded contractors (~300 contract employees). In addition, over 100 employees (MPC & Contractor) from the MSAT new construction project received the two-day Safety Leadership training.

Complete implementation of “Life Safety Solutions” across the refinery. “Life Safety Solutions” is a personal four-gas monitor, which provides alarm notification to a central control room board person with a real time (wireless) notification system.
Figure 1 displays the rate of lost-time injuries at IRD in comparison to the lost-time rate reported by the Bureau of Labor Statistics (BLS) for the entire oil refining industry in the United States of America and in comparison to the mean lost-time injury rate of the member refineries of the National Petroleum Refiners Association (NPRA). IRD is a member of NPRA. Therefore the IRD data are included in the NPRA data. Generally, NPRA safety data are somewhat better than BLS data.

IRD data were worse than both BLS and NPRA data in 1995. Since that time, the lost-time rate at IRD has been generally better than that reported by both BLS and NPRA. Part of this improvement came as the ACTS team was being formed. In 1997 the ACTS initiatives began and IRD began the process of applying for OSHA VPP Star status.

In 2001 IRD added ACTS SHORT Shot Observations and the STEPS program to the overall safety program. Now the IRD lost-time rate has been close to 0.0 for over five years while the NPRA data may be close to a plateau between 0.2 and 0.3.
Figure 2 shows the lost-time rate at IRD in comparison to the mean lost-time rate at all of the seven refineries operated by Marathon Petroleum Company since 1998. None of the other refineries that are operated by MPC are precisely like IRD. They vary in size, in how modern they are and certainly in terms of the hazards workers confront.

MPC data have varied around 0.1 with little or no apparent overall improvement throughout these seven years. The lost-time rate at IRD was consistently higher than the company mean through 2001. However, beginning with the 2002 data, the IRD record has generally broken away from the company average. This argues that the improvements at IRD do not simply reflect tighter safety management practices throughout the company but are a result of the unique safety efforts at IRD.
Figure 3 is a plot of the OSHA Recordable rates at IRD, and the composite rate of NPRA refineries and the OSHA Recordable rate reported for the refining industry by BLS. The three plots are close to each other throughout the 14 plus years with down trends in all three lines. However, beginning with the 2002 data, IRD’s OSHA Recordable rate has consistently been at or below those reported by BLS and NPRA. In 2007, IRD had an OSHA Recordable rate of 0.40.

The reader should note that the Bureau of Labor Statistics has not yet released safety data for 2011.
Figure 4 shows the OSHA Recordable rates for both IRD and the composite of all the refineries of MPC, which includes the IRD refinery.
Figure 5 shows the above described general decline of the lost-time rate at IRD in relation to the number of observations for both employees/contractors. This inverse relationship between number of people observed, on one hand, and various measures of injuries, on the other, is commonly thought to be a characteristic of Principles of Behavior Based Safety programs but has rarely been demonstrated.
Figure 6 shows the inverse relationship between number of observations for both employees/contractors and the IRD OSHA Recordable rate.

Safety professionals working with PBBS programs speculate about the “right” number of people observed. While this is interesting, it surely varies greatly with workforce, work conditions and the mix of safety initiatives. In the present case, the important observation is that the OSHA Recordable rate still isn’t 0.0. Thus, further safety efforts are in order.
Figure 7 shows an important inverse relationship between a common measure of productivity and lost-time injuries. At IRD, some stoppages in production are planned to allow for maintenance. Otherwise, efficient use of the refinery dictates that it be operating as great a percentage of the time as possible. Mechanical availability outside of turnaround percentage is the IRD measure of such operating efficiency with 100% indicating that the refinery would be operating all of the time except when it is intentionally stopped for maintenance.

Figure 7 shows that this operating efficiency at IRD has increased as the lost-time rate has declined close to 0.0. These data make it clear that a safe refinery can be a productive refinery.
Figure 8 provides an examination of the relationship between mechanical availability outside of turnaround percentage and the OSHA Recordable rate at IRD. Again, there is strong evidence that it is possible to decrease injuries while increasing productivity.

IRD also provides initial evidence that one other common argument is not always correct. There is some evidence and frequent assertion that shifts longer than eight hours contribute to greater numbers of accidents. IRD changed from eight-hour shifts to twelve-hour shifts at the beginning of 2005. In 2007, IRD has achieved an OSHA Recordable rate of 0.40. IRD had its best year when it comes to OSHA Recordable rates with year ending at 0.31.

It would surely be a mistake to argue that improved safety can always go hand-in-hand with improved productivity and shifts longer than eight hours. IRD provides a single case for such relationships and the conditions responsible for other organizations failures to obtain such results are unknown. This emphasizes the importance of other organizations attempting to obtain the kinds of results IRD has achieved, perhaps by using similar methods. IRD’s methods for addressing productivity and shift changes are beyond the scope of this report.
I. **Summary:**

Prior to 1996, IRD had primarily management driven safety programs, with incidence rates that were unacceptable, with a total OSHA recordable incidence rate of 3.61 in 1994. This data were one indicator of the need to try new avenues for safety improvement. With a change in Division Management in 1994, the ACTS team was formed in 1996. This employee-led committee was charged with implementing a BBS program, but initially decided that they had to focus on bridging the trust and communication gap with management (See Section F for more detail).

In 1997, implementation of initial ACTS team initiatives, along with the beginning of the accreditation process for OSHA VPP Star status, began a great culture change within the refinery. Safety data support the effectiveness of these two initiatives, showing a decrease in OSHA recordable incidence rates to 2.79 in 1997 and 1.75 in 1998.

However, after the VPP Star status was achieved in May, 1999, and with the ACTS team only partially focusing on BBS activities, the data reflects a time in IRD’s history where the refinery became somewhat complacent, and total OSHA recordable incidence rates increased to 2.37 in 1999 and 2.89 in 2000. Through the VPP accreditation process, the refinery became aware of the need for management involvement. The year of 2000 was a key year of transition to develop more structured safety programs.

As described earlier in Section B, the Responsible Care® initiative is one of the frameworks that Marathon Petroleum Company (MPC) chose to demonstrate its commitment to the public and our employees. In 2000, Marathon Petroleum Company LLC was among the first companies in our industry to sign up for this volunteer initiative, which focuses on improvement through implementation of key environmental, health, and safety procedures.

In 2001, ACTS SHORT Shot Observations and the STEPS program, which tied all of our safety programs together by involving all levels of management, were added to the safety methods and are now seen as key programs. As discussed earlier, a SHORT Shot Observation is a field safety survey of an on-going task that is designed to increase hazard recognition skills and raise awareness. The ACTS team had now become primarily focused on BBS, and management had an effective avenue to participate in safety through the STEPS program. The safety data, which shows a steady decrease in total OSHA recordable incidence rates from 2.44 in 2001 to 0.40 in 2007 reflects the positive effect these major changes. Also, the Lost Time incidence rate has been close to 0.0 since 2002. As all of the improvements in safety were occurring, the refinery has also achieved improvements in productivity. As discussed earlier, these programs continue to be enhanced following the tragic loss in 2007.

2008 brought about the goal of trying to raise participation and continual ‘buy-in’ within the process. To achieve this, we utilized the following strategies: included contractor data with MPC’s to propose a better sense of unity amongst the workforce; published observation comments via
newsletter and STEPs to initiate discussion of specific at risks or ‘Focus Areas’; and featured a combined rolling average of top at risk behaviors in STEPS. In addition, MPC began employing dedicated Observers during Shutdown/Turnaround operations to enhance communication between workgroups.

A few changes were made to our observation form in order to educate and better understand comments related to the subject of Fall Protection; proper use or lack thereof. The term Personal Fall Arrest Systems (PFAS) would later be added to the form(s) which allowed for the correct allocation of resources.

The Safety Department along with ACTS creates a weekly “focus sheet” for Turnaround/outages. The focus sheet covers all areas of safety. At-risk with their percentage, injury data and focus areas for the week are all covered. A daily meeting is held with all contractors involved in the turnaround which consist of the previous days BBS data and first aids if any. Along with that a walkthrough is conducted of the units to encourage positive feedback across all workgroups involved. One representative from each of the contract company involved is encouraged to participate.

2009 was yet another safe and productive year for IRD; however, we did inherit some changes amongst our corporate policies that brought about the implementation of Life Critical Safety Rules and Accountability standards. This was not to circumvent any of the establish BBS processes within the company, more so to highlight those areas which posed a higher potential of injury or fatality; to name a few: Safe Work Permits, Fall Protection, Confined Space Entry, and Energy Isolation. Peer to peer observation conducted under the auspices of the BBS Program were not subject to disciplinary action within the standard.

During the last quarter of 2009, ACTS started tracking number of observations per workgroup. This was the first time that observation numbers were publicly viewed and group participation highlighted. Due to its nature, this generated some competitive involvement amongst the different areas.

Joe Dagan, a student from the University of Nevada, Reno, sought out MPC to collaborate with the IRD safety department to increase the number of SHORT Shot observations by modifying its incentive system. The aim was to rigorously evaluate the effects of interlocking the requirements to earn incentives across hierarchical levels of the organization. Using the established incentives and budget, the hope was to alter the requirement for workers to earn incentives for SHORT Shot observations. This modification required an individual worker, as well as the worker’s supervision and subordinates, to meet certain behavioral observation criteria; making the delivery of an incentive for behavioral observations a function of both the individual’s performance and the performance of the staff directly above or below the employee. The implementation and evaluation of this procedure was to serve as Joe Dagan’s PhD dissertation.

In 2010, the contractor BBS process was expanded to cover the construction of a new process unit being built within the refinery. An additional BBS coordinator was hired to help facilitate the BBS emphasis on this construction area. All employees working on this project were required to attend
a 5-hour BBS training/orientation class. Approximately 900 contracted employees attended this training with a select few acting as representation for their company on the Project BBS steering committee; addressing BBS and safety concerns throughout construction.

More changes came in 2010 with the tracking of observations and injuries. The STEPs packet began utilizing an “injury person” which modeled the exact location of first aids and recordable in order to raise awareness to consistent injury trends. Observation data went from posting the number of observations by workgroup to a percent of observations; derived by dividing the number of observations over the number of employees per workgroup. Furthermore, an icon allowing groups to view comments conducted within their work areas was added to promote safety discussion; this was a follow-up addition from the Joe Dagan study.

Turnaround/outage walkthrough continues to be productive; the goal is to continue to knock down communication barriers across companies. This meeting as discussed previously is lead by the MPC Contractor BBS Coordinator. The Focus sheet and Daily data are all covered in the meeting as well as any issues that may get brought to attention amongst workgroups. This keeps all workgroups informed of any leading indicators so as to mitigate them before they become an injury.

2011 concluded as IRD safest year to date with a 0.31 OSHA recordable rate, as well as being nominated and later receiving the Marathon President’s Award. IRD is the first Refinery that has been awarded this on three separate occasions: 2002, 2005, and 2011. BBS observation tracking reached a new level as the focus of quality observations over quantity; driven by workgroups, the Steering Committee, and Division Management, inspired the displaying of the percentage of participation per individual workgroup. This change focused on dividing the number of active observers (participating) by the number of trained observers. Our ultimate goal was to generate more employee participation and allow groups to coach and encourage quality observations.

Safety1 training, which is a one day participative workshop on coaching, interpersonal engagement, and personal responsibility for self and others, was conducted by an outside consultant for all hourly employees. Leadership Skills for Extraordinary Safety Performance refresher training was held for all supervisory employees. Also, IRD piloted the Safety1 training for embedded contractors (~300 contract employees). In addition, over 100 employees (MPC & Contractor) from the MSAT new construction project received the two-day Safety Leadership training.

IRD implemented Life Safety Solutions (MX-4), a multi-gas personal monitor with GPS tracking for all Operation and Product Controls personnel. This innovative approach (first application in industry with patented approval pending) allows for real time monitoring and tracking for operations and PDU employees. This detection/tracking system has identified LEL leaks that may have gone unnoticed and lead to larger incident. Both the Division Manager and the Operation Manager have made presentations to national industry groups about this ground breaking technology.
**Appendix A**

**MARATHON PETROLEUM COMPANY LLC**

**ILLINOIS REFINING DIVISION**

**AREA INSPECTION REPORT**

UNIT: __________________________ AREA/LOCATION: __________________________

DATE: __________________________ TIME: __________________________

INSPECTORS: __________________________ RATING SYSTEM

E = EXCELLENT S = SATISFACTORY U = UNSATISFACTORY NA = NOT APPLICABLE NI = NOT INSPECTED

<table>
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<th>RATING</th>
<th>LOCATION / COMMENT</th>
<th>ACTION PLAN</th>
<th>Completed (Y/N)</th>
<th>KMS (Y/N)</th>
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**PPE SUPPLIES**

- Eye/face protection
- Respiratory Protection
- Fall Protection
- Special Clothing
- Foot/Hand Protection
- Hearing Protection

**HOUSEKEEPING**

- Shop Area
- Control Room/Lunch Room
- Office Area
- Work/ Jobsite Area
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<tr>
<th>SAFETY CHECKLIST</th>
<th>RATING</th>
<th>LOCATION / COMMENT</th>
<th>ACTION PLAN</th>
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<td>Smoking Areas/ Other</td>
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**TOOLS & EQUIPMENT**

- Right for the Job
- In Safe Condition
- Chains/Safety Gates
- Railings & Decking
  - Structurally Sound
- GFCI or Assured Grounding
  - (Contractor)
- Slings
- Equipment Guards
- All Signs and Labels
  - Condition/ In Place
- Ladders/Stairs &
  - Fixed/Portable
- Means of Egress
- Electrical Equipment
  - Clearance  (3’ min)

**WORK PERMITS/ JOBSITE**

- All Work Permit
  - Sections Complete
- Lockout/Tag out
- Confined Space Entry

**COMPRESSED GAS CYLINDERS**

- Work Area Cylinders
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<td>Storage Area Cylinders</td>
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**STORAGE**

- Tool Storage
- Supply Storage Area
- Flammable / Chemical Storage

**MATERIAL HANDLING**

- Manual Lifting
- Mechanical Handling
- Barricades/Guardrails
- Drum/Tote/Container Labels & Condition
- Welding Machines
- Trenching/Excavations
- Scaffolds (Proper Tags)
- Lighting

**OVERALL COND.**

**CONCERNS/ REMARKS:**

____________________________________________________________________________________________________________
____________________________________________________________________________________________________________
____________________________________________________________________________________________________________
Appendix B

“WHAT-IF” DRILL

DEPARTMENT / AREA __________ WORK GROUP __________ DATE __________

STATEMENT OF HYPOTHETICAL PROBLEM OR EMERGENCY:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

RESPONSE TO SITUATION:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

MATERIALS REVIEWED AND DISCUSSED (JHAs, MSDS, Standard Operating Procedures, etc.):

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

COMMENTS:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Appendix C

Example of STEPS Meeting Agenda

1. **Review of Current Safety Performance**
   - Summary of significant injuries/incidents in June.
   - Review of trend data for First Aid cases and OSHA recordable injuries.
   - Review man-hour milestones for injuries/illnesses
   - Projected Total Refinery OSHA Recordable Rate through the end of the year assuming no additional injuries:
     - Discuss any concerns and corrective actions

2. **Department Activity Reports**
   - Review/discuss outstanding action items from area inspections
   - Significant activities last month
   - Feedback from safety meetings, audits and inspections

3. **Behavior-based Safety Report**
   - Significant findings
   - Review trend data summaries

4. **Safety-related Work Order update**
   - Review the Work Order summary
   - Progress update for significant items

5. **Safety-related Project update**
   - # of new, closed and open Engineering Work Orders
   - Progress update for significant items

6. **PSM Recommendations Status**
   - Review the status of outstanding PSM action items.

7. **Safety Training Update**
   - Review training status summary.

8. **Reports from Standing Safety Committees or Focus Groups**

9. **Update on Special Issues**

10. **Safety Improvement & Prevention Activities/Plans**

11. **Discussion of any safety related issues or concerns**
Appendix D

S.H.O.R.T. Shot Observation Checklist

Refrinery Observation

Name of observer

Workgroup of observer

Date/Time of observation

Type of observation

Location of observation

Workgroup observed

Number of people observed

Describe the work that was observed

Barriers for At Risk:

1. Business Systems
2. Equipment / Facilities / Job Surroundings
3. Personal Factors
4. Culture
5. Personal Choice
6. Unsure of / Disagreement on Safe Practices

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<td>Storage</td>
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<td>Transportation / Travel</td>
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</table>
Barrier Examples

1. Business Systems – Tangible things that can be corrected by making things more accessible, better training or by changing our way of doing things. Example: “The proper tool was not available to do this job” or “The worker was not adequately informed and did not know it was an at-risk.”

2. Facilities and Equipment – Acknowledged at-risk working conditions and/or equipment. Example: Operator slips on ice as a result of overhead steam leak, or “I was working in the thunderstorm because we had to line up a tank.”

3. Personal Factors – Intangible things that deal with personal issues, such as excessive fatigue, stress, medication or illness, or lack of attention. Example: “I locked out the wrong pump because I was a little tired today. My kids are sick and I was up all last night” or “I was worried about a big job coming up tomorrow and I lost focus on what I was doing today.”

4. Culture – An at-risk behavior which is a long-established practice. Example: “I didn’t wear my hearing protection because we’ve never worn it before” or “We’ve always used a cheater to get this broken loose” or “I’d ask for help but everyone else lifts it alone.” Personal Choice – Worker has adequate skills and resources but chooses to work at risk to save time or effort. Example: “I know I should have worn my clear safety glasses to see more clearly, but I didn’t want to go back inside to get them” or “I should have cleaned up that spill, but it’s not my area” or “I should have put that hose up but I wasn’t the one who used it.”

6. Unsure of / Disagreement on Safe Practices - There is a disagreement with the SOP’s or work rules, or the worker is not sure how to interpret the rules. Example: “The worker was unsure of whether H2S monitor was required for entering this area” or “The SOP does not apply to this job. The way I’m doing this job is the safest way.”
# FACILITATOR'S MASTER VIDEO OBSERVATION CHECKLIST

RR 320 Rev.7/00

Shared Video

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### Barriers

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<td>Disagreement on Safe practices</td>
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Use back of sheet if additional space is needed.

Send completed copy through e-mail or through Intercompany mail to your ACTS Steering Committee Encouragement Team Member.

/Rob forms/ACTS RR 320

### Barrier Examples

1. **Business Systems** - “Every time I go to the store room to get gloves, they’re out of stock”. Or “This is the way I was trained to do this job.”
2. **Facilities and Equipment** - “There’s no way for me to get at that valve. It would be better if we could move it over here”.
3. **Personal Factors** - “I’m a little tired today, my kids are sick and I was up all last night”.
4. **Culture** - “It’s no big deal, everyone does it this way”.
5. **Personal choice** - “I know I should have worn the hard hat, but I decided not to bother”
6. **Disagreement on safe practices** – “I don’t think your definition of safe behavior is right. This is the safest way to do the job.”
## Job Hazard Analysis

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<th>Page of Date:</th>
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<th>JHA Writer's Name(s):</th>
<th>Foreman Name &amp; Initials:</th>
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Reviewed By:  
JHA Upgrade Dates and Initials:

Safety Rules / SOP's That Apply:

Job Check List for Personal Protective Equipment:  
Safety Equip. and Permits Required:

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<tr>
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<th>Hard Hats</th>
<th>Safety Glasses</th>
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<td>H2S Monitor</td>
<td>Gloves</td>
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Work Crew:

A. List Sequence of Basic Job Steps  
B. Write Down Potential Hazards  
C. Recommended Safe Procedure

1. In case of Emergency  
1.1 Review Escape Proc./Exit Route/Assem Area
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Appendix G

SAFETY PERFORMANCE REVIEW

Operators, General Maintenance, Crafts, Technicians, etc.

Name: _____________________________

Department/Area: ________________________

Review Period: ____________ to ____________

Rating Definition

1 - Far exceeds performance expectations
2 - Exceeds performance expectations
3 - Fulfills expectations in most behaviors
4 - Generally meets performance expectations in some behaviors
5 - Fails to meet performance expectations

I. Leadership

- Actively supports the Division's Safety Mission Statement 1 2 3 4 5 NA

- Always considers safety in operational/maintenance discussions/ decisions. 1 2 3 4 5 NA

- Knows responsibilities as outlined in Safety STEPS Process and carries out as appropriate. 1 2 3 4 5 NA
• Brings up safety issues, problems, concerns, etc.  

II. Safe Work Conditions

• Participation in area inspections, as required.  

• Completes assigned action items to correct unsafe conditions.  

• Actively works to keep work area neat and orderly to improve housekeeping.  

III. Rules and Procedures  

• Possesses significant knowledge with regards to rules and procedures that apply.  

• Always follows established safety rules and procedures.  

IV. Safe Behavior Development

• Fully participates in JHA effort, when requested.  

• Participates in emergency "What-If" drills, as required.  

• Participates in ACTS videos and Short Shots.  

• Has a willingness to stop a job for safety reasons or point out unsafe behavior.  

V. Safety Meeting
• Attends and is an active participant in safety meeting. 1 2 3 4 5 NA

VI. Accident Investigation

• Reports injuries and near misses. 1 2 3 4 5 NA

VII. Other Requirements

• Completes required safety training. 1 2 3 4 5 NA

VIII. Overall Numeric Rating

_______

Comments (Strengths)

________________________________________________________

________________________________________________________

________________________________________________________

________________________________________________________

Comments (Performance Improvement Areas)

_________________________________________________________________________________

_________________________________________________________________________________

_________________________________________________________________________________

_________________________________________________________________________________

Employee Signature: ________________________________

Reviewing Supervisor: ________________________________
SAFETY PERFORMANCE REVIEW
Managers, Supervisors, Foremen, Chief Operators and Coordinators

Name: _________________________________

Department/Area: ______________________

Review Period: __________ to __________

Rating Definition

1 - Far exceeds performance expectations
2 - Exceeds performance expectations
3 - Fulfills expectations in most behaviors
4 - Generally meets performance expectations in some behaviors
5 - Fails to meet performance expectations

I. Leadership

- Actively supports the Division's Safety Mission Statement and has reviewed with work group.  
  1  2  3  4  5  NA

- Develops and effectively implements safety goals and that support the Annual Safety Improvement Plan.  
  1  2  3  4  5  NA

- Always considers safety in operational/maintenance discussions/decisions.  
  1  2  3  4  5  NA
• Knows responsibilities as outlined in Safety STEPS Process and carries out as appropriate. 1 2 3 4 5 NA

• Creates an atmosphere that encourages employees to bring up safety issues, problems, concerns, etc. 1 2 3 4 5 NA

II. Safe Work Conditions

• Area inspections are completed as required, team members are appropriately involved and substandard conditions are identified. 1 2 3 4 5 NA

• Appropriate actions are implemented and tracked to correct unsafe conditions. 1 2 3 4 5 NA

• Housekeeping is a priority in the area and improvements are made as required. 1 2 3 4 5 NA

III. Rules and Procedures

• Possesses significant knowledge with regards to rules and procedures that apply. 1 2 3 4 5 NA

• Always follows established rules and procedures. 1 2 3 4 5 NA

• Regularly and consistently enforces all safety rules and procedures. 1 2 3 4 5 NA

IV. Safe Behavior Development

• Provides coaching as required. 1 2 3 4 5 NA
• Fully supports JHA effort including utilizing JHA’s as a regular training tool.  

1 2 3 4 5 NA

• Emergency "what if" drills are conducted as required, data is utilized and necessary changes/training are completed. 

1 2 3 4 5 NA

• Regularly utilizes safety statistical data to plan future preventive activities. 

1 2 3 4 5 NA

• Individual tool box meetings are conducted in a timely, positive, specific manner. 

1 2 3 4 5 NA

V. Safety Meeting

• Sequential safety meetings are completed monthly, are well planned and presented. Consistently follows-up on action items and suggestions resulting from safety meetings. 

1 2 3 4 5 NA

• Attends and is an active participant in safety meeting. 

1 2 3 4 5 NA

VI. Accident Investigation

• Ensures and encourages the proper reporting of injuries and near misses. 

1 2 3 4 5 NA

• Corrective actions are defined, tracked, completed and reported on. 

1 2 3 4 5 NA
VII. Other Requirements

- Is up-to-date in terms of required safety training and personnel in area have completed required training. 1 2 3 4 5 NA

- Safety STEPS Manuals are maintained. 1 2 3 4 5 NA

- There are less than 10% KMS Action Items that are outstanding. 1 2 3 4 5 NA

VIII. Overall Numeric Rating

__________

Comments (Strengths)

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_____________________________________________________________________________________________
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_____________________________________________________________________________________________

Comments (Performance Improvement Areas)

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Employee Signature: ____________________________

Reviewing Supervisor: __________________________


Appendix H

STEPS Safety Process Audit

Department / Area / Work Group: _______________________________  Date: ________________

Audit Team Members: _______________________________________________________________________
_______________________________________________________________________________________

YES  NO

Category 1 – Safety Meetings

____  ____ Work Group

☐ Completed as required
☐ Attendance
☐ Planning
☐ Quality of Meeting
☐ Follow-up

Category 2 – Safe Work Conditions

____  ____ A. Fixed and Portable Safety Equipment Inspections

☐ Inspections Completed
☐ Checklist updated within past year
☐ Deficiencies noted and corrected

____  ____ B. Area Safety Inspections

☐ Checklist Completed
☐ Deficiencies noted
☐ Corrective action initiated

____  ____ C. Safety-related Work Order Log and Engineering Projects Log

☐ Current Safety Work Order Log
☐ Current Engineering Project Log
Category 3 – Safe Behaviors

___ ___ A. Safety Rules and Procedures

- Were Standard Operating Procedures (SOP’s) followed during audit
- Employees wearing proper PPE

___ ___ B. Safety Training Plan

- Completed per schedule

___ ___ C. Job Hazard Analysis

- Completed per schedule
- Multiple Work Group members involved
- Available to all Work Group Members

___ ___ D. ACTS observation videos / SHORT shot observations

- Completed per schedule
- Reviewed with Work Group
- Data tracked and utilized

___ ___ E. Tool Box Meetings

- Completed per schedule

___ ___ F. Individual Tool Box Meetings

- Completed per schedule

Category 4 – Emergency Response Systems

___ ___ Emergency Drills and Exercises

- “What-If” drills conducted as required
- Corrective Action initiated

Comments:
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55
## Appendix I

### Marathon Petroleum Company LLC

**Incident Report**

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<td>Time:</td>
<td></td>
</tr>
</tbody>
</table>

**Location:**

**MPC Personnel Involved (indicate with * beside name if Initial Witness Statement was completed):**

**Contractor Personnel Involved (indicate with * beside name if Initial Witness Statement was completed):**

**Type of Equipment Involved:**

**Incident Description:**

**Category (check one):**

- □ 1
- □ 2
- □ 3
- □ 4

**Types (check all that apply):**

- □ Accident  □ Mechanical  □ PSM
- □ Designated Environmental Incident (DEI)  □ Near Miss  □ PSM Near Miss
- □ During Maintenance  □ OSHA Injury/Illness  □ Reliability
- □ Electrical  □ Operational  □ Security
- □ Environmental – Non DEI  □ Product Quality  □ Third Party Damage
- □ Explosion  □ Property Loss  □ Vehicle Accident – DOT
- □ Fire  □ Potentially Serious Incident  □ Vehicle Accident – non DOT
- □ Lost Opportunity

**Material Released (if applicable):**

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<th>Duration:</th>
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56
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<th>Persons Notified / Time:</th>
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<th>Work Order Number:</th>
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**Part 2 (Category 1 Incidents only)**

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<th>Responsible Person (one name each)</th>
<th>Due Date</th>
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<th>Reviewed with Managers (NA or provide date):</th>
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**Part 3 (Category 2, 3, or 4 Incidents only)**

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**Attachments**

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<td></td>
</tr>
<tr>
<td>B</td>
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</table>
Appendix J

Safety Opportunities Shared (SOS) Form

Mission Statement:
To prevent the occurrence or recurrence of events that may lead to injury, illness or fatality by sharing our experiences with others.

Date

OPTIONAL ITEMS

<table>
<thead>
<tr>
<th>Name (Optional)</th>
<th>Job Type</th>
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<tr>
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<td>Routine</td>
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<td>Rush Job</td>
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<tr>
<td></td>
<td>Start Up</td>
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<tr>
<td></td>
<td>Emergency</td>
</tr>
<tr>
<td></td>
<td>Shutdown</td>
</tr>
<tr>
<td></td>
<td>Other (Specify)</td>
</tr>
</tbody>
</table>

What happened or almost happened?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

What were the results or what could have resulted?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Suggestions on how to prevent an occurrence or recurrence?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
(Please attach additional sheets if more space is needed) **SOS Form Elements:**

<table>
<thead>
<tr>
<th>S</th>
<th>Procedures</th>
<th>A</th>
<th>S</th>
<th>Work Environment</th>
<th>A</th>
<th>S</th>
<th>Tools/Equipment</th>
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<tr>
<td></td>
<td>Permits</td>
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<td>Job Surroundings</td>
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<td></td>
<td>Proper Selection/Use</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mat'l Handling/Storage</td>
<td></td>
<td></td>
<td>Proper Lighting</td>
<td></td>
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<td>Transportation/Travel</td>
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<td>Lock out/Tag out</td>
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<td></td>
<td>Housekeeping</td>
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<td></td>
<td>Condition</td>
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<td>Process Equipment</td>
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<td>PPE</td>
<td>A</td>
<td>S</td>
<td>People</td>
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<td>Body Mechanics</td>
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<td></td>
<td>Environmental</td>
<td></td>
</tr>
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<td></td>
<td>Foot Protection</td>
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<td></td>
<td>Line of Fire</td>
<td></td>
<td></td>
<td>Electrical</td>
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<tr>
<td></td>
<td>Eye/Face Protection</td>
<td></td>
<td></td>
<td>Pinch Points</td>
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<td></td>
<td>Chemical</td>
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<td></td>
<td>Respiratory Protection</td>
<td></td>
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<td>Communication</td>
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<td>Other</td>
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<td>Hearing Protection</td>
<td></td>
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<td>Pace</td>
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<td></td>
<td>Fall Protection</td>
<td></td>
<td></td>
<td>Working/Moving</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Protective Clothing</td>
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<td></td>
<td>Other</td>
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</tbody>
</table>

1. Anonymous - Including your name, work area and job type on this form would facilitate improved follow-up and feedback on this event (and allow you to earn points in the HES Recognition Program). However, you are permitted to omit this information if you wish.

2. There is no intent for any disciplinary action as the result of reporting of a SOS.

3. If applicable collect additional comments and feedback from all parties involved in the SOS before forwarding form.

4. Send completed SOS forms to one of the following:

   - Plant Personnel send to your Facilitator,
   - Office Personnel send to the ACTS Coordinator,
   - Contractor Personnel to Safety Dept.
5. SOS's will be printed in the Mainstream. Why? To prevent the occurrence or reoccurrence of events that may lead to injury, illness or fatality by sharing our experiences with others.

6. If follow up or corrective action is needed, SOS form will be forwarded to the ACTS Team to track to insure completion.

7. All SOS's will be evaluated for the possibility of further investigation based on Standard Operating Procedure (SOP) #14. If the event becomes a Potentially Serious Incident (PSI), the originator will remain anonymous unless he/she chooses to volunteer information for the investigation.
Appendix K

A.S.A.P.

ACTS Safety Action Process

Communication Loop

RR 39/Rev. 6/96

☐ Safety Concern  ☐ IDLH/Stop Work Action  ☐ Job Hazard Analysis

Originators Name:  Complex/Area:  Date:

Safety Concern/Comments:

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________

Signature:  See Reverse Side for Originator Routing Instructions

LEVEL 1 CHIEF OPERATOR/CHEMIST

Name:  Date Rcvd:  Date Fwd’s:  

Action Taken/Explanation:

_________________________________________________________________

_________________________________________________________________

Signature:  Route to: (circle one)  Foreman or Originator

See Reverse Side for Level 1 Routing Instructions

LEVEL 2 FOREMEN
<table>
<thead>
<tr>
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<th>Date Rcvd:</th>
<th>Date Fwd'd:</th>
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**Action Taken/Explanation:**

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**Signature:**

**Route to: (circle one)**

**LEVEL 3 SUPERVISORS**

<table>
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<th>Date Fwd'd:</th>
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**Action Taken/Explanation:**

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**Signature:**

**Route to: (circle one)**

**LEVEL 4 MANAGERS**

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**Action Taken/Explanation:**

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**Signature:**

**Route to: (circle one)**

**LEVEL 5  PLANT MANAGER USE ONLY**

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**See Reverse Side for Level 2 Routing Instructions**

**LEVEL 3 SUPERVISORS**

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**Route to: (circle one)**

**LEVEL 3 SUPERVISORS**

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**Route to: (circle one)**

**LEVEL 4 MANAGERS**

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**Route to: (circle one)**

**LEVEL 4 MANAGERS**

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**Route to: (circle one)**

**LEVEL 5  PLANT MANAGER USE ONLY**

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**Action Taken/Explanation:**

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</table>
Signature: ________________________________

Re-Route to:Originator

See Reverse Side for Level 5 Routing Instructions

SUPPORT GROUP(S)

Name: ___________________________

Date Rcvd: __________

Date Fwd'd: __________

Signature: ________________________________

See Reverse Side for Support Group Instructions

ORIGINATOR CLOSURE SECTION

☐ Satisfied ☐ Unsatisfied

Comments: ________________________________

Signature: ________________________________

Date: ________________________________

See Reverse Side for Originator Closure Instructions
PURPOSE:
The communication loop is a tool for the Originator to receive a written response to valid safety concerns by routing the concern through proper channels.

TIMELINESS:
Concerns routed up to and through the supervisor level shall be responded to within 30 days. IDLH and STOP WORK ACTION will require an immediate response.

The ACTS TEAM will monitor progress of concerns submitted and assist with the process to encourage timely responses from all levels.

WHO CAN USE IT:
Any employee.

WHEN TO USE:
- When a safety concern has not been addressed.
- When a verbal response is not adequate.
- When a job hazard analysis is required.
- To follow up on a safety work order.
- STOP WORK ACTION used when immediate action is required.

ORIGINATOR SECTION INSTRUCTIONS:
- Check appropriate box.
- Write your concern.
- Signature required.
- Send one copy to ACTS TEAM.
- Keep one copy for yourself.

ORIGINATOR ROUTING INSTRUCTIONS:
Route the original completed form through proper levels of management (chain of command must be followed). If the answer is unsatisfactory, you have the option to send your concern to the level of management.

LEVEL 1 SECTION INSTRUCTIONS:
- Explain action taken.
- Signature required.

LEVEL 1 ROUTING INSTRUCTIONS:
- Problem solved; Send original back to Originator.
- Problem cannot be solved at this level. Send original to next level of management.
- Problem unsubstantiated; Send back to Originator.

LEVEL 2,3,4 & 5 SECTION INSTRUCTIONS:
- Explain action taken.
- Signature required.

LEVEL 2,3,4 & 5 ROUTING INSTRUCTIONS:
- Problem solved; Send original back to Originator through chain of command.
- Problem cannot be solved at this level. Send original to next level of management.
- Problem unsubstantiated; Send back to Originator through chain of command.

* At any level, a person requesting assistance from support groups shall send a "copy" of the original to the support group and keep the original in your file until the response is completed. The response would then be attached to the original and forwarded to the next level or the originator.

** (Level 3 Only) If action is required beyond the supervisory level, the Supervisor shall send a copy to the Originator and the ACTS TEAM file with completed comments and additional information required.

SUPPORT GROUP SECTION:
Support group: Any group or combination of groups in the refinery which may assist with solving concerns.

Examples of Support Groups may include

<table>
<thead>
<tr>
<th>Accounting</th>
<th>Human Resources</th>
<th>Purchasing</th>
<th>Product Distribution</th>
<th>Operations</th>
<th>Maintenance</th>
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<tbody>
<tr>
<td>Safety</td>
<td>Training Coordinator</td>
<td>Warehouse</td>
<td>Pumphouse Laboratory Effluent Treatment Pit.</td>
<td>Includes Cx. 1 thru 7</td>
<td>Inspection</td>
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<tr>
<td>Environmental</td>
<td>Tech. Serv. Rep.</td>
<td>Drafting</td>
<td></td>
<td>Electrical</td>
<td>New Construction</td>
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<td>Computer Group</td>
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<td>Turnaround Group</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Electronics</td>
<td>Scaffold Crew</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Machine Shop</td>
<td>Planners</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Reliability</td>
</tr>
</tbody>
</table>

SUPPORT GROUP SECTION INSTRUCTIONS:
- Action taken / Explanation
- Signature required.
- If more than one Support Group is used, attach additional paper work with copy of original.

ORIGINATOR CLOSURE SECTION INSTRUCTIONS:
- Satisfied: you are satisfied with results of your safety concern.
- Not satisfied: you are not satisfied with results of your safety concern.
- Signature required.
- Return original to ACTS TEAM file.

DEFINITIONS:
A.S.A.P. = ACTS SAFETY ACTION PROCESS
SAFETY CONCERNING = ANY WORK PRACTICE OR CONDITION THAT YOU FEEL IS HAZARDOUS
STOP WORK ACTION = WHEN IMMEDIATE ACTION IS REQUIRED TO STOP UNSAFE WORK PRACTICES OR ELIMINATE UNSAFE CONDITIONS
JOB HAZARD ANALYSIS = EVALUATION AND EXPLANATION OF PRE-JOB, POST-JOB OR AN ONGOING JOB PRACTICE(S)
WORK ORDER APPROVED = HAS BEEN APPROVED BY ALL NECESSARY PARTIES
Appendix L
Facilitators Coaching Guide

In an effort to improve the overall quality of observations this guide was developed to help the various BBSCAP facilitators critique their trained observers. This in turn will:

- Help increase the quality of the observations being performed.
- Drive more communication and proper specific feedback.
- Positively motivate observers.
- More facilitator and observer interface
- One on one coaching.
- Show the facilitator what they need to improve on or stress in their training programs.
- Help improve the skills of the observers.

*The coach should only take notes during the evaluation. Let the observer do the talking.*

<table>
<thead>
<tr>
<th>Introduction</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Observer asked permission to do observation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Observer Explained the process.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Observer set a good example (PPE Ect.)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Feed Back</th>
<th>Yes</th>
<th>No</th>
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</thead>
<tbody>
<tr>
<td>4. Observer discussed specific safe behaviors first.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Observer avoided using loaded words</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Observer discussed specific At-risks seen.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Observer asked for commitment to working safe.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Observer kept discussion positive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Observer promoted discussion by asking questions.</td>
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<td>10. Observer checked only the parts of the form that applied to the task.</td>
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<td>11. Observer listened to answers, made sure employee understood.</td>
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</tbody>
</table>
12. If follow up is needed observer explained

<table>
<thead>
<tr>
<th>General</th>
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13. Observer gave proper feedback

14. Observer legibly filled out all applicable portions of the form

15. Observer filled out comment section of form with applicable barriers

16. Observer treated worker like the worker wanted to be treated (Platinum)

17. Upon completion observer showed employee finished form

<table>
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<th>Comments</th>
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