

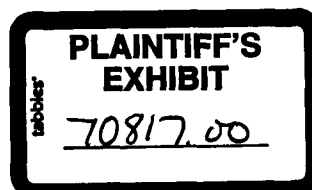
ASBESTOS

Asbestos-free materials have been used for all new insulation installation at the Norco Manufacturing Complex since 1973. Prior to this date, the insulation must be assumed to contain asbestos. Since excessive exposure to asbestos fibers can lead to medical problems, special handling precautions must be exercised for personnel protection. Removal, handling, and disposal of old insulation material that may contain asbestos must be conducted in a manner to avoid release of dust. All required personal protection gear (dust masks, coveralls, gloves, etc.) and all disposal equipment (bags, drums, ropes, signs, etc.) are available in the Plant and Refinery warehouses.

Procedures which must be followed when handling asbestos-containing material include the following:

1. Any insulation of unknown composition must be treated as though it contains asbestos. The Plant and Refinery Quality Assurance Labs can analyze (in about 1 hour) samples of insulation to identify as asbestos - or non-asbestos-containing.
2. "Major" demolitions or renovations (more than 260 linear feet of pipe or more than 160 square feet of vessel surface) of asbestos materials require a written notice of the job be sent to the Environmental Protection Agency at least 20 days before the work is to be begun. The Plant or Refinery Engineering Services or Operations Departments should supply the necessary information to the Environmental Conservation Department who will then make the appropriate notification to the Environmental Protection Agency.
3. Asbestos materials shall be handled and worked in a wet state in order to prevent the emission of airborne fibers. A fine mist or spray of water should be used. Do not use water under high pressure since this will cause escape of fibers into the air.
4. An area of sufficient size to ensure that fugitive asbestos fibers are contained shall be roped-off. "CAUTION-ASBESTOS DUST HAZARD" warning signs shall be affixed to the rope in quantities sufficient to warn other employees. These ropes and disposable signs are available from the Plant and Refinery warehouses. In the event individuals need to enter the roped areas for purposes other than asbestos handling, a dust mask is the only protective equipment that need be worn.

Section 4 Page 4A
September 1980



NOR-009437

5. Whenever it is necessary to work with asbestos, respiratory protective equipment is required. This will be either an approved dust respirator (for example 3M #9900, 9910, or 9920) or pressure-demand airline equipment (such as Scott or MSA). Dust respirators shall be used when the 8-hour time-weighted average airborne concentration of asbestos fibers is reasonably expected to exceed no more than 10 times the OSHA limit of 2 fibers per cubic centimeter (cc) of air. When air concentrations are expected to exceed 10 times the OSHA limit, use of pressure-demand airline respiratory equipment is required. Full body protective clothing (preferably disposable) shall be worn by all employees engaged in asbestos work.
6. No asbestos material shall be cut with power tools due to the release of excessive asbestos fibers into the air. If asbestos-containing materials need to be cut, the material must be cut with hand operated tools, and where possible, the material should be wet down first.
7. Asbestos waste will be placed in impermeable plastic bags while still wet to prevent fiber release. Disposable clothing shall also be placed in these bags after the work shift. Asbestos waste that is on the ground should be swept and picked up promptly while still wet. All such bags are to be sealed and must bear the appropriate OSHA or EPA labels. These sealed bags shall be placed in drums or in sealed dumpsters in order to minimize puncturing which could release fibers during transport and disposal. These materials will be disposed of in permitted hazardous waste disposal sites. The impermeable plastic bags, the disposable clothing, the respirators, and the drums needed to dispose of asbestos waste are all stored in either the Plant or Refinery warehouses.
8. Asbestos-containing insulation shall not be recovered for reuse. Only asbestos-free insulation shall be used for new facilities or for maintenance of existing equipment.
9. Johns-Manville is now manufacturing insulation that contains mica flakes which appear as brown dots and identifies that insulation to be non-asbestos-containing. Shell and others requested Johns-Manville to implement this identification procedure, and Head Office Purchasing encourages the use of this insulation where practical. Until the use of this insulation is widespread at Norco, Engineering Services has been requested to continue marking pertinent P&ID drawings indicating major equipment which has had asbestos replaced with non-asbestos insulation.

10. Health and Safety personnel are available to conduct both area and personnel air monitoring and assist in any manner necessary to control airborne asbestos levels.

OSHA specifies in its asbestos standard #1910.1001 that the 8-hour time-weighted average airborne concentration of asbestos fibers to which any employee may be exposed shall not exceed 2 fibers, longer than 5 micrometers, per cubic centimeter of air.