

Authored By: Lea McCleave	Blanchard Refining Company LLC Galveston Bay Refinery	Doc No.: RSW-000043-GB Rev No: 0
Doc Custodian: Safety Supervisor		SM-2 Lead Exposure Control Refinery Safe Work Procedure
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1.0 Purpose

The purpose of this written program is to evaluate and control exposure to lead and lead containing compounds during maintenance and construction activities. This standard was developed pursuant to Health, Environment Safety (HES&S) Standard HLT-2017, Toxic Metals Exposure Control Program; the OSHA Standards for Lead specified in 29CFR 1910.1025 (General Industry) and 29 CFR 1926.62 (Construction Industry), and the OSHA Table Z-1 Limits for Air Contaminants identified in 29 CFR 1910.1000

2.0 Scope

This program applies to all work conducted by employees and/or contractors at the Galveston Bay Refinery (GBR) where exposure to lead containing material or presumed lead containing materials is reasonably foreseeable or any operation where lead containing material is disturbed. If exposures exceed the action level, then written lead work plans, employee training, medical surveillance, personal protective equipment, and hygiene facilities will be required as stated in the program elements of this procedure.

Areas with airborne lead concentrations above the OSHA PEL will be barricaded to restrict access of unauthorized personnel.

Contractors performing lead work must provide a written lead program which meets the requirements of this procedure at a minimum

3.0 Procedure

3.1 Roles and Responsibilities

3.1.1 MPC Servicing Group Supervisors

- 3.1.1.1 Contact HESS prior to any job involving potential exposure to lead to determine industrial hygiene, bulk paint, and environmental sampling requirements.
- 3.1.1.2 Prepare a written lead work plan for each job where airborne lead levels will be above the action level.
- 3.1.1.3 Provide a copy of the written lead work plan to HESS for review.
- 3.1.1.4 Ensure that the work practices, training and medical surveillance are implemented and personal protective equipment is worn in accordance with the plan and this procedure.

3.1.2 Contractors

- 3.1.2.1 Complete the required training.
- 3.1.2.2 Prepare a written lead work plan for each job where airborne lead levels will be above the action level.
- 3.1.2.3 Provide a copy of the written lead work plan to the MPC Servicing Group Supervisor for review by HESS.
- 3.1.2.4 Ensure that the work practices, training and medical surveillance are implemented.
- 3.1.2.5 Ensure that personal protective equipment is worn in accordance with the plan and this procedure.

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3.1.3 HESS Department

- 3.1.3.1 Conduct industrial hygiene exposure monitoring and environmental sampling
- 3.1.3.2 Determine the work practice and personal protective equipment requirements for any job performed by MPC personnel involving potential exposure to lead.
- 3.1.3.3 Review written lead work plans for each job where airborne lead levels may be above the action level.
- 3.1.3.4 Maintain exposure assessment records, and update the exposure assessment annually.

3.1.4 Employees

- 3.1.4.1 Complete the required training.
- 3.1.4.2 Follow the appropriate work practices.
- 3.1.4.3 Wear the appropriate personal protective equipment.
- 3.1.4.4 Report for medical examinations in accordance with the written lead work plan and this procedure.

3.1.5 Health Services

- 3.1.5.1 Initial medical surveillance shall be offered to employees occupationally exposed to lead at or above the action level for more than 30 days in any consecutive twelve (12) months.
- 3.1.5.2 Upon notification by an employee that they have developed signs or symptoms commonly associated with lead intoxication and they desire medical advice, make available medical examinations and consultations.
- 3.1.5.3 Institute a medical surveillance program for all employees occupationally exposed to lead at or above the action level for more than 30 days in any consecutive twelve (12) months.
- 3.1.5.4 Complete a medical history questionnaire for affected employees.
- 3.1.5.5 Determine the physical capabilities for those employees who wear respirators.
- 3.1.5.6 Maintain accurate medical surveillance records including a list of covered employees in accordance with OSHA Access to Employee Medical Records (29 CFR 1910.1020) and MPC Enterprise Records and Information Management Policy (MPC6003).

3.1.6 Training Department

- 3.1.6.1 Provide training to MPC employees in accordance with the written lead work plans and this procedure.
- 3.1.6.2 Maintain accurate training records.

3.1.7 Maintenance Supervisor

- 3.1.7.1 Ensure contractors follow the guidelines established in this procedure.

3.1.8 Maintenance Planner

- 3.1.8.1 Ensure that all potential lead containing material is tested prior to the start of the job.
- 3.1.8.2 Ensure all lead containing materials associated with a job are properly identified prior to the start or the job.

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- 3.1.8.3 Notify employee supervisor and GBR Industrial Hygienist so that proper PPE can be specified and monitoring can take place if deemed necessary.

3.2 Program Elements

3.2.1 Industrial Hygiene Exposure Assessment and Sampling

- 3.2.1.1 Prior to beginning work on any job involving potential exposure to lead the MPC Servicing Group Supervisor will contact HESS to determine bulk sampling requirements to confirm the presence of lead, and industrial hygiene and environmental sampling requirements. Industrial hygiene exposure monitoring and environmental sampling will be conducted by HESS. Job tasks that may potentially result in lead exposure are shown in Attachment B.
- 3.2.1.2 Laboratory testing is the preferred method of analysis and should be utilized whenever time allows.
- 3.2.1.3 The use of a portable XRF analyzer is permitted for analysis of lead content for coatings only to confirm that a coating contains lead and should be treated as such. An XRF analyzer may not be used to determine that a coating is free of lead. If the XRF does not detect any lead, a bulk sample of the material must be sent to the lab and analyzed before the coating can be declared lead free.
- 3.2.1.4 Paints, coatings or solders on pipes, equipment or vessels that may be disturbed during the course of maintenance, construction, or demolition must be analyzed to determine their lead content before any work may commence. In the absence of analysis or past sampling data, the material must be assumed to be lead containing and the necessary precautions for removal must be taken.
- 3.2.1.5 Due to the high heat generated by welding, torch cutting and arc gouging, it should be assumed that paints or coatings within six to eight inches of where the work is occurring could be disturbed. If paints or coatings within six to eight inches of the work are not uniform, each should be analyzed to determine lead content before work commences.
- 3.2.1.6 The safety data sheets (SDSs) for all paints to be sprayed shall be reviewed for lead content before spray painting has begun.
- 3.2.1.7 An initial exposure assessment will be performed to determine if any employee may be exposed to lead at or above the action level.
- 3.2.1.8 In the absence of an initial exposure assessment, exposures must be assumed to be in excess of the PEL and the necessary program elements shall be applied.
- 3.2.1.9 Data obtained within the last 12 months from previously monitored jobs at the refinery or other MPC facilities may be used to assess exposure of a task if the operation, process, material, conditions and work practices closely resemble the current conditions of the job. Exposure assessments should become part of the work plan/written program.
- 3.2.1.10 At least one personal sample shall be collected for each job classification, in each work area, either for each shift or for the shift with the highest exposure level. The samples shall be representative of a full shift exposure.
- 3.2.1.11 Routine tasks that result in airborne lead exposure below the action level of 30 ug/m³ are exempt from a written work plan, medical surveillance, and engineering and work practice controls other than those required during the

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initial exposure assessment. Results will be maintained and updated annually by Industrial Hygiene.

3.2.1.12 Contractors will be required to conduct exposure monitoring for their personnel. The contractor will provide copies of sampling results to HESS.

3.2.2 Engineering and Work Practice Controls

Where feasible, engineering and work practice controls will be used to reduce exposure to lead below the PEL. Engineering and work practice controls should be continually evaluated and incorporated into the written compliance program and work plan as needed. The following specific work practices should be used when working with lead-containing materials, when feasible:

3.2.2.1 Chemical removal methods are the preferred removal method.

3.2.2.2 No power tools should be used unless they are equipped with a vacuum system that has a high efficiency particulate air (HEPA) filter.

3.2.2.3 Wet methods should be used for hand tool removal.

3.2.2.4 Coatings should be removed six (6) inches on either side of a cut or weld prior to cutting or welding.

3.2.3 Compliance Program/Work Plan

3.2.3.1 A written work plan is required for each job where airborne lead levels will be above the action level. The work plan will include the following:

- Description of the work to be completed.
- Work practices and engineering controls used to minimize exposure.
- Personal protective equipment that will be used.
- Administrative controls intended to be used.
- A lead exposure assessment.
- Decontamination procedures.
- Qualifications of the Competent Person and their inspections frequency.
- Documentation of worker training and medical surveillance.

3.2.3.2 Each work plan shall be completed by the service group (i.e. contractor), reviewed by the MPC Job Representative, and be approved by the servicing groups Safety Rep. Attachment A or an equivalent (meets all the requirements listed in 3.2.3.1) can be used to satisfy this requirement.

3.2.3.3 The written work plan must accompany the Safe Work Permit or be at the job site when a Safe Work Permit is not required.

3.2.3.4 Attachment B will be used to determine the minimum required work practices to be included in the written work plan, unless exposure monitoring data indicates that a lower level of personal protective equipment will provide sufficient protection.

3.2.3.5 Each project specific Compliance/Work Plan must be presented to the TAR/Construction Supervisor and approved by the Safety Department prior to beginning work.

3.2.4 Respiratory Protection

3.2.4.1 Respiratory protection is required: 1) When the action level of 30 $\mu\text{g}/\text{m}^3$ is

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exceeded; 2) when exposure assessment has not been determined; 3) if engineering and work practice controls are not feasible or do not reduce exposure to below the action limit PEL.

3.2.4.2 The level of respiratory protection must be confirmed through an initial exposure assessment.

3.2.4.3 An employee may request use of a respirator even when exposure is below the action limit. For more specific information on appropriate respiratory protection see the PPE-05 Respiratory Protection Program or contact the Safety Department.

3.2.5 Protective Clothing and Equipment

3.2.5.1 Skin contact and contamination of clothing with lead and lead containing materials should be avoided. At a minimum disposable coveralls should be worn when contact with lead containing materials is possible. For additional information on protective clothing contact the Safety Department.

3.2.6 Housekeeping

3.2.6.1 All surfaces should be maintained as free as practicable of lead accumulation.

3.2.6.2 Floors and surfaces where lead accumulates should be cleaned by vacuuming or other methods that minimize the likelihood of lead becoming airborne, wherever possible.

3.2.6.3 Shoveling, dry or wet sweeping, and brushing may be used only where vacuuming or other equally effective methods have been tried and found to be ineffective.

3.2.6.4 Where vacuuming methods are selected, the vacuums should be equipped with HEPA filters and used and emptied in a manner which minimizes the reentry of lead into the workplace.

3.2.7 Hygiene Facilities

3.2.7.1 Change areas, eating facilities, hand washing facilities, and showers (where feasible) are to be made available to workers exposed to lead above the action limit. Lead workers exiting a lead restricted area should decontaminate by removing outer disposable clothing and placing in a plastic bag for disposal.

3.2.8 Medical Surveillance and Medical Removal Programs

3.2.8.1 Initial blood analysis for total lead and zinc protoporphyrin will be done for any employee occupationally exposed on any day to lead at or above the action level. Employees exposed to greater than the action level for 30 or more days per year will be included in the medical surveillance program. The medical surveillance program for MPC employees will be administered by the Medical Department.

3.2.8.2 If an employee's blood lead level reaches 50 µg/dl (deci-liter) blood, the employer must remove the employee from all lead work where potential exposure is above the action level until the employee's blood lead level drops below 40 µg/deciliter of blood. All other details of medical surveillance, removal, and reinstatement of the employee will be observed per the Interim Lead Standard.

3.2.9 Training

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3.2.9.1 All employees involved in lead work are required to receive lead hazard worker training. The training will be completed prior to lead work assignment and annually thereafter.

3.2.9.2 Training will include the following topics: 1) requirements of the OSHA Lead Standard; 2) tasks which may result in exposure above the action level; 3) respirator training; 4) medical surveillance requirements and purpose; 5) engineering and work practice controls; 6) The contents of any compliance or work plan; 7) information about chelating agents; 8) decontamination; 9) employee's right to access personal medical records; and 10) facility specific program requirements. Personal medical records; and 10) facility specific program requirements.

3.2.10 Signs

3.2.10.1 Barricade tape and signs must be posted at each work area where employee's exposure to lead is above the PEL. The sign must read:

DANGER
LEAD
MAY DAMAGE FERTILITY OR THE UNBORN CHILD
CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM
DO NOT EAT, DRINK OR SMOKE IN THIS AREA

3.2.11 Record Keeping

3.2.11.1 Exposure assessment records will be maintained by the Safety Department. Medical surveillance and removal records will be kept by Medical. The facility will make available these medical evaluation records to employees upon request. Employees covered under the standard shall be provided with a copy of personal lead monitoring results within five working days of receiving the final analysis.

3.2.12 Prohibited Work Practices

The following work practices are prohibited unless suitable alternatives are not feasible:

3.2.12.1 The use of lead based paint.

3.2.12.2 The use of welding rods containing lead.

3.2.12.3 The consumption of food, beverages, tobacco or cosmetics in lead work areas.

3.2.12.4 The removal of lead contamination by blowing with compressed air, shaking or any other means, which could cause it to become airborne.

3.2.12.5 The use of job rotation to avoid exceeding the permissible exposure limit.

4.0 Definitions

4.1 **MPC Servicing Group Supervisor** - The MPC employee responsible for planning or following the job such as the Maintenance Planner or Project Engineer.

4.2 **Lead Based Paints or materials** - Any paint, coating, or material containing ≥ 0.06 percent lead by weight or any lead above the detection limit (whichever is higher) by analytical lab analysis.

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NOTE: Only laboratory analysis may be used to determine negative lead content of surface coatings. The use of X-Ray Fluorescence (XRF) devices is limited to confirming positive lead content.

4.3 **Lead Work** - Any project involving potential exposure to lead, to include but not limited to the following:

- 4.3.1 Demolition or salvage of structures where lead or materials containing lead are present;
- 4.3.2 Removal or encapsulation of materials containing lead;
- 4.3.3 New construction, alteration, repair or renovation of structures, substrates or portions thereof, that contain lead or materials containing lead;
- 4.3.4 Installation of products containing lead;
- 4.3.5 Lead contamination/emergency cleanup;
- 4.3.6 Performing hot work on any surface containing lead;
- 4.3.7 Machining of products containing lead;
- 4.3.8 Maintenance operations associated with the construction of the above items.

4.4 **Permissible Exposure Limit (PEL)** - The level at which the employer will ensure that no employee is exposed to lead at concentrations greater than 50µg/m³ of air as an 8-hour time weighted average (TWA).

4.5 **Action level** - Employee exposure level below the permissible exposure limit that triggers certain regulatory requirements such as, medical surveillance, additional exposure monitoring and training. The action level is expressed as an 8-hour time-weighted average of 30 µg/m³ of air as an 8-hour time weighted average (TWA).

5.0 References

- 5.1 29 CFR 1926.62, OSHA Interim Lead Standard for the Construction Industry
- 5.2 HLT-2017, MPC HES&S Standard for Toxic Metals

6.0 Attachments

- 6.1 Attachment A – Lead Work Plan
- 6.2 Attachment B – Lead Work Practices Matrix

7.0 Revision History

Revision Number	Description of Change	Written by	Approved by	Revision Date	Effective Date
0	Original issue. New integrated site procedure replaces East/West Plant S-22C and RSW-0032-TC under MOC 63421.	L. E. McCleave	V. J. Meeks	7/17/2019	7/31/2019

Attachment A: Lead Work Plan

Date: _____ to _____	
Division: _____ Unit or Equipment: _____	
Work Description: _____ _____ _____	
Work Practices/Engineering Controls to Reduce Exposure: _____ _____	
Required PPE:	
<input type="checkbox"/> Half-Mask Air-Purifying Respirator, HEPA Filter	<input type="checkbox"/> Supplied-Air Respirator
<input type="checkbox"/> Full-Face Air-Purifying Respirator, HEPA Filter	<input type="checkbox"/> Saranex coated Tyvek
<input type="checkbox"/> Nitrile Gloves <input type="checkbox"/> Boot Coverings	<input type="checkbox"/> Other: _____
Decontamination: _____	
Required Information & Training:	
<input type="checkbox"/> Lead Abatement Training <input type="checkbox"/> Lead Warning Signs	
<input type="checkbox"/> Inform these affected employees: _____	
Medical Surveillance (pre- & post-): <input type="checkbox"/> Blood Lead <input type="checkbox"/> Zinc Protoporphyrin (ZPP)	
Air Monitoring: <input type="checkbox"/> Area <input type="checkbox"/> Personal <input type="checkbox"/> Clearance	
Hygiene Practices: _____ _____	
Other: _____ _____ _____	
_____ <i>MPC Servicing Group Supervisor</i>	_____ <i>Date</i>
_____ <i>Contractor</i>	_____ <i>Date</i>
_____ <i>HESS</i>	_____ <i>Date</i>

Attachment B: Lead Work Practices Matrix

Task Job Title	Engineering Controls	Contact Industrial Hygiene	Respiratory Protection						Protective Clothing		Regulated Area	Hygiene Facilities				Medical Surveillance	Employee Training	Current Data Available
			1/2 mask APR	Full Facepiece APR	PAPR	Loose Fitting Blasting Hood	Tight Fitting Blasting Hood	Supplied Air	Basic	Upgraded		Equipment Decon	Wash Area	Shower	Change Area			
Abrasive Blasting																		
Small hood/ operator outside	LEV	X						X		X	X	X	X	X	X	X	X	
Small hood/operator inside	LEV	X						X		X	X	X	X	X	X	X	X	
Outdoor/open air																		
Sandblaster		X						X		X	X	X	X	X	X	X	X	
Sandblaster's Helper		X						X	X		X	X	X	X	X	X	X	
Wet Blasting	WA	X						X		X	X	X	X	X	X	X	X	
Inside Containment	LEV, MV	X						X		X	X	X	X	X	X	X	X	
Clean-up of Spent Bead/Grit	HV, WA	X			X				X		X	X	X	X	X	X	X	
Coating Removal																		
Hand Tool Cleaning	HV, WA	X	X						X							X	X	
Power Tool Cleaning	ST	X			X					X	X	X	X	X	X	X	X	
Grinding - Shrouded																		
Grinding - Unshrouded	LEV, HV	X			X				X		X		X			X	X	
Sanding - Shrouded																		
Sanding - Unshrouded	LEV, HV	X			X				X		X		X			X	X	
Sawing - Shrouded																		
Sawing - Unshrouded	LEV, HV	X			X				X		X		X			X	X	
Wire Wheel - Shrouded																		
Wire Wheel - Unshrouded	LEV, HV	X			X				X		X		X			X	X	
Needle Gun	LEV, HV	X			X				X		X		X			X	X	
Impact Tools	LEV, HV	X			X				X		X		X			X	X	
Chemical Stripping	WA	X	X						X		X		X			X	X	

Attachment B: Lead Work Practices Matrix

Task Job Title	Engineering Controls	Contact Industrial Hygiene	Respiratory Protection						Protective Clothing		Regulated Area	Hygiene Facilities				Medical Surveillance	Employee Training	Current Data Available
			1/2 mask APR	Full Facepiece APR	PAPR	Loose Fitting Blasting Hood	Tight Fitting Blasting Hood	Supplied Air	Basic	Upgraded		Equipment Decon	Wash Area	Shower	Change Area			
Water Jetting	WA	X	X							X			X			X		
Vacuum Blasting	LEV	X							X		X	X	X	X	X	X	X	
Demolition																		
Equipment Demo - Contained Leaded Products	MV, LEV	X							X	X		X	X	X		X	X	
Water Cutting	MV, LEV	X							X	X		X	X	X		X	X	
Shearing	MV, LEV	X							X	X		X	X	X		X	X	
Torch Cutting	MV, LEV	X							X	X		X	X	X		X	X	
Building Demolition		X	X							X			X			X	X	
Lead Contaminated Soil Work		X	X								X	X	X	X	X	X	X	
Lead Lined Vessel Work (in)		X							X		X	X	X	X	X	X	X	
Lead Burning																		
Other Work (refractory work, etc..)																		
Machining - Machinist																		
Graphalloy	LEV, HV	X	X							X		X	X	X	X	X	X	
Babbitt	LEV, HV	X	X							X			X			X	X	
Machining																		
Pouring																		
Molten Lead																		
Pouring Lead Joints (Sewers)	MV, LEV	X							X	X		X	X	X		X	X	
Cable Splicing - Electrician	MV, LEV	X	X							X		X		X		X	X	
Rivet Bursting	MV, LEV	X		X	X								X			X	X	

Attachment B: Lead Work Practices Matrix

Task Job Title	Engineering Controls	Contact Industrial Hygiene	Respiratory Protection					Protective Clothing		Regulated Area	Hygiene Facilities				Medical Surveillance	Employee Training	Current Data Available	
			1/2 mask APR	Full Facepiece APR	PAPR	Loose Fitting Blasting Hood	Tight Fitting Blasting Hood	Supplied Air	Basic		Upgraded	Equipment Decon	Wash Area	Shower				Change Area
Soldering/Brazing	LEV	X	X						X				X			X	X	
Soldering																		
Brazing																		
Sweating Pipes																		
Spraying Coatings																		
Lead Based	MV, LEV	X	X							X	X	X	X	X	X	X	X	
Welding/Cutting/Burning																		
Welding																		
Coated (including coating removed 6-12" from weld)	MV, LEV	X						X	X		X		X		X	X	X	
Leaded Service	MV, LEV	X						X	X		X		X		X	X	X	
Welder's Helper	MV, LEV	X						X	X		X		X		X	X	X	
Cutting - Torch, Arc Gouging	MV, LEV	X						X	X		X		X		X	X	X	
Burning	MV, LEV	X						X	X		X		X		X	X	X	

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Footnotes for Work Practices Matrix

Engineering Controls

MV - Mechanical Ventilation (e.g. air exchange unit, copus blowers)

LEV - Local Exhaust Ventilation (e.g. elephant trunk hoods for welders)

ST - Shrouded Tools (e.g. tools equipped with a HEPA vacuum)

HV - HEPA Vacuum

WA - Wetting Agents

Contact Industrial Hygiene - contact your industrial hygienist prior to the start of the work. This is so the IH can plan any needed monitoring for the work activity.

Respiratory Protection

1/2 mask APR - 1/2 mask air purifying respirator with HEPA cartridges

Full Facepiece APR - Full facepiece air purifying respirator with HEPA cartridges

PAPR - Powered air purifying respirator, with full facepiece and HEPA cartridges

Loose Fitting Blasting Hood -

Tight Fitting Blasting Hood -

Supplied Air - Supplied air line respirator or self contained breathing apparatus (SCBA)

Protective Clothing

Basic - Normal Facility Protective Equipment - For Example: Safety Glasses, Gloves, and Hardhat.

Upgraded - Safety Glasses, Gloves, Coveralls (disposable), Cap (disposable), Booties (disposable) or Rubber Boots. (Note: Hooded Tyvek are acceptable instead of the coveralls and cap)

Note: This is the minimum protective equipment, in addition to respiratory protection. Other personal protective equipment may be required (i.e. welder's hood, splash goggles) depending on the task.

Regulated Area - an area of appropriate distance from the work location based on the type of work being done that is barricaded and has limited entry with the signage below.

WARNING

LEAD WORK AREA

POISON

NO SMOKING OR EATING

Hygiene Facilities

Equipment Decontamination - the need to decontaminate the equipment used during the work activity. This will be conducted in the regulated area.

Wash Area - an area that the employee may wash his/her hands and face prior to using the restroom, eating, or drinking, and at the end of the shift.

Shower - an area that the employee may shower at the end of the shift.

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Change Area - an area that the employee can change into clean work clothes from street clothes, store street clothes and change back into street clothes after showering at the end of the shift.

Medical Surveillance - medical surveillance is required

Employee Training - training is required, refer to the training guide

Current Data Available - available industrial hygiene monitoring data is current