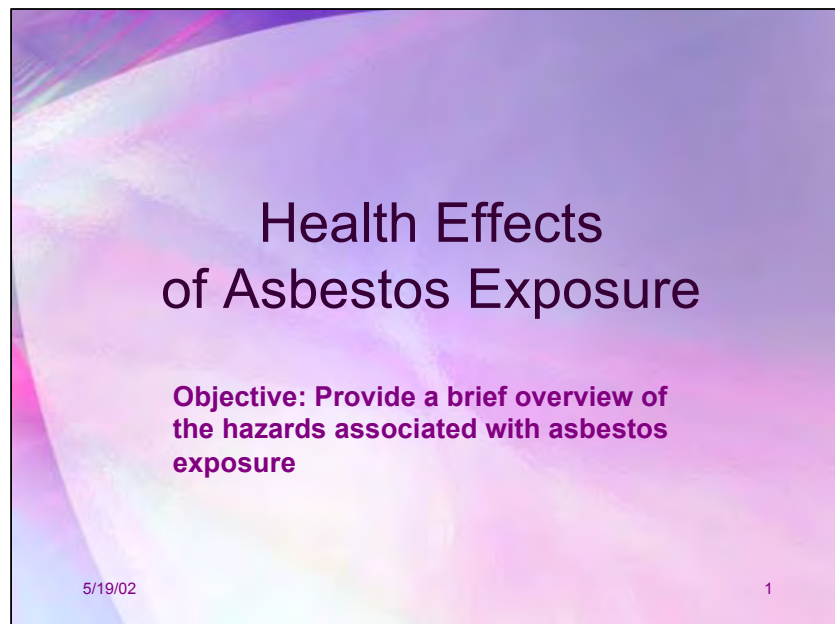
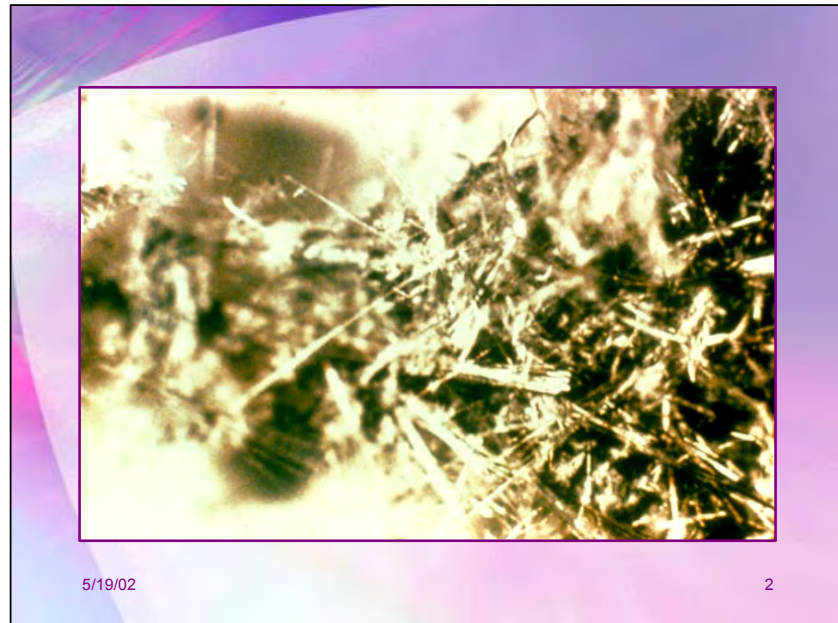


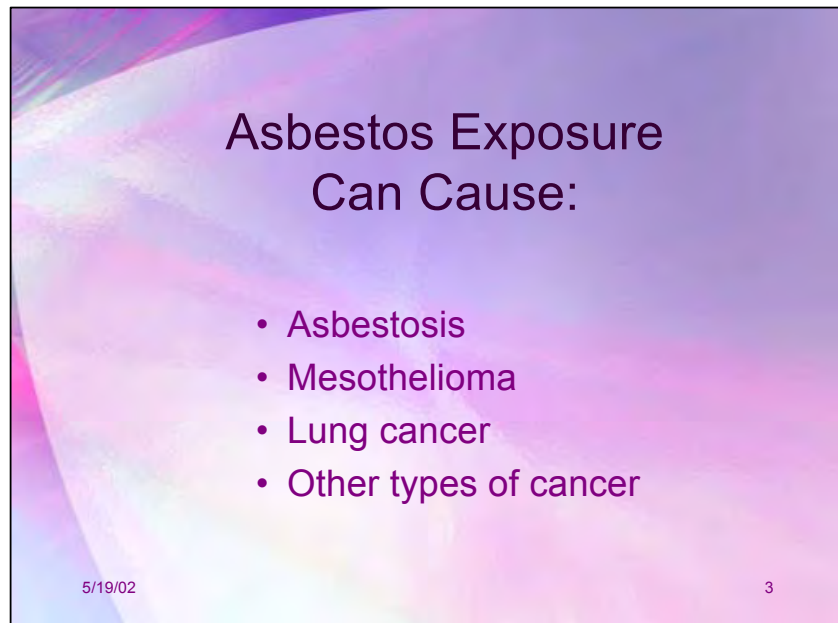
Asbestos Worker PowerPoint Presentations



SLIDE #1 (Tray 1-1): Health Effects of Asbestos Exposure



SLIDE #2 (Tray 1-2): Magnification of asbestos fibers

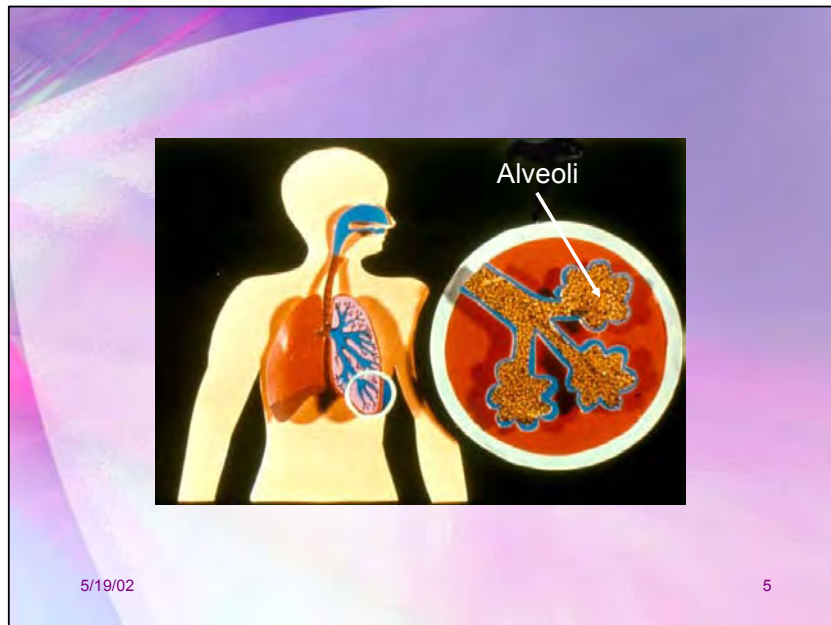


SLIDE #3 (Tray 1-3): Asbestos exposure can cause:

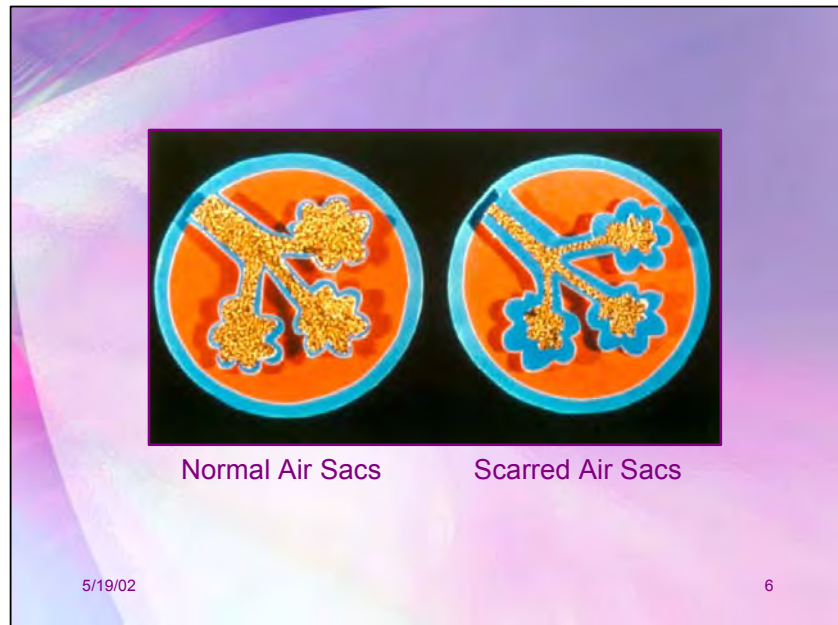
- | Asbestosis
- | Mesothelioma
- | Lung cancer
- | Other types of cancer



SLIDE #4 (Tray 1-4): ASBESTOSIS



SLIDE #5 (Tray 1-5): Body and lungs, with close-up of *Alveoli*



SLIDE #6 (Tray 1-6): Normal alveoli and scarred alveoli



SLIDE #7 (Tray 1-7): X-ray of lungs w/early damage



SLIDE #8 (Tray 1-8): X-ray of greater lung damage, particularly on lower right.

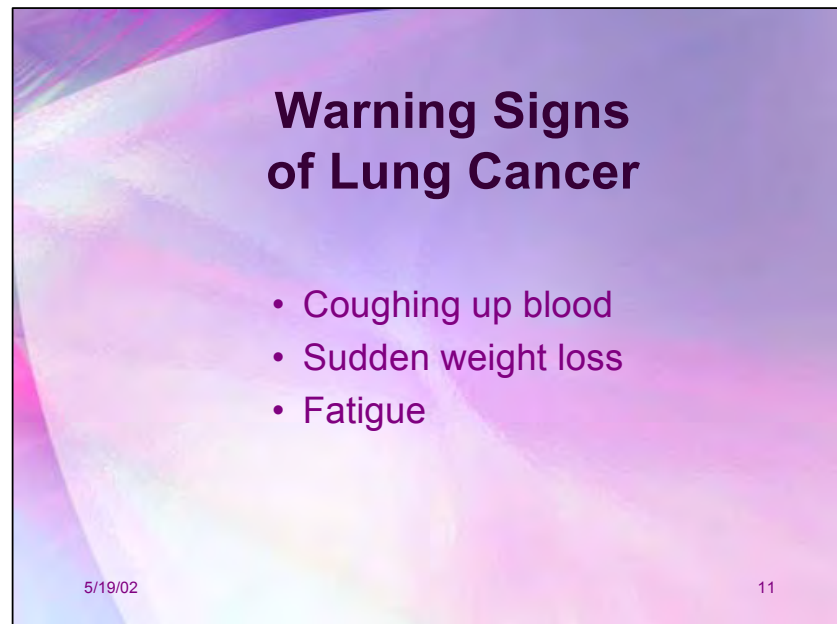
Note: Skip the next slide in the tray as it is a duplicate of this one. Slide #9 in this script will be slide #10 in the tray.



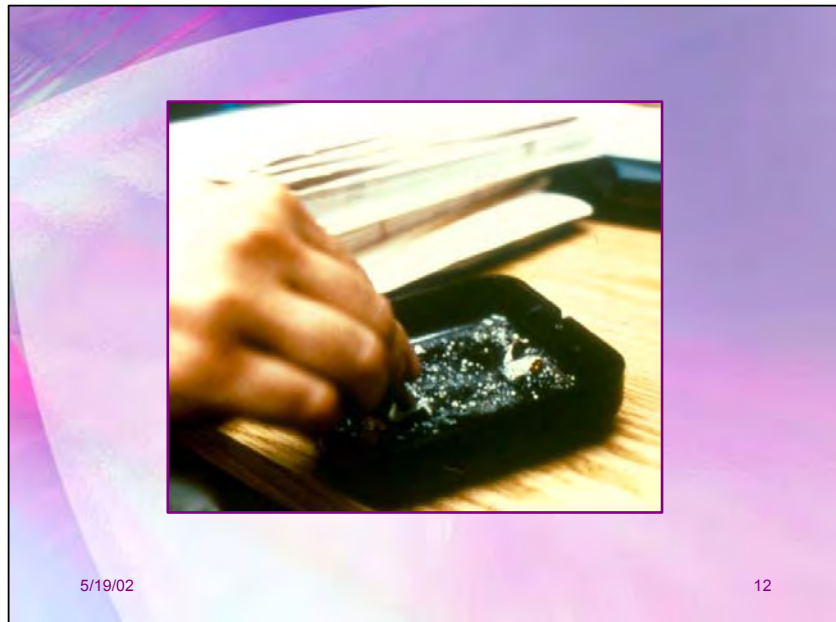
SLIDE #9 (Tray 1-10): X-ray of major lung damage



SLIDE #10 (Tray 1-11): Lung Cancer, Cancer of the Esophagus, Stomach Cancer, Cancer of the Large Intestine, Rectum Cancer



SLIDE #11 (Tray 1-12): Warning signs of lung cancer; Coughing up blood, sudden weight loss, fatigue



SLIDE #12 (Tray 1-13): A cigarette being put out in an ash tray



Warning Signs of Digestive Cancer

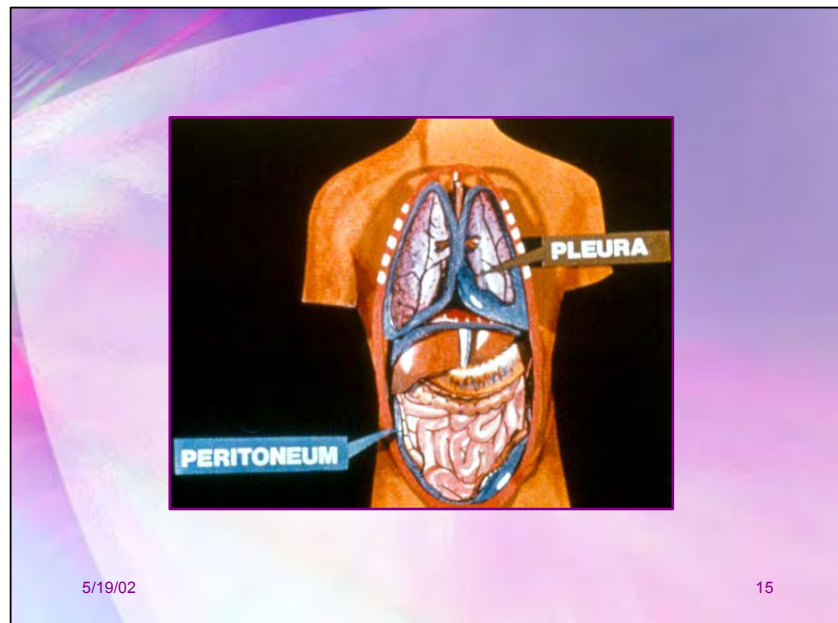
- Blood in stool
- Sudden weight loss
- Fatigue
- Change in bowel habits

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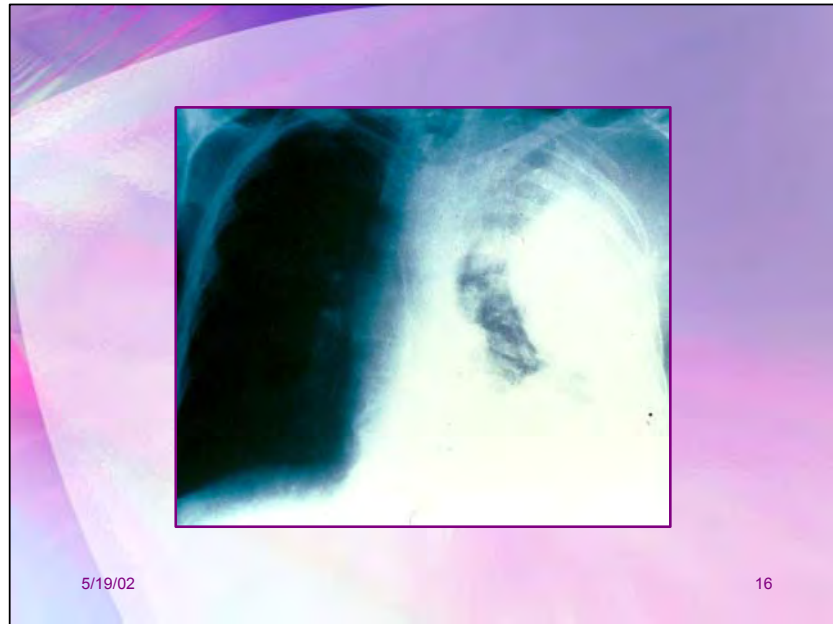
SLIDE #13 (Tray 1-14): Warning signs of digestive cancer; blood in stool, sudden weight loss, fatigue, change in bowel habits



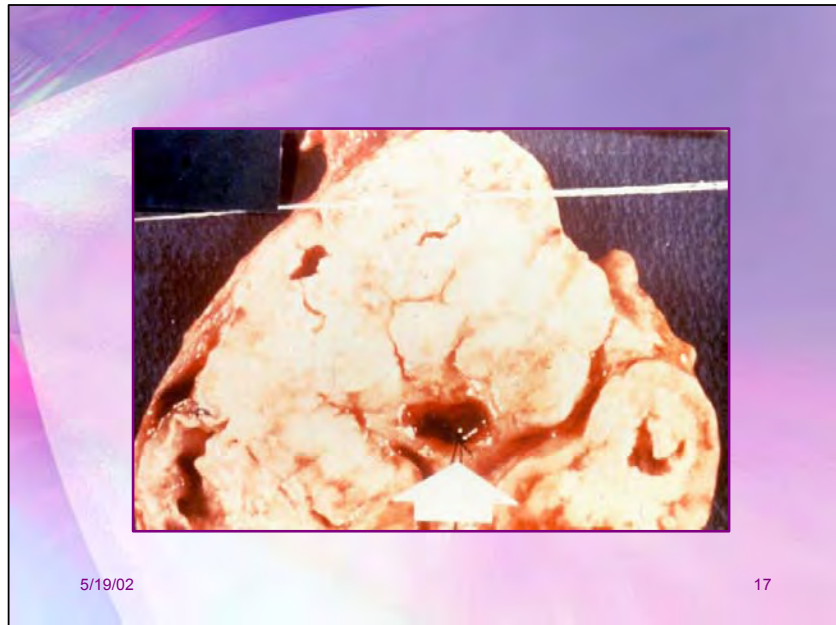
SLIDE #14 (Tray 1-15): Mesothelioma



SLIDE #15 (Tray 1-16): Body illustration the ***PLEURA*** (lung sac) and the ***PERITONEUM*** (GI sac)



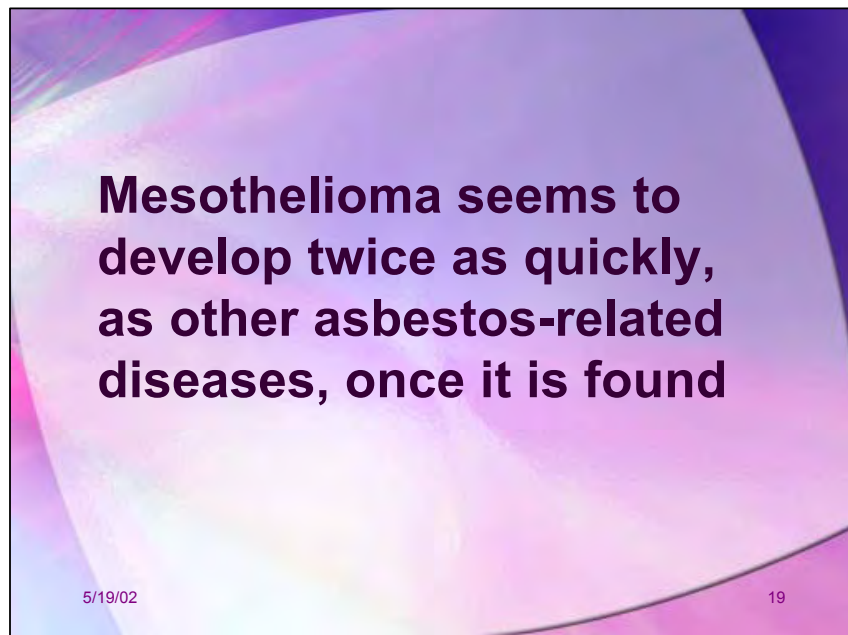
SLIDE #16 (Tray 1-17): X-ray showing damage to the pleura



SLIDE #17 (Tray 1-18): An abdominal cancer



SLIDE #18 (Tray 1-19): Warning signs of Peritoneal Mesothelioma: Pain and swelling abdomen, weight loss, fatigue



SLIDE #19 (Tray 1-20): Mesothelioma seems to develop twice as quickly, as other asbestos related diseases, once it is found.

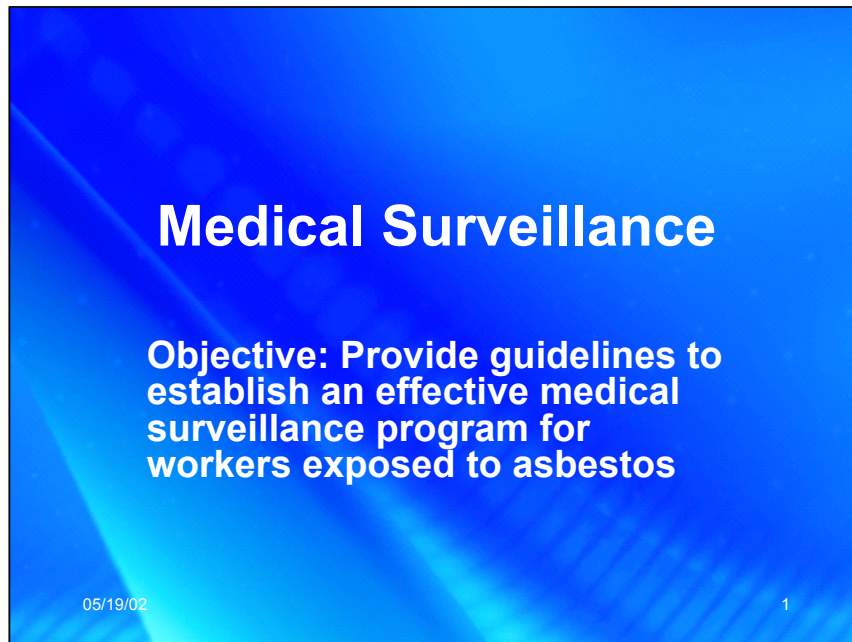
Note: Its latency period actually appears to be a bit longer than the other asbestos-related cancers; however, once it is diagnosed, its development or spread is rapid.

**THAT'S ALL
FOLKS**

**Health Effects
PowerPoint**

**CPWR Asbestos
Worker Course**

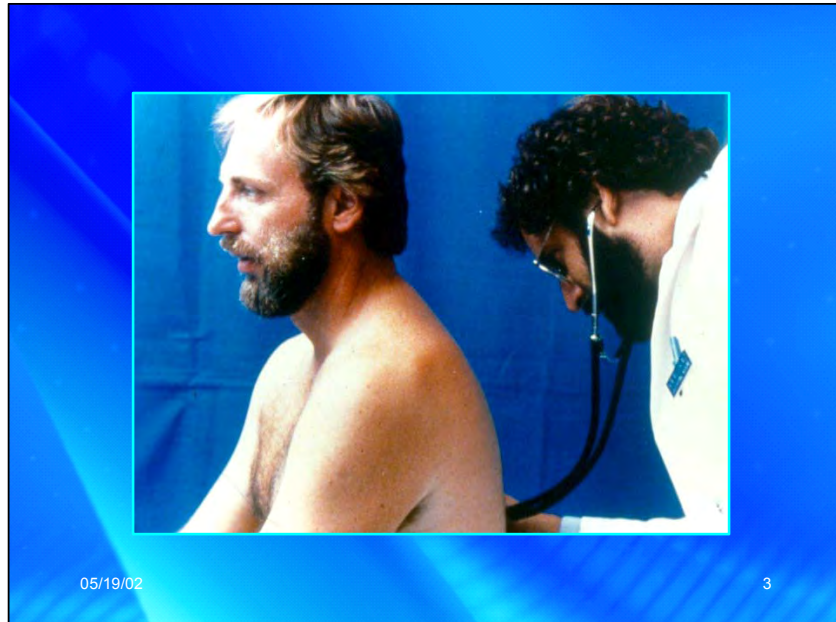
Asbestos Worker PowerPoint Presentations



SLIDE #1(1-21): MEDICAL SURVEILLANCE.
Objective: Provide guidelines to establish an effective medical surveillance program for workers exposed to asbestos



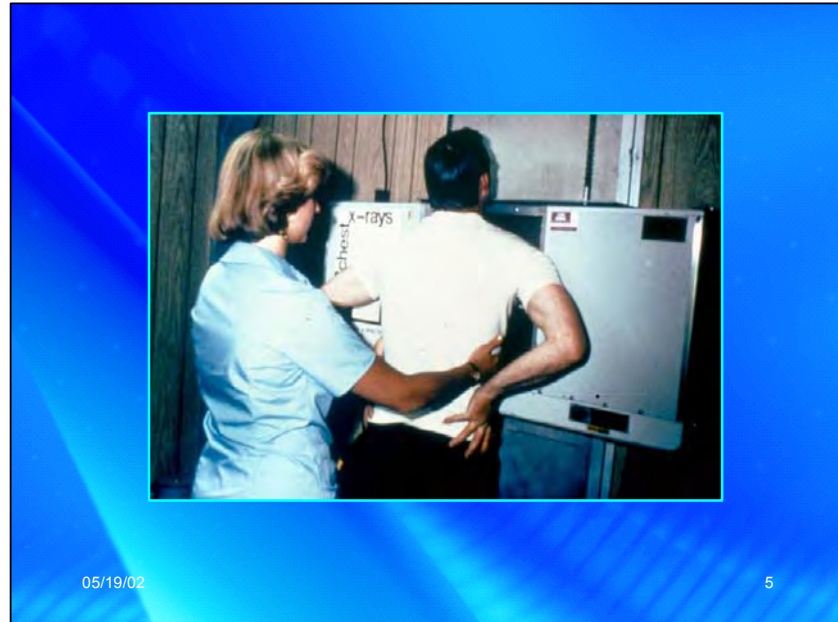
SLIDE #2 (1-22): A health care professional interviewing a worker.



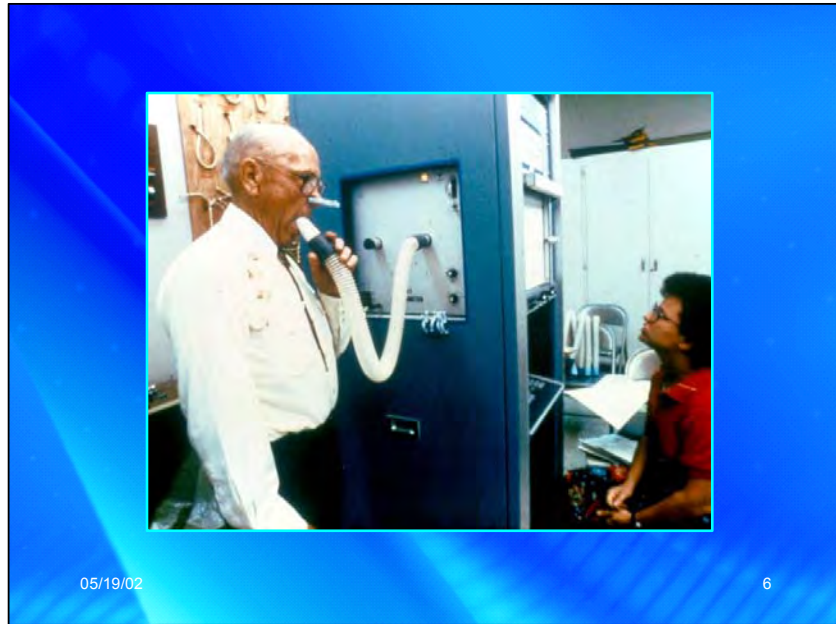
SLIDE #3 (1-23): A health care professional examining a worker.



SLIDE #4 (Tray 1-24): A loose-fitting hood. If you are going to wear any type of respirator, you have to have a ***respirator fitness exam*** as well.



SLIDE #5 (Tray 1-25): A worker receiving the *required lung x-ray which will be evaluated by a trained Type B x-ray reader.*



SLIDE #6 (Tray 1-26): A worker having his lung capacity checked.

**THAT'S ALL
FOLKS**

Medical Surveillance

CPWR Asbestos

Worker Course

Asbestos Worker PowerPoint Presentations

WORKSITE PREP
AND THE DECON

Objective: Understand the proper techniques for preparing the work area and setting up a decontamination unit.

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SLIDE #1 (Tray 1-27): PREPARING THE WORK AREA AND ESTABLISHING THE DECONTAMINATION UNIT. Objective: Understand the proper techniques for preparing the work area and setting up a decontamination unit.

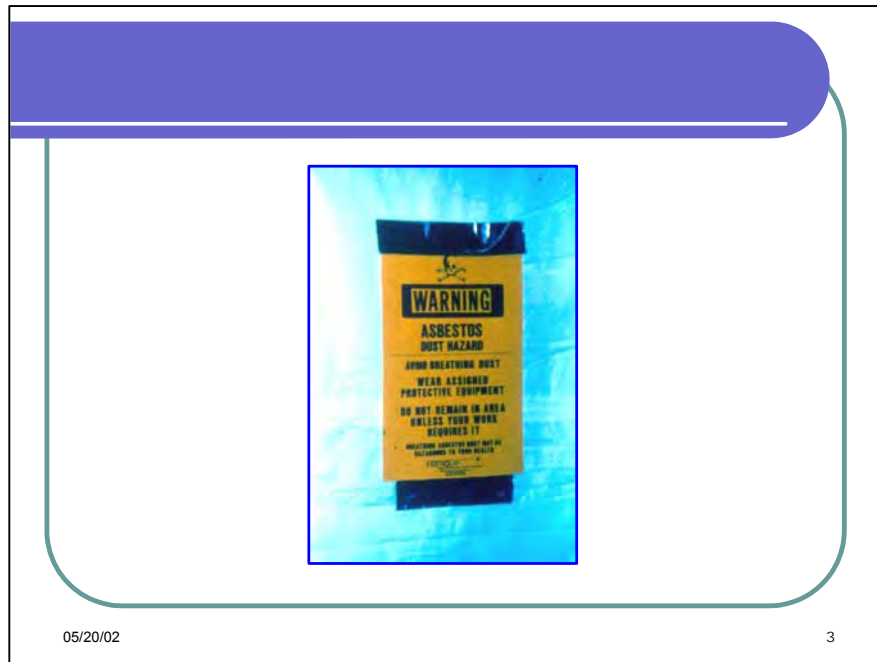
PREPARING THE WORK AREA

- Objectives of work area preparation
- Sequence and methods for work area preparation

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SLIDE #2 (Tray 1-28): PREPARING THE WORK AREA.

- Objectives of work area preparation
- Sequence and methods for work area preparation



SLIDE #3 (Tray 1-29): Posted asbestos warning poster.



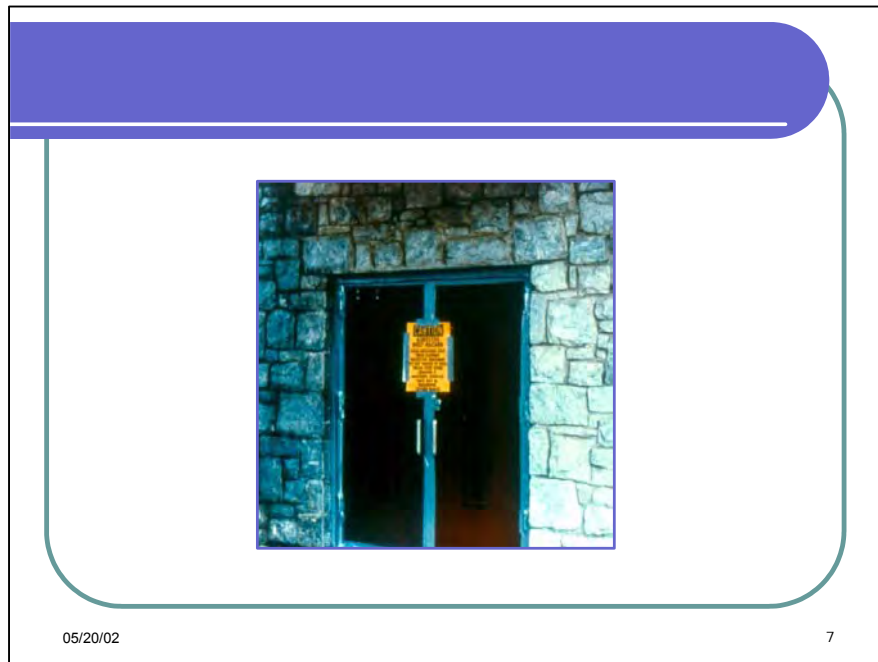
SLIDE #4 (Tray 1-30): A worker unrolling 6 mil poly. (Question: Should this worker be dressed out?)



SLIDE #5 (Tray 1-31): Duct tape.



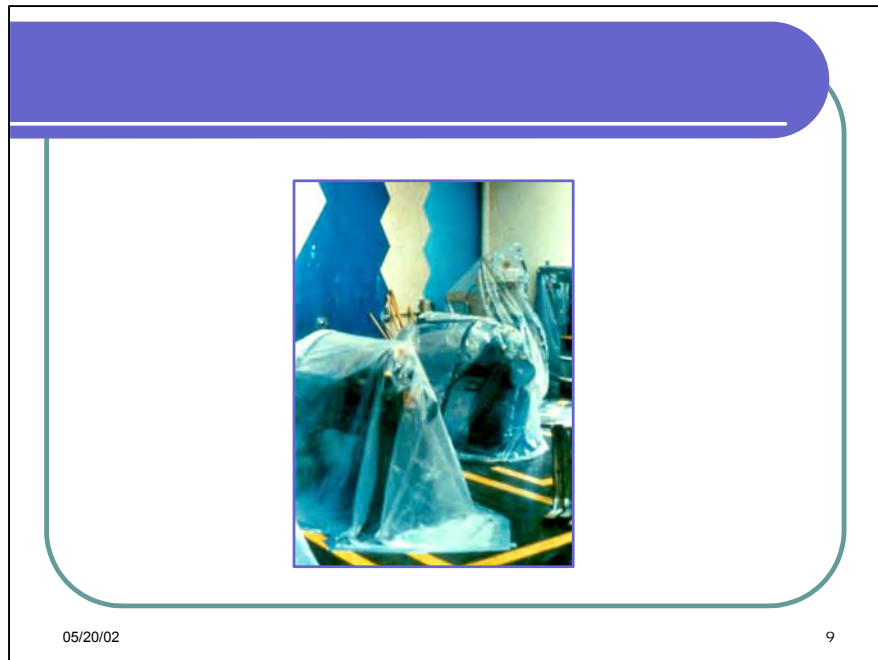
SLIDE #6 (Tray 1-32): A can of spray glue.



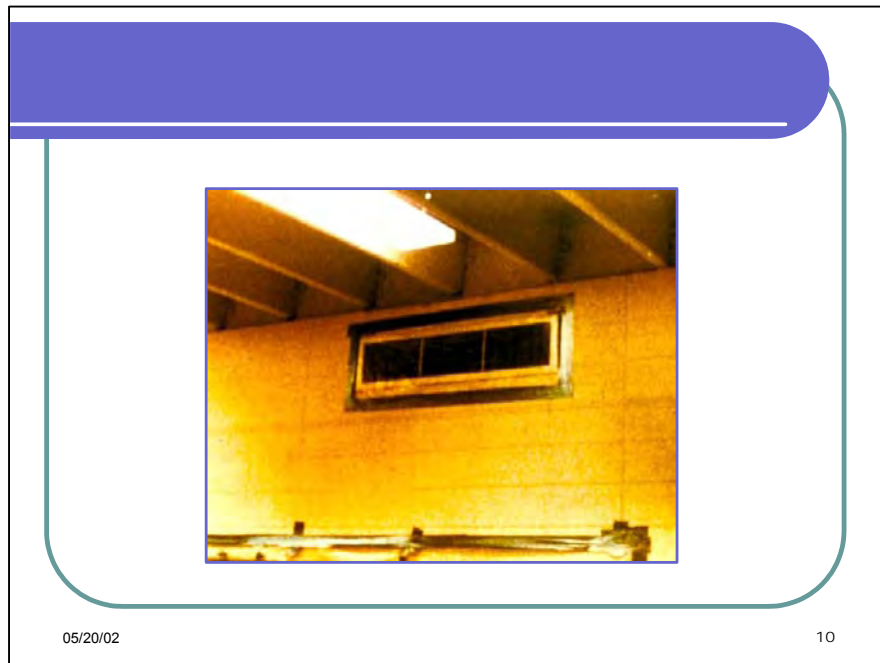
SLIDE #7 (Tray 1-33): A blocked exterior exit with a posted asbestos warning poster.



SLIDE #8 (Tray 1-34): A classroom where *critical barrier 6 mil poly* has been applied along with some 6 mil floor poly.



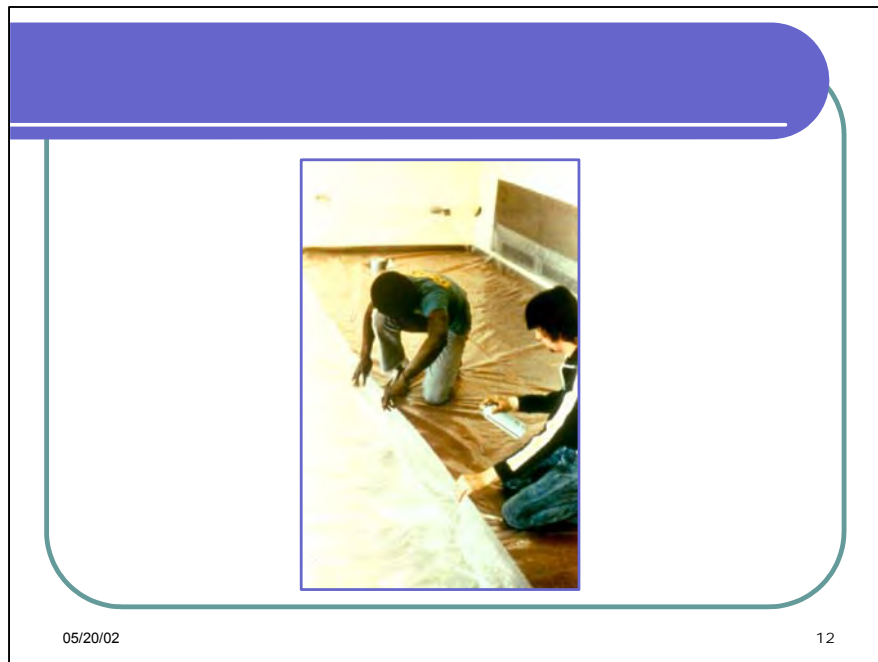
SLIDE #9 (Tray 1-35): A shop where heavy machinery is kept in place and covered with critical barrier 6 mil poly.



SLIDE #10 (Tray 1-36): A HVAC vent covered with critical barrier poly.



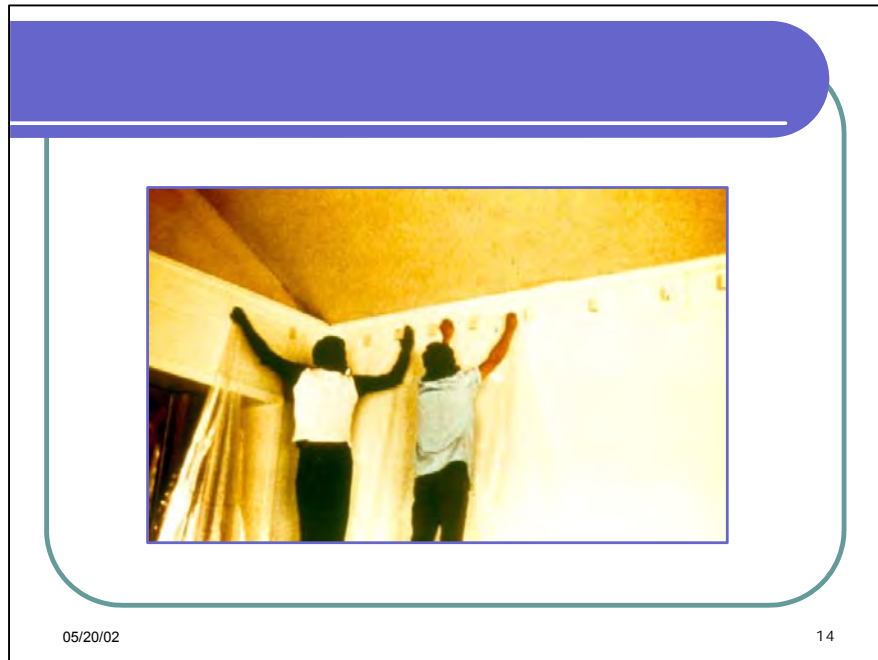
SLIDE #11 (Tray 1-37): The first layer of 6 mil floor poly being put down.



SLIDE #12 (Tray 1-38): A second layer of 6 mil floor poly being *seamed with spray glue* to the first layer of poly.



SLIDE #13 (Tray 1-39): The second floor layer of 6 mil poly but is being ***seamed with duct tape***.



SLIDE #14 (Tray 1-40): The first layer of 6-mil wall poly be applied, used **tape tabs**.
(Question: What else can be used to anchor this poly? and What factor(s) affect our choice of anchors?)



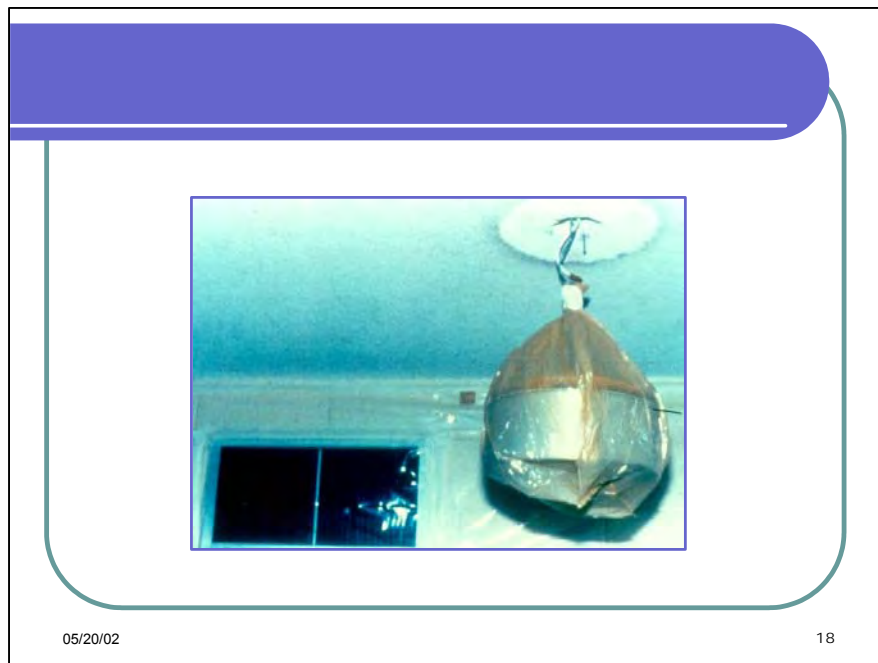
SLIDE #15 (Tray 1-41): 6 mil wall poly being anchored with nail blocks.



SLIDE #16 (Tray 1-42): The bottom of second layer of wall poly draping over second layer of floor poly. (6 mil)



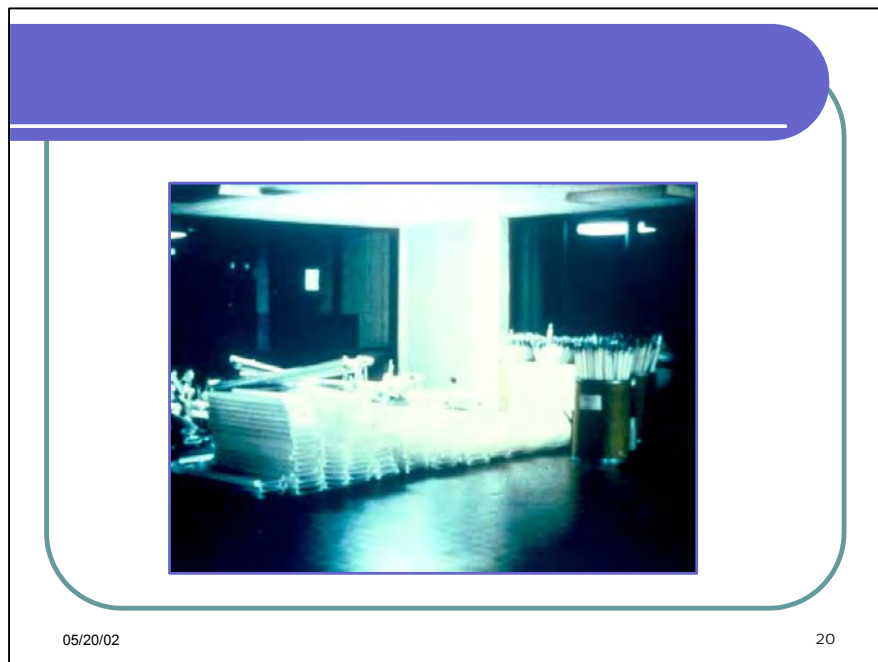
SLIDE #17 (Tray 1-43): A fully plasticized room. (Question: What do you think of this job? – note lights at top, for one.)



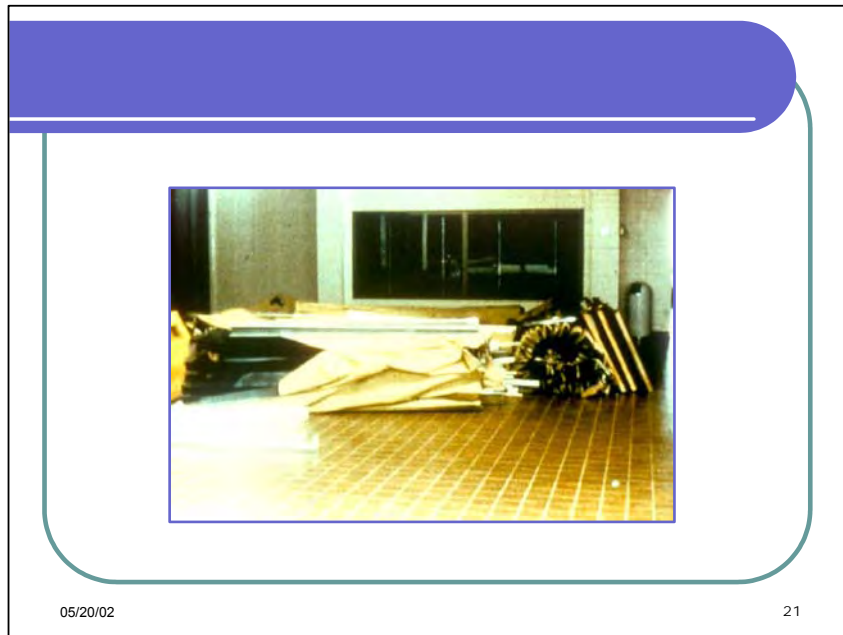
SLIDE #18 (Tray 1-44): A light fixture covered with poly. (Question: Is this what you would have done? And What about the small window?)



SLIDE #19 (Tray 1-45): 6 mil poly critical barrier on space heater. (Question: What about the other items in this room?)



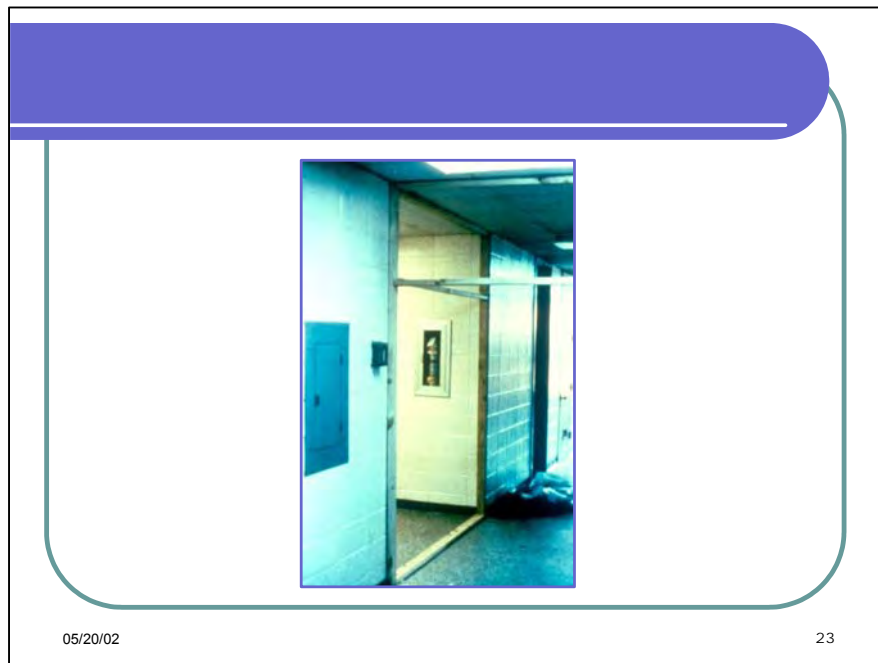
SLIDE #20 (Tray 1-46): Drop- or suspended-ceiling light panels which have been removed from the *regulated area*.



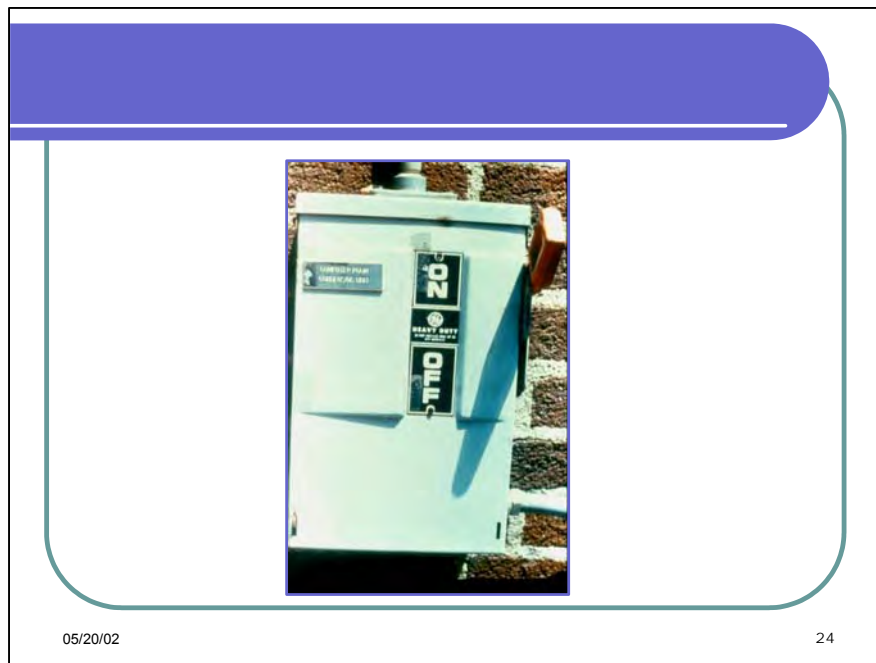
SLIDE #21 (Tray 1-47): Interior fixtures removed from the regulated area prior to abatement.



SLIDE #22 (Tray 1-48): Stairs covered with 6 mil poly. (Question: How would you keep it from sliding?)



SLIDE #23 (Tray 1-49): Frames being set to either *barrier* off part of the building or to make *doors* which will minimize asbestos migration in the regulated area.



SLIDE #24 (Tray 1-50): A power source which needs to be *locked and tagged out*.

ESTABLISHING THE DECONTAMINATION UNIT.

- Functions of a Decontamination Unit
- Basic Construction of a Decontamination Unit
- Procedures for Entering and Exiting Work Area through the Decontamination Unit

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SLIDE #25 (Tray 1-51): ESTABLISHING THE DECONTAMINATION UNIT.

- Functions of a decontamination unit
- Basic construction of a decontamination unit
- Procedures for entering and exiting work area through the decontamination unit



SLIDE #26 (Tray 1-52): Abatement workers constructing a ***solid - walled decon unit***.
(Question: Would you use particle board or something else?)



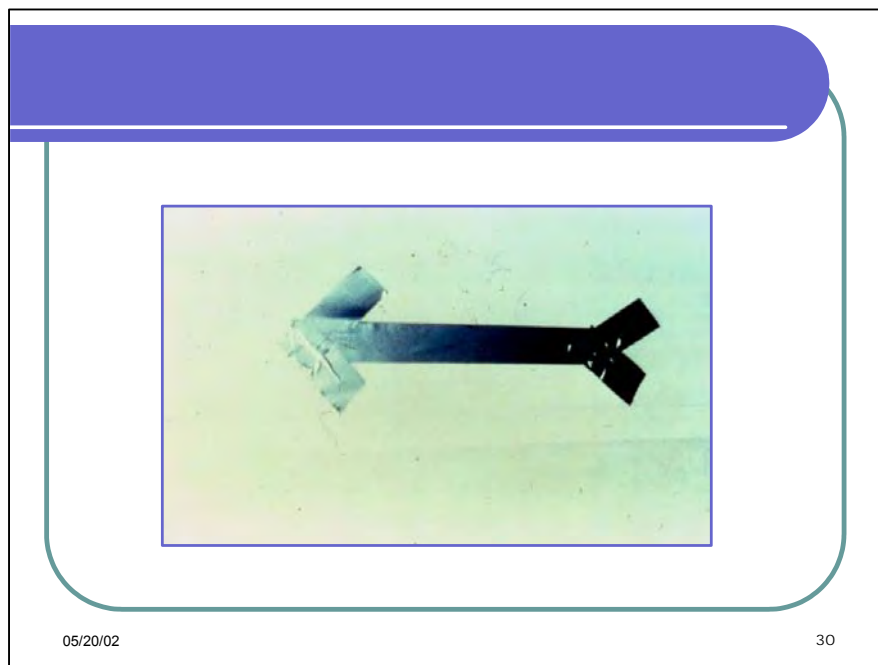
SLIDE #28 (Tray 1-53): A completed decon unit with *water filtration/pump (EPA minimum 5 micron filter) for the mandatory shower.*



SLIDE #28 (Tray 1-54): A *PVC pipe decon* with air locks. (Question: What about the open end on the clean room entry side?)



SLIDE #29 (Tray 1-55): A containment, possibly a decon or waste load-out, in a hallway.



SLIDE #30 (Tray 1-56): *Escape directional arrow* place on decon wall. (Question: How high, or low, should some of these be placed?)



SLIDE #31 (Tray 1-57): A portable decon trailer and shower.



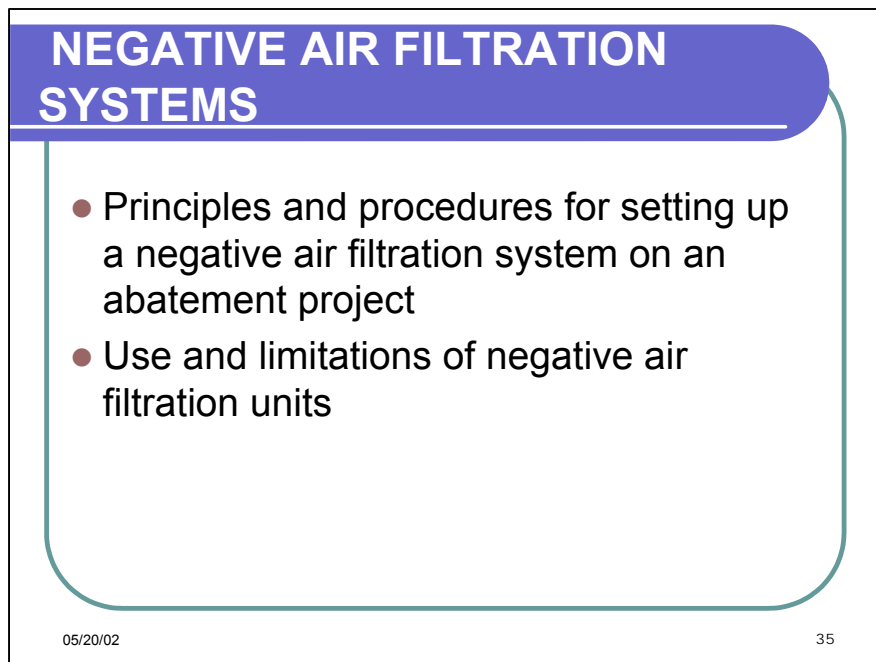
SLIDE #32 (Tray 1-58): A portable shower stall waiting to be installed.



SLIDE #33 Tray 1-59): A *water filtration* unit for shower.



SLIDE #34 (Tray 1-60): Exterior picture of decon shower recirculating pump.



NEGATIVE AIR FILTRATION SYSTEMS

- Principles and procedures for setting up a negative air filtration system on an abatement project
- Use and limitations of negative air filtration units

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SLIDE #35 (Tray 1-61): NEGATIVE AIR FILTRATION SYSTEMS.

- Principles and procedures for setting up a negative air filtration system on an abatement project
- Use and limitations of negative air filtration units

NEGATIVE AIR FILTRATION SYSTEMS

- Principles and procedures for setting up a negative air filtration system on an abatement project
- Use and limitations of negative air filtration units

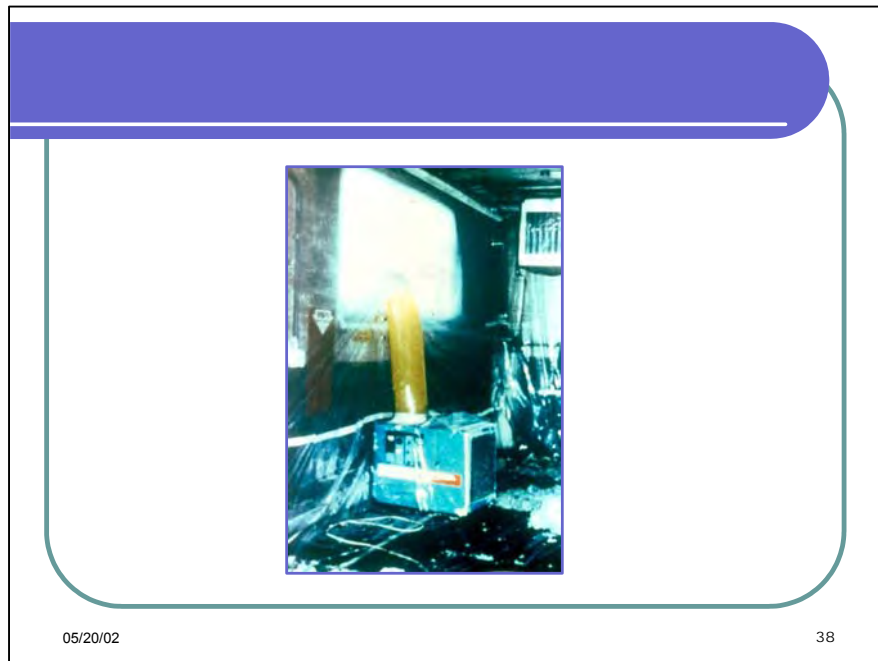
05/20/02 35

SLIDE #35 (Tray 1-61): NEGATIVE AIR FILTRATION SYSTEMS.

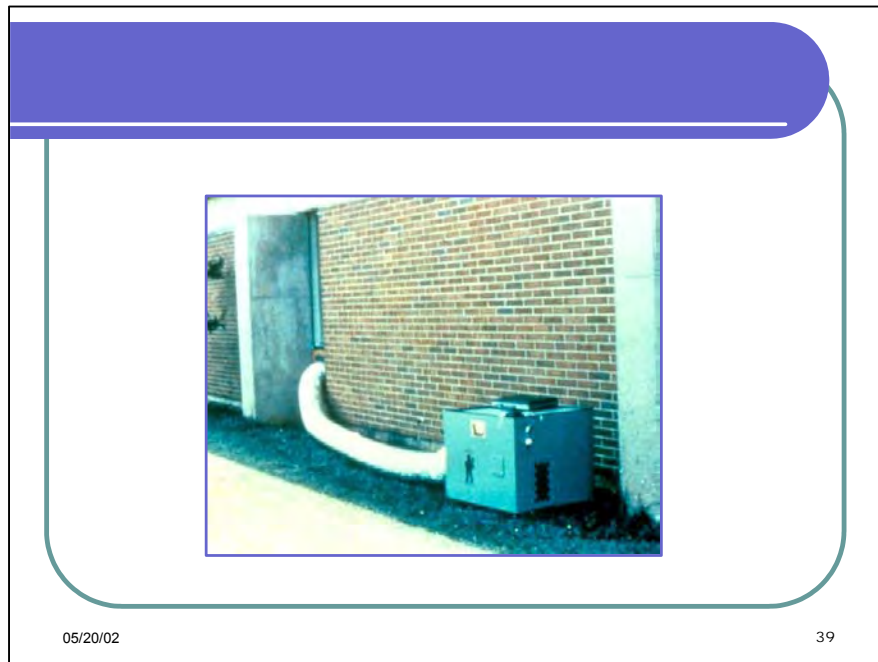
- Principles and procedures for setting up a negative air filtration system on an abatement project
- Use and limitations of negative air filtration units



SLIDE #37 (Tray 1-63): Frontal picture of NAM showing the three stages of air filtration: **(1) gross pre-filter; (2) finer pre-filter; (3) HEPA filter.**



SLIDE #38 (Tray 1-64): Operating NAM in regulated area. Law requires that it make a ***minimum of 4 air exchanges per hour.*** (Question: Why is the NAM wrapped in poly? and what do think of the housekeeping?)



SLIDE #39 (Tray 1-65): An external placement of NAM. (Question: Is there a moveable slinky inside or is the end of the slinky fixed at the building entry? Question: Do we have to concerned with the extra distance the air has to travel? [need greater capacity to pull over longer distances])

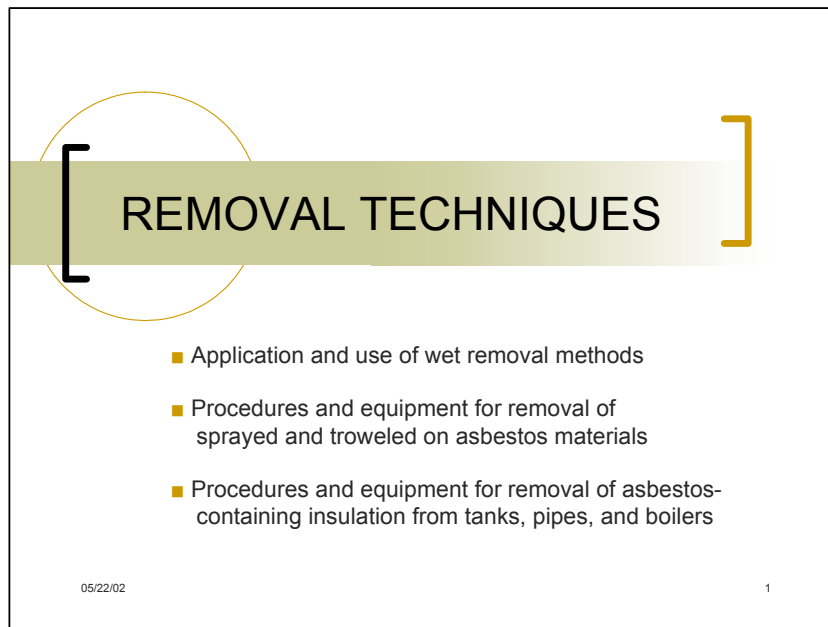


SLIDE #40 (Tray 1-66): NAM from previous slide, showing connection of slinky at its entry point of the regulated area.

**THAT'S ALL
FOLKS**

Worksite Prep & Decon
CPWR Asbestos
Worker Course

Asbestos Worker PowerPoint Presentations



SLIDE #1 (Tray 1-67): REMOVAL TECHNIQUES

- Application and use of wet removal methods
- Procedures and equipment for removal of sprayed and troweled on asbestos materials
- Procedures and equipment for removal of asbestos-containing insulation from tanks, pipes, and boilers



SLIDE #2 (Tray – 68): A dressed-out abatement worker (w/o gloves) equipped with full-face supplied air respirator.



SLIDE #3 (Tray – 69): A *powered low-pressure sprayer containing water with a surfactant (wetting agent) which is referred to as amended water.* High-pressure sprayers are not legal. (Question: Where might some of you find amended water in the home – at a photo developing business?)



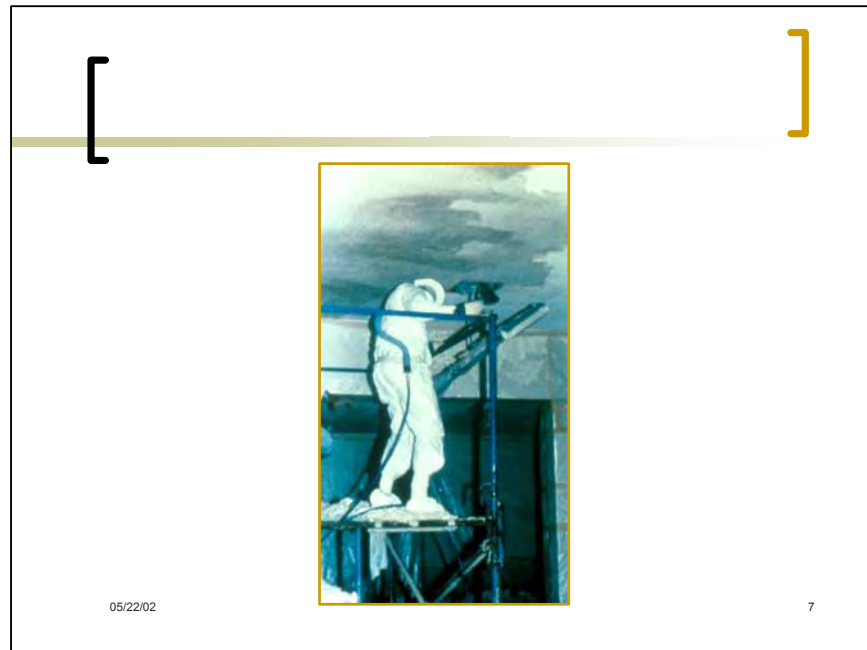
SLIDE #4 (Tray 1 – 70): A glove-less dressed-out abatement worker spraying asbestos-containing material with amended water which will make the removal easier and minimize the release of fibers.



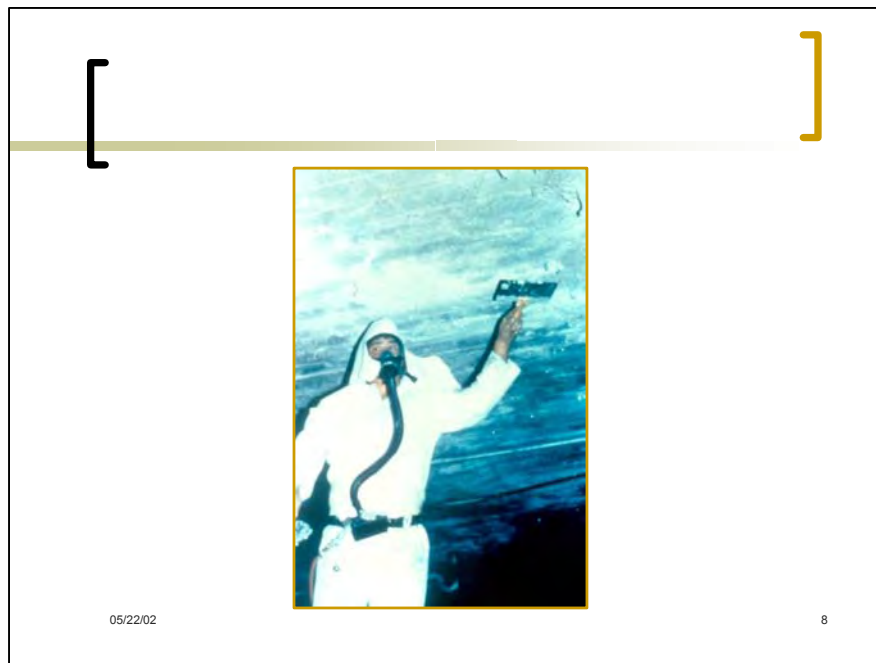
SLIDE #5 (Tray 1 – 71): *A hand-pump powered low-pressure Hudson Sprayer.*



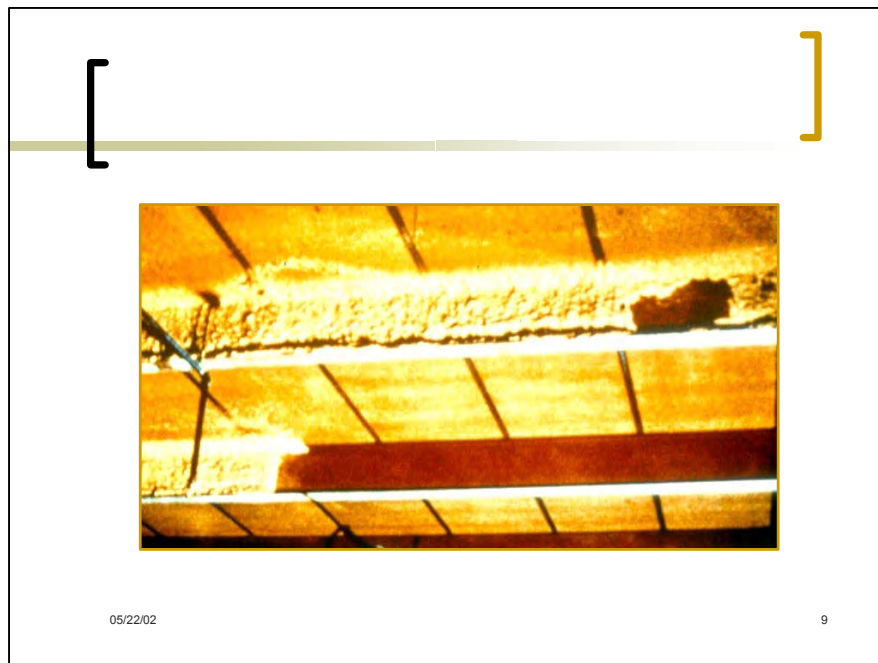
SLIDE #6 (Tray 1 – 72): Supplied-air equipped dressed-out abatement workers removing asbestos-containing material from ceiling. Comments?



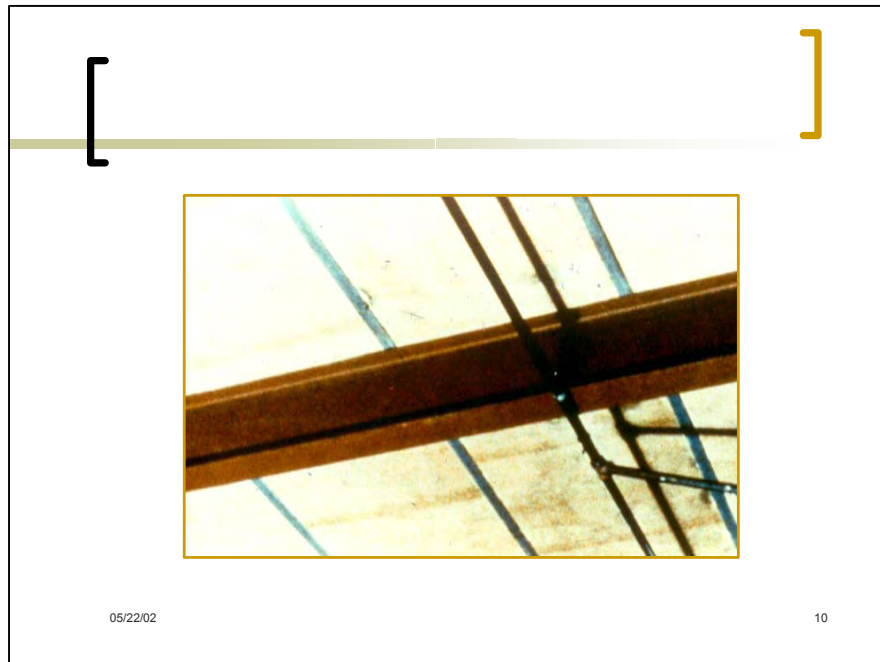
SLIDE #7 (Tray 1 – 73): Supplied-air dressed-out abatement worker scraping asbestos-containing material from a ceiling. (Questions – Comments)



SLIDE #8 (Tray 1 – 74): Improperly dressed-out supplied-air abatement worker scraping asbestos-containing material from a ceiling.



SLIDE #9 (Tray 1 – 75): Before and after in-progress abatement on a steel beam.



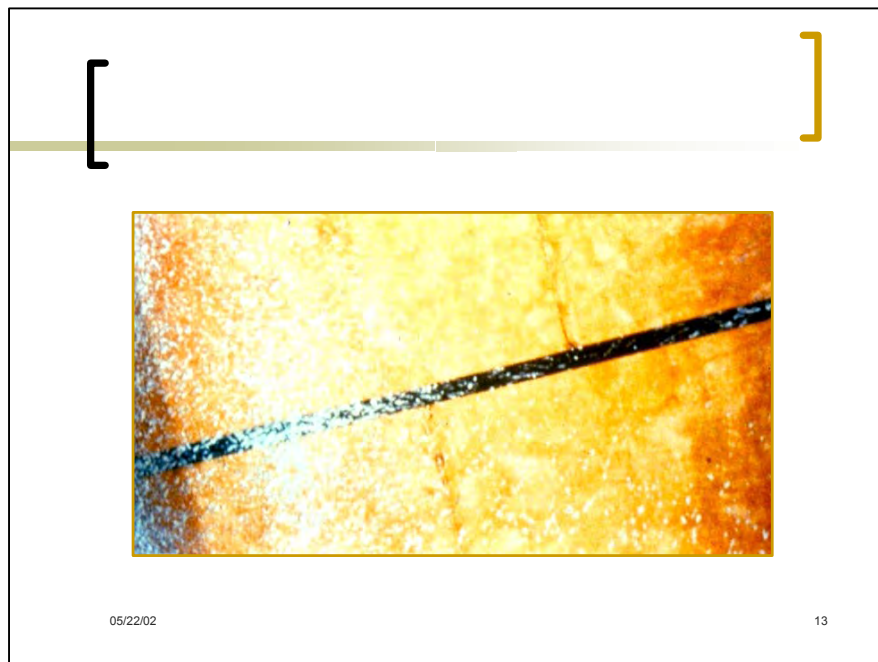
SLIDE #10 (Tray 1 – 76): Abated steel beam.



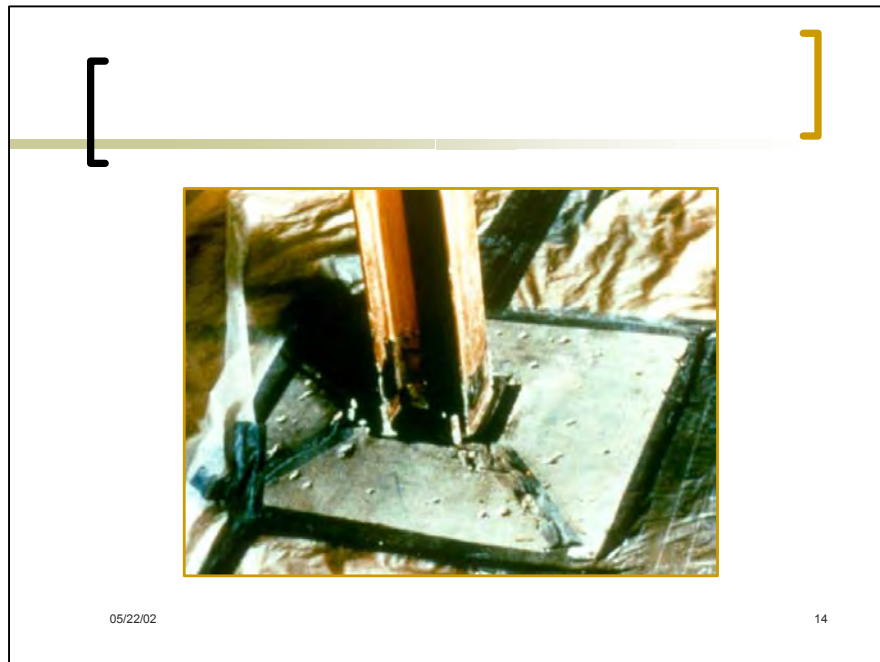
SLIDE #11 (Tray 1 – 77): Improperly dressed-out abatement worker removing asbestos-containing material containing potentially dangerous metal lathing.



SLIDE #12 (Tray 1 – 78): Improperly dressed-out abatement worker seemingly suspended in air trying to scrape ACM from a tight spot.
(ACM = asbestos containing material)



SLIDE #13 (Tray 1 – 79): ACM over-spray on a fiberglass insulation layer.



SLIDE #14 (Tray 1 – 80): A pitted concrete base which may contain asbestos fibers.



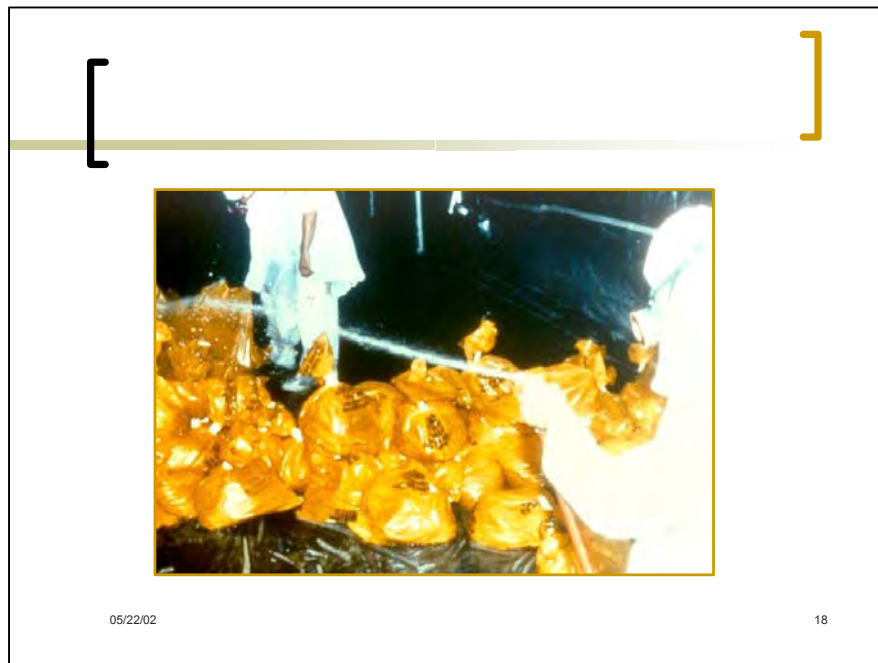
SLIDE #15 (Tray 1 – 81): An improperly dressed-out abatement worker scooping asbestos waste and debris. (Any comments on housekeeping?)



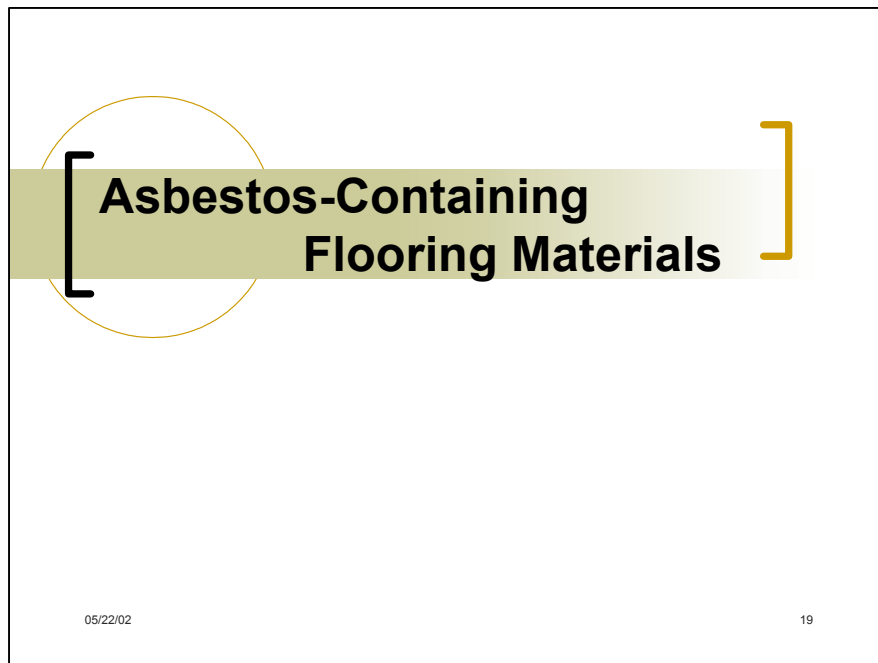
SLIDE #16 (Tray 1 – 82): An improperly dressed-out abatement worker filling a waste bag with ACM waste. (Any comments of how long it will take doing it this way?)



SLIDE #17 (Tray 1 – 83): Bagged, but not sealed, waste bags waiting for load-out.
(Question: How will these bags be sealed?)



SLIDE #18 (Tray 1 – 84): Waste bags being watered down on the outside to remove any residual fibers clinging to the bags' surfaces. (by improperly dressed-out abatement workers)



SLIDE #19 (Tray 1 – 85): Asbestos-Containing Flooring Materials

**Types of Floor Covering Materials
Which May Contain Asbestos**

- Asphalt tile
- Rubber tile
- Vinyl asbestos tile
- Backing on sheet vinyl flooring
- Lining felt

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SLIDE #20 (Tray 1 – 86): Types of Floor Covering Materials Which May Contain Asbestos.

- | Asphalt tile
- | Rubber tile
- | Vinyl asbestos tile
- | Backing on sheet vinyl flooring
- | Lining felt

Manufacturing Process for Asbestos Containing Floor Covering

- Asbestos fibers firmly mixed and coated with binder within product
- Tile – fibers encapsulated in vinyl or polymer mass
- Sheet flooring (backing only) - fibers blended in latex components to render them encapsulated

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SLIDE #21 (Tray 1 – 87): Manufacturing Process for Asbestos-Containing Floor Covering

- | Asbestos fibers firmly mixed and coated with binder within product
- | Tile – fibers encapsulated in vinyl or polymer mass
- | Sheet flooring (backing only) - fibers blended in latex components to render them encapsulated

**Types of Adhesive Which
may Contain Asbestos**

- Asphaltic “cutback” adhesive
- Fibers were locked into asphaltic matrix
- Not used in adhesive for sheet goods

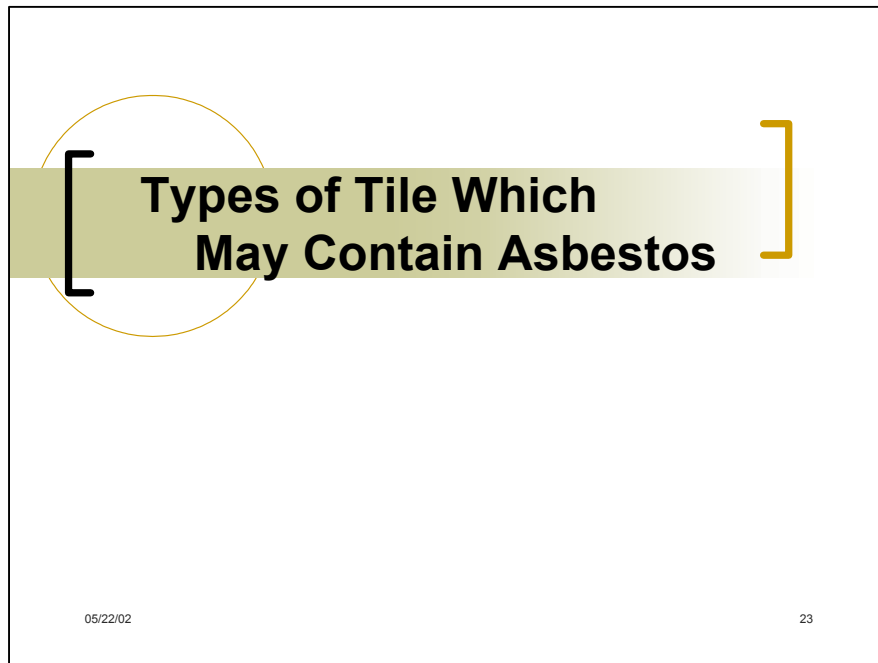
05/22/02 22

SLIDE #22 (Tray 1- 88): Types of Adhesive Which may Contain Asbestos

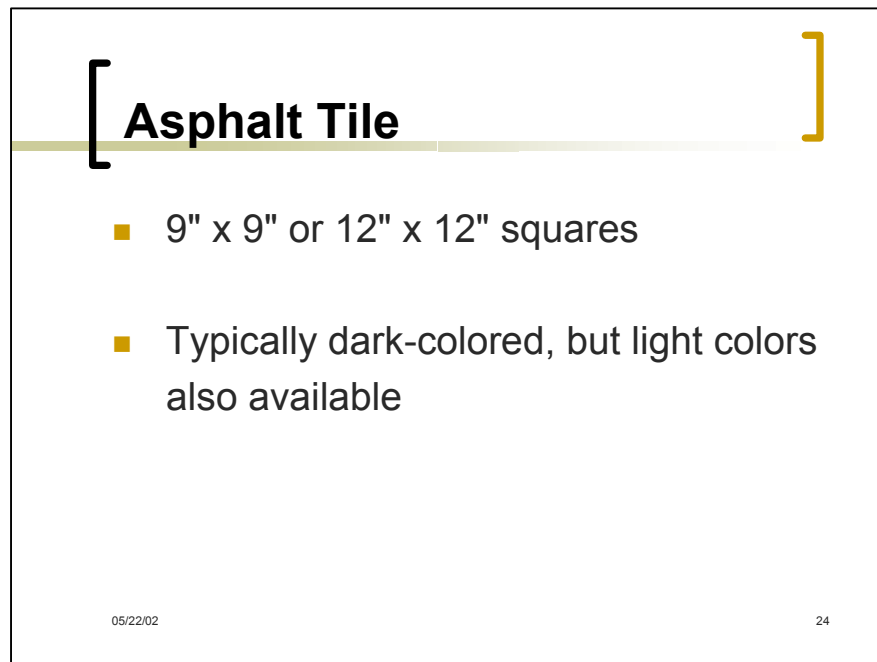
┆ Asphaltic “cutback” adhesive

┆ Fibers were locked into asphaltic matrix

┆ Not used in adhesive for sheet goods



SLIDE #23 (Tray 1 – 89):Types of Tile Which May Contain Asbestos

A slide titled "Asphalt Tile" enclosed in a black rectangular border. The title is centered at the top, flanked by large square brackets. Below the title is a horizontal line. Underneath the line are two bullet points, each preceded by a small yellow square. At the bottom left of the slide is the date "05/22/02" and at the bottom right is the number "24".

[Asphalt Tile]

- 9" x 9" or 12" x 12" squares
- Typically dark-colored, but light colors also available

05/22/02 24

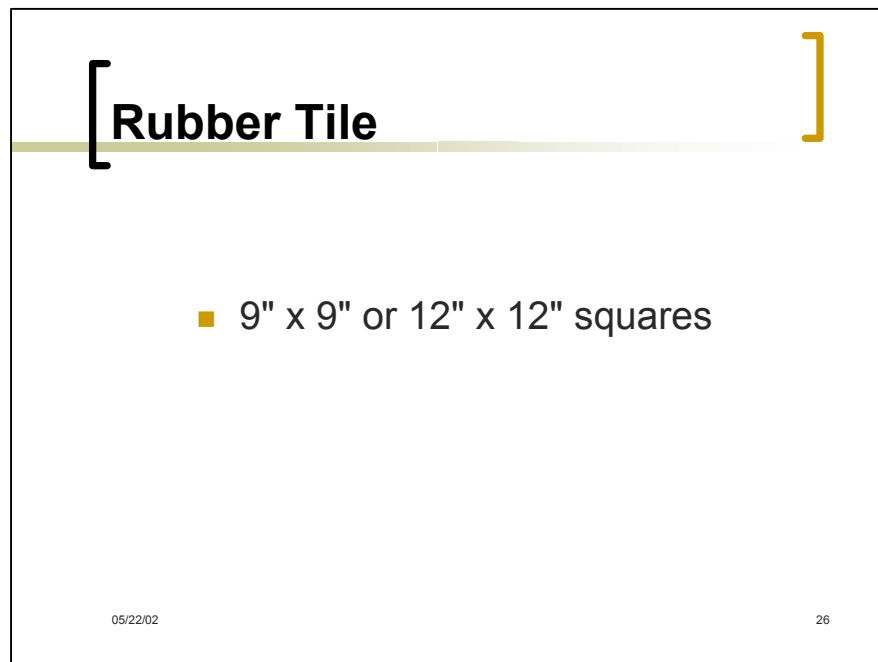
S **SLIDE #24 (Tray 1 – 90): *Asphalt Tile.***

| 9" x 9" or 12" x 12" squares

| Typically dark-colored, but light colors also
S available



SLIDE #25 (Tray 1 – 91): Asphalt tile

A rectangular slide frame with a thin black border. At the top, the text "[Rubber Tile]" is displayed in a large, bold, black font. The opening bracket is on the left, and the closing bracket is on the right. A horizontal line with a yellow-to-white gradient runs across the slide, starting from the left bracket and ending at the right bracket. Below this line, a single bullet point is centered, consisting of a small yellow square followed by the text "9" x 9" or 12" x 12" squares". In the bottom-left corner of the slide, the date "05/22/02" is written in a small, black font. In the bottom-right corner, the number "26" is written in a small, black font.

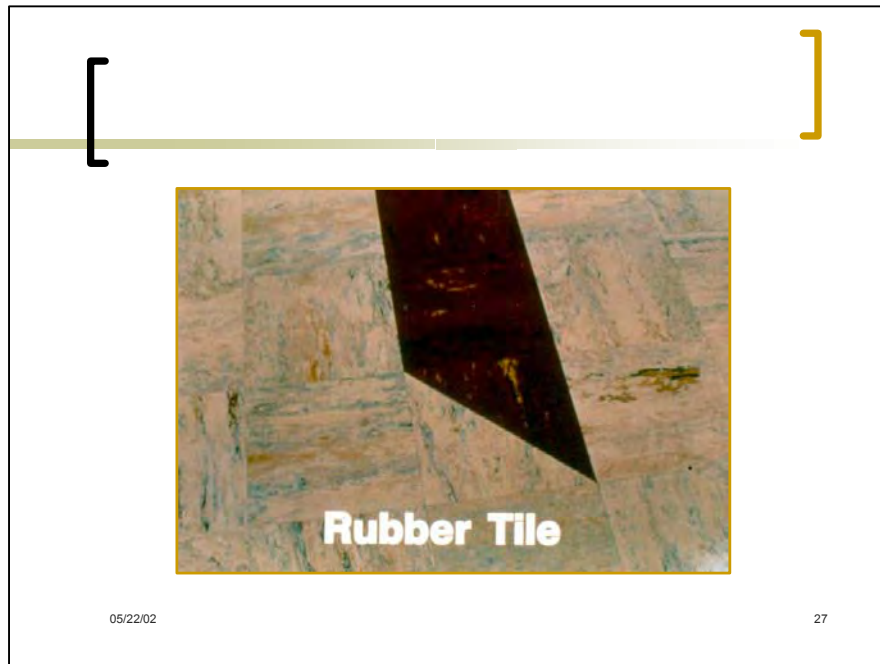
[Rubber Tile]

- 9" x 9" or 12" x 12" squares

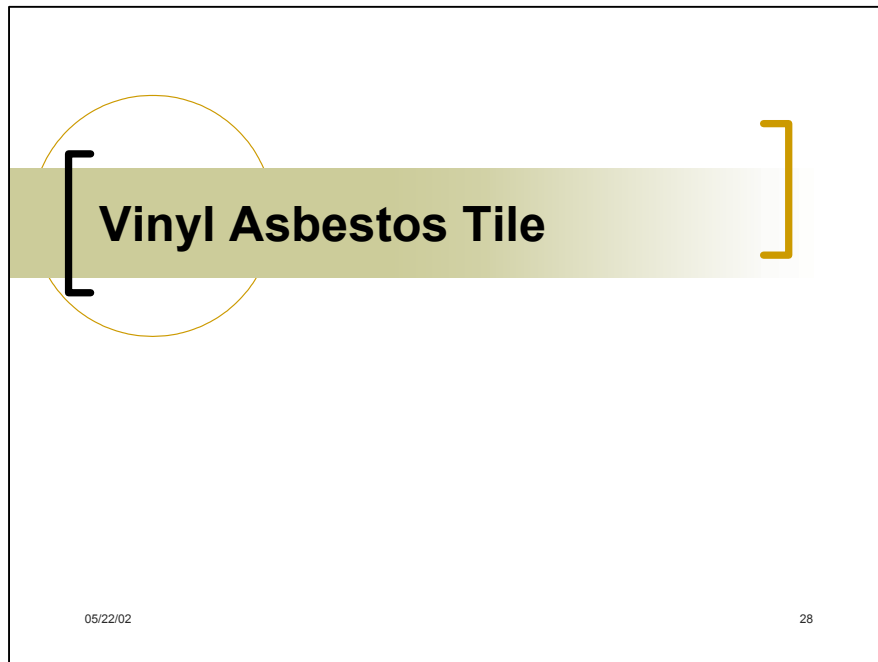
05/22/02 26

SLIDE #26 (Tray 1 – 92): *Rubber Tile.*

| 9" x 9" or 12" x 12" squares



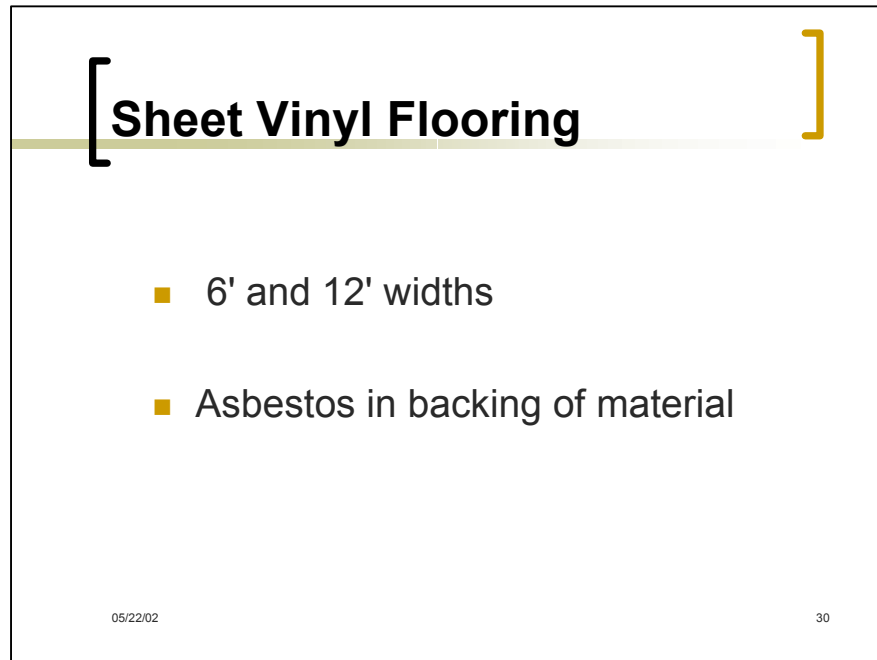
SLIDE #27 (Tray 1 – 93): Rubber tile



SLIDE #28 (Tray 1 -94): Vinyl Asbestos Tile



SLIDE #29 (Tray 1 – 95): Vinyl asbestos tile



[Sheet Vinyl Flooring]

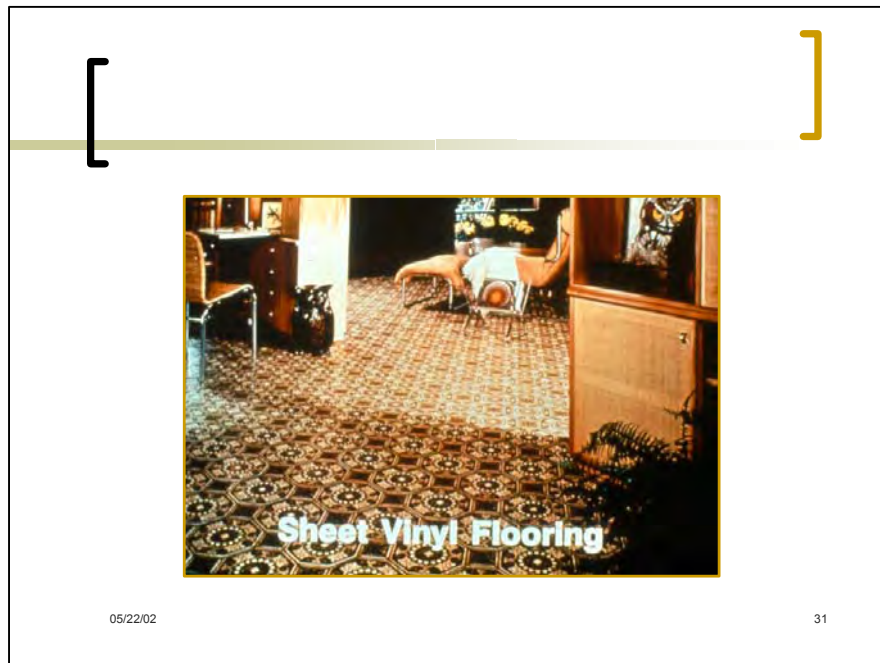
- 6' and 12' widths
- Asbestos in backing of material

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SLIDE #30 (Tray 1 – 96): Sheet Vinyl Flooring

| 6' and 12' widths

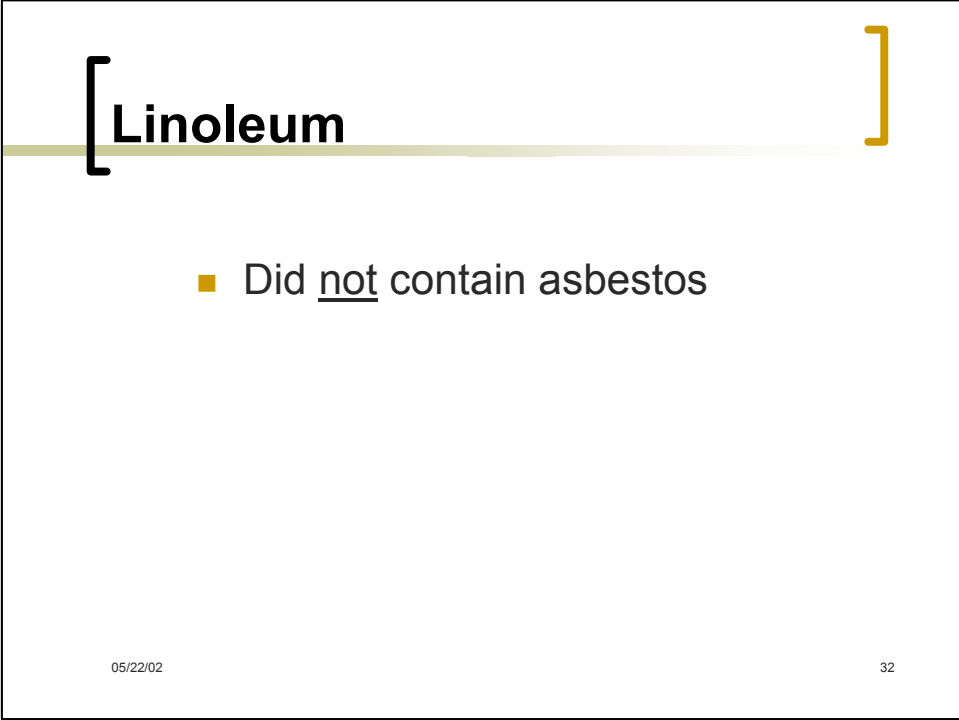
| Asbestos in backing of material



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SLIDE #31 (Tray 1 – 97): Sheet vinyl flooring



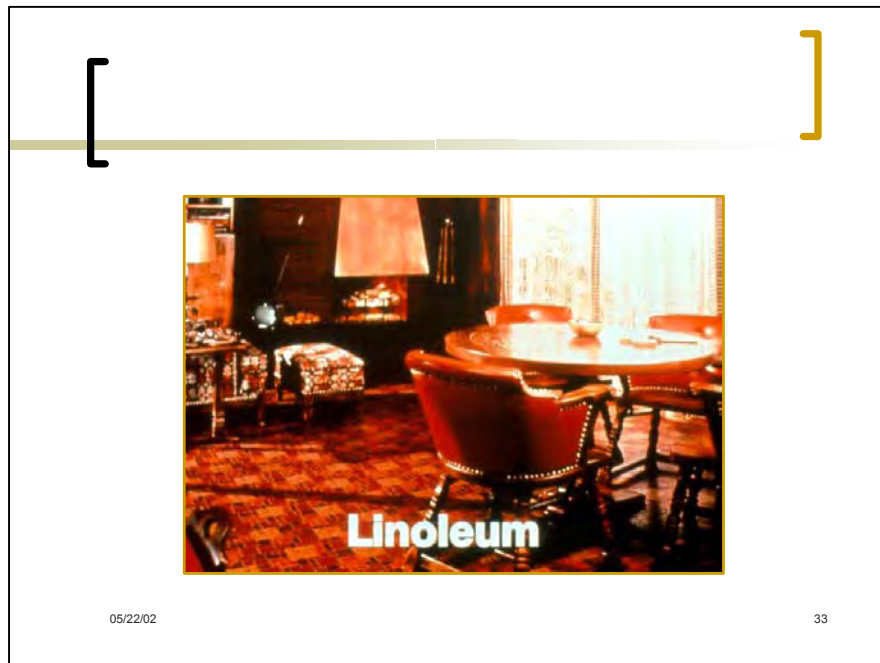
[Linoleum]

- Did not contain asbestos

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SLIDE #32 (Tray 1 – 98): Linoleum

! Did not contain asbestos



SLIDE #33 (Tray 1 – 99): Linoleum flooring

[Identifying Asbestos-Containing Floors]

- Presence of asbestos not readily identifiable
- Assume floors contain asbestos

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SLIDE #34 (Tray 1 – 100): Identifying Asbestos-Containing Floors.

| Presence of asbestos not readily identifiable

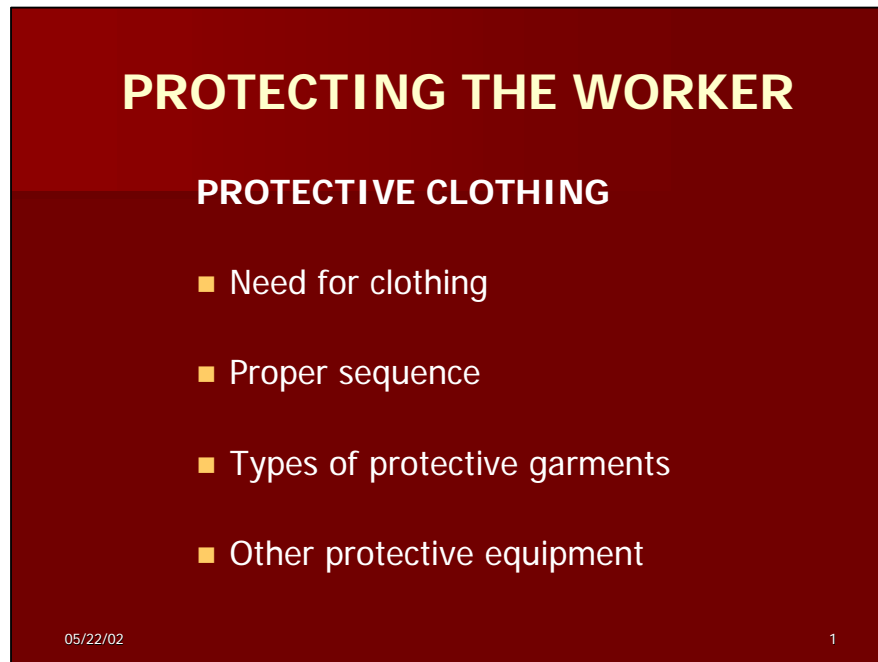
| Assume floors contain asbestos

**THAT'S ALL
FOLKS**

Removal Techniques

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SLIDE #1 (Tray 1 – 101): PROTECTING THE WORKER:

PROTECTIVE CLOTHING

- | Need for clothing

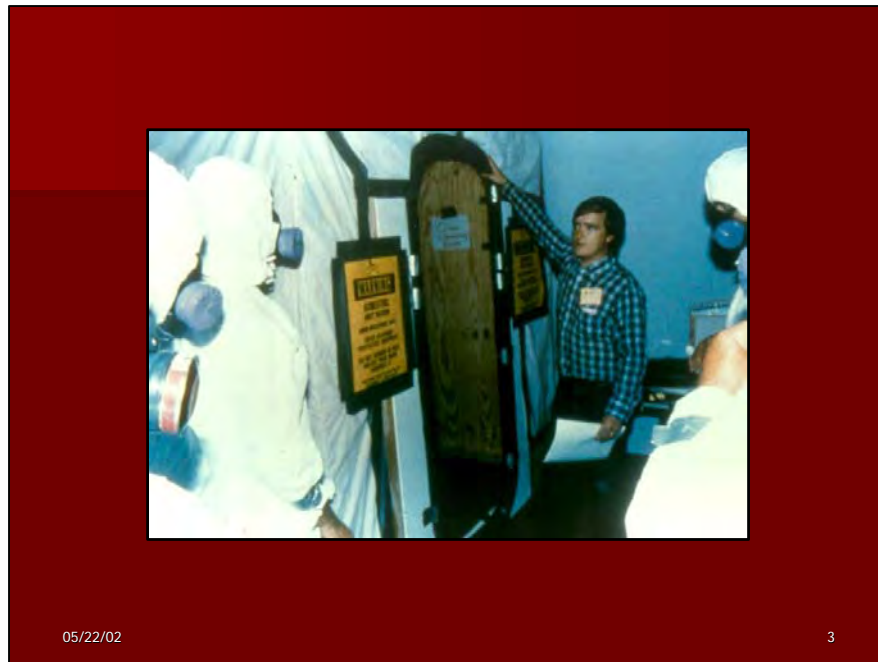
- | Proper sequence

- | Types of protective garments

- | Other protective equipment



SLIDE #2 (Tray 1 – 102): Dressed-out abatement worker w/o gloves.



SLIDE #3 (Tray 1 – 103): Dressed-out abatement workers about to enter a regulated area w/o gloves. (Okay – Question: Why might someone try to say that gloves are not needed? OR, are they waiting to glove up at the last minute?)



SLIDE #4 (Tray 1 – 104): Taped up ankles of footed Tyvek or spun poly suit. (Why?)



SLIDE #5 (Tray 1 – 105): Abatement worker depositing a PPE article in a lined drum. (Question: Is this article waste or will it be washed?)

PROTECTING THE WORKER

RESPIRATORY PROTECTION

Objective: Provide an overview and the use, maintenance and limitations of respirators

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SLIDE #6 (Tray 1 – 106): PROTECTING THE WORKER: RESPIRATORY PROTECTION.
Objective: Provide an overview and the use, maintenance and limitations of respirators.

RESPIRATORY PROTECTION

- Need for respirators
- Operating principles
- Use and limitations
- Proper fit and fit-testing
- Protection factors
- Establishing an effective program

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SLIDE #7 (Tray 1 – 107): RESPIRATORY PROTECTION

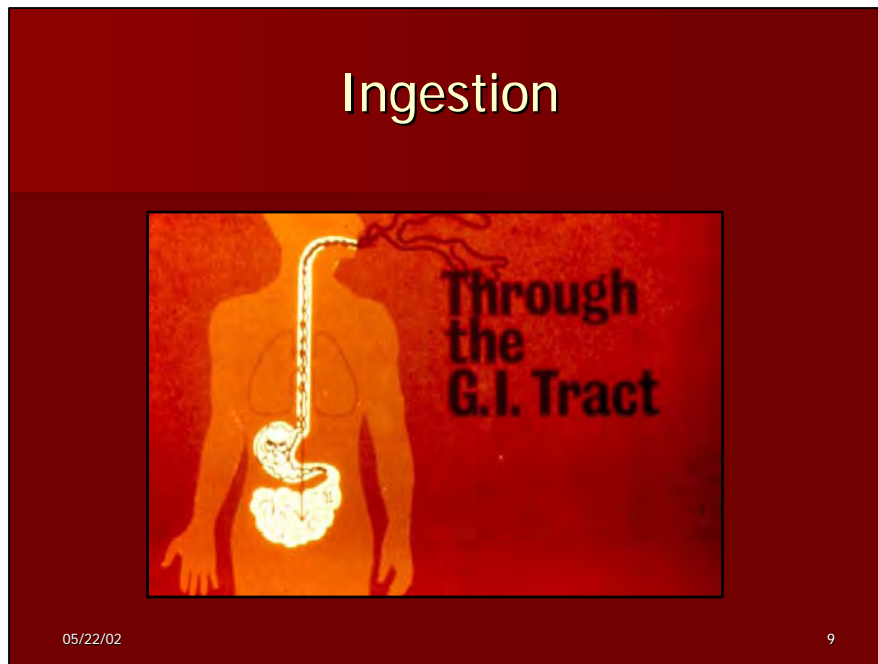
- | Need for respirators
- | Operating principles
- | Use and limitations
- | Proper fit and fit-testing
- | Protection factors
- | Establishing an effective program



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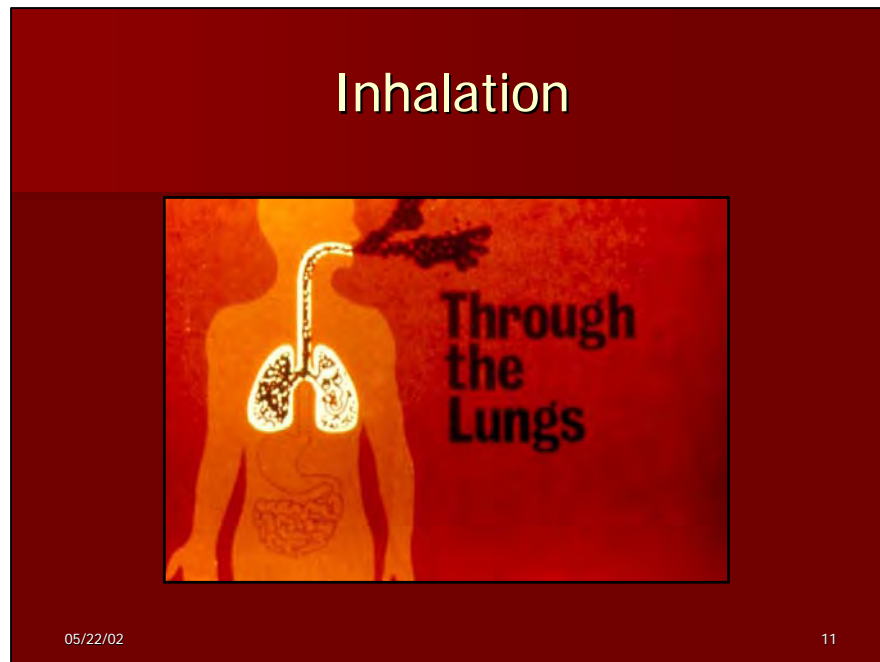
SLIDE #8 (Tray 1 – 108): Several respirators and dust masks. (Place for appropriate comment about nuisance dust masks not being respirators.)



SLIDE #9 (Tray 1 – 109): Route of entry:
Ingestion



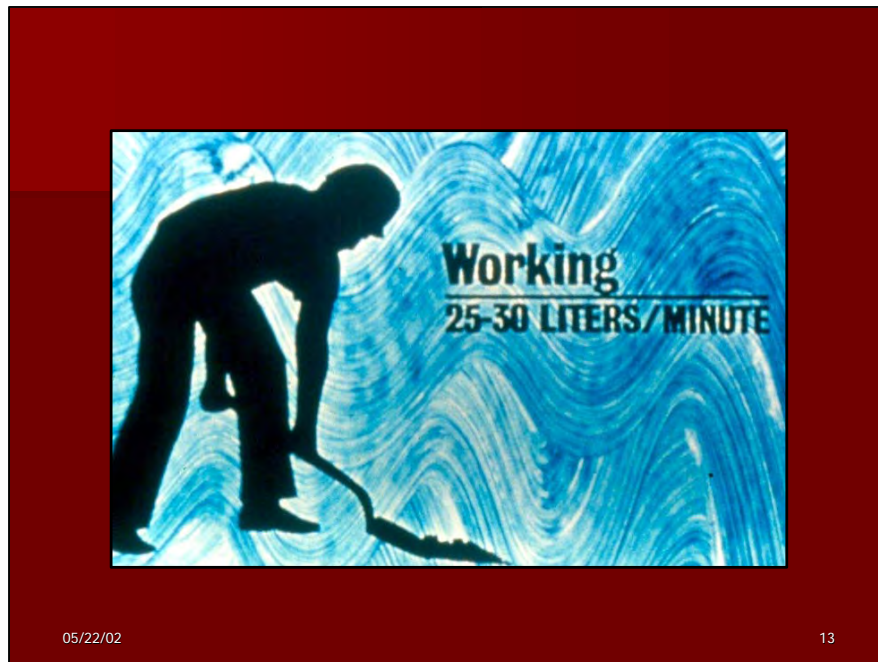
SLIDE #10 (Tray 1- 110): Route of entry:
Absorption & Contact (Not an issue with
asbestos)



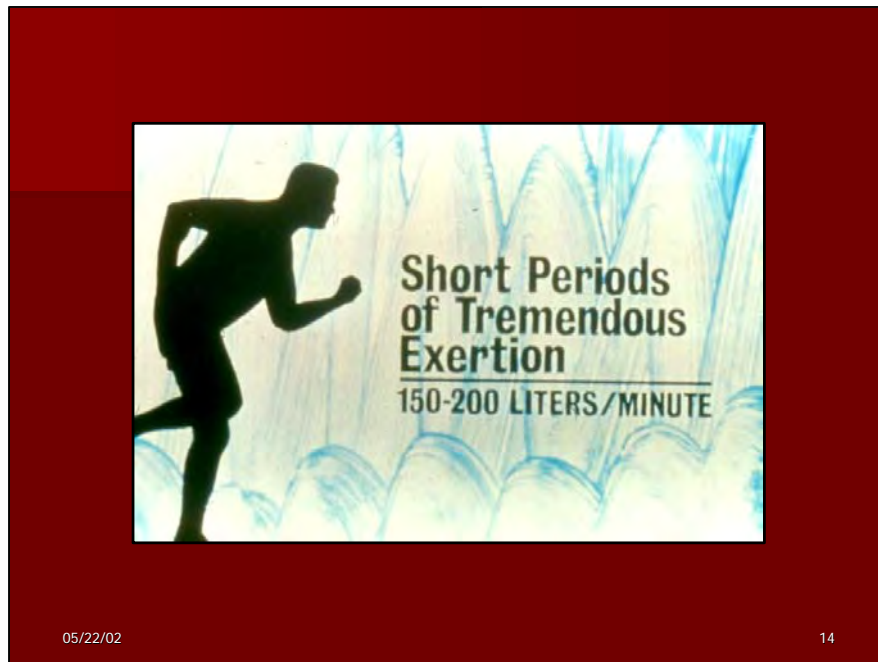
SLIDE #11 (Tray 1 – 111): Route of entry:
Inhalation



SLIDE #12 (Try 1 – 112): At Rest, 5-7 liters/minute (This is the amount of air we breathe.)



SLIDE #13 (Tray 1 – 113): Working, 25 - 30 Liters/minute



SLIDE #14 (Tray 1-114): Short Periods of Tremendous Exertion, 150 - 200 Liters/minute

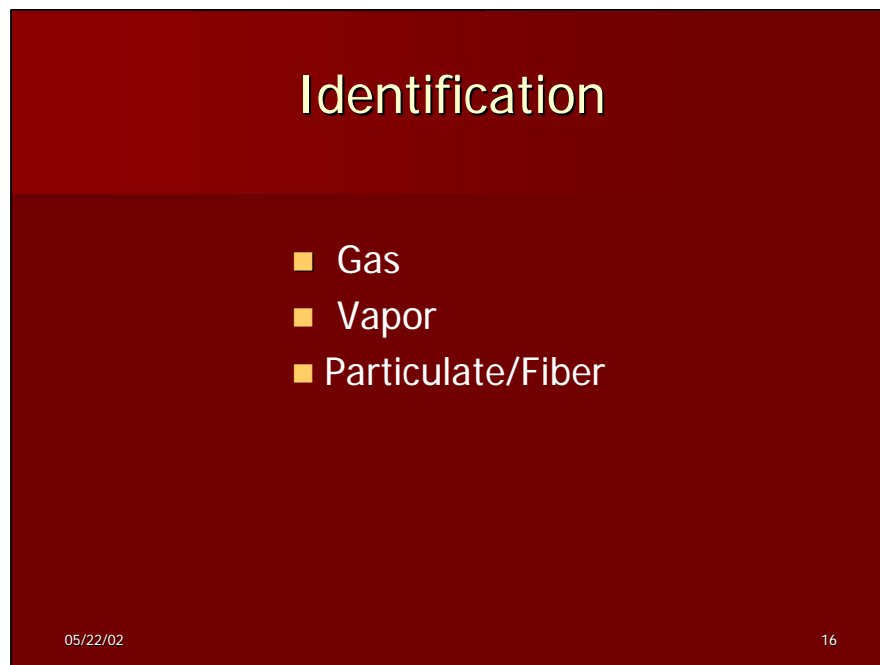
Oxygen Deficiency

Atmospheric Content

- Normal Atmosphere 20.9%
- Legal Minimum 19.5%

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SLIDE #15 (Tray 1 – 115): Oxygen Deficiency



Identification

- Gas
- Vapor
- Particulate/Fiber

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SLIDE #16 (Tray 1 – 116): IDENTIFICATION

- | Gas
- | Vapor
- | Particulate/Fiber

Hazard Control

- Air Samples
- Reduce Hazards (*Engineering and Administrative Controls*)
- Provide Proper Respiratory Protective Equipment

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SLIDE #17 (Tray 1 – 117): HAZARD CONTROL

1. Air Samples
2. Reduce Hazards (*Engineering and Administrative Controls*)
3. Provide Proper Respiratory Protective Equipment

Types of Respirators

- Air-purifying (*APR*)
- Air -supplied (or supplied-air) (*SAR*)
- Self-contained (a type of supplied-air)
(*SCBA – not SCUBA*)

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SLIDE #18 (Tray 1 – 118): TYPES OF RESPIRATORS

! Air-purifying (*APR*)

! Air -supplied (or supplied-air) (*SAR*)

! Self-contained (a type of supplied-air)
(*SCBA – not SCUBA*)

Knowledge of Respirators

Amount of Coverage	Method of Protection
■ Half Mask	■ Air Purifying
■ Full Face piece	■ Supplied Air
■ Hood or Helmet	■ Self-Contained

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SLIDE #19 (Tray 1 – 119): KNOWLEDGE OF RESPIRATORS

Amount of coverage

Mouthpiece (escape)

Quarter mask (?)

Half Mask

Full Face piece

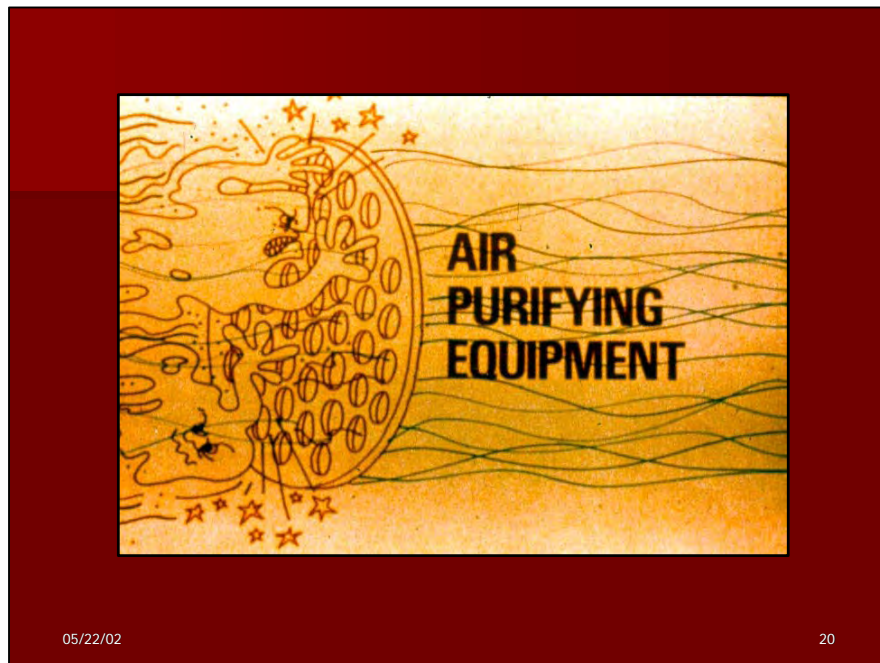
Hood or Helmet (Question: for what uses?)

Method of Protection

Air Purifying

Supplied Air

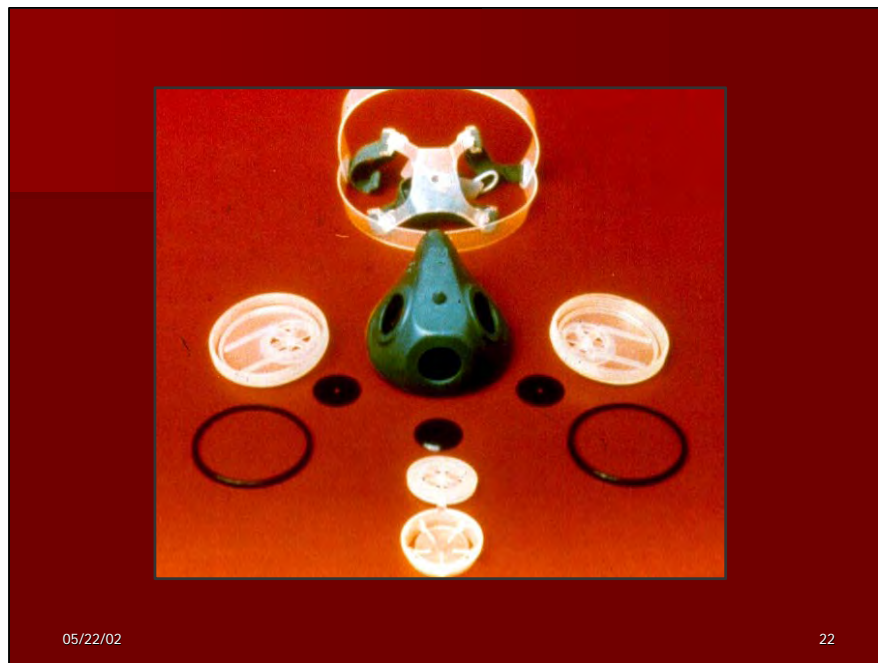
Self-Contained



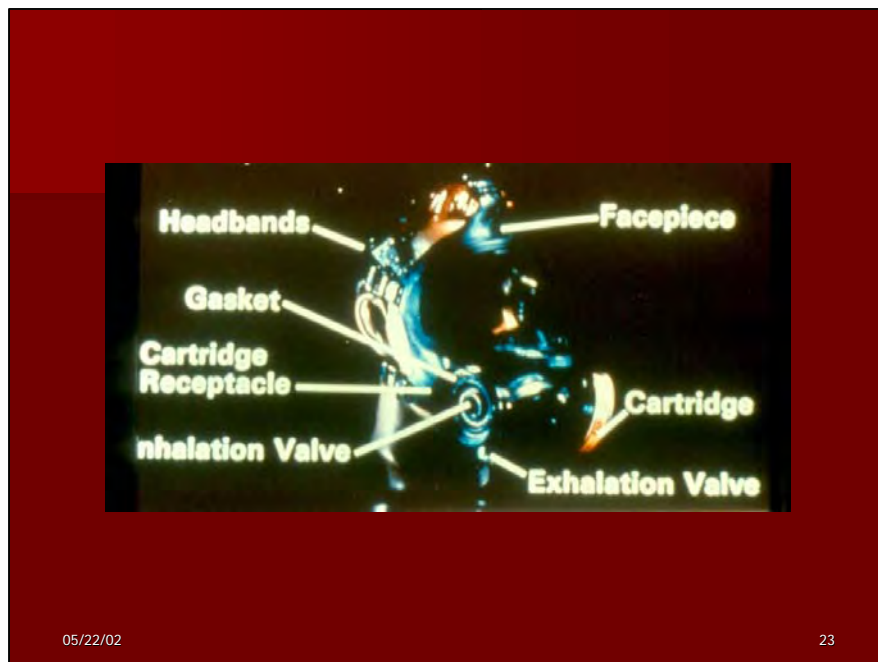
SLIDE #20 (Tray 1 – 120): AIR PURIFYING EQUIPMENT



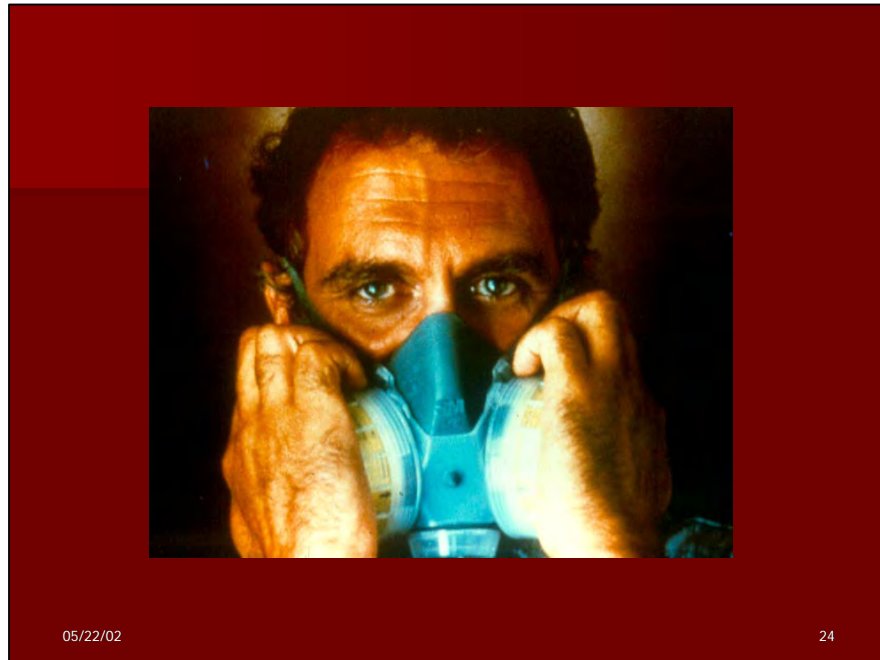
SLIDE #21 (Tray 1 – 121): Labeled half-face APR (Looks like a MSA) (*An effective slide*)
Current 1910.134 requires an ***End-Of-Service-Life-Indicator*** on filter or the employer has to have filter change schedule.



SLIDE #22 (Tray 1 – 122): Exploded view of 3M half-face APR (not labeled)



SLIDE #23 (Tray 1 – 123): A labeled full-face APR (Looks like a MSA) (*An effective slide*)



SLIDE #24 (Tray 1 – 124): A *negative fit-check* being performed on a 3M half-face APR.



SLIDE #25 (Tray 1 – 125): A *positive fit-check* being performed on a 3M half-face APR.



SLIDE #26 (Tray 1 – 126): A person wearing a full-face APR.

Types of Air-Purifying Respirators

- Half mask
- Full-face mask
- Powered-air purifying (PAPR)

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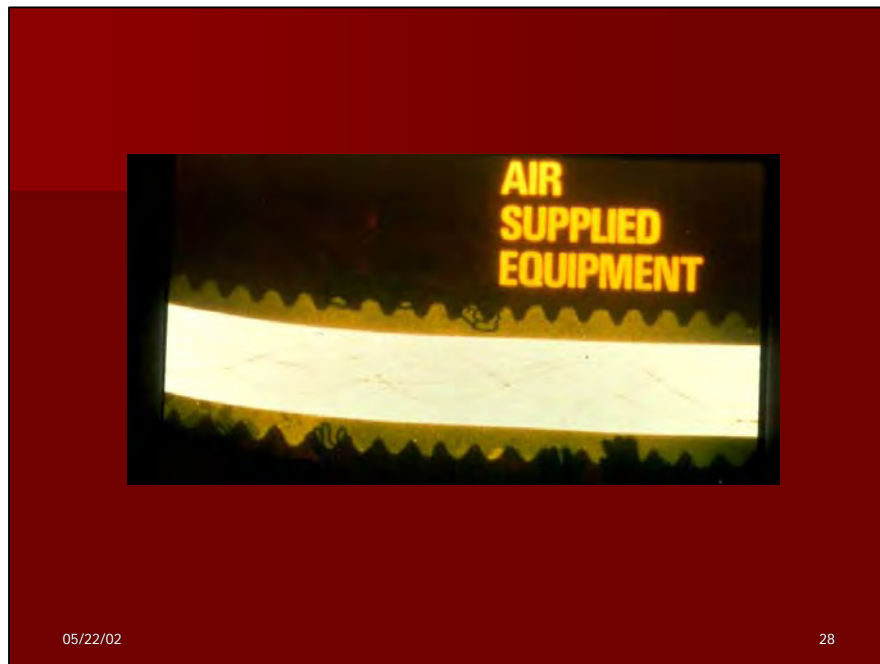
27

SLIDE #27 (Tray 1 -127): TYPES OF AIR-PURIFYING RESPIRATORS

| Half mask

| Full-face mask

| Powered-air purifying (PAPR)



SLIDE #28 (Tray 1 – 128): AIR SUPPLIED EQUIPMENT

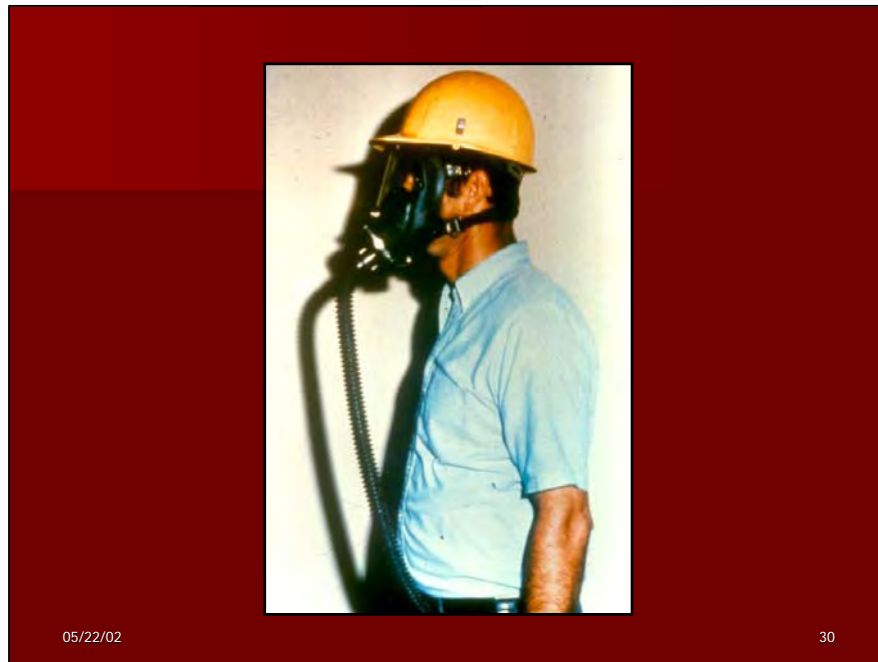
Continuous Air-Flow Respirators

Continuous air flow during
inhalation and exhalation

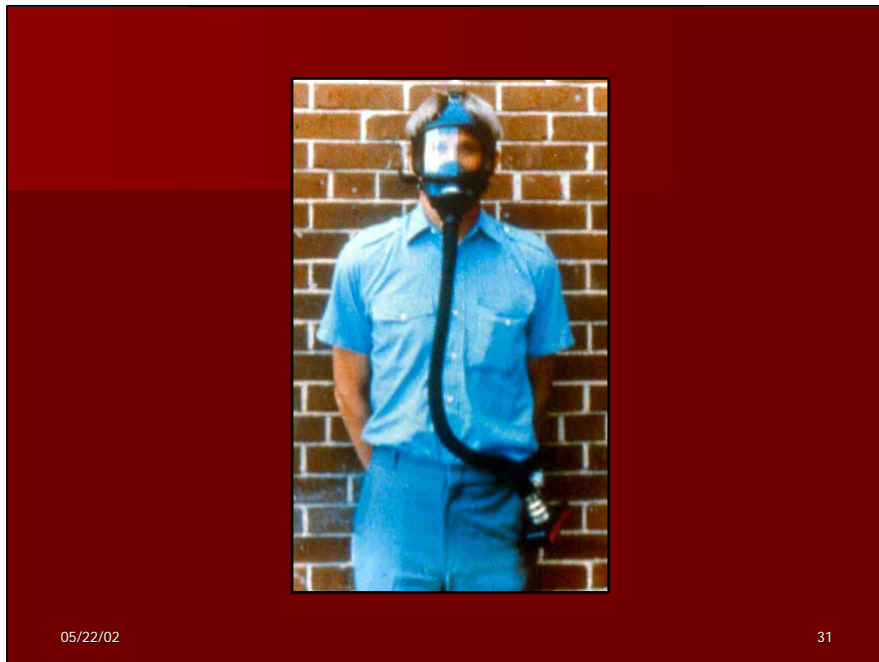
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SLIDE #29 (Tray 1 – 129): CONSTANT-FLOW AIR-LINE RESPIRATORS. Continuous air flow during inhalation and exhalation



SLIDE #30 (Tray 1 – 130): A tight-fitting face piece continuous-flow respirator



SLIDE #31 (Tray 1 -131): A continuous-flow w/HEPA escape



SLIDE #32 (Tray 1 – 132): A loose-fitting hood



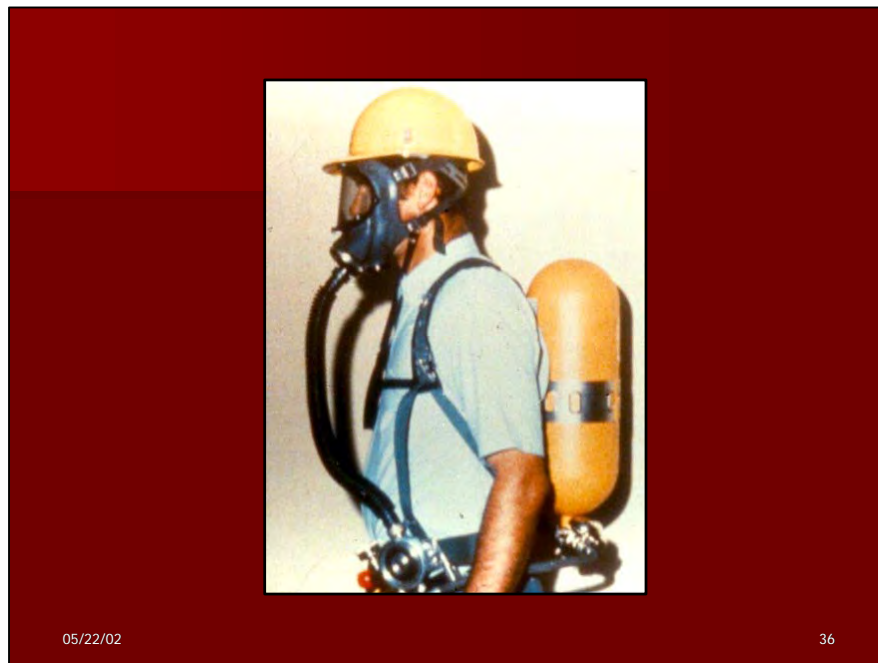
SLIDE #33 (Tray 1 – 133): A person equipped with a loose-fitting hood w/continuous flow



SLIDE #34 (Tray 1 – 134): A compressor used to make Grade D breathing air



SLIDE #35 (Tray 1 -135): SELF-CONTAINED BREATHING APPARATUS



SLIDE #36 (Tray 1 – 136): A worker equipped with what appears to be a **MSA SCBA** (note older regulator and lack of width and padding on straps; brass-colored main valve and red-colored by-pass valve visible)

Protection Factor (PF)

$$PF = \frac{\text{concentration outside the mask}}{\text{concentration inside the mask}}$$

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SLIDE #137: PROTECTION FACTOR (PF)*

$$PF = \frac{\text{concentration outside the mask}}{\text{concentration inside the mask}}$$

*(Current 1910.134 refers to fit factors and not protection factors)

OSHA Protection Factors for Asbestos	
■ Air-Purifying Half Mask	10
■ Air-Purifying Full Face	50
■ Powered Air-Purifying/	100
■ Supplied Air-Continuous	
■ Supplied Air - Demand	1000
■ Supplied Air w/SCBA	>1000

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SLIDE #138: OSHA Protection Factors for Asbestos

Air-Purifying Half Mask	10
Air-Purifying Full Face	50
Powered Air-Purifying/	100
Supplied Air-Continuous	
Supplied Air - Demand	1000
Supplied Air w/SCBA	>1000

[The Pfs are particular to this standard and can be found in Table 1 of 1926.1101 (h)(3)(i)]

**THAT'S ALL
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PPE

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SLIDE #1 (Tray 2 – 1): WASTE DISPOSAL REQUIREMENTS.

- | Correct procedures for disposing of asbestos-containing materials

- | Notification requirements

- | Labeling, wet methods and packaging of waste

- | Transportation and disposal of waste at landfill

- | OSHA and EPA regulations associated with asbestos waste disposal

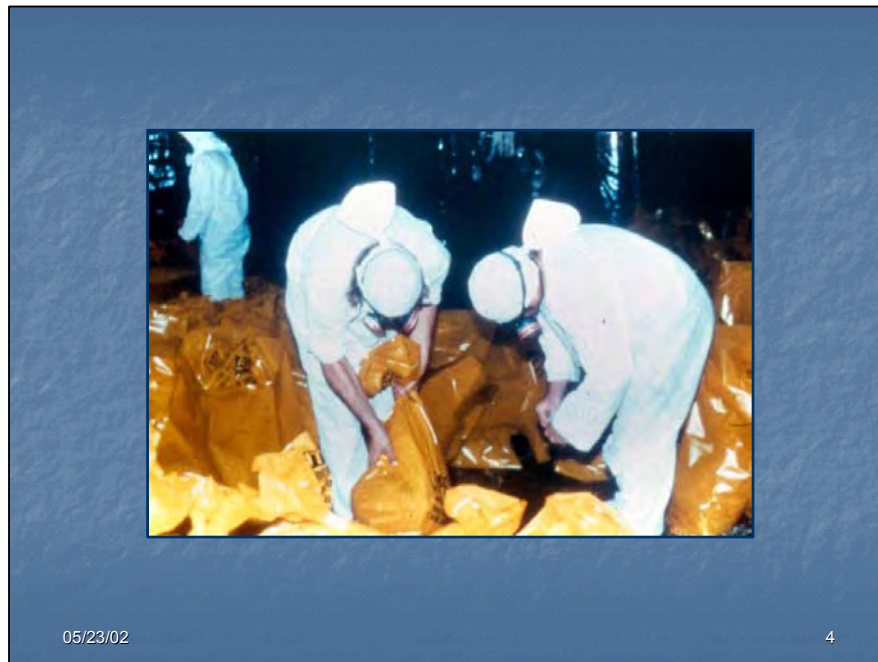
- | Record keeping requirements



SLIDE #2 (Tray 2 – 1): A dressed-out abatement worker w/o gloves shoveling waste ACM. (Question: Should the shovel metal or plastic?)



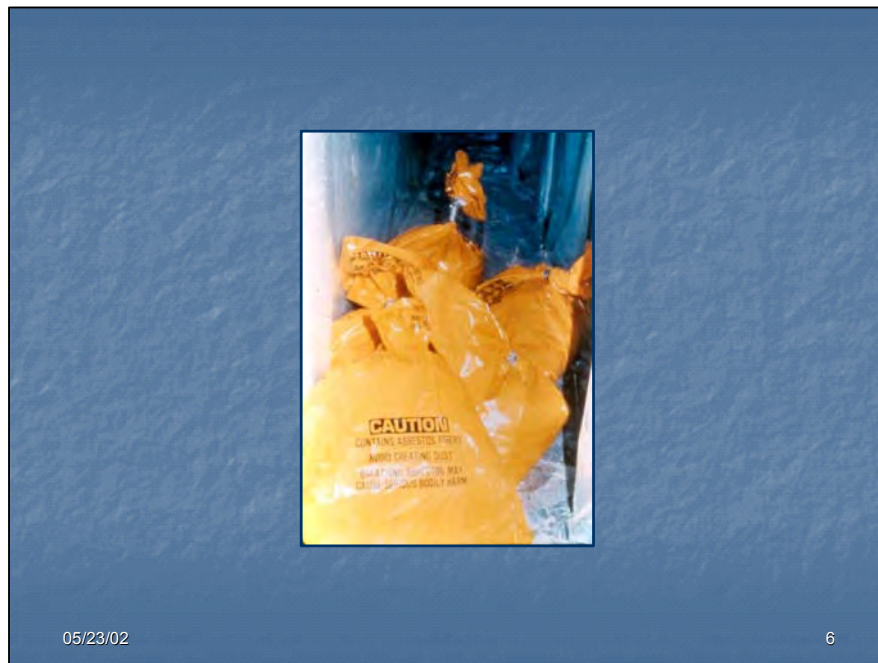
SLIDE #3 (Tray 2 – 3): *Repeat Picture* of dressed-out abatement worker w/o gloves placing a handful of waste ACM in a labeled bag.



SLIDE #4 (Tray 2 – 4): Improperly dressed-out abatement workers preparing to ***goose neck a bag***. (Question: How does one goose-neck a waste bag?)



SLIDE #5 (Tray 2 – 5): An improperly dressed-out abatement worker improperly sitting on a waste bag while making a gooseneck seal



SLIDE #6 (Tray 2 – 6): Completed and labeled waste bags not properly goose necked sitting in a waste load-out area.



SLIDE #7 (Tray 2 – 7): Bagging waste in a cardboard waste drum. ***(Some waste landfills may not accept bags as the final waste receptacle. One might have to use drums, metal or otherwise. It is site-specific.)***



SLIDE #8: ACM waste-containing bags (unsealed) being processed for load-out. *(Effective slide for positive discussion on disposal)*



SLIDE #9 (Tray 2 – 9): A different waste load-out process with a partially dressed-out abatement crew. (Question: If the bags are *properly sealed and their exterior surfaces have been rinsed and HEPA-vacuumed*, how should one dress out in the situation where the crew is in the “*support zone*”.



SLIDE #10 (Tray 2 – 10): Same operation from previous slide, with the same question as before, only add to it: “Are these bags properly sealed?”



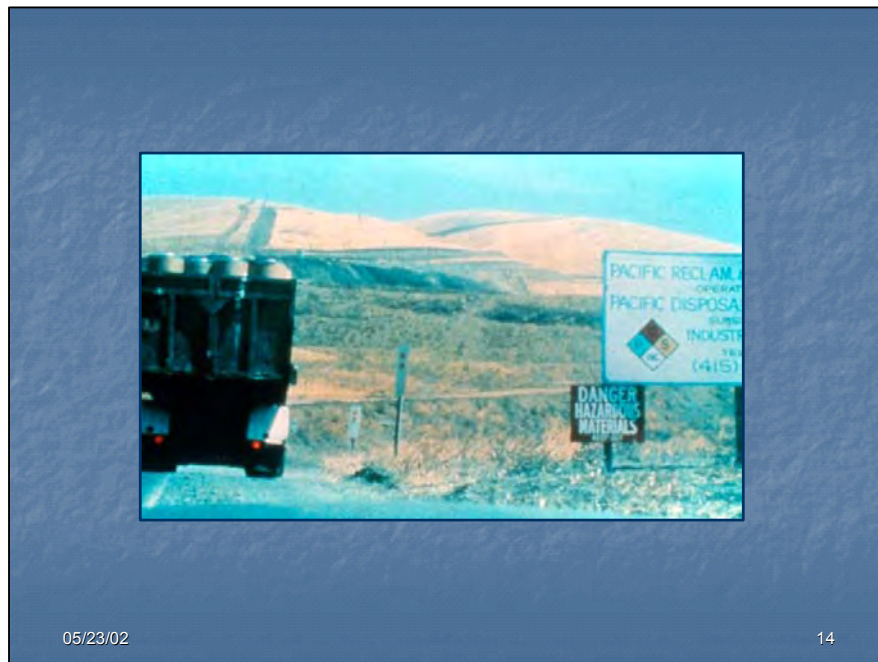
SLIDE #11 (Tray 2 – 11): ACM waste packaged in at least a **55-gallon drum** being loaded for transportation. (Questions: Why the barrel? Is it local regulations? Is there liquid in the barrel?)



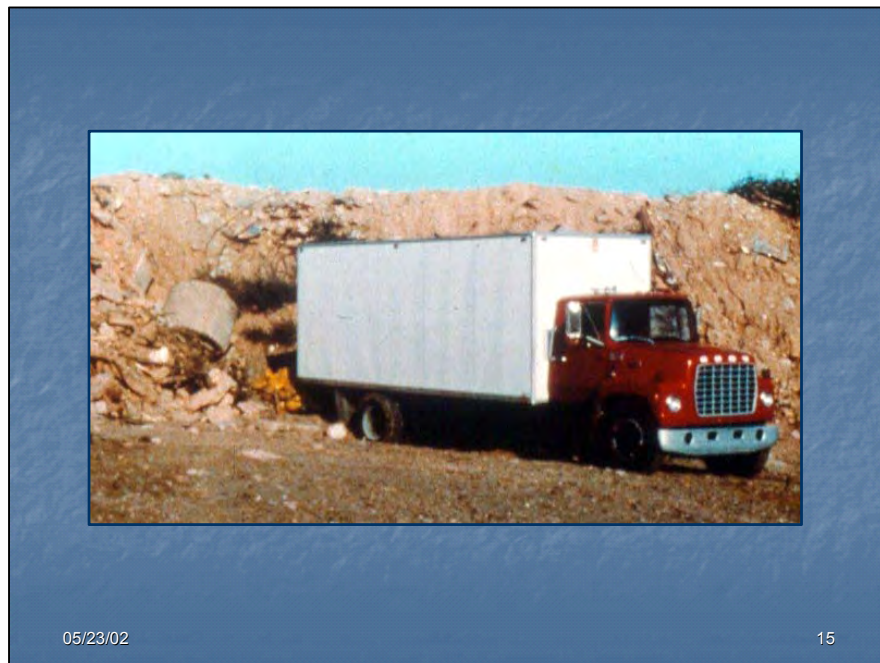
SLIDE #12 (Tray 2 – 12): Same operation from previous slide. Aside from the dress-out concerns, what about the state of the bags and the truck?



SLIDE #13 (Tray 2 – 13): A different truck, half-filled. (Question: Should more bags be put on top of those already in the truck?)



SLIDE #14 (Tray 2 – 14): ACM waste in cardboard barrels in transit to a West Coast waste dump site.



SLIDE #15 (Tray 2 – 15): Bagged ACM waste being placed in a *landfill with no environmental barriers that can be seen.*



SLIDE #16 (Tray 2 – 16): A better, but still improperly dressed-out (or are they?) disposal workers in an un-lined truck off-loading improperly sealed waste bags.



SLIDE #17 (Tray 2 – 17): Same operation from previous slide. (Question: Would you be dropping the filled waste bags as the worker is doing in this slide?)



SLIDE #18 (Tray 2 – 18): A different off-loading situation with improperly dressed-out disposal workers working out of a truck containing both bagged and barreled waste. A front-end loader is being used.



SLIDE #19 (Tray 2 – 19): Picture of a waste dump site which contains no ground protection membranes nor other protective structures or barriers – that we can see..



SLIDE #20 (Tray 2- 20): A disposal worker spraying out the back of truck. (Question – open-ended: Is this okay? Why yes? Why not?)

Waste Disposal Procedure

- Wet the asbestos-containing waste
- Containerize the asbestos-containing waste
- Load-out the waste into enclosed truck
- Transport to landfill
- Dispose of waste at landfill

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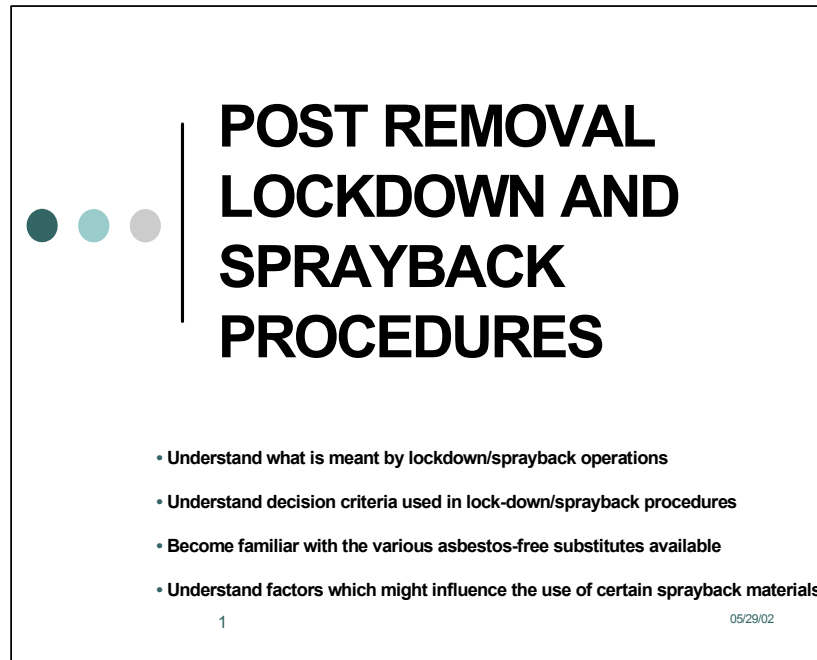
SLIDE #21 (Tray 2 – 21): WASTE DISPOSAL PROCEDURE (SUMMARY)

- | Wet the asbestos-containing waste
- | Containerize the asbestos-containing waste
- | Load-out the waste into enclosed truck
- | Transport to landfill
- | Dispose of waste at landfill

**THAT'S ALL
FOLKS**

Waste Disposal Requirements
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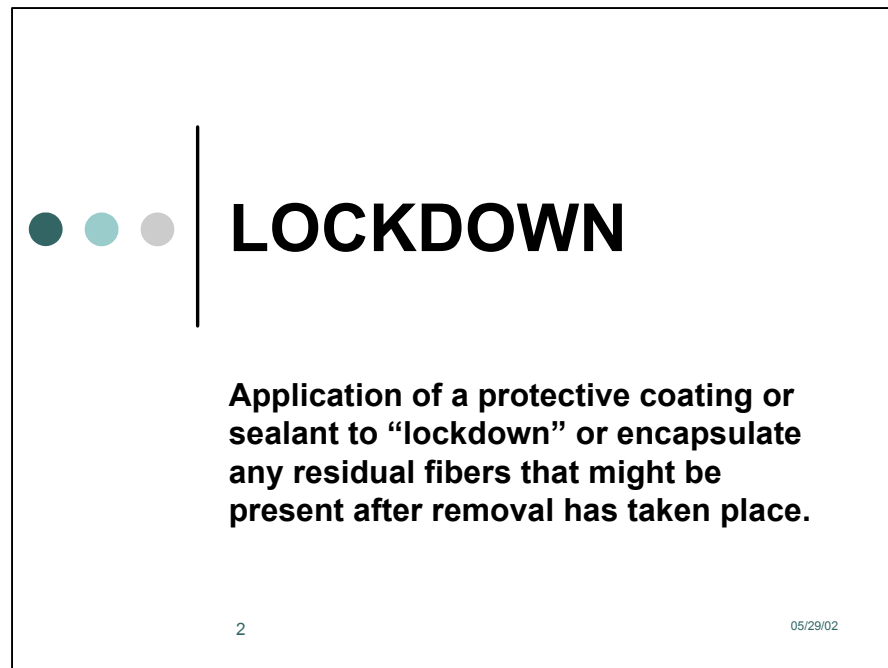
**POST REMOVAL
LOCKDOWN AND
SPRAYBACK
PROCEDURES**

- Understand what is meant by lockdown/sprayback operations
- Understand decision criteria used in lock-down/sprayback procedures
- Become familiar with the various asbestos-free substitutes available
- Understand factors which might influence the use of certain sprayback materials

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SLIDE #1 (Tray 2 – 22): POST REMOVAL LOCKDOWN AND SPRAYBACK PROCEDURES

- Understand what is meant by lockdown/
sprayback operations
- Understand decision criteria used in lock-down/
sprayback procedures
- Become familiar with the various asbestos-free
substitutes available
- Understand factors which might influence the
use of certain sprayback materials

The slide features a decorative graphic on the left consisting of three colored circles (dark teal, light teal, grey) and a vertical line. The word "LOCKDOWN" is written in large, bold, black capital letters. Below it, a paragraph explains the process: "Application of a protective coating or sealant to 'lockdown' or encapsulate any residual fibers that might be present after removal has taken place." At the bottom left is the number "2" and at the bottom right is the date "05/29/02".

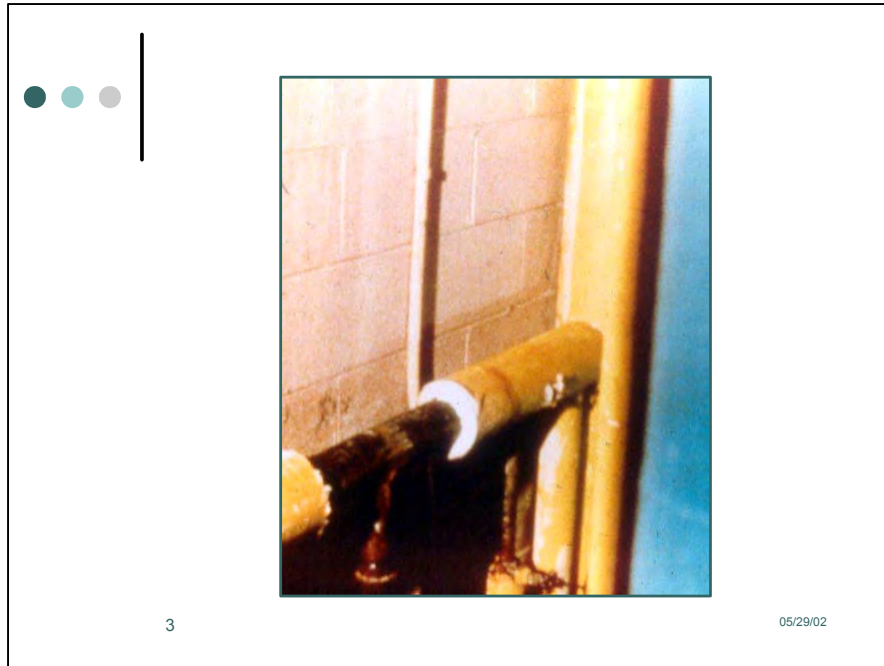
LOCKDOWN

Application of a protective coating or sealant to “lockdown” or encapsulate any residual fibers that might be present after removal has taken place.

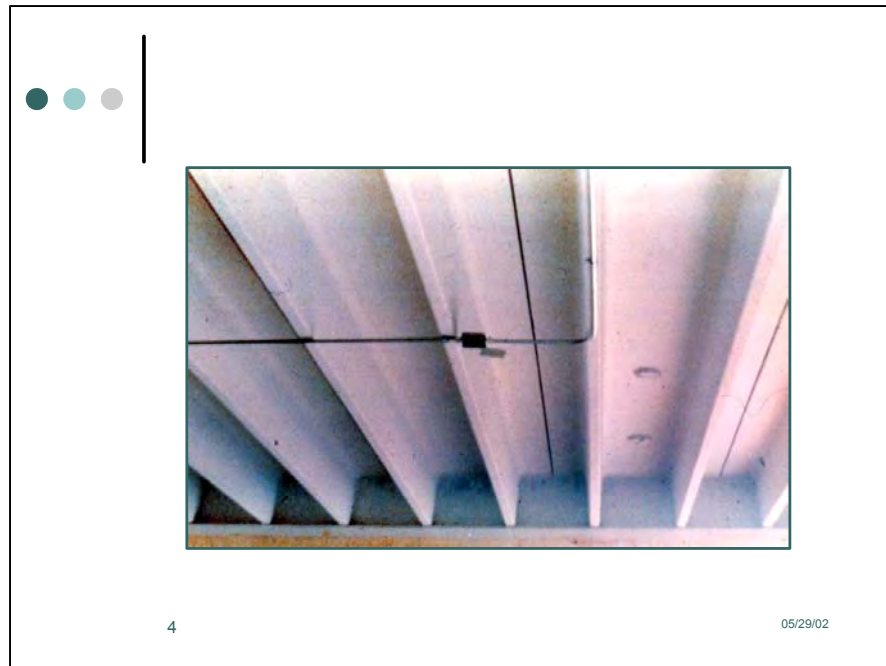
2

05/29/02


SLIDE #2 (Tray 2 – 23): LOCKDOWN:
Application of a protective coating or sealant to “lockdown” or encapsulate any residual fibers that might be present after removal has taken place.



SLIDE #3 (Tray 1 – 24): Exposed edges on a pipe repair which can be sprayed with lockdown . (Question: Why is this repair “open”? Shouldn’t it be in a glove bag? Has it been sprayed with a clear lockdown? Is another covering going to be added?)



SLIDE #4 (Tray 2 – 25): An abated ceiling which has been sprayed with a lockdown and new electrical conduit has been placed.

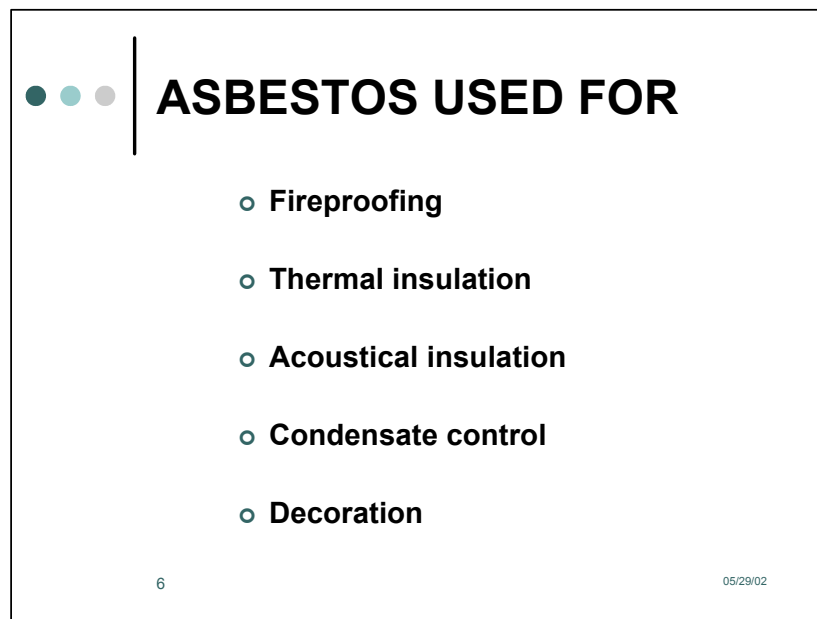


SPRAYBACK

The process of replacing asbestos-containing material that was originally present with an effective asbestos-free substitute.

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SLIDE #5 (Tray 2 – 26): SPRAYBACK: The process of replacing asbestos-containing material that was originally present with an effective asbestos-free substitute.



ASBESTOS USED FOR

- Fireproofing
- Thermal insulation
- Acoustical insulation
- Condensate control
- Decoration

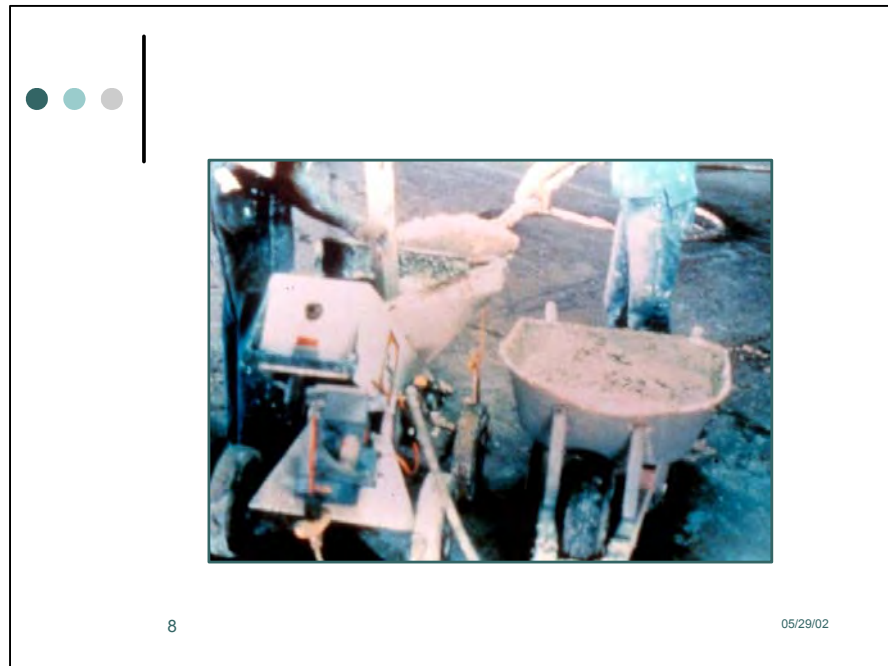
6 05/29/02

SLIDE #6 (Tray 2 – 27): ASBESTOS USED FOR:

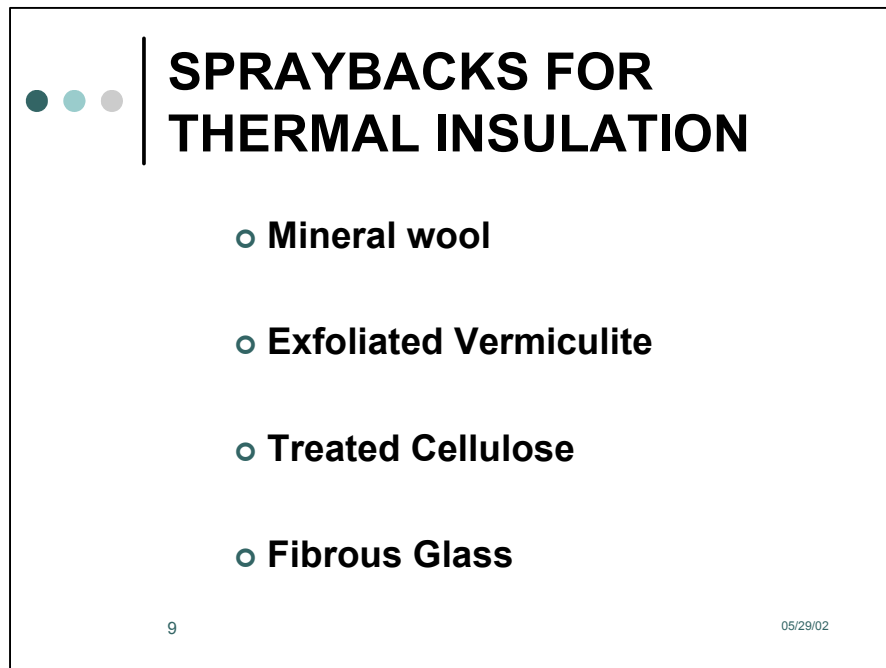
- Fireproofing
- Thermal insulation
- Acoustical insulation
- Condensate control
- Decoration



SLIDE #7 (Tray 2 – 28): Bags of a substitute fireproof coating material.



SLIDE #8 (Tray 2 – 29): Substitute material being mixed in the “support zone”.



● ● ● | **SPRAYBACKS FOR THERMAL INSULATION**

- Mineral wool
- Exfoliated Vermiculite
- Treated Cellulose
- Fibrous Glass

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SLIDE #9 (Tray 2 – 30): SPRAYBACKS FOR THERMAL INSULATION

- Mineral wool
- Exfoliated Vermiculite
- Treated Cellulose
- Fibrous Glass



SLIDE #10 (Tray 2 – 31): A construction worker applying a thermal insulation sprayback to a ceiling.



● ● ● | **SPRAYBACKS FOR ACOUSTICAL INSULATION**

- Spray-applied Cellulose
- Mineral Wool
- Fibrous Glass
- Perlite

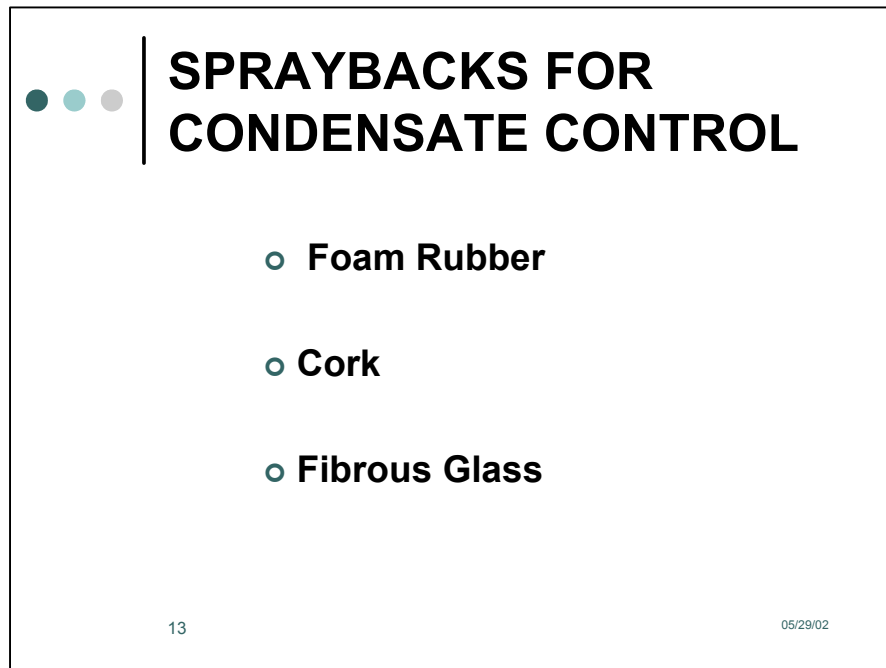
11 05/29/02

SLIDE #11 (Tray 2 – 32): SPRAYBACKS FOR ACOUSTICAL INSULATION

- Spray-applied Cellulose
- Mineral Wool
- Fibrous Glass
- Perlite



SLIDE #12 (Tray 2 – 33): An abated office building which has been sprayed with an acoustical sprayback.



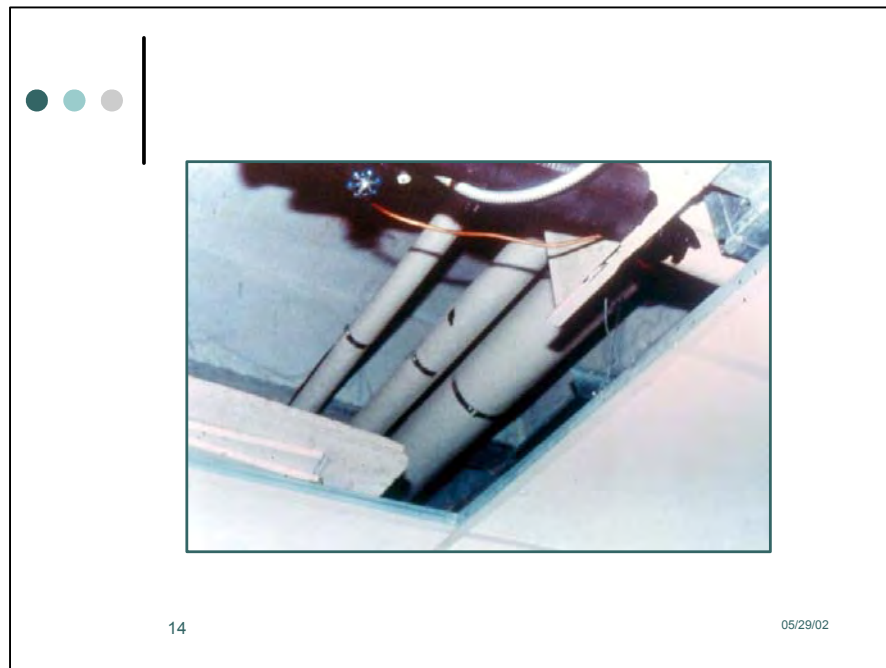
● ● ● | **SPRAYBACKS FOR
CONDENSATE CONTROL**

- Foam Rubber
- Cork
- Fibrous Glass

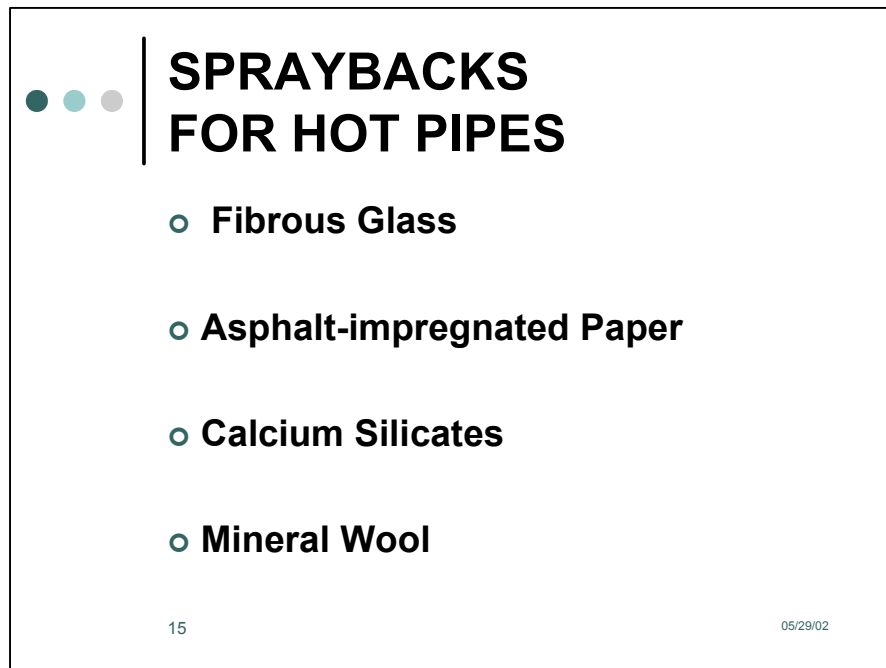
13 05/29/02

**SLIDE #13 (Tray 2 – 34): SPRAYBACKS FOR
CONDENSATE CONTROL (cold pipes)**

- Foam Rubber
- Cork
- Fibrous Glass



SLIDE #14 (Tray 2 – 35): Pipes covered with a asbestos substitute for condensation control.



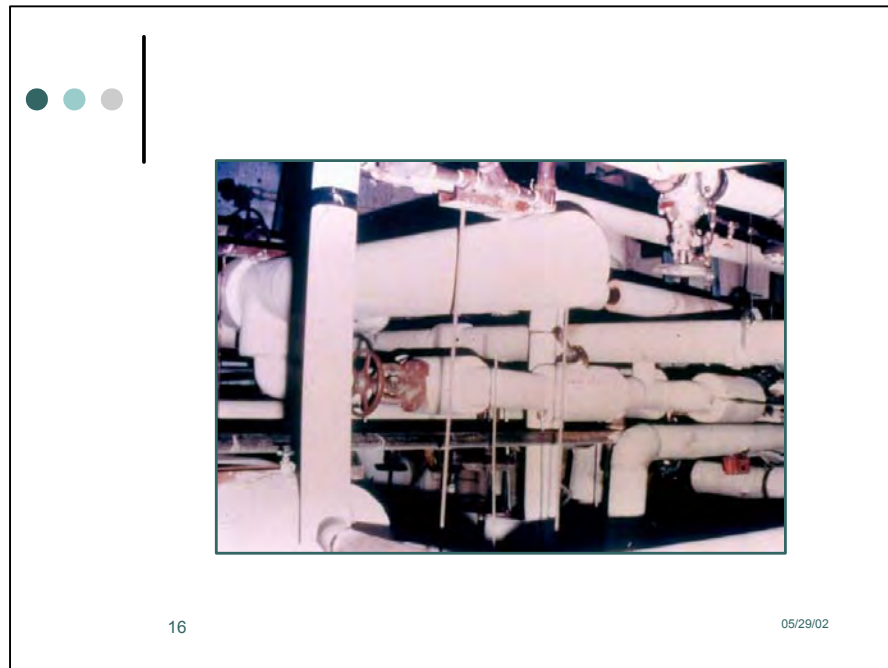
**SPRAYBACKS
FOR HOT PIPES**

- Fibrous Glass
- Asphalt-impregnated Paper
- Calcium Silicates
- Mineral Wool

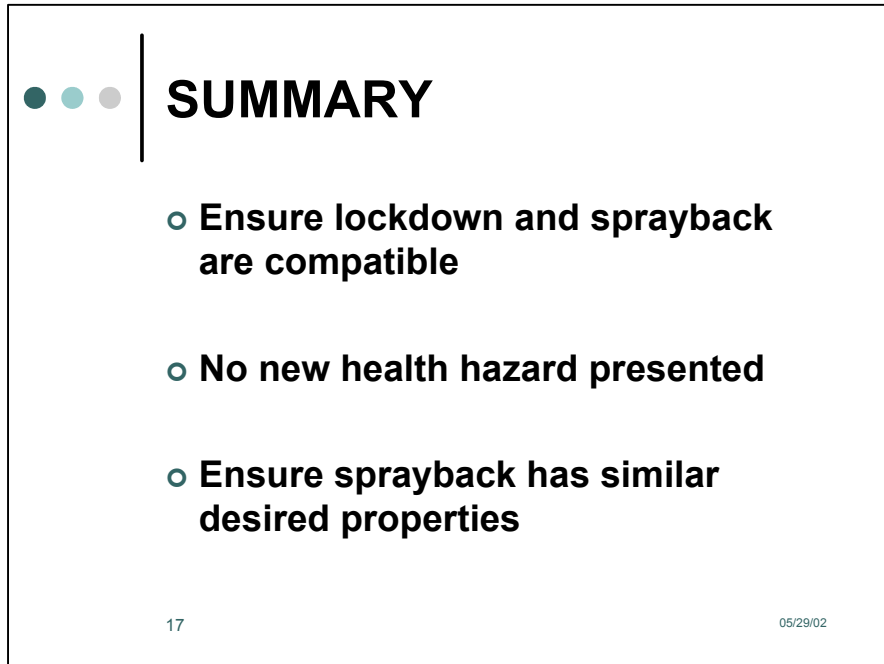
15 05/29/02

SLIDE #15 (Tray 2 – 36): SPRAYBACKS FOR HOT PIPES

- Fibrous Glass
- Asphalt-impregnated Paper
- Calcium Silicates
- Mineral Wool



SLIDE #16 (Tray 2- 37): Asbestos-abated hot pipes covered with a substitute covering.



● ● ● | **SUMMARY**

- **Ensure lockdown and sprayback are compatible**
- **No new health hazard presented**
- **Ensure sprayback has similar desired properties**

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SLIDE #17 (Tray 2 – 38): SUMMARY

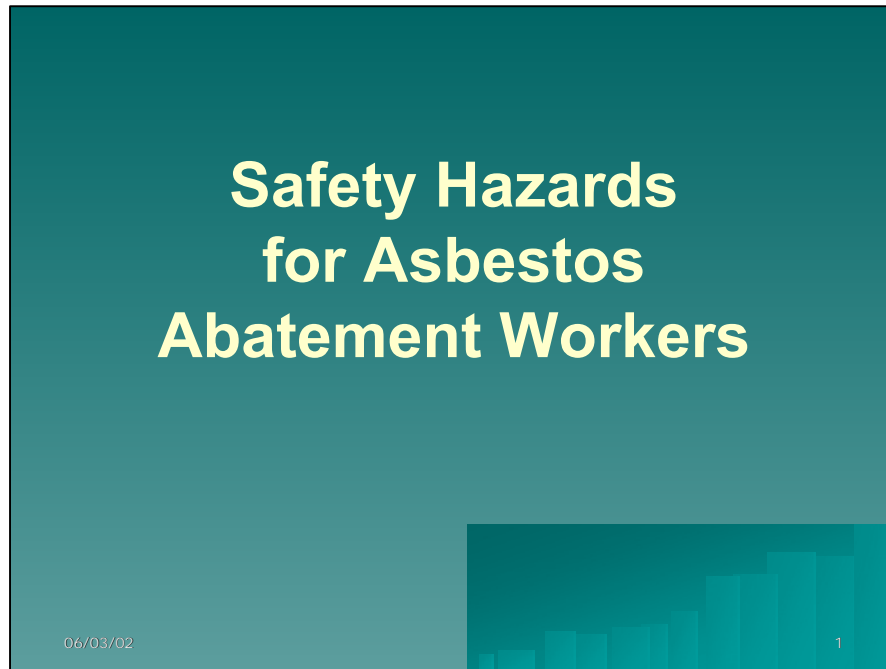
- Ensure lockdown and sprayback are compatible
- No new health hazard presented
- Ensure sprayback has similar desired properties

**THAT'S ALL
FOLKS**

Lock Down & Sprayback

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SLIDE #1 (Tray 2 – 39): Safety Hazards for Asbestos Abatement Workers



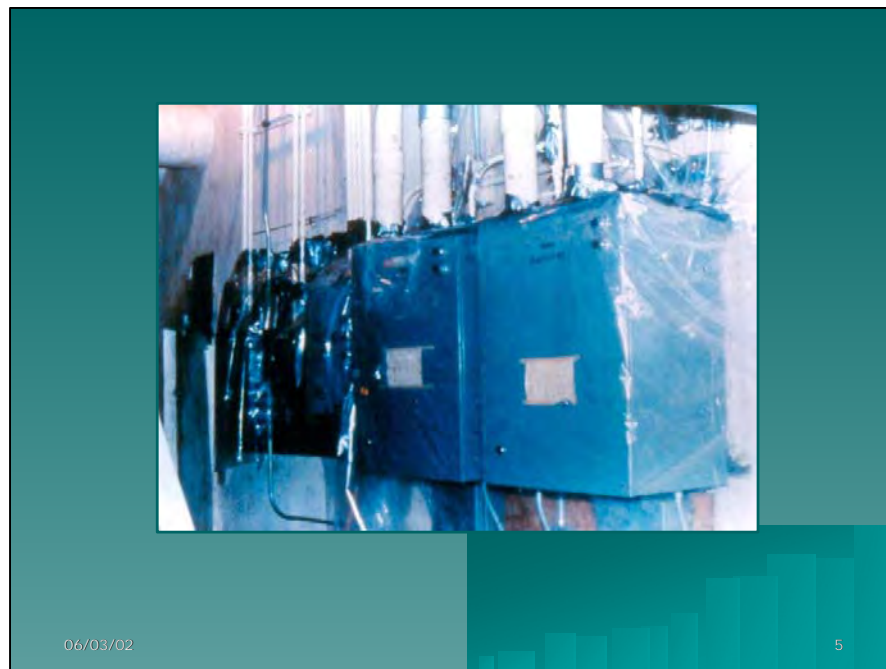
SLIDE #2 (Tray 2 – 40): A temporary light with a poor splice and poorly place -- not of the low-power portable variety recommended. The aluminum reflector gets hot.



SLIDE #3 (Tray 2 – 41): A similar problem found in the previous slide w/o the splice concern.



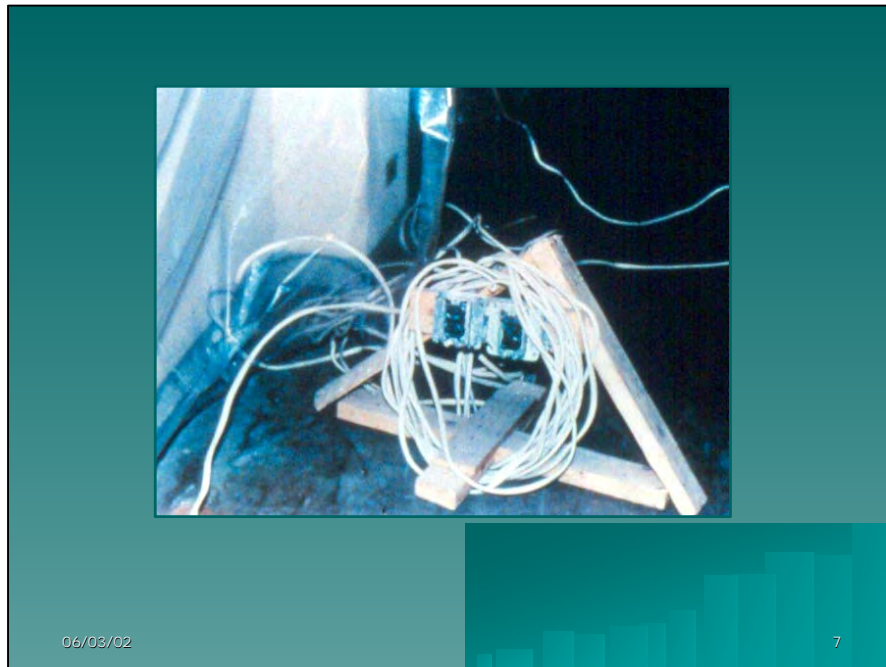
SLIDE #4 (Tray 2 – 42): All-around poor housekeeping, including potential trip hazards.



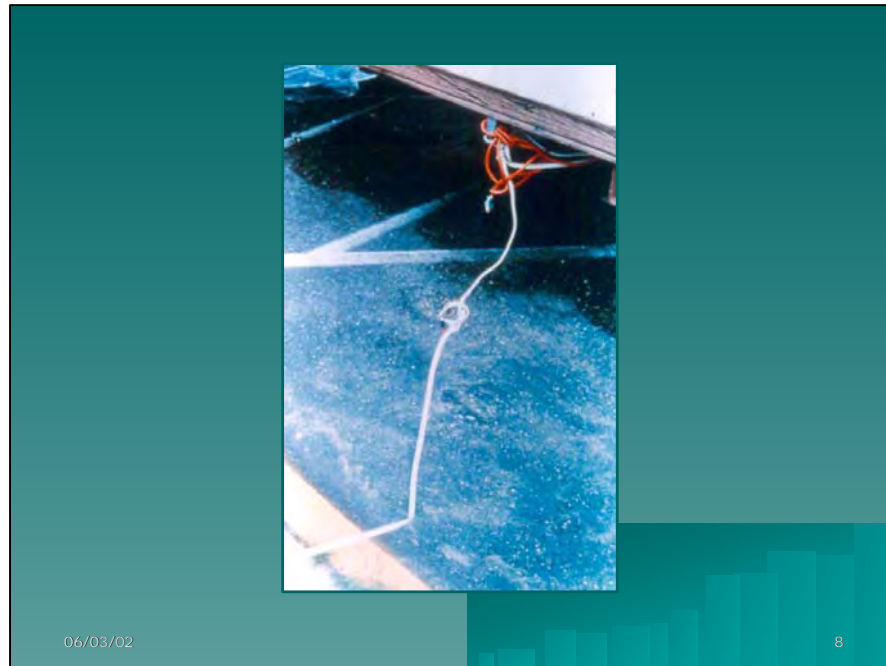
SLIDE #5 (Tray 2 – 43): Power panels covered with one layer, not two, of critical barrier poly – and hopefully ***locked and tagged out.***



SLIDE #6 (Tray 2 – 44): A poorly dressed-out abatement worker shoveling asbestos.
(Questions: *Is heat stress a problem?* Is the shovel metal or plastic? Is this the time to be scooping up this ACM waste? This is slide #81 from Tray 1)



SLIDE #7 (Tray 2 – 45): Poor electrical maintenance and handling of wire – at least a trip hazard – and code violations very likely.



SLIDE #8 (Tray 2 – 46): More electrical wiring and connection hazards, as well as trip hazard.



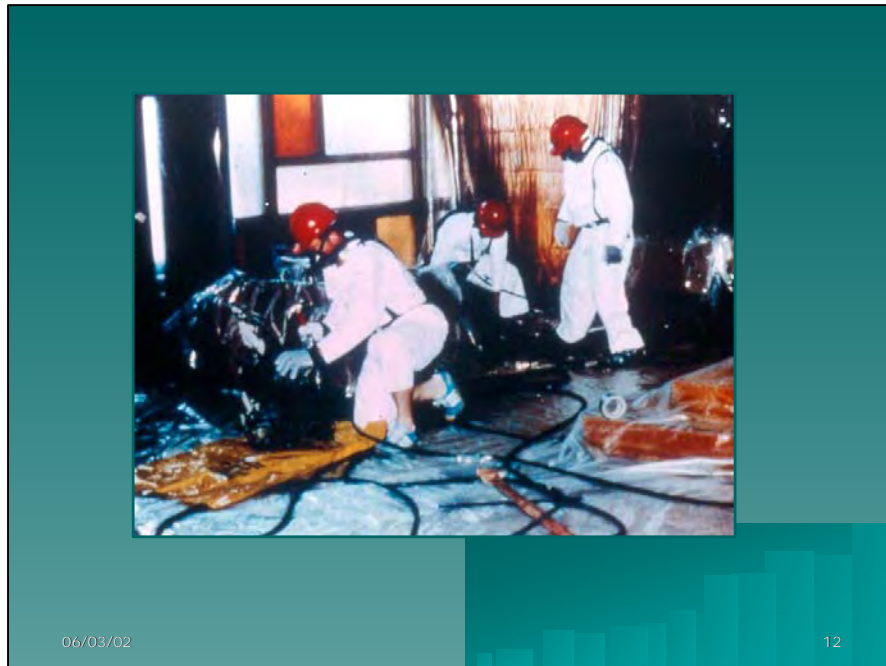
SLIDE #9 (Tray 2- 47): Improper use of a ladder and working in a tight spot. (There is someone standing on the ladder.)



SLIDE #10 (Tray 2 – 48): An improperly dressed-out abatement worker using a chair for a ladder or portable scaffold.



SLIDE #11 (Tray 2 – 49): Improper use of ladder and perhaps heat stress? Or just poor work habits?



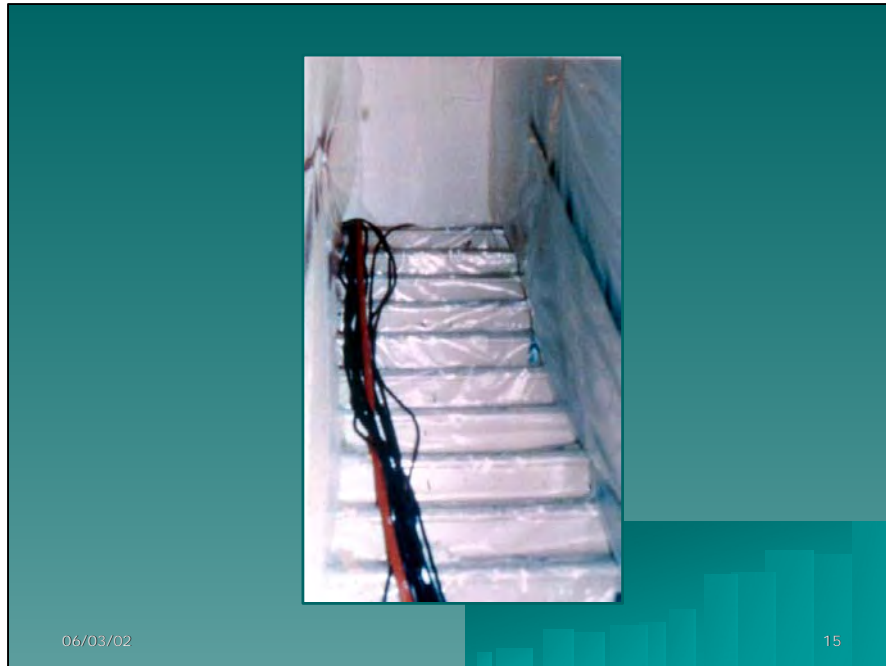
SLIDE #12 (Tray 2 – 50): Several trip hazards.



SLIDE #13 (Tray 2 – 51): Trip hazards and poor critical barrier work.



SLIDE #14 (Tray 2 – 52): Trip hazards and tardy cleanup.



SLIDE #15 (Tray 2 – 53): Steps where airlines may be a trip hazard. (*Question: What about the poly on the steps – do you see something not right?*)



SLIDE #16 (Tray 2 – 54): One way to prevent slipping of the stair poly.



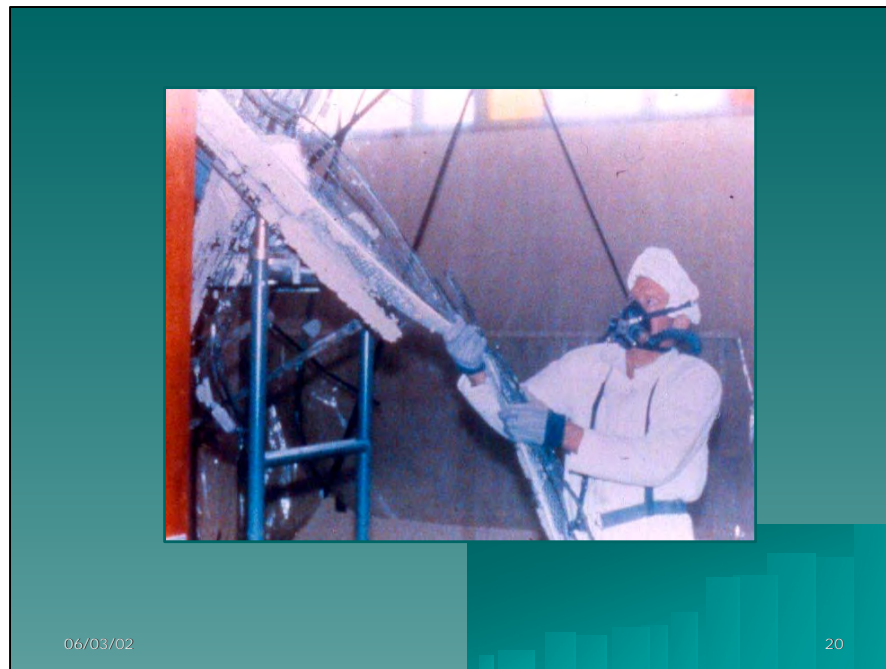
SLIDE #17 Tray 2 – 55): Improperly dressed-out abatement workers who *may fall at any moment*, especially the worker second from the right.



SLIDE #18 (Tray 2 – 56): A repeat from the previously slide, only add ACM with metal lathing.



SLIDE #19 (Tray 2 – 57): Improperly dressed-out abatement worker in a just plain sloppy regulated area.



SLIDE #20 (Tray 2 – 58): Improperly dressed-out abatement worker wearing a *half-face respirator w/air hose* gripping metal lathing.



SLIDE #21 (Tray 2- 59): Disposal of waste bags where the worker on the ground to the right is not dressed-out, while the workers in the truck are. And, Who or what is going to fall over the edge first? (*Workers in back of truck have continuous-flow helmets on.*)

**THAT'S ALL
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Other Safety Concerns

CPWR Asbestos

Worker Course

Asbestos Worker PowerPoint Presentations



Glove Bagging Hands-on



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SLIDE #2 (Tray 2 – 60): *Properly dressed-out abatement workers* preparing the area under a glove bag job.



SLIDE #3 (Tray 2 – 61): These workers are finishing floor preparations – *split/spill prevention*.



SLIDE #4 (Tray 2 – 62): The glove bag *being checked for leaks* prior to its use.



SLIDE #5 (Tray 2- -63): Bottom *seam being reinforced* and the side seams reinforced 3/4s of the way up.



SLIDE #6 (Tray 2 – 64): *Tools and supplies* being placed in an interior pouch in the glove bag.



SLIDE #7 (Tray 2 – 65): The *unreinforced side seams being split* so the glove bag and slip around the pipe. (Note *taped anchor points* on cross pipe.)



SLIDE #8 (Tray 2 – 66): *Top of glove bag being stapled. It can be spray glued.*



SLIDE #9 (Tray 2 – 67): *Top seam being reinforced* with duct tape.



SLIDE #10 (Tray 2- 68): The remaining side seams being taped. (There is an easy way to do this and another way....)



SLIDE #11 (tray 2 – 69): A *smoke* being added to bag from *entry point* prepared by the abatement workers. They will check for *leaks*.



SLIDE #12 (Tray 2 – 70): The bag being checked for leaks.



SLIDE #13 (Tray 2 – 71): *Amended water sprayer hose* being inserted into the glove bag.



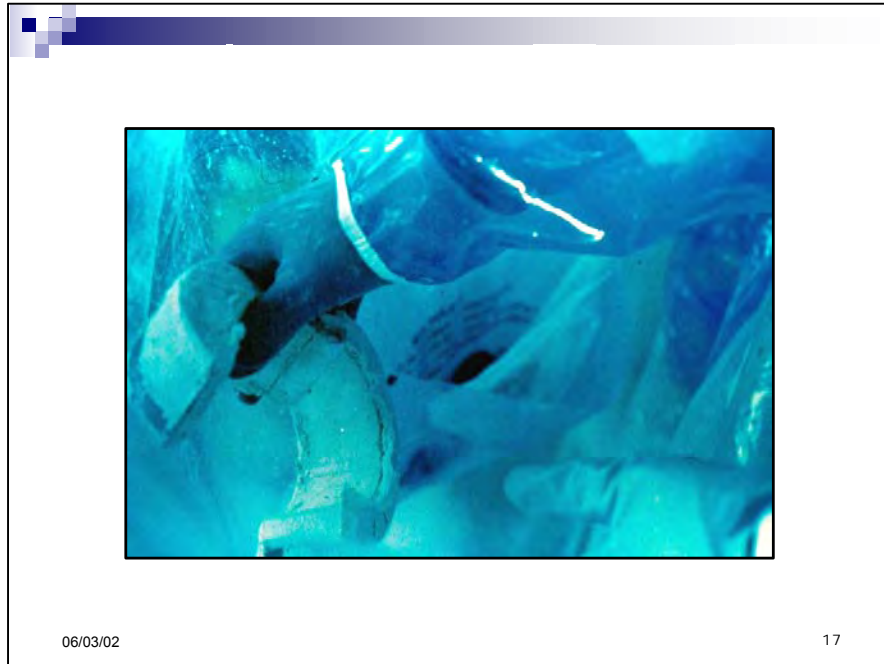
SLIDE #14 (Tray 2- 72): A *scoring cut* being made on the damaged lagging while water is being sprayed on the area.



SLIDE #15 (Tray 2 – 73): Close-up picture of scoring cut – with likelihood of worker being cut.



SLIDE #16 Tray 2 – 74): Damaged area being cut from rest of lagging by using a **“bone” saw**, with water continuing to be sprayed on the area.



SLIDE #17 (Tray 2 – 75): *Damaged lagging being placed* in the bottom of the glove bag – *not dropped.*



SLIDE #18 (Tray 2 – 76): Pipe being cleaned with sprayed amended water and a scrubbies.



SLIDE #19 (Tray 2 – 77): *Repair material*, in this case cotton-gauze-like cloth with plaster, being applied to open area of repair. Water is lightly and carefully applied.



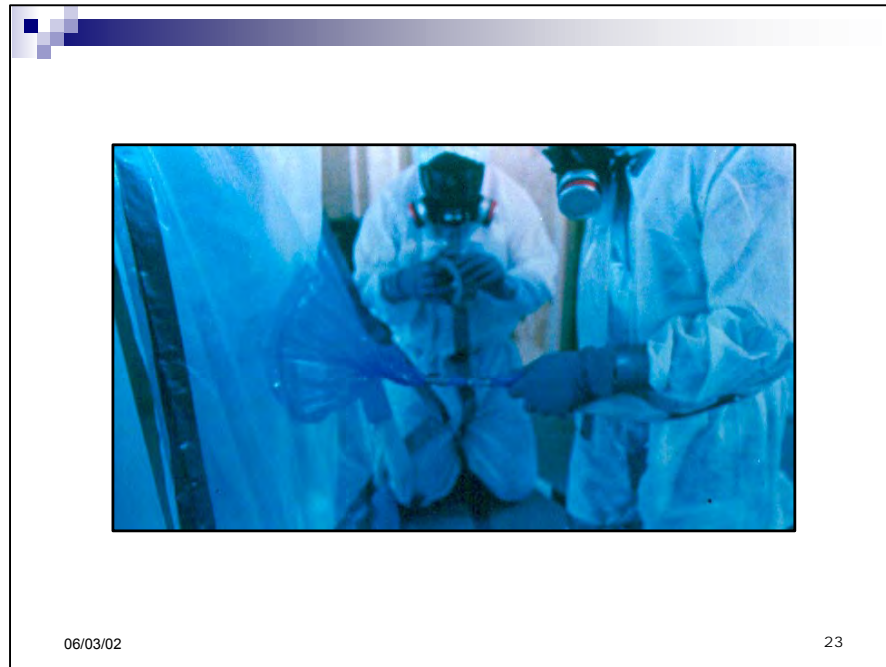
SLIDE #20 (Tray 2 – 78): Finished repair area.



SLIDE #21 (Tray 2 – 79): *Smoke test* for leaks before glove bag is removed.



SLIDE #22 (Tray 2- 80): Interior of glove bag being *rinsed and wiped* before removal



SLIDE #23 (Tray 2 – 81): *Removing tools through arm sleeve* and preparing to cut the sleeve off.



SLIDE #24 (Tray 2 – 82): The “tool” sleeve being cut.



SLIDE #25 (Tray 2 – 83): *Tool sleeve being placed in a bucket of water.*



SLIDE #26 (Tray 2 – 84): Remaining “amputated” end of sleeve.



SLIDE #27 (Tray 2 – 85): Glove bag entry point being widened to accommodate the HEPA vacuum hose.



SLIDE #28 (Tray 2 – 86): Glove bag being vacuumed and collapsed.



SLIDE #29 (Tray 2 – 87): Glove bag being *twisted and taped* as it is collapsed. HEPA vacuum hose is removed.



SLIDE #30 (Tray 2 – 88): The collapsed *glove bag hanging in a waste bag as the top seam is cut open.*



SLIDE #31 (Tray 2 – 89): Waste bag after glove bag has been completely removed from the pipe and placed inside the bag.



SLIDE #32 (Tray 2 – 90): *Protective cover on HEPA vacuum being removed* before the waste bag containing the collapsed glove bag is itself collapsed, sealed, and may be labeled. (This bag may be put in another waste bag with two or so others, saving on second bags and labeling. Only the outside bag has to be labeled.)



SLIDE #33 (Tray 2 – 91): Waste bag being collapsed. There is an easy way to this and then there is this way.



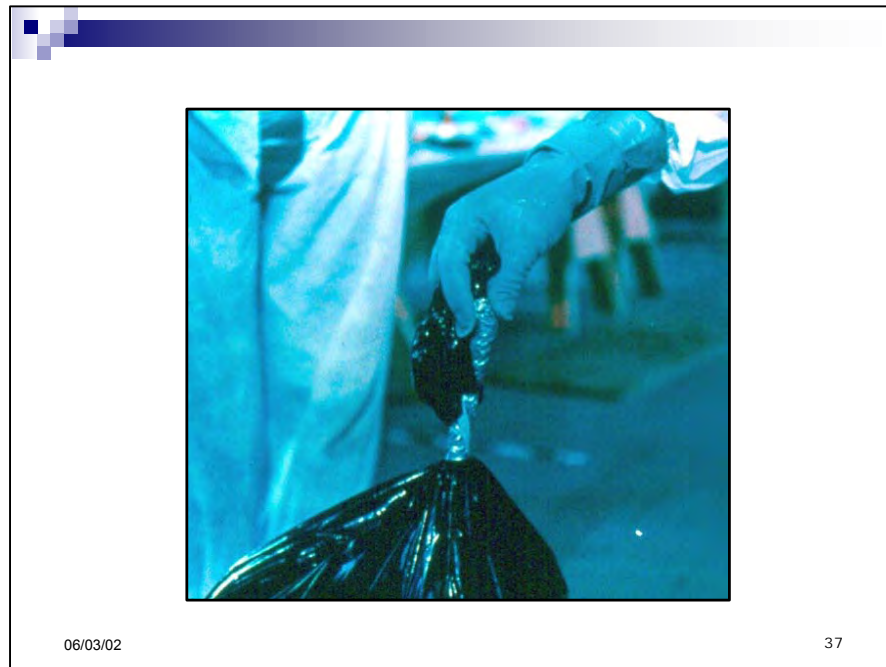
SLIDE #34 (Tray 2 – 92): *Proper way of goose necking a bag.*



SLIDE #35 (Tray 2 – 93): *Duct tape being wrapped around as neck is twisted.*



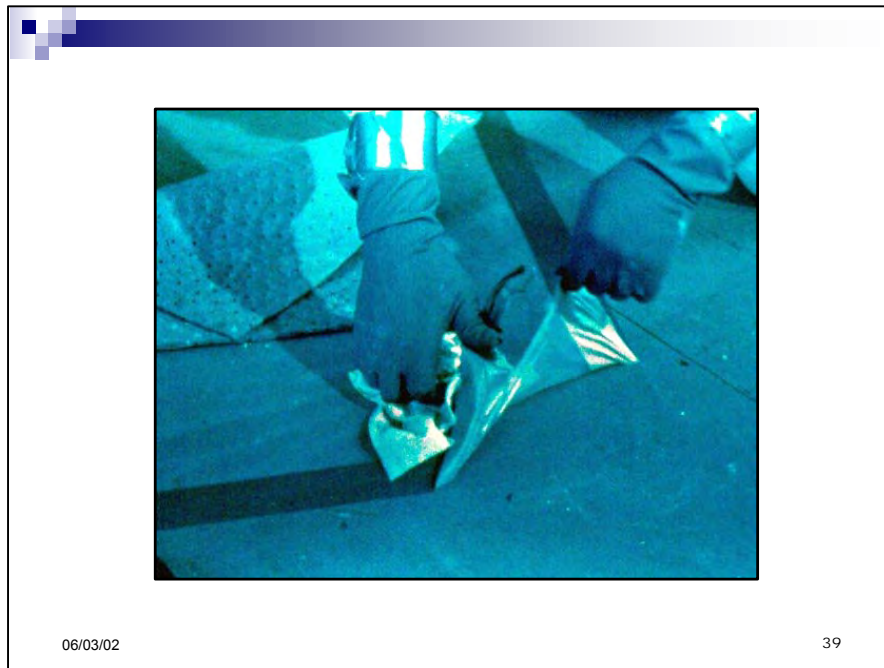
SLIDE #36 (Tray 2 – 94): Neck being twisted tight.



SLIDE #37 (Tray 2 – 95): *Proper goose neck*
after neck as been bent back and taped at the
base of the waste bag.



SLIDE #38 (Tray 2 – 96): *Cleanup of the floor area* beneath the pipe.



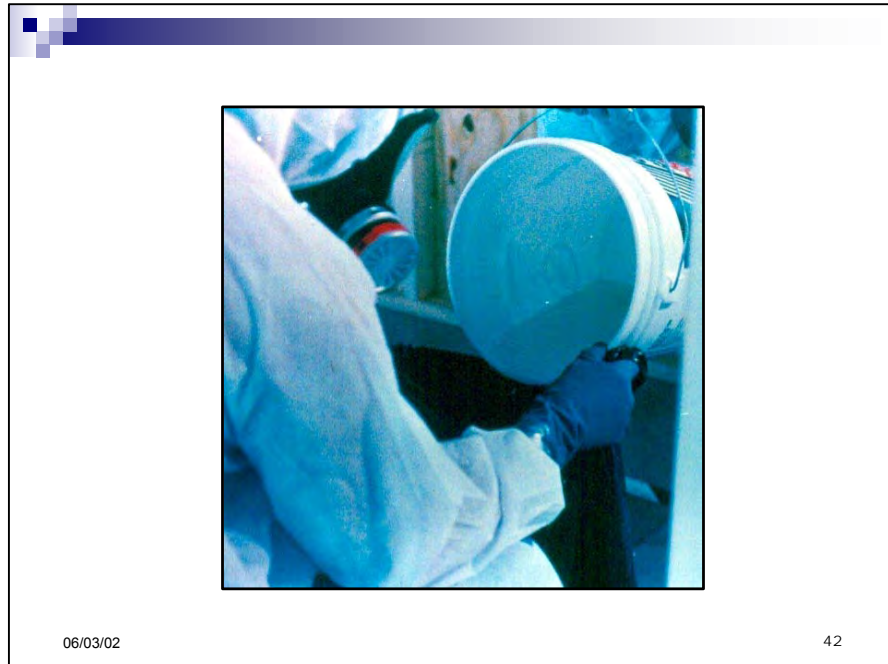
SLIDE #39 (tray 2 – 97): *Floor poly being folded in and on itself*, not being pulled up.



SLIDE #40 (Tray 2 – 98): *Floor poly and other debris being placed in a waste bag.*



SLIDE #41 (Tray 2 – 99): *Tools being removed from tool sleeve (under water).*



SLIDE #42 (Tray 2 – 100): *Contaminated water* being slowly poured into waste bag.



SLIDE #43 (Tray 2 – 101): *Bucket being dried out* and wipes or water being placed in the waste bag.



SLIDE #44 (Tray 2 – 102): *Waste bag being properly goose necked.*



SLIDE #45 (Tray 2 – 103): These two bags after being *labeled*.

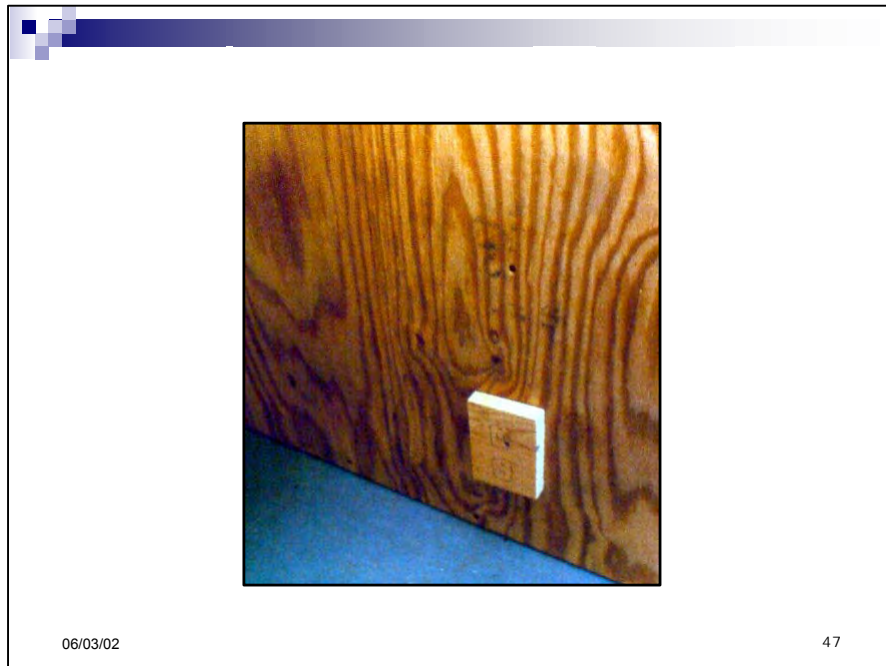
Plasticizing Hands-on



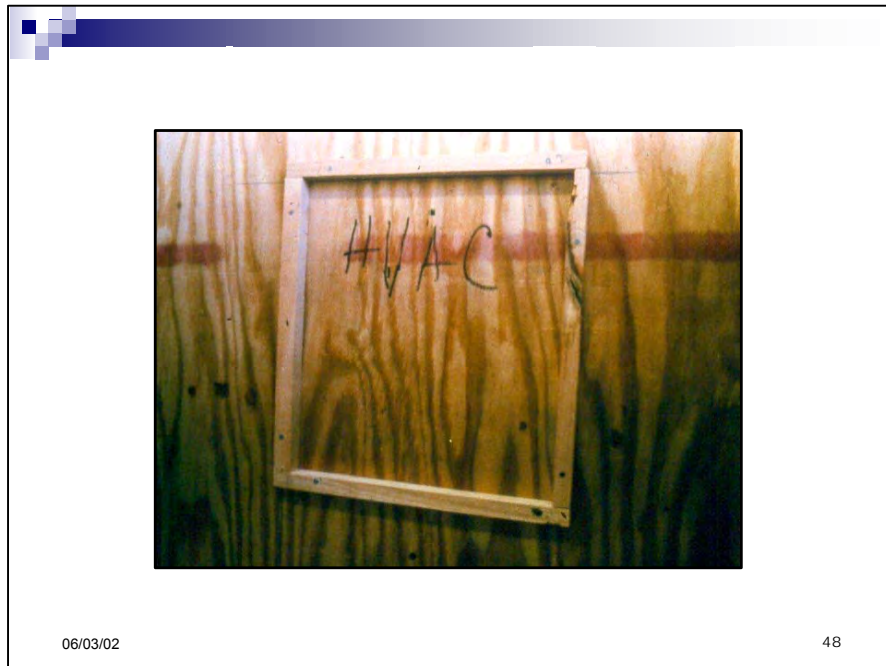
06/03/02

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SLIDE #46 (Tray 2 – 104): Cubicles for hands-on plasticizing floor, walls, and critical barrier.



SLIDE #47 (Tray 2 – 105): Mock electrical outlet.



SLIDE #48 (Tray 2 – 106): Mock HVAC air return.



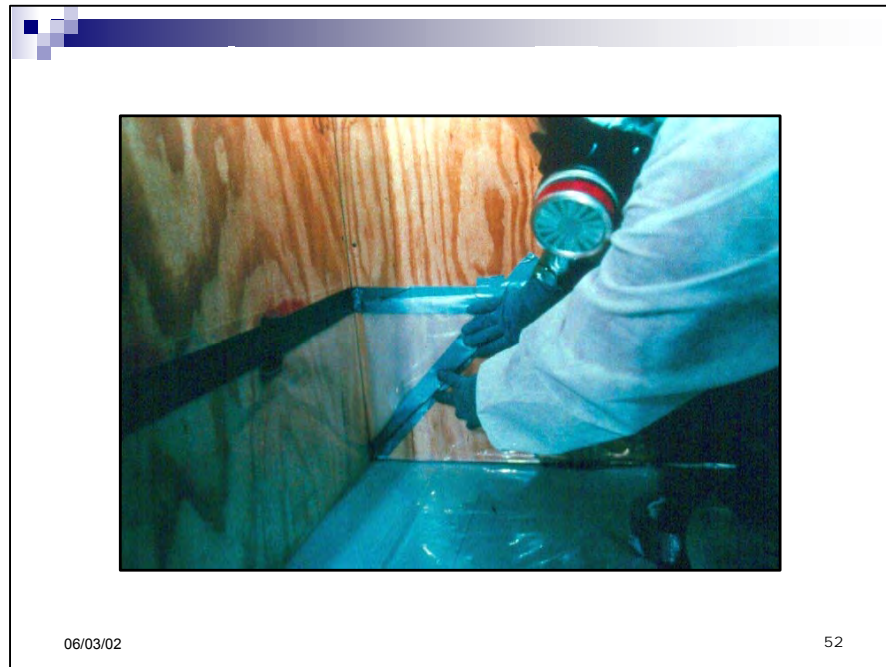
SLIDE #49 (Tray 2 – 107): Mock HVAC air return receiving its two-layer critical barrier.



SLIDE #50 (Tray 2 – 108): Pre-measured first layer of 6 mil floor poly being placed.



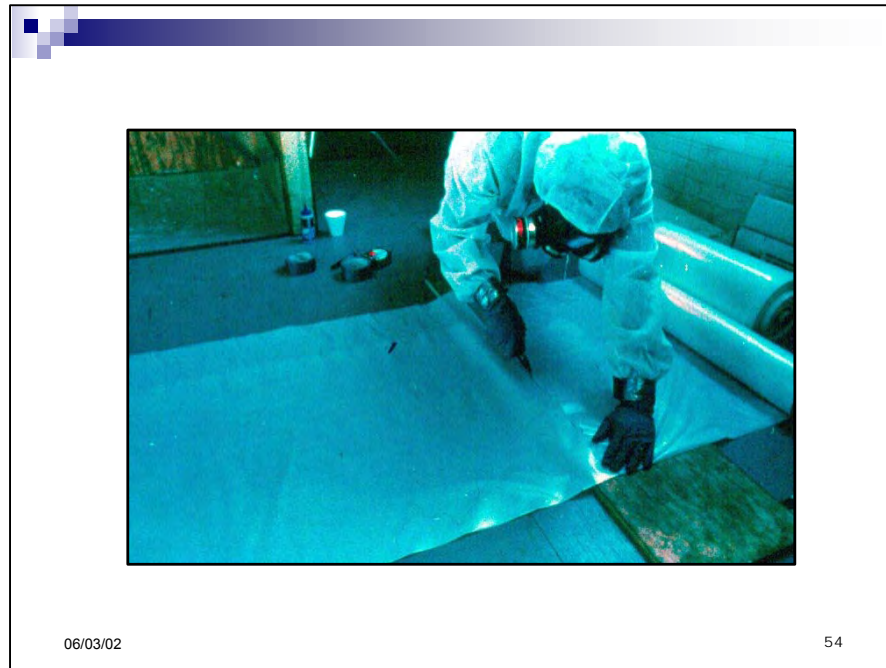
SLIDE #51 (Tray 2 – 109): Taping first layer of floor poly sides to walls, 12” up.



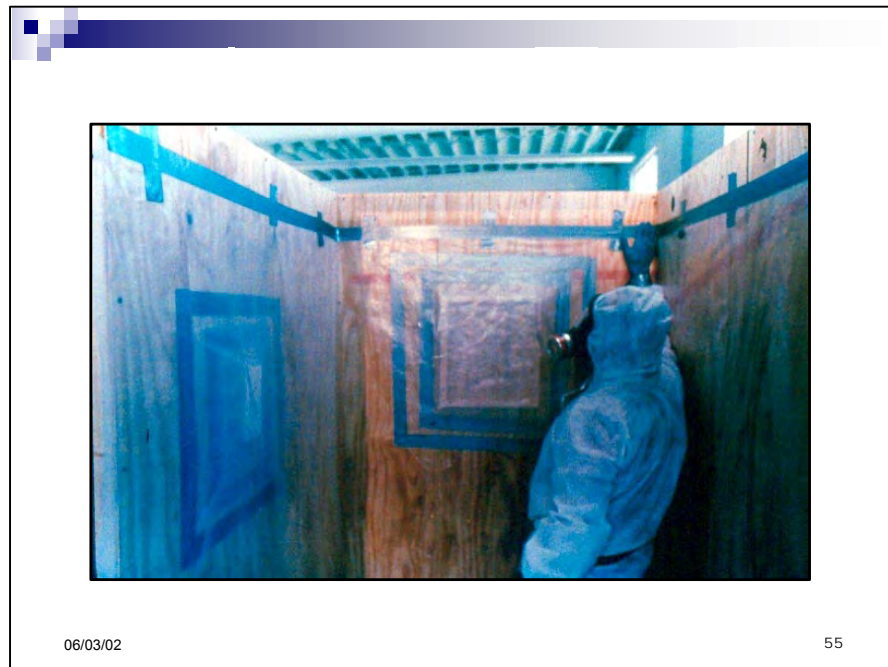
SLIDE #52 (Tray 2 – 110):Taping “hospital corners” of floor poly sides.



SLIDE #53 (Tray 2 – 111):Taping “hospital corners” of floor poly sides –another view.



SLIDE #54 (Tray 2 – 114): Cutting first wall layer poly – one sheet for all three cubicle walls.



SLIDE #55 (Tray 2 – 115): Placement and finished taping of first wall layer of poly.



SLIDE #56 (Tray 2 – 116): Floor taping of first wall layer of poly.



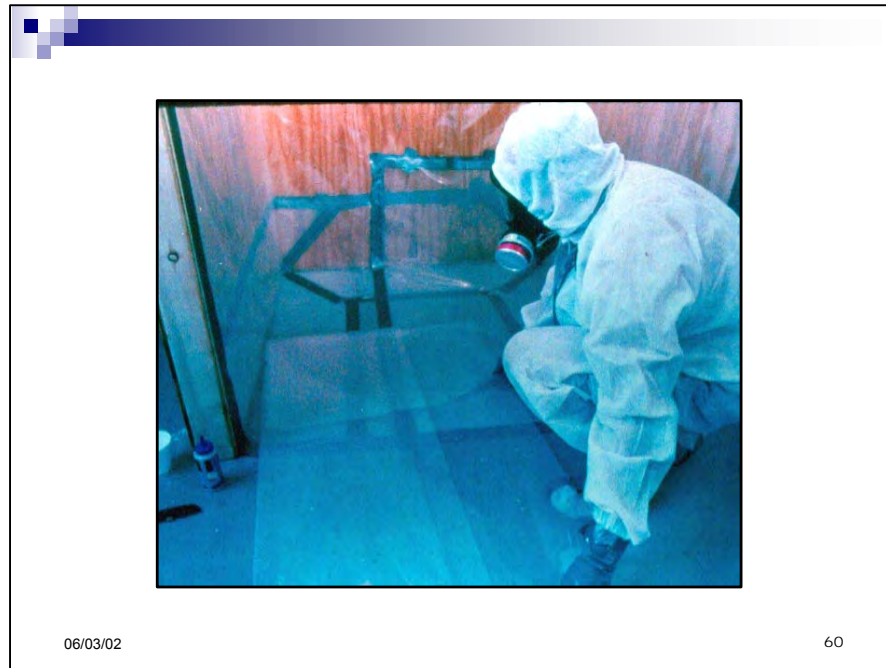
SLIDE #57 (Tray 2 – 117): Wall side taping for second floor poly – 18”.



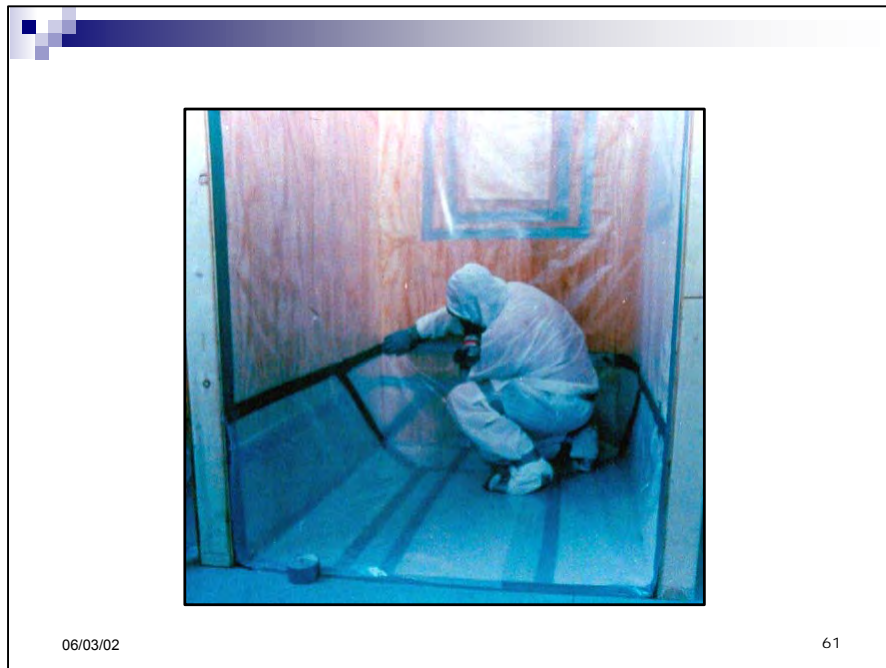
SLIDE #58 (Tray 2 – 118): Wall side full taping for second floor poly – 18”.



SLIDE #59 (Tray 2 – 119): Wall poly being taped to second floor poly – 12” out.



SLIDE #60 (Tray 2 – 120): Pre-measured floor poly being set. Second floor poly is done in two sheets in CPWR’s hands-on plasticizing to practice seaming.



SLIDE #61 (Tray 2 – 121): Finish wall taping of second floor poly, one part.



SLIDE #62 (Tray 2 – 122): Finish floor taping of second floor poly, one part. Chalk is applied between the two floor layers for moisture detection.



SLIDE #63 (Tray 2 – 123): Finish taping of second floor poly, second part.

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