



## Mistras NDT Solutions (Robinson, IL site) CCBS Accreditation Application

### A. Identifying Information.

**Name of the organization:** Mistras Services

**Location of Corporate Office:** Hobart, IN

**Name of company representative in charge of application:** Eric Martinovich

**Phone number(s) of the company representative:** Office (618) 554-3213

Cell (812) 881-6258

**Address of the representative:** 1701 N. 12<sup>th</sup> St. Vincennes, IN 47591

**E-Mail address of the representative:** [ericmartinovich@yahoo.com](mailto:ericmartinovich@yahoo.com)

### B. The Background conditions in your company.

**The division of the company involved in the PBBS program:** Mistras Services performing work at Marathon Oil Company's Illinois Refining Division

**Their geographic location:**

Robinson, IL

**Goods/services provided at each site:**

Mistras is a contractor founded in 1978 that specializes in providing non-destructive testing (NDT) services. Mistras strives to provide a positive work environment that values excellence in safety and quality. Every Mistras employee plays a part in our company's success

and making this a great place to work. We are committed to a work place where all employees are free to raise issues, concerns and questions for the improvement of our operation and work environment. We use ultrasonic, radiography, and other testing techniques. MISTRAS Group is a leading global provider of technology-enabled asset protection solutions used to evaluate the structural integrity of critical energy, industrial and public infrastructure. These mission critical solutions enhance the ability of MISTRAS' customers to extend the useful life of their assets, increase productivity, minimize repair costs, manage risk, and avoid disasters. To access our work we used ladders, scaffolding, rope access, harnesses, and aerial lifts.

**Kinds of jobs which workers are involved:** X-ray, ultrasonic thickness testing, magnetic particle testing, liquid penetrant testing.

**Recent non-safety initiatives and company changes:** N/A

**Recent non-PPBS safety initiatives:** Mistras has developed a web-based learning center called <http://mistraslearncenter.com> where employees do OSHA safety, NDT, radiation safety, and certification tests. Our level III technicians give us our hands on training for our practical exams. In 2014 a full time safety coordinator was added.

**Other background factors:**

Safety is the overriding priority in everything we do; all duties critical to safety, quality, and environmental protection are carried out in compliance with all requirements and with personal accountability. Mistras has 6 inviolable rules of safety which include the following;

- Wear fall protection and protect yourself when working at heights.
- When required work with a valid permit.
- Enter a confined space only after receiving the proper permitting. For hole watches, only allow entry into a confined space with a valid permit.

- Assure that you conduct gas test when required in confined spaces.
- Assure that equipment has been isolated de-energized, locked out and tagged out when required.
- Mistras applied lockout/tagout devices will only be removed after receiving the proper authorization.

**Daily Toolbox Talks:** We begin each shift with a brief safety topic. Once topic is review employees are required to sign the safety toolbox sheet. Topics include hazards and obstacles we encounter each day in the work place. Some of our daily safety topics are sent down from our corporate office for us to review and discuss.

**Stretching Program:** After our daily toolbox talks we do daily stretches to be more alert and eliminate strains, and other possible injuries.

**Joint Job Site Visits (JJSV) & Job Safety Analysis (JSA):** Once permit is obtained a joint job site visit is walked down with unit operator and hazards are discussed. Followed by the JJSV a JSA is filled out prior to job to locate specific hazards, eye wash stations, safety showers, proper personal protective equipment (PPE), fire extinguishers, and evacuation plans.

C. **Description of workers:** We have 20 full time employees and 10-12 on special projects.

- **Ages-** The oldest employee in our office is 67 years old. Our youngest employee is 18 years old.
- **Experience-** The employee with the least experience in their trade has 1, and the employee with the most experience has 30 years.
- **Training-** We have highly skilled highly trained workforce. All our certifications must be recertified every 3 years.
- **Safety Training-** The Company has implemented a radiation safety operating and emergency procedure that must be used in all matters related to the use of and protection from licensed devices that emit radiation. Radiation technicians also undergo a state exam in Springfield, IL. We do some OSHA training annually and different OSHA training every 3 years. We do Marathon orientation training yearly. Also we do initial aerial platform training and then refresher course every 3 years. All Mistras employees have a stop work card that they can use without fear of reprisal, when they believe a situation exists which places them or their coworkers at risk or in danger. Each employee has a Landauer film badge that records the amount of radiation the employee receives. These film badges are sent in monthly, reports are sent back to tell how much radiation each employee was exposed to.
- **Education-** The average education level of our employees is 2 years after high school. This figure is a combination of college, apprenticeship schooling, and military.

**Health:** Our employees are encouraged to do light stretches in the morning before beginning the work day. Employees have health insurance available to them through BlueCross BlueShield as an employee benefit. Also employees have access to Marathon's on-site nurse throughout the day. During the summer months employees are supplied with Squenchers which are hydrating popsicles, water, Gatorade, and cooling jell jackets to assure our employees do not get overheated. Employees are encouraged to take breaks to keep from overheating and to rehydrate. Also the employees learned the signs to heat exhaustion through their basic training when they were hired. In the cooler parts of the year the company provides jackets and coats to keep the employees warm and from getting sick. Employees are also encouraged to break from work to warm up so they can work more alert and safely. We also started a hearing program to get a baseline of the employee and then check yearly to monitor hearing loss if any. Mistras uses respirators and must pass a respirator fit test.

**Safety Records:** 2010 & 2011 we were awarded Marathon Petroleum Company division manager's contractor safety excellence award. Further awards require VPP accreditation. We are now in the process of applying for VPP accreditation. Individual safety training and certifications are kept in each employee's individual file.

D. **Safety Concerns:** In 2005 the IRD received an accreditation from the CCBS for their PBBS process. One of the recommendations from that accreditation was to involve the contractor work force at the Marathon refinery. The IRD invited their contractors to participate in their PBBS process. Mistras saw the positive impact of the program in 2009 and joined their behavior based safety contractor's advisory panel (CAP) and started learning the process. Several Marathon classes were given explaining how to take proper short shot observations. In November 2014 the

new Mistras safety officer was given a 5 hour BBS course by the IRD. After being trained the safety officer then trained other Mistras personell.

#### E. **The PBBS Data:**

##### **What safety data are particularly important at your work site?**

- **Safety Opportunity Shared (SOS)-** These are near miss reports that are completed by employees by using the SOS form. These forms are created to fix conditional safety hazards on the work site.
- **Injury/Illness Records-** All employees have access to their medical records and first aid reports. Injury/illness records are trended by body part and type of injury by IRD; they are tracked monthly, quarterly, and annually. They are reviewed in the monthly steps safety meetings.
- **PBBS Data-** Safe work practices are collected as well as at risk behaviors. Barriers that drive these actions are identified. Safe behaviors are reinforced verbally and at risk behaviors are addressed at the time of observation. Observations are anonymous and employees cannot be disciplined for at risk behaviors. If an observation shows an at risk behavior the unsafe behavior is discussed in our safety meetings. The data is entered into a database that shows a trend of at risk behaviors. These behaviors are identified and brought up in our steering committees to discuss solutions to eliminate injuries in the future. Specific data is taken from the observation form and documented on a word excel document created and maintained by the site safety officer. Collecting data in this manner insures low margin for error. The IRD has given several classes to fully

train everyone on PBBS. New employees are trained by the safety officer or steering committee members until they can be trained in one of the IRD classes.

- **Incident Reports-** These reports include all incidents from near misses to lost time injuries. They are recorded initially Knowledge Management System (KMS) with the IRD. Each morning these reports are discussed at the daily Refinery Management Team (RMT) meetings. Incidents will be discussed in Mistras' morning safety meetings.

**Why are these data important?** All safety data are trended with the objective to use the data to eliminate injuries. We want our employees to go home and enjoy their families and hobbies. For this to happen we need to have accurate reporting for our BBS program. The top at risk behaviors are reviewed during monthly STEPS safety meetings. This raises awareness of the at-risk behaviors and the steering committee can find solutions to stop injuries in these areas in the future.

**How do you collect data on each of them?** The observations are completed on a paper form and submitted to Mistras' safety officer. He then enters the observations into the IRD's BBS data base. The reports are viewed on a monthly basis by Mistras' site steering committee.

**How do you ensure data is accurate?** Our employees have attended several Marathon classes training everyone on PBBS. The Mistras officer goes around and coaches the employees on taking observations. Data is taken from the short shot form and put directly onto the IRD's BBS data base.

- F. **Description of your PBBS program:** In 2005 the Cambridge Center for Behavioral Studies (CCBS) came to Marathon Petroleum Illinois Refining Division (IRD) to look at the Behavior Based Safety process used in their facility. The IRD received an accreditation for their BBS

process. Along with the accreditation it was recommended by the CCBS that the IRD share their process with the contract community working on their site. In 2009 Mistras joined Marathons Contractor Advisory Panel (CAP). Mistras also started their own steering committee which meets monthly to review/track the BBS data and thinks of ways to reduce the at-risk behaviors to prevent future accidents. The steering committee also listens to and addresses the concerns of the work force. Employees who have been trained to perform observations use an observation booklet. These observation sheets are known as short shots. This form includes the following: Observers name, observers work group, date, time, type of observation (self or peer to peer), location, work group observed, number of people observed, conversation before observing (yes or no), task, conditional or not, and has supervisor been contacted if conditional. The observation sheet is a checklist of 5 sections with different items in each section they are as followed:

### **People**

- Ascending/Descending
- Carry/Moving
- Communication
- Eyes on task
- Line of fire
- Overextending
- Pace
- Pinch points
- Push/Pull
- Twist/Turn

### **PPE**



- Face Shield/Welding Shield
- Fall protection
- Hand protection
- Head protection
- Hearing protection
- Goggles/Glasses
- Personal monitors
- Protective clothing
- Respiratory protection

### **Procedure**

- Confined space entry
- Energy isolation
- Hot work
- JSA/JHA Assessment
- Material handling/Storage
- Permits
- Process safety
- Signs and labels

### **Tools/Equipment**

- Barrier tape/Barricades
- Condition
- Guards
- Grounding

- Hoses
- Obstructed safety equipment
- Process equipment
- Proper selection/use
- Scaffold, Ladders, and Stairs
- Storage
- Transportation/Travel

### **Work Environment**

- Housekeeping
- Odor
- Proper lighting
- Spotter
- Tripping hazards
- Weather

Next to each different item the behavior has to be marked as safe, opportunity for improvement, or condition. An employee performing the observation decides which of these behaviors applies to the task at hand. If the observer is conducting a peer to peer then permission needs to be granted from the employee who is being observed. Then the observer determines which behaviors apply, then checks if the behavior is safe, needs improvement, or condition if the item does not apply to the observation it is left blank. At the conclusion of the observation the observer reviews the short shot form with the observed. Feedback by observer reinforces safe behaviors that took place and identifies at-risk behaviors with the question of why the at-risk behavior was done. At-risk behaviors are corrected immediately

once spotted then talked about at safety meetings. Each opportunity must have a barrier associated with it. The barrier would be the cause of the at risk behavior. Six barriers are listed.

- Business System- Tangible things easily corrected.
- Equipment/Facility- Tangible things not easily corrected.
- Personal factor- Emotional state, frustration, fatigue, angry, sad, rushed.
- Culture- Resistant to change
- Personal Choice- Taking short cuts.
- Unsure of/ disagreement- Knowledge/training

The BBS short shots are turned in to the safety officer. Mistras BBS participation is tracked by percentage of monthly participation by employees. The safety officer will inform the work force of current participation by posting which employees are participating and how many observations each employee has performed.

Each month employees who participate by performing observations are eligible for a small prize drawing. The odds of winning the BBS drawing are equal to the number of observations an employee performs. An employee's name is put into the drawing on a piece of paper for each observation performed. (5 short shots = 5 names) The winner receives a gift card which is redeemable (Valued at \$25). This gives active observers recognition and tries to encourage participation from other employees.

**BBS Goals:**

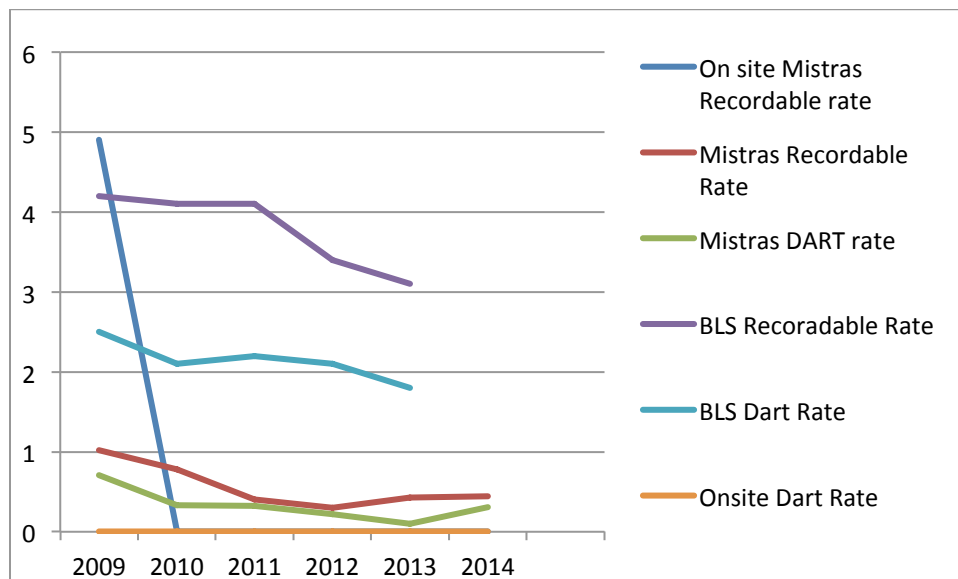
- Raise safety awareness
- Identify, reduce, and eliminate at-risk behaviors
- Zero injuries
- Change at-risk behaviors through positive reinforcement

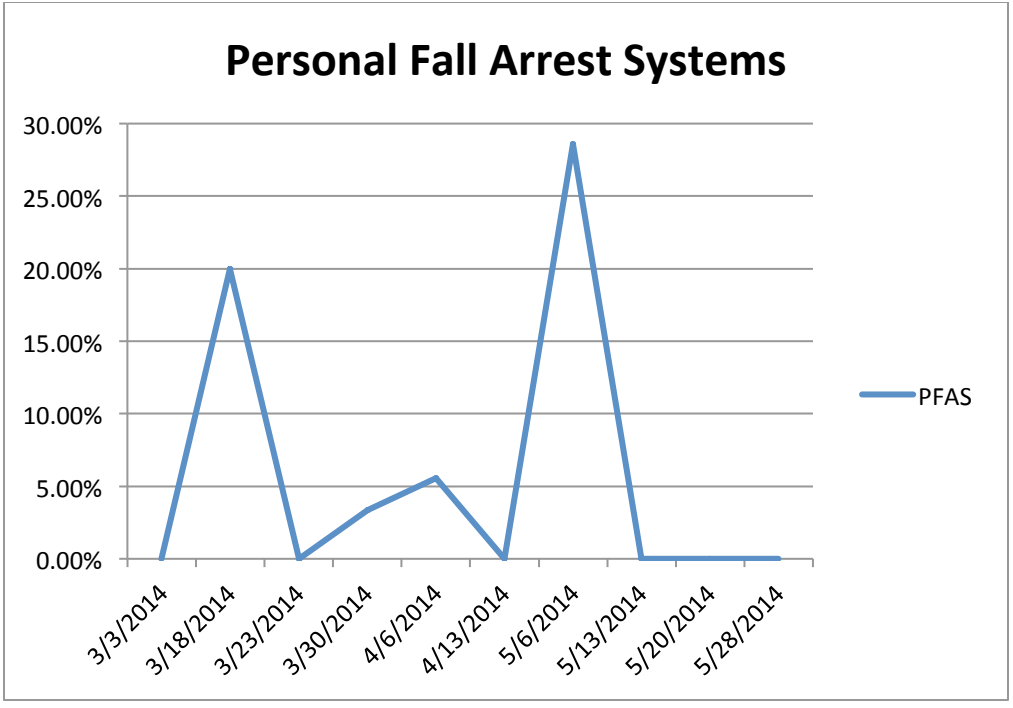
**Process in Review**

- Employees are trained and given ownership of the process
- Important for management to support the process
- Employees observe and record data
- Steering committee inputs and analyzes the data, focusing on at-risk behaviors and finding solutions to eliminate injuries in the future
- No reprimands is vital to this process

## The Data

This chart depicts Mistras overall company rates, Onsite rates and BLS





Personal fall arrest was seen at-risk over time a management system was incorporated to address the Issue. The following work order shows the verbage needed to do the job requested. A description of the work at elevation was all that was needed to let the employees know that the work was at elevation and a PFAS was needed.

### NDE REQUEST FORM

SEND ONLY ONE REQUEST AT A TIME THROUGH THE MAIL

**RECEIVED**  
By John Brimberry at 5:29 pm, Apr 17, 2014

**INSPECTION CENTRAL**  
CM GROUP ANNEX 803 EAST EMMONS  
RON VEENSTRA PH# 5866 RVEENSTRA@MARATHONPETROLEUM.COM  
JOHN BRIMBERRY PH# 5864 JWBIMBERRY@MARATHONPETROLEUM.COM  
ROMEO MARTINEZ PH# 5837 ROMEO.MARTINE@MARATHONPETROLEUM.COM

REQUESTING COMPANY: MORRIS  
DATE REQUESTED: 4/17/14  
REQUESTING QC: JAY JACOBS  
WORK ORDER NUMBER: 82-51411

TRACKING NUMBER: M449

READY TO INSPECT  
 WILL CALL WHEN READY

**ACCEPTANCE CRITERIA**

ASME SEC. I  
 ASME SEC. IX  
 ASME SEC. VIII  
 ASME B31.3  
 ASME 31.1

MAKE LOCATION CLEAR AND UNDERSTANDABLE  
LOCATION/COMMENT/SPECIAL PERSON

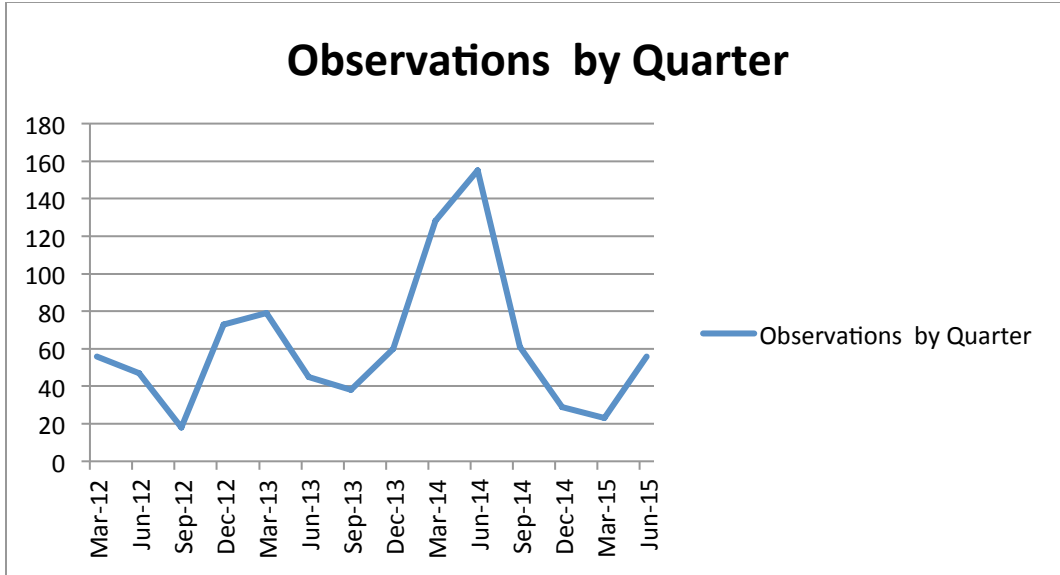
1	REASON FOR REQUEST	PRIORITY	WELD#	WELDER STENCIL	PROCESS		PIPE SIZE	SCH	MATERIAL	PACKAGE # (S.M. LAB. USE)	TEST TYPE										POST	REMARKS						
					SMW	GTAW					RT	PT	PT PREP	PT ROOT	PT GAP	MT	MT	UT	UT SW	PM			PRE	POST	PRE	POST		
1	3	2	1	XY	X		3/4"	80	CS	282-0225																		
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REASON FOR REQUEST:  
 #---WELDING SPIG  
 #---WELDER COMPLIANCE  
 #---CORROSION WELD  
 #---TRUCKER  
 #---INFORMATIONAL USE  
 #---REPAIR

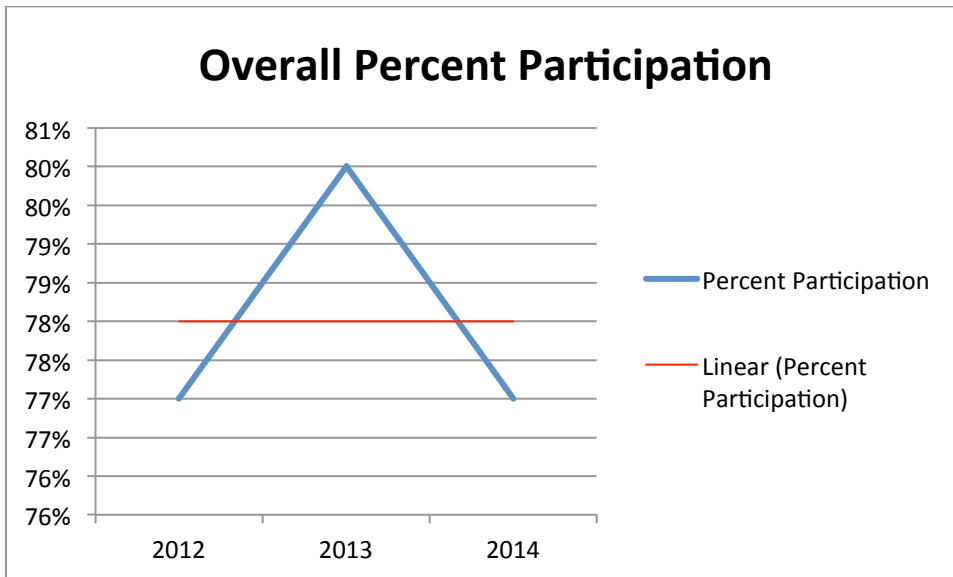
PRIORITY 1 = WILL BE DONE IN 3 HOURS, CRITICAL PATH, MUST HAVE APPROVAL  
 PRIORITY 2 = WILL BE DONE IN 12 HOURS, MAJORITY OF WORK  
 PRIORITY 3 = WILL BE DONE IN 12 TO 36 HOURS

IF REQUEST FOR WELDER TEST GIVE NAME OR STENCIL AND TEST TYPE IN THE SPACES BELOW

NAME: \_\_\_\_\_ TEST TYPE: \_\_\_\_\_



Observations by quarter from 2012 to present.



Overall participation has been great given the economic conditions over this period. We feel 77% participation is very good within our workgroup.