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6. AUTHOR(S) Pauline R. Dobranich Karl Horak David Hagan Sharon DeLand			
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13. ABSTRACT (Maximum 200 words) Many current and proposed arms control agreements have on-site inspection requirements. Several government facilities and private firms may be subject to these agreement-mandated on-site inspections. Sandia National Laboratories and Ogden Environmental and Energy Services have developed a PC-based on-site inspection training tool, the Augmented Computer Exercise for Inspection Training (ACE-IT), that provides hands-on experience with the procedures used in inspecting and hosting international inspections. ACE-IT allows participants to view rooms and remove shrouds, disparate inspection-relevant data to be geographically referenced, all data sources to be reached from a single interface, and the exercise to stay on schedule by using a control clock.			
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298-102

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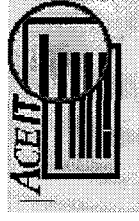
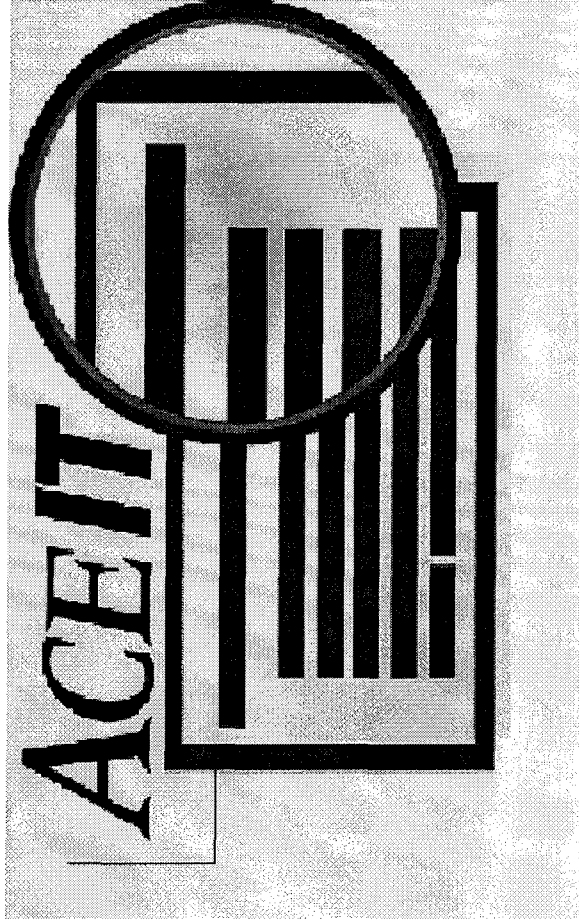
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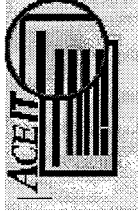


“Augmented Computer Exercise for Inspection Training” (ACE-IT)

A PC-Based On-Site Inspection Training Tool

*This work was supported by the United States Department of Energy under Contract DE-
AC04-94AL85000.*

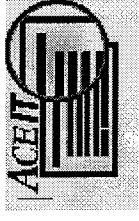




Inspection Training Goals

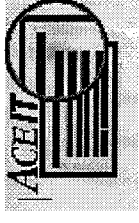
- Learn how to conduct an inspection
 - Collect information so that compliance can be determined
 - Balance the obligation to demonstrate compliance with the need to protect sensitive information unrelated to the agreement
 - Manage time during an inspection (*including planning*)
- Learn how on-site inspection provisions impact compliance determination and protection of sensitive information





ACE-IT Features

- Interactive computer program
- Geographic Information System (GIS) -- *information organized by location for each room in a building*
- Exercise clock to control the exercise -- *generates deadline pressures & tracks events*
- Photographic tour to allow participants to “feel” like they are actually in the rooms
- Inspection “hints” provided throughout
- Accompanying “CWC Exercise Packages”
- Log of inspection



ACE-IT Features (continued)

- Perimeter monitoring technologies
- Maps for negotiating the perimeter
- “Managed Access” negotiation techniques:
 - Physical access -- *Inspection Team cannot view areas or information until the Inspected Party grants permission*
 - Shrouding -- *including partial unshrouding*
 - Alternate information -- *chemical sampling, proprietary databases, hazardous waste databases, & equipment inventories*
- Chemical Weapons Convention (CWC) challenge inspection currently implemented; can be modified for other regimes

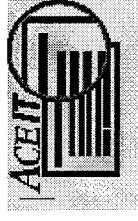




CWC Challenge Inspection

- Notification of "challenge inspection"
- Arrive at Point of Entry and specify site
- Inspected Party monitors requested perimeter
- Negotiate "alternate" perimeter
- Travel to site
- Negotiate "final" perimeter
- Pre-inspection briefing
- Inspection Team monitors "final" perimeter
- Inspection
- Post-inspection procedures
- Site post-inspection procedures





Demonstration

- The remainder of the demonstration describes how **ACE-IT** can be used to conduct a “challenge inspection” under the Chemical Weapons Convention.
- Although three buildings and all the rooms can be inspected -- for this demonstration, only one room in one building will be inspected.



Moderator ACE IT Control Module

6/9	6/16	6/23	6/30
14	15	16	17
18	19	20	21
22	23	24	25
26	27	28	29
30	31	1	2
3	4	5	

1	Notification of challenge inspection
2	Arrive at Point of Entry/Specify Site
3	Inspected Party Monitors Requested
4	Negotiate Alternative perimeter
5	Travel to site
6	Inspection Team Monitors Perimeter
7	Negotiate Final Perimeter
8	Pre-Inspection Briefing
9	Inspection
10	Post-inspection Procedures
11	Site post-inspection procedures

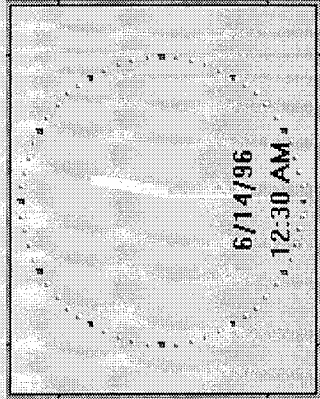
- INSPECTORS MONITOR MENU**
- Lock & seal exits
 - Secure site/ exit monitoring
 - Personnel at exit
 - Traffic logs
 - Patrol perimeter
 - Detection sensor at exits
 - Camera at exits
 - Camera around perimeter
 - Chemical sample analysis

Event Duration: 180 Hours

Exercise Duration (minutes): 15

Elapsed Time: 1:02:02

Event Time Remaining (minutes): 15



12 Hour Clock

24 Hour Clock

Reset

Save Notes

Jump

Select Options

More Info

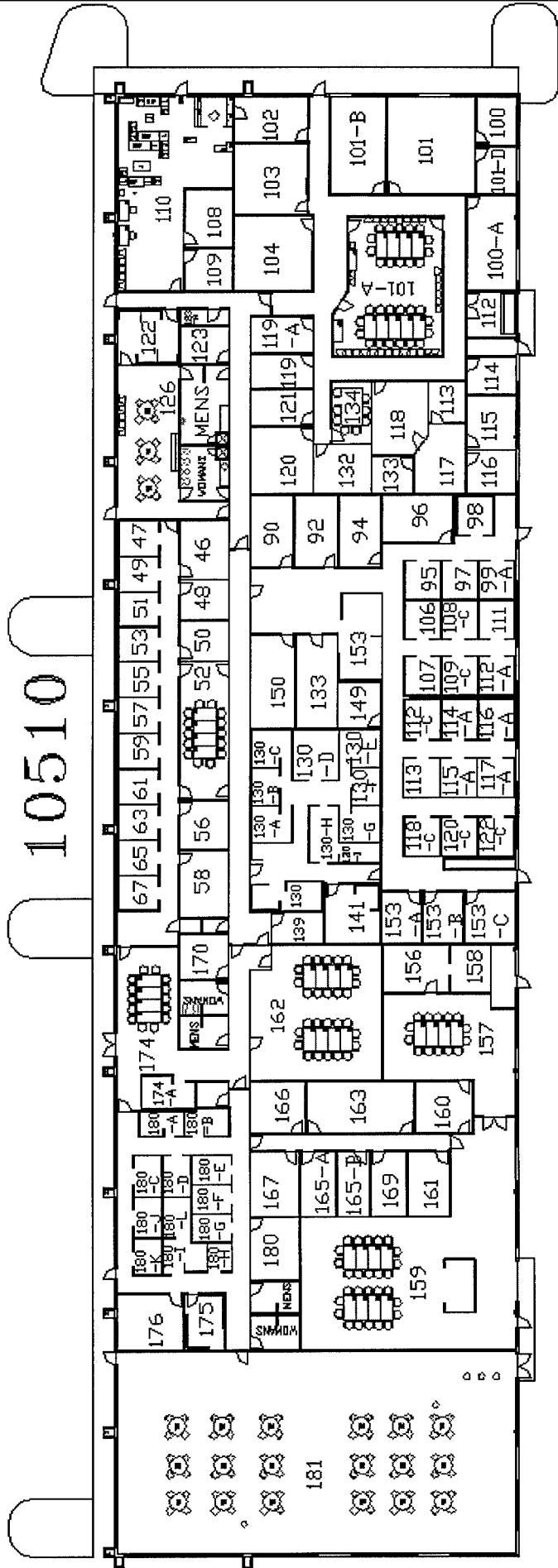
CWC 4-hour

Scenario

Load Start Stop

Exit

10510



Select a feature in theme ROOMS <exit>: C:\INSPECTR\IN_DWG\CMC\ROOMS polys : 1 of 195 selected.
Launching: c:/inspectr/bin/sleeper.exe 0510-1-104...

Inspected Party Receives Request



The inspection Team has requested access to room 0510-1-103

- Grant Inspectors Access
- Deny Inspectors Access
- Offer Inspectors Partial Access
- Review Alternate Information for this location

Comments/Justification

The entrance to the room is large enough to admit a treaty limited item.

Moderator Comments/Recommendations

None

Send Response

Prints

Inspected Party Request Document



Preview Room

The inspection Team has requested:

- Grant Inspectors Access
- Deny Inspectors Access
- Offer Inspectors Partial Access
- Review Alternate Information for this location

1. Grant Access if no sensitive items or information will be compromised.
2. Consider Denying Access if sensitive items or information would be compromised
3. Consider allowing Partial Access if viewing the location from window or doorway will provide the inspection team with adequate information.
4. Consider providing alternate information about the location rather than allowing the inspection team access.

Cancel

Call Another Player

Comments/Justification

The entrance to the room is large enough to admit a treaty limited item.

Moderator Comments/Recommendations

None

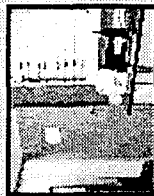
Send Response

Print

Inspected Party Previews Room



View From Center, 360 degrees Clockwise, Door to Door (Angle Measured from Door)



Zoom



Zoom

Lift Shroud



Zoom

Lift Shroud



Zoom

Lift Shroud



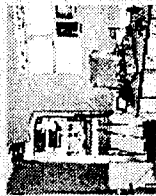
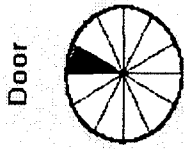
Zoom

Lift Shroud

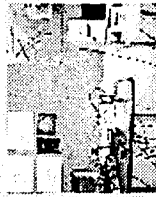


Zoom

Lift Shroud



Zoom



Zoom

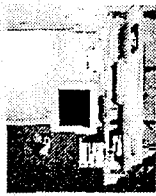


Zoom



Zoom

Lift Shroud

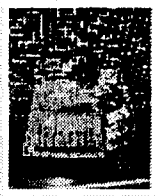


Zoom

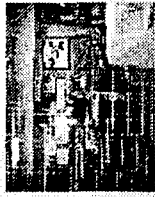


Zoom

View Through Window, Right to Left (Angle Measured from Right)



Zoom



Zoom

Lift Shroud

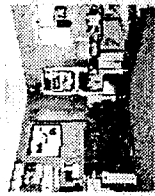


Zoom



Zoom

Lift Shroud



Zoom

Lift Shroud

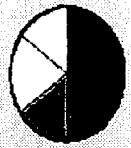


Zoom

View From Door, Right to Left (Angle Measured from Right)

Exit

Window



Door

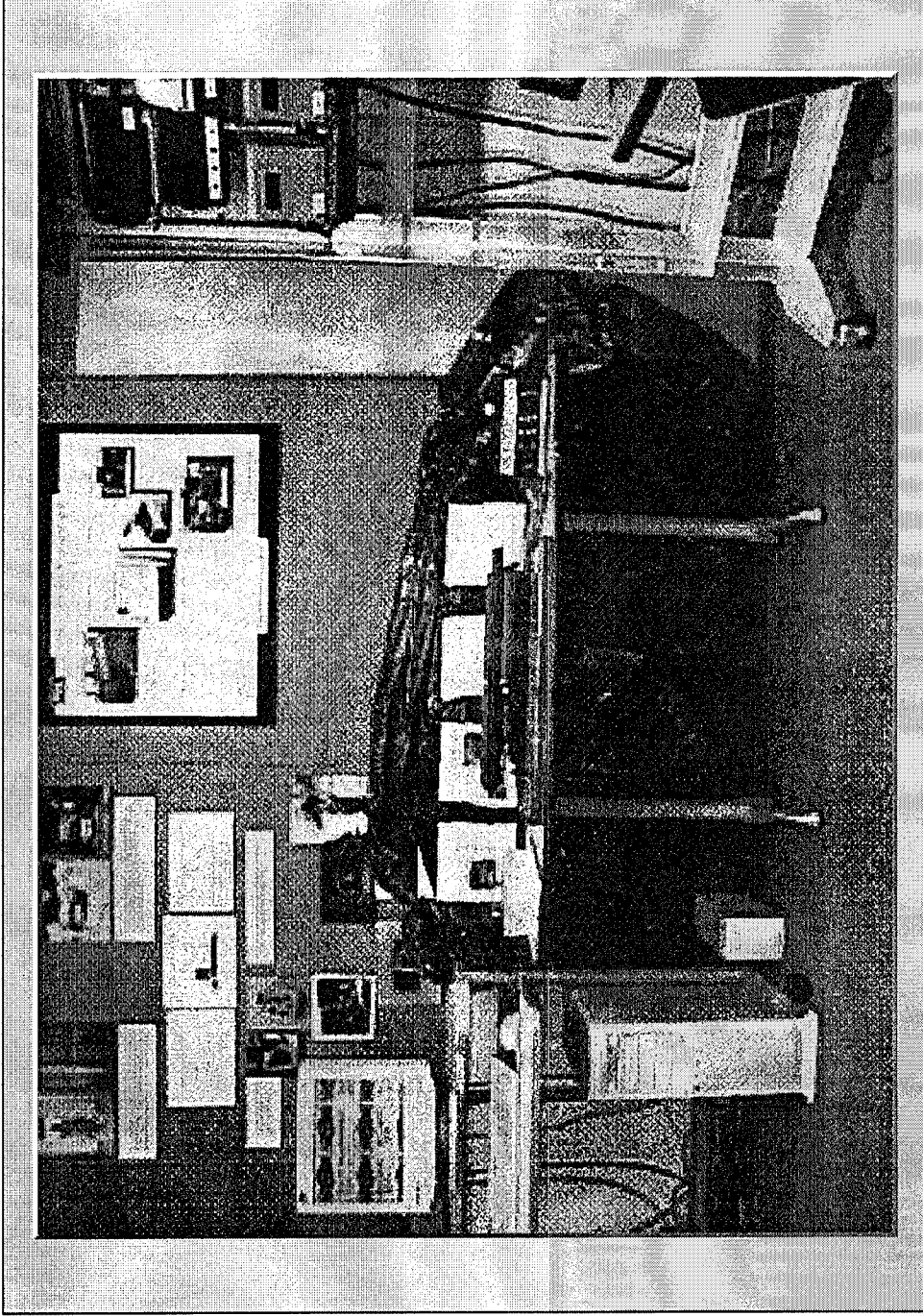


Inspected Party Previews Shrouded Item

Table with radiation detection equipment & gas chromatograph.
Height: 72 cm
Width: 76 cm
Length: 152 cm
Radiation detection equipment. Classified.
Height: 8 cm
Width: 12 cm
Length: 20 cm, Gas chromatograph (commercially available, item of concern (may cause compliance questions during a CWC inspection)).
Height: 15 cm
Width: 25 cm
Length: 37 cm

Play

Cancel



100 Percent

Inspected Party Responds to Request



The inspection Team has requested access to room 0510-1-103



View through Door

View through Window

Please Provide a Justification for Granting Only Partial Access

The entire room can be seen from the window and door.

Send Response

Cancel

Hints

Moderator Comments/Recommendations

None

Hints

Inspection Team Receives Partial Access



Request for access to 510-1-103 has been limited to viewing through the door and/or window only. Please click on Continue to accept this level of access, Repeat Access Request to negotiate further access to this room.

Host Justification

The entire room can be seen from the window and door.

Moderator Comments/Recommendations

None

Continue

Repeat Access Request

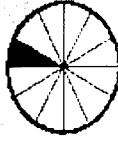
Hints

Inspection Team Views Partial Access to Room



View From Center, 360 degrees Clockwise, Door to Door (Angle Measured from Door)

Door



Zoom

Zoom

Zoom

Zoom

Zoom

Zoom

Zoom

Zoom

Zoom

Zoom

Zoom

Zoom

View Through Window, Right to Left (Angle Measured from Right)



Zoom



Zoom

Lift Shroud



Zoom



Zoom

Lift Shroud

View From Door, Right to Left (Angle Measured from Right)



Zoom

Lift Shroud



Zoom

Exit

Window



Door

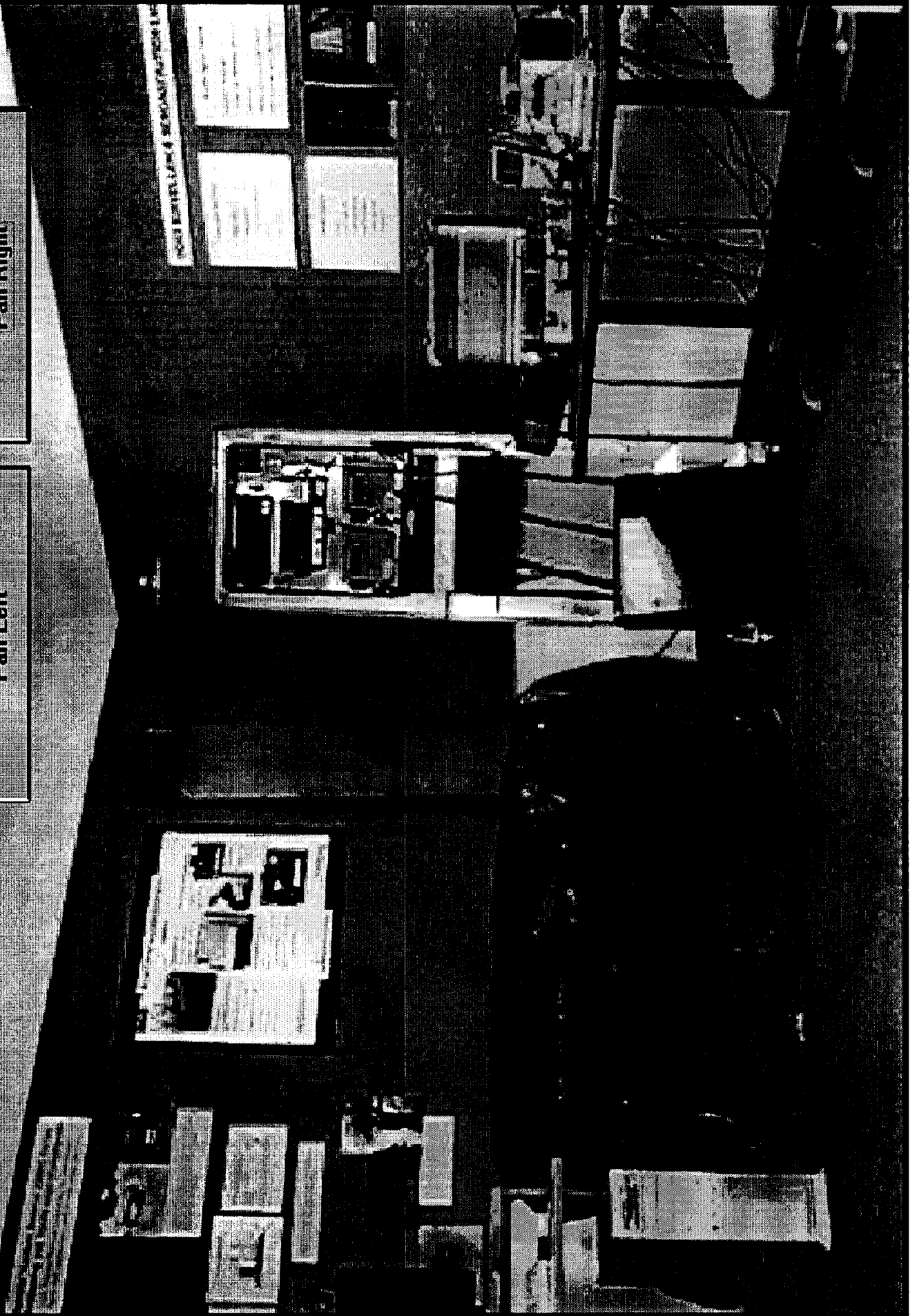


View From Door 45 degrees from right

DoubleClick to Clear

Pan Right

Pan Left



View From Door 15 degrees from right

Double

Pan Left

Pan Right



Inspected Party Receives Next Request



The inspection Team has requested access to room 0510-1-103

- Grant Inspectors Access
- Deny Inspectors Access
- Offer Inspectors Partial Access
- Review Alternate Information for this location

Comments/Justification

The left corner of the room is not visible from the window or door, and there are large shrouded objects of concern in the room.

Moderator Comments/Recommendations

None

Hints



Inspection Team Receives Full Access

Request for access to 510-1-103 has been granted. Please click on Continue.

Moderator Comments/Recommendations

None

Continue

Hints

Inspected Party Views Full Access to Room



View From Center, 360 degrees Clockwise Door to Door (Angle Measured from Door)



Zoom



Zoom



Zoom



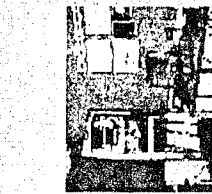
Zoom



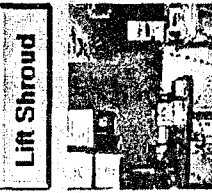
Zoom



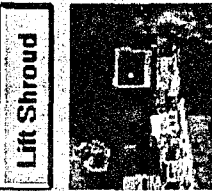
Zoom



Zoom



Zoom



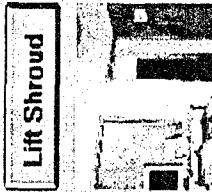
Zoom



Zoom



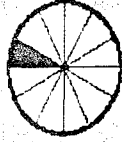
Zoom



Zoom

Lift Shroud

Door



View Through Window, Right to Left (Angle Measured from Right)



Zoom



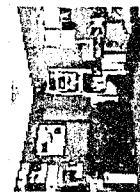
Zoom



Zoom



Zoom



Zoom



Zoom

Lift Shroud

Lift Shroud

Lift Shroud

Lift Shroud

Window



View From Door, Right to Left (Angle Measured from Right)



Zoom



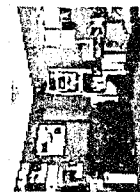
Zoom



Zoom



Zoom



Zoom



Zoom

Exit



Door



Inspection Team Requests Permission to Lift Shroud



Stand

Exit

Think

Comments

Please unshroud this object.



Inspected Party Grants Permission to Lift Shroud 50%

Table with radiation detection equipment & gas chromatograph. Height: 72 cm. Width: 76 cm.

Length: 152 cm.

Radiation detection equipment. Classified. Height: 8 cm. Width: 12 cm.

Length: 20 cm. Gas chromatograph (commercially available. Item of concern (may cause compliance questions during a CWC inspection)).

Play

Send

Request Denied



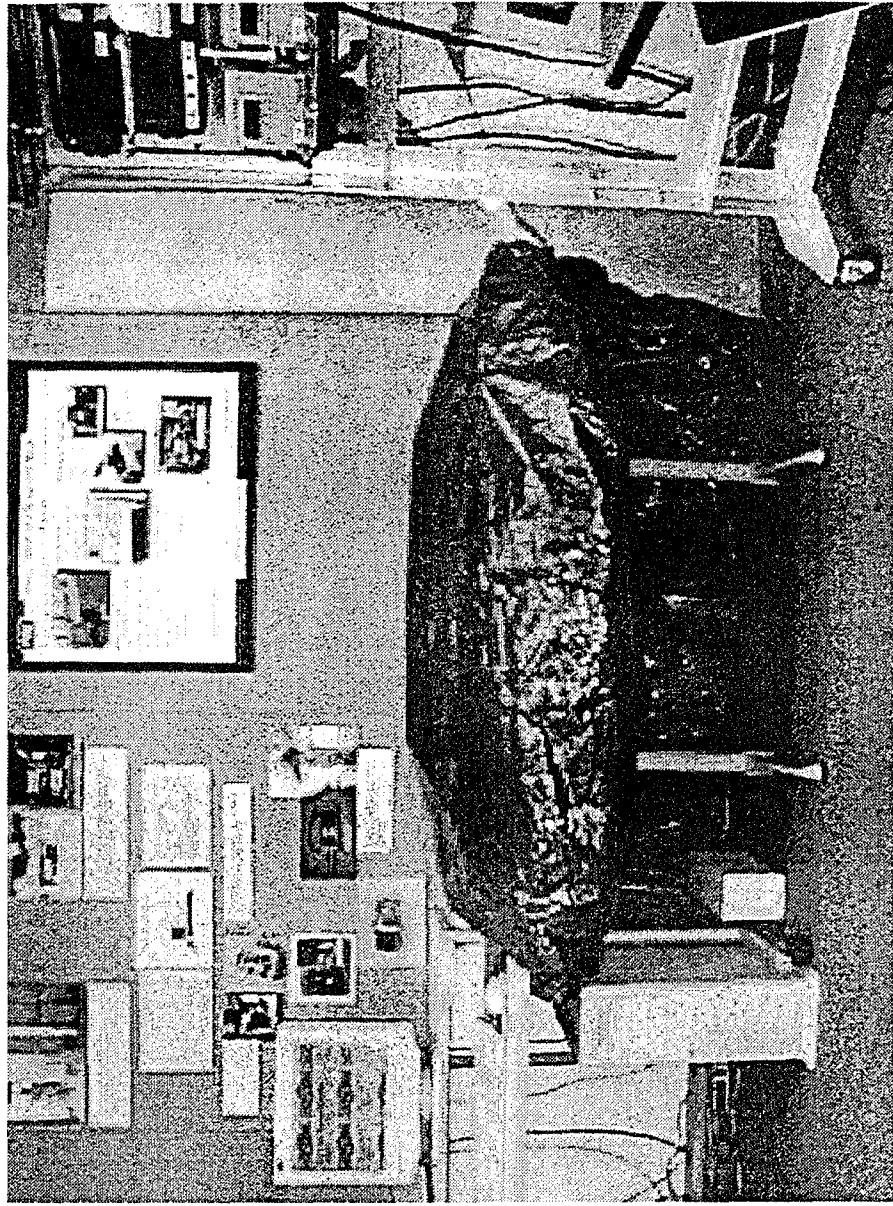
50 Percent

Comments

The object will be partially unshrouded



Inspection Team Views 50 % Lift of Shroud



Stand

Exit

Hints

Comments

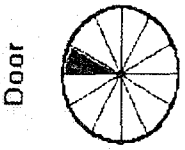
The object will be partially unshrouded

Inspection Team Views Full Access to Room

View From Center, 360 degrees Clockwise, Door to Door (Angle Measured from Door)

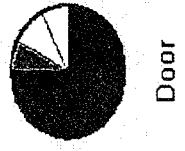


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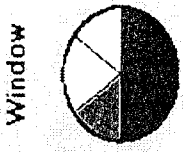
View From Door, Right to Left (Angle Measured from Right)

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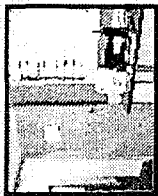
View Through Window, Right to Left (Angle Measured from Right)

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Inspection Team Views Full Access to Room

View From Center, 360 degrees Clockwise, Door to Door (Angle Measured from Door)

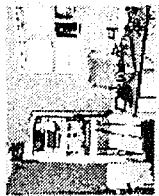


Zoom



Zoom

Lift Shroud

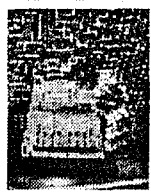


Zoom



Zoom

View Through Window, Room Measured from



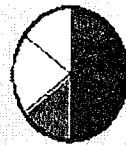
Zoom



Zoom

Lift Shroud

Window



Door

Inspection Team Requests Alternate Data



Chemical Sampling

Proprietary Research Information

Hazardous Waste Information

Inventory of Items

Other Related Documents

Request All Available Data

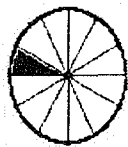
Click on the information you wish to request for this location. The color of the text will change. When ready, click Request, and wait. After your request has been reviewed, the check box to the left of each selection will be checked if the inspected party has elected to provide you with this information.

Cancel

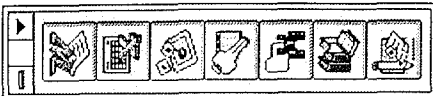
Request

Hints

Door

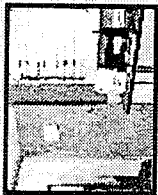


Exit

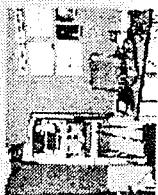


Inspection Team Views Full Access to Room

View From Center, 360 degrees Clockwise, Door to Door (Angle Measured from Door)



Zoom



Zoom

View Through W
Meas



Zoom

Inspection Team Requests Chemical Sample



Sample ID

Sample ID	510-1	Site	CMC
Time	12:14:42 PM	Building	510
Date	6/14/96	Room	103

Sample Type

(Select only one type)

- Soil Sample
- Wipe/Other Solid
- Air Filter
- Water Sample
- Process Sample

Analysis Type

(Select only one type)

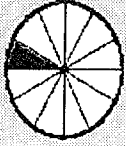
- Chemical
- Biological
- Radiological

OK

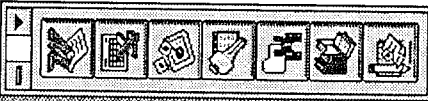
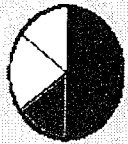
Cancel

Exit

Door



Door



Inspection Team Views Full Access to Room

View From Center, 360 degrees Clockwise, Door to Door (Angle Measured from Door)



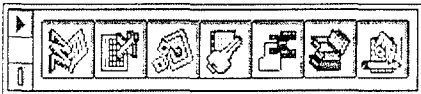
Chemical Sampling Results

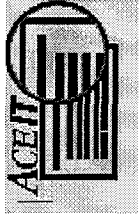
Sample ID:	510-1	Site:	CMC
Time:	12:14:46 PM	Building:	510
Date:	6/14/96	Room:	103
Sample Type:	Wipe/Other Solid	Analysis:	Chemical

No chemical items detected

Quit

Door

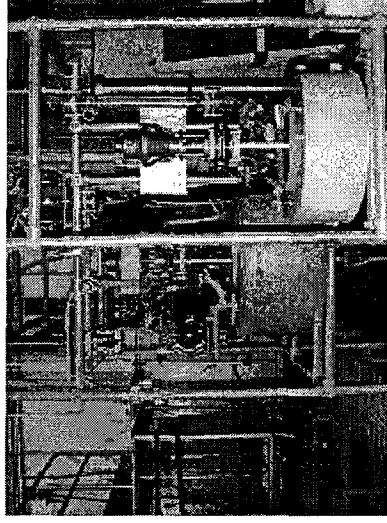




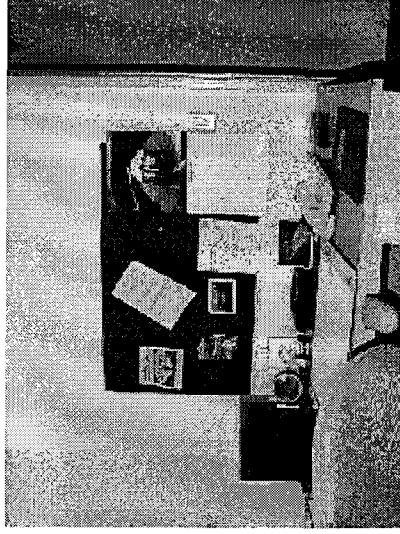
Other Buildings

Two other buildings are available in ACE-IT

- A "single small-scale facility"



- An office building





Summary

ACE-IT provides a realistic inspection training tool that can be used

- to learn how to conduct an inspection, and
- to learn how on-site inspection provisions impact compliance determination and protection of sensitive information

