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1.0 INTRODUCTION

1.1 Purpose

The purpose of this procedure is to provide general information on safe handling of asbestos containing materials. This document is not intended to establish requirements. All federal, state and local laws and regulations shall be followed.

1.2 Scope

This procedure applies to Anacortes Refinery employees and contractors. All personnel working on Refinery property must comply with this procedure.

2.0 REFERENCES

2.1 Marathon Standards, Policies & Procedures

- HLT-2008, Asbestos Exposure Control Plan

2.2 Government Regulations

- WAC 296-65, Asbestos Removal and Encapsulation
- WAC 296-62-077, Asbestos, Tremolite, Anthophyllite, and Actinolite
- WAC 296-62-07712, Requirements for asbestos activities in construction and shipyard work
- OSHA 1910.1001, Asbestos Toxic and Hazardous Substances
- OSHA 1926.1101, Asbestos Safety and Health Regulations for Construction

3.0 DEFINITIONS

The following definitions are applicable to this procedure.

Table 1 Acronyms

Term	Description
ACM (Asbestos Containing Material)	Any material that contains one percent (1%) or more of any form of asbestos. ACM can be divided into friable and non-friable materials. Examples of friable and non-friable asbestos are listed below.
ERM	Emergency Response Manual
HEPA	High Efficiency Particulate Arresting filter capable of trapping and retaining at least 99.97% of 0.3-micron particles. Can also be designated as P-100 filters if describing respirator filters.
NEA (Negative Exposure Assessment)	Documented air monitoring and employee exposure monitoring that demonstrates exposures during a specific work task are expected to be consistently below permissible exposure limits.

Table 1 Acronyms

Term	Description
NPE (Negative Pressure Enclosure)	Any configuration of enclosure made of a material such as plastic that has at least four air changes per hour, at least 0.02 inches water gauge pressure lower than to outside pressure, an indicator to confirm air throughout the enclosure's use, and internal air movement directed away from employees performing asbestos work into HEPA vacuum filtration.
PELs (Permissible) Exposure Limits)	The federal OSHA 8-hour time-weighted average permissible exposure limit (PEL) for airborne asbestos fibers is 0.1 fibers/cubic centimeter (f/cc) The OSHA 30-minute time-weighted average excursion limit (EL) for airborne asbestos fibers is 1 f/cc.
TSI (Thermal System Insulation)	Insulation applied to pipes, fittings, boilers, reactors, tanks, ducts or other structural components to prevent heat loss or gain. TSI may contain 1 or more percent asbestos.

Table 2 Definitions

Term	Description
Amended Water	Water to which surfactant (wetting agent) has been added to increase the ability of the liquid to penetrate ACM.
Asbestos	A group of naturally occurring, fibrous minerals. Three forms of asbestos are most common in refineries and petroleum distribution facilities: chrysotile, amosite and crocidolite. More unusual forms of asbestos include tremolite, anthophyllite and actinolite. Any material containing one or more percent of any form of asbestos is to be treated as ACM.
Authorized Person	Any qualified person who is authorized and required by facility management to be present in a Regulated Area due to work duties.
Class I Asbestos Work	The class of work with the highest potential for airborne asbestos fiber exposure. Class I Asbestos Work includes the removal of thermal system insulation such as pipe or vessel insulation, surfacing ACM, or removal of any friable ACM.
Class II Asbestos Work	Class II Asbestos Work involves the removal of non-friable ACM, including but not limited to materials such as Transite (cement board) panels, floor tiles, roofing and siding shingles, and construction mastics.
Class III Asbestos Work	Activities involving repair and maintenance where ACM, including friable ACM, may be disturbed.
Class IV Asbestos Work	Activities involving maintenance and custodial operations during which employees may contact but do not disturb ACM. Includes activities such as cleaning up dust, waste and debris from Class I, II and III activities.
Competent Person for Class I and II Asbestos Work	An on-site person who has received asbestos supervisor training meeting 40 CFR Part 763(a)(2) or state-equivalent requirements. The person must be trained in all aspects of asbestos removal and handling, and must be able to identify existing asbestos hazards, select appropriate work practices, and have the authority to take prompt corrective measures to eliminate hazards.

Table 2 Definitions

Term	Description
Competent Person for Class III and IV Asbestos Work	A person who has received training consistent with EPA 40 CFR 763.92 Part (a) (2) requirements for maintenance and custodial work for locations where ACM is present. The competent person must be able to recognize hazards and be authorized to take corrective action.
Critical Barrier	An ACM work area enclosure method such as tenting or using glove bags to prevent the release of airborne asbestos fibers into areas outside of the regulated work area. Critical barrier work is typically used for removing or disturbing ACM materials when airborne asbestos fiber concentrations above the 0.1 f/cc PEL might be generated.
Disturbance	Activities that disrupt the matrix of ACM, crumble or pulverize ACM, or generate visible debris from ACM.
Friable ACM (Friable Asbestos Containing Material)	ACM that when dry, can be crumbled or reduced to powder by normal hand pressure. Friable materials release fibers into the air more readily than non-friable materials. Examples of friable materials that may contain asbestos include but are not limited to thermal system insulation (TSI) on piping and vessels, sprayed fireproofing on I-beams or other equipment, and acoustical ceiling materials.
Intact	Referring to ACM that has not crumbled, been pulverized, or otherwise deteriorated to the extent that the asbestos is no longer bound within its matrix.
Non-Friable ACM (Non-Friable Asbestos Containing Material)	ACM that when dry, cannot be crumbled or reduced to powder by normal hand pressure. Examples of non-friable ACM can include but are not limited to Transite siding, some cement and concrete piping, fire-resistant drywall and joint compounds, floor tiles, roofing felts and shingles, mastics, impregnated pipe coatings and wrap, clutch and brake lining, valve and pump packing, some spiral wound or double jacketed gaskets, and Durabla gaskets. Airborne asbestos fibers may be generated from non-friable ACM by cutting, sanding, grinding or otherwise abrading the material.
Regulated Area	An area established by the employer to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the exposure limits.
Transite	A building material comprised of Portland cement and asbestos hard pressed together. Examples include but are not limited to gray corrugated siding and some types of concrete pipe.

4.0 ROLES AND RESPONSIBILITIES

4.1 Asbestos Management Program Administrator

The Asbestos Management Program Administrator is responsible for overseeing the asbestos management program and conducting the required evaluations of program effectiveness (periodic Tier I program audits), thereby ensuring that all the requirements of the program are fully implemented as necessary. The Industrial Hygienist is the

designated Asbestos Management Program Administrator for Marathon Anacortes Refinery and also maintains a Washington State Asbestos Supervisor Certification. Duties of the Asbestos Management Program Administrator include:

- Identifying work areas, processes or tasks where there is potential for regular or periodic exposure to asbestos.
- Arranging for and/or conducting required training.
- Maintaining records required by the program.
- Evaluating the program.
- Updating the written program, as necessary, to reflect workplace changes that affect the asbestos management program

4.2 Area Team Leads and Supervisors

Area Team Leads and Supervisors are responsible for ensuring that this Asbestos Management Program is implemented in their particular areas. In addition to being knowledgeable about the program requirements for their own protection, Area Team Leads and Supervisors must also ensure that the program is understood and followed by all employees under their supervision. Duties of the Area Team Lead and Supervisor include:

- Ensuring that employees under their supervision (i.e., including new hires) have received appropriate training.
- Being aware of tasks that may disturb asbestos material, requiring specialty contractors to abate asbestos.
- Monitoring work areas and operations continually to identify potential asbestos hazards.
- Coordinating with the Asbestos Management Program Administrator on how to address respiratory hazards or other concerns regarding the program.

4.3 Employees and Contractors

Each employee and contractor have the responsibility to complete required asbestos training and be able to identify work areas, processes or tasks where there is potential for regular or periodic exposure to asbestos. Employees and contractors must notify their supervisor or the Asbestos Management Program Administrator of any asbestos hazards that they feel are not adequately addressed in the workplace, and of any other concerns that they have regarding the program.

5.0 OVERVIEW

Asbestos is a mineral silicate occurring naturally as a variously colored fiber. It is non-combustible, non-conducting, and resistant to deterioration and chemical attack. Because of these properties, it has found widespread use in insulation, gaskets, coatings, plastics, brake linings, floor tile, roofing and transite materials. Because of its fibrous nature, asbestos can be woven into cloth, or used to add strength to other materials.

Prior to 1973, asbestos fiber was often a basic compound of the insulating materials and insulating cements used in the Anacortes Refinery to protect personnel from injury from hot

surfaces and to minimize the loss of heat from equipment which operates at elevated temperatures.

Although, as a rule, asbestos-containing materials (ACM) should no longer be used at the Anacortes Refinery, this material may still be found in existing equipment and some of the gaskets, necessitating the protective measures noted in this procedure.

The requirements established for work involving ACM are outlined in the Washington Administrative Code (WAC) 296-62-077.

The Northwest Clean Air Agency (NWCAA) and the Department of Labor & Industries also have specific requirements for the notification of removal and on-site storage of waste materials. The U.S. Department of Transportation (DOT) and the Washington State Department of Ecology (DOE) set standards for the transporting and disposal of waste asbestos.

Rules issued by the U.S. Environmental Protection Agency (EPA) stipulate that agency notification is required whenever any demolition of a structure (i.e., the wrecking or displacement of load supporting structural members) is planned, even if there is no asbestos. Furthermore, in the event of an accidental or emergency release of asbestos, the National Response Center is to be notified.

6.0 HEALTH HAZARDS

Asbestos is a health hazard when fibers are inhaled or ingested in excessive amounts. Exposure to asbestos can cause:

- Asbestosis - a non-malignant scarring of the lungs
- Lung cancer
- Mesothelioma - a malignancy of the lining of the chest cavity
- Cancer of the stomach, colon and rectum

These diseases develop slowly and usually do not become evident until many years after initial exposure. In addition, asbestos is especially hazardous to those who smoke, as the lung cancer risk increases by a ratio of 90:1. Additional health information is available by contacting the Medical Clinic.

7.0 ASBESTOS STANDARD REQUIREMENTS (WAC 296-62-077)

WAC asbestos standard categorizes jobs involving ACM and presumed asbestos-containing material (PACM) into four classes:

- Class I activities involving removal of thermal system insulation (TSI) or surfacing ACM/PACM
- Class II activities involving removal of other ACM, such as asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics
- Class III repair and maintenance operations where ACM, including TSI and surfacing ACM or PACM, may be disturbed
- Class IV maintenance and custodial activities during which employees contact, but do not disturb ACM or PACM, and cleanup of dust, waste and debris resulting from Class I, II and II jobs

Each class has different requirements for engineering controls, work practices and procedures. Class I jobs have the most stringent requirements and Class IV jobs have the least stringent.

7.1 Competent Person

7.1.1 Class I and II Asbestos Work

A Competent Person must be on site and trained in all aspects of asbestos removal and handling, including the following: abatement, installation, removal, handling, contents of the asbestos standard, identification of asbestos, removal procedures and other practices for reducing the hazard.

For Class I and II asbestos work a Competent Person is required to perform or supervise the following activities:

- Set up the regulated area or enclosure
- Ensure, by inspection, the integrity of the enclosure
- Set up procedures to control entry and exit from the area
- Supervise all employee exposure monitoring and ensure it is conducted as required by the standard
- Ensure that employees working within the enclosure and/or using glove bags wear protective clothing and respirators, as required
- Ensure that employees set up and remove engineering controls, use work practices and personal protective equipment in compliance with all requirements
- Ensure that employees use hygiene facilities and follow decontamination procedures as required
- Ensure that engineering controls are functioning properly, and employees are using proper work practices
- Ensure that notification requirements are met

For Class I jobs, the Competent Person must inspect the job site at least once per work shift and as requested by employees. For Class II and III jobs, inspections must be made at intervals sufficient to assess whether conditions have changed, and as requested.

7.1.2 Class III and IV Asbestos Work:

The Competent Person must be certified as an Asbestos Supervisor per WAC 296-65-012 and 296-65-030, for Class III and IV work involving an asbestos project of 3 square feet or 3 linear feet or more of asbestos containing material.

For Class III and IV asbestos work involving less than 3 square feet or 3 linear feet of asbestos containing material, the Competent Person must be trained in:

- Aspects of asbestos handling appropriate for the nature of the work to include procedures for setting up glove bags and mini-enclosures,
- Practices for reducing asbestos exposures,

- Use of wet methods,
- The contents of the WAC regulation, and
- The identification of asbestos.

7.2 Identification of Asbestos-Containing Materials

Asbestos-containing materials should be identified as such, either by visual inspection or by sampling. The Competent Person is responsible for ensuring that ACM is identified and for requesting evaluations, as needed, to determine if materials contain asbestos. If a material cannot be shown to be asbestos-free (< 1%), then it must be presumed to contain asbestos and treated accordingly.

Before work is begun, the presence, location and quantity of ACM and/or PACM must be identified. In the Anacortes Refinery, non-asbestos-containing pipe/vessel insulation materials will be identified by blue banding.

The following are ACM that may still be found in the Anacortes Refinery:

- Transite (cement board)
- Clutch plate linings
- Insulation installed prior to 1973
- Spiral wound gaskets
- Electrical cables
- Refractory installed prior to 1973
- Machinery packing
- Garlock 5881
- Durabla gasket material
- Brake Linings

For buildings constructed prior to 1981, all floor tiles, ceiling tile, wallboard and other similar materials are presumed to contain asbestos until certified asbestos-free by a certified laboratory.

Table 3 Buildings Built Prior to 1981

BLD-ID#	Building Name
BLD-1000	Crude Control House
BLD-1001	CU Switchgear Room & Pipe Shop
BLD-1002	Crude RIE Building
BLD-1501	Storage Shed (Lead House)
BLD-1503	Shipping Pump Switchgear Room
BLD-1504	Dye House
BLD-1603	BFW Demin Building
BLD-1800	Substation #8A & #3A @ CWT#1
BLD-1801	Substation #8 Cooling Water #1
BLD-2000	Substation #10 @ Feed Prep
BLD-3000	CCU Control House
BLD-3001	CCU Switchgear Room & Pipe Shop
BLD-3002	CCU RIE Building
BLD-3003	Substation #3 at CCU
BLD-4009	Bundle Cleaning Shelter
BLD-4015	Block House
BLD-4022	Substation #2 West of Main Lab.
BLD-6600	CR/NHT Control House
BLD-7001	Substation #2A @ Effluent
BLD-7002	Biosludge Dewatering Building
BLD-9000	Alky/Bl Control House
BLD-9002	Alky & Bl Pipe Shop
BLD-9003	Alky RIE Building
BLD-9005	Substation #6 @ Alkylation
BLD-1003	Substation #1 Crude Unit
BLD-1602	Utilities Switchgear Room
BLD-4021	Radio Tower Building
BLD-7003	Effluent Analyzer Shed
BLD-1300	Wharf Office
BLD-1400	Tank Car Loading Office
BLD-1401	Scale House
BLD-1500	Logistics Control House
BLD-1502	Blender Building
BLD-1600	Utilities Control House
BLD-4000	Administration Building
BLD-4001	QA Laboratory
BLD-4002	Garage (Automotive Shop)
BLD-4004	Stores Warehouse
BLD-4005	Shop 1 - Machine & IE Shops
BLD-4006	Shop 2 - Weld & Carpenter Shop
BLD-4008	Paint Shop/Abrasive Blasting
BLD-4010	Cafeteria & Lockers
BLD-4011	Guard House
BLD-4013	TERA Building
BLD-4020	Contractor Warehouse (Old KB&R Pole Building)
BLD-7000	Effluent Control House

7.3 Job Classes

At Anacortes Refinery, the following jobs involving ACM/PACM are performed:

A. Class I (if greater than 25 linear or 10 square feet of material involved)
- TSI removal
- Refractory removal
- Electrical cable insulation removal and related tasks

B. Class II (if greater than 25 linear or 10 square feet of material involved)
- Transite removal

C. Class III
- Gasket removal (if gasket is crumbled, pulverized or otherwise made friable)
- TSI, refractory, transite removal (if less than 25 linear or 10 square feet of material involved)

D. Class IV
- Maintenance and custodial activities involving contact but no disturbance of ACM/PACM (such as cleanup of debris from Class I and II jobs)
- Gasket removal (if gasket remains largely intact)
- Brake and Clutch Repair
- Routine Housekeeping Activities

7.4 Regulated Area

All Class I, II and III jobs must be conducted in regulated areas. All other operations must be conducted in regulated areas if airborne concentrations of asbestos exceed or can be expected to exceed the permissible exposure limits (PELs).

Regulated areas must comply with the following, in accordance with WAC 296-62-07721(5):

- The regulated area must be demarcated so that the number of persons in the area is minimized while protecting persons outside the area from exposure to airborne asbestos. Signs must be posted around the perimeter that read:

Danger Asbestos

Cancer and Lung Disease Hazard

Authorized Personnel Only

Respirators and Protective Clothing are Required in this Area

- Access must be limited to authorized persons.
- Respirators must be provided as required (see Respirators Section)
- Protective clothing must be provided and used as required (see Protective Clothing Section)

- Employees may not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the area

7.5 Exposure Assessment and Monitoring

Permissible exposure limits for airborne asbestos:

- 0.1 fiber/cubic centimeter (cc) as an 8-hour time-weighted average (TWA)
- 1.0 fiber/cc excursion limit, as a 30-minute TWA

Initial monitoring must be done at the start of each job involving potential exposure to airborne asbestos. Monitoring must be done to determine the 8-hour TWA and the excursion limit exposures.

Monitoring is not required if a negative exposure assessment (NEA) can be made for the job to be done.

For Class I job, the NEA must be based on monitoring data collected during the job or on data collected on a job closely resembling the job to be done (data must have been collected within a year prior to start of the current job).

For Class I jobs, if no monitoring has been done and no NEA can be made, employees are presumed to be exposed above the PELs.

For Class II, III and IV jobs, the NEA may be based on objective data (i.e., data collected from past studies on similar jobs, with no time limit).

Class I and II Jobs: If no NEA can be made, monitoring must be done daily until an NEA can be made.

Other Jobs: If no NEA can be made, monitoring must be done periodically at intervals sufficient to document exposures and must continue until an NEA can be made.

8.0 JOB CLASS REQUIREMENTS

8.1 Class I

One of the following control methods must be used:

- One or more layers of plastic must be placed over all openings to the regulated area, unless work is done outdoors.
- Another equivalent barrier or isolation method may be used, if visual and perimeter air monitoring are used to document effectiveness.

In addition:

- No TSI shall be cut with portable power tools due to the potential release of asbestos fibers into the air.
- HVAC systems must be isolated in the regulated area by sealing with double layer of 6 mil. plastic or equivalent.
- Impermeable dropcloths and/or plastic sheeting with tape must be placed beneath all removal activity and on objects within the regulated area.

- If no negative exposure assessment is available or permissible exposure limits are being exceeded, the regulated area must be ventilated away from employees toward a HEPA filtration system.
- Wet methods must be used during handling, removal and cleanup (unless proven to be infeasible, such as around electrical hazards).
- HEPA vacuums must be used to collect debris and dust.

Specific control methods are defined in the asbestos regulation.

One or more of these methods must be used:

- Negative pressure enclosure system
- Glove bag system
- Negative pressure glove bag system
- Negative pressure glove box system
- Water spray process system
- Small walk-in enclosure

For details on these methods, consult the Competent Person for guidance. See sections on respirators and protective clothing for specific requirements.

8.2 Class II

Removal of transite panels or cement siding and shingles requires that the following work practices be followed:

- Cutting, abrading or breaking panels or shingles is prohibited
- Each panel/shingle must be sprayed with amended water prior to removal
- Unwrapped panels/shingles must be immediately lowered to the ground via covered dust-tight chute or wrapped and lowered to the ground by the end of the work shift
- If indoors, plastic barriers and drop cloths are required if material is not removed intact
- Nails must be cut with flat, sharp instruments
- Use HEPA vacuum for waste cleanup

See sections on respirators and protective clothing for specific requirements.

8.3 Class III

Gasket Removal (i.e., not intact):

If gasket is unlikely to be removed intact, remove within a glove bag if feasible, and place within an asbestos disposal container. If a glove bag is not feasible, amended water spray must be used during removal.

In all cases, water spray must be used during scraping to remove gasket residue.

Removal of TSI (i.e., less than 25 linear or 10 square feet of material involved):

Use amended water spray for all removal work.

If the removal involves cutting, sawing or other disturbance of TSI or surfacing material, use impermeable dropcloths and mini-enclosures or glove bags to contain the residue.

See sections on respirators and protective clothing for specific requirements.

8.4 Class IV

The Competent Person will determine which jobs are Class IV jobs. Such jobs may include:

- Cleanup of debris from Class I and II jobs
- Intact gasket removal
- Maintenance work in office buildings and other buildings
- Removal of floor or ceiling tile
- Installation, removal or disturbance of asbestos-containing pipeline wrap, shingles, roofing or other material

Requirements for each Class IV job will be defined by the Competent Person as needed.

Brake and Clutch Plate Lining Change-out:

Thoroughly spray wet the brake or clutch parts and wipe clean with a cloth. Dispose of the cloth in a properly labeled container or launder to prevent release of asbestos fibers. Any spills or asbestos containing waste material must be cleaned up immediately and placed in the proper container for disposal.

Routine Housekeeping Activities

Be aware of which building components contain ACM or PACM. Do not disturb these components during routine housekeeping.

9.0 PERSONAL PROTECTIVE EQUIPMENT

9.1 Respirators

Respirators are to be used in compliance with the Anacortes Refinery Respiratory Protection Program R-14-008. Respirators must be used in the following:

- During the interval to install engineering and/or work practice controls
- Where engineering and/or work practice controls are not feasible or are not sufficient to reduce exposure below the PELs
- In emergencies
- In regulated areas
- Whenever employee exposures exceed the PELs
- During all Class I jobs
- During all Class II jobs where ACM is not removed in a substantially intact state

- During all Class II and III jobs where no NEA can be made, or the work is not performed using wet methods
- During all Class III jobs where TSI or surfacing ACM/PACM is disturbed
- During all Class IV work performed within regulated areas where employees performing other work are required to wear respirators.

9.2 Protective Clothing

Protective clothing must be provided and worn if:

- Employee exposures exceed the PELs,
- No NEA can be made, or
- Performing Class I jobs

Protective clothing consists of such items as:

- Coveralls or similar full-body clothing
- Gloves, head coverings, foot coverings
- Face shields, vented goggles

Contaminated clothing must be removed in a change room and placed in designated, labeled containers for disposal/laundering. Protective clothing intended for reuse must be kept in a clean and sanitary condition. Removal of asbestos by blowing or shaking is not permitted.

The Competent Person is responsible for examining clothing worn be employees at least once per work shift to ensure no rips or tears occur.

10.0 HYGIENE FACILITIES AND PRACTICES

10.1 Required Hygiene Facilities

Class I work (>25 linear or 10 square feet of TSI or surfacing material) requires a decontamination area, consisting of an equipment room to remove and bag protective clothing, a shower area, and a clean change room.

Class I work (<25 linear or 10 square feet of TSI or surfacing material) and Class II, III or IV (i.e., cleanup of TSI/surfacing material) where exposure exceeds the PEL or there is no NEA requires an equipment room or area.

Class IV work done in conjunction with a higher work class and in a regulated area requires the same hygiene practice used for the regulated area employees.

10.2 Required Practices

- Employees must enter and exit the regulated area through the decontamination area
- Employees must remove contaminated clothing and place in labeled bags for disposal/cleaning. Employees must not wear any work clothing or equipment home

- Employees who work in negative pressure enclosures or in areas where exposures exceed the PELs must shower at the end of the work shift. Respirators must not be removed until in the shower

11.0 ACCIDENTAL DISTURBANCE OF ASBESTOS

If there is an accidental disturbance or release of asbestos in the workplace, the area shall be barricaded to restrict access to the area. The Industrial Hygienist and in-house asbestos abatement contractor shall be contacted so that the area can be properly abated. Regulatory agencies will be contacted if the amount of asbestos-containing material released is determined to meet reportable quantities. All spills/releases of asbestos containing material must be cleaned up ASAP by asbestos certified workers.

12.0 LEAKS UNDER INSULATION

When assessing leaks under insulation, the removal of insulating materials shall only be performed after a documented risk assessment has been performed and agreed to by subject matter experts. A leak under insulation is considered an "immediate threat" and must be handled in accordance with Leak Identification, Assessment and Response as covered in section 11 of the Anacortes Refinery ERM.

13.0 HOUSEKEEPING

The following housekeeping procedures are to be followed:

- All surfaces are to be kept free of ACM
- All spills and releases of ACM must be cleaned up ASAP
- Compressed air is not to be used for cleaning
- HEPA-filtered vacuums are to be used for vacuuming
- Dry sweeping is prohibited
- Waste, scrap, debris and contaminated disposable clothing must be collected and disposed of in sealed, labeled impermeable yellow bags. The ACM should still be in the wet state to prevent release of fibers
- All such bags are to be sealed shut and a red tag attached indicating who removed the insulation, where it came from, what type of insulation it may be, and the date it was removed
- Where feasible, when using a negative-pressure enclosure, a waste loadout area should be set up adjacent and connected to the enclosure, for decontamination and removal of asbestos debris
- ACM, which has become damaged or deteriorated, must be repaired, enclosed, encapsulated or removed
- Flooring/decking that contains asbestos must not be sanded and stripping of finishes must be conducted at low speed (<300 rpm)

Asbestos waste must be handled and disposed of properly. Sealed bags must be placed at designated temporary storage areas established in each HP area.

The tagged bags must be removed from the temporary storage areas on a daily basis and transported to the large asbestos disposal dumpster located at the Salvage Yard.

The bottom portion of the tag is to be placed in the collection box at the dumpster. All bag handling must be done by hand. Mechanical devices are prohibited. Maintenance has the responsibility for the collection of the tags.

Note: NWCAA requires that asbestos waste dumpsters be clearly labeled. They must also be kept closed except when bags are being added or removed.

14.0 MEDICAL SURVEILLANCE

A Medical Surveillance Program will be made available to employees who are engaged in Class I, II and III work, or who are exposed at or above the PEL for 30 or more days per year, or who are required to wear negative pressure respirators.

As part of the program, a physical examination will be provided and repeated annually. Contact the Medical Clinic for further information on the medical surveillance program.

15.0 NON-ASBESTOS MATERIALS

15.1 General

Various forms and types of non-asbestos materials are used in the Refinery for insulation and refractory. Man-made-mineral-fibers (MMMF) such as refractory fibrous glass, mineral wool and ceramic fiber are examples of non-asbestos materials used for insulation. Calcium silicate is specifically excluded from the MMMF group of materials and the requirements in this procedure do not apply to its use.

Listed below are examples of materials containing non-asbestos man-made mineral fibers:

- Kaowool
- Z-Block
- Fiberglass
- Glass Wool
- Mineral Wool
- Cerawool
- Fiberfrax
- Nextel

15.2 Health Data

While all of these non-asbestos materials are manufactured in a similar manner, available data suggests that the toxicity may differ substantially among the different types depending on the surface properties, physical dimensions and solubility.

Based upon limited evidence, the EPA has classified most forms of MMMF as either "possible or probable human carcinogens." MMMF may also be associated with possible fibrogenic effects (i.e., scarring) on the lung. One form of MMMF, continuous glass

filament fibers, is less hazardous and has not been classified as a possible human carcinogen.

Refractory ceramic fibers which have been in service temperatures greater than 1600 to 1800°F may be converted to crystalline silica. Crystalline silica can cause silicosis, a lung disease, and has also been designated as "probably carcinogenic to humans."

15.3 Exposure Limits

Exposure to MMMF for an 8-hour time weighted average shall not exceed 5 mg/m3 (i.e., respirable fraction). Synthetic mineral fibers are currently only regulated under OSHA as nuisance dust, and under WAC as particulates not otherwise regulated.

Exposure to crystalline silica for an 8-hour time weighted average shall not exceed 0.05 milligrams per cubic meter of air (0.05 mg/m3).

15.4 Exposure Control Requirements

Use of refractory ceramic fiber will be limited to situations requiring its unique properties. Examples include:

- Insulation inside furnaces, not including ducts
- Post weld heat treatment applications

General use of refractory ceramic fiber as an "all purpose" insulating material is inappropriate.

While working with insulation, personnel shall wear approved respiratory protection. Minimum protection shall be a ½ face cartridge respirator with HEPA or P100 filters.

In addition to respiratory protection, gloves and disposable coveralls shall be worn while in the work area.

No insulation shall be cut with portable power tools due to the potential release of excessive fibers into the air. Fixed power tools can be used, provided they have vacuum systems equipped with a HEPA filter that collects the dust generated.

Work areas shall be identified by banner tape or the equivalent. Do not use asbestos warning barriers for this purpose.

All reasonable efforts shall be made to minimize dust generation in the work area (Ex: using water spray, bagging the scrap, and maintaining good housekeeping). Material shall not be torn, dry swept, dropped to the ground or blown with compressed air.

Insulation debris shall be cleaned up promptly, and as a minimum, insulation work areas shall be cleaned up daily. Store unused material in original containers or cover with plastic.

Maintenance performed inside fired equipment can represent significant exposure potential to both ceramic fibers and silica. Where feasible, forced or induced mechanical ventilation will be established and maintained while working in confined spaces. If areas outside the confined space will be impacted by exhausted dust, the exhaust will be filtered.

15.5 Identification

Asbestos insulation at the Anacortes Refinery is being permanently sealed or removed. All new pipe/vessel insulation (i.e., non-asbestos) shall be installed and banded with a blue banding material or by stenciling "Non-Asbestos" around the stainless-steel weather covering. Asbestos insulation or unknown insulation shall be banded with unpainted banding material.

15.6 Disposal

Non-asbestos waste material is to be placed in clear plastic bags, sealed and placed in one of two special waste trailers located near the Butamer Unit or near Gate 14. Non-asbestos insulation is not considered a hazardous waste and MUST NOT be placed with our asbestos waste. Please direct any waste questions to the Environmental Waste Coordinator.

16.0 EMPLOYEE INFORMATION AND TRAINING

Anacortes Refinery employees who may be exposed to airborne asbestos are provided training. Builder Skills are provided "Certified Asbestos Worker" training as required by WAC 296-65-010. Designated Maintenance Supervisors are provided "Asbestos Supervisor Certification" training as required by WAC 296-65-012.

Training will be provided upon initial job assignment and annually thereafter.

The training will ensure that employees are informed of the following:

- Health effects associated with asbestos exposure
- The synergistic relationship between smoking and asbestos exposure related to lung cancer
- Methods of recognizing asbestos and the quantity, location, manner of use, release and storage of asbestos as well as specific nature of operations which could result in exposure to asbestos
- Engineering controls and work practices associated with the employee's job assignment
- Specific procedures used to protect employees from exposure to asbestos
- Purpose use and limitations of respirators and protective clothing
- Purpose and description of the asbestos medical surveillance program
- The content of the WISHA asbestos regulation
- Names, addresses and phone numbers of public health organizations, which provide information and/or programs on smoking cessation
- Requirements for posting signs and using labels

Awareness training must be provided to employees or contractors who perform custodial or housekeeping duties in buildings containing ACM/PACM.

17.0 REVIEW AND REVISION HISTORY

Revision #	Preparer	Date	Description
0	Mark Willand	11/7/2021	Reformatted and Numbered per Document Control Policy, R-63-001.