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UC-515
ISPO-378

UNITED STATES PROGRAM FOR TECHNICAL ASSISTANCE TO IAEA SAFEGUARDS

POTAS

DEPARTMENT OF STATE
DEPARTMENT OF ENERGY
ARMS CONTROL AND DISARMAMENT AGENCY
NUCLEAR REGULATORY COMMISSION

Final Report

Basic Visual Observation Skills Training Course

Appendix B

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R. Badalamente

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Prepared for
The International Atomic Energy Agency
Department of Safeguards

MASTER

Pacific Northwest Laboratory
Operated by
Battelle Memorial Institute

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MASTER

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IN-CLASS EXERCISES

Exercises: Perception and Recognition

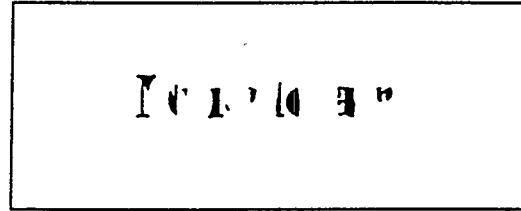
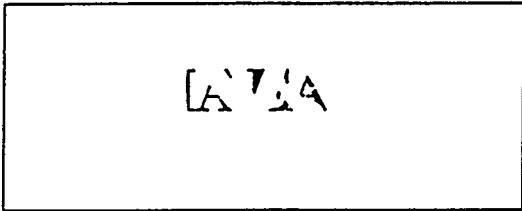
Session 1

Closure Test
Part A

Instructions. Write in the answer that describes the object or word on the blank line under the word or figure. You have 5 minutes to complete this section.

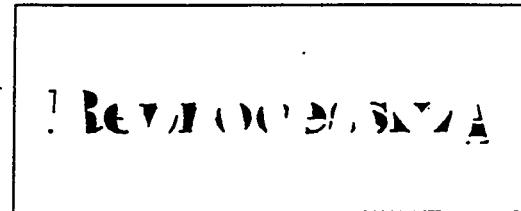
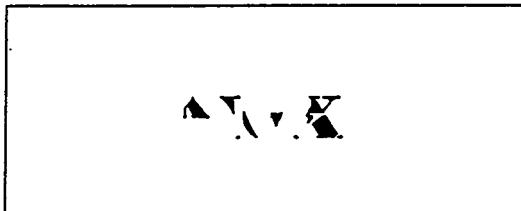
Group Exercise

Closure Part A



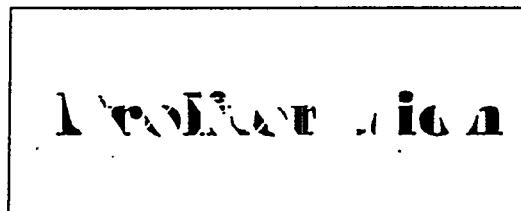
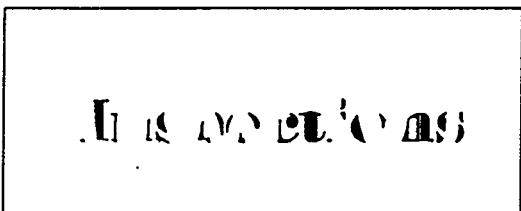
1. _____

2. _____



3. _____

4. _____



5. _____

6. _____

Sample Is

Highly
Decorate

7. _____

8. _____

Surveillance

Investigative
Agency

9. _____

10. _____

Market Basket
Analysis

Market
Plants

11. _____

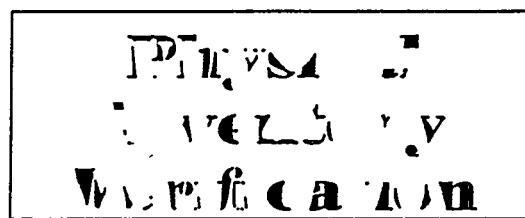
12. _____

High
Technology

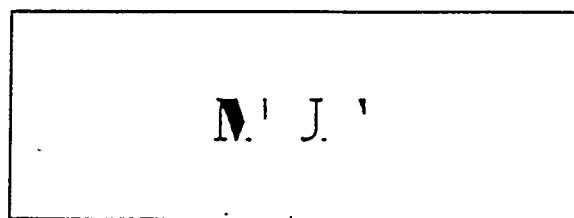
Walk
Through

13. _____

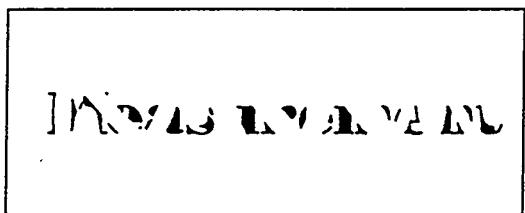
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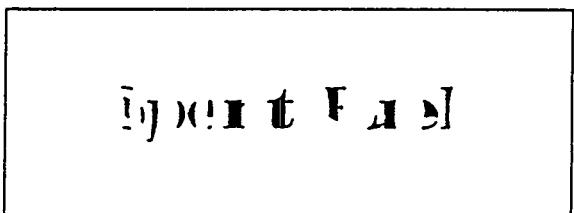
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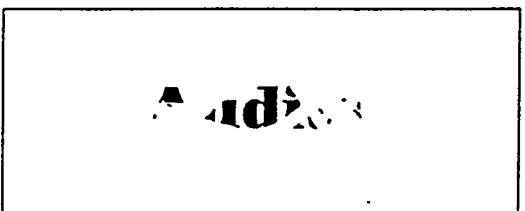
16. _____



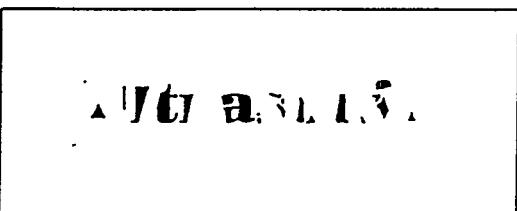
17. _____



18. _____



19. _____



20. _____

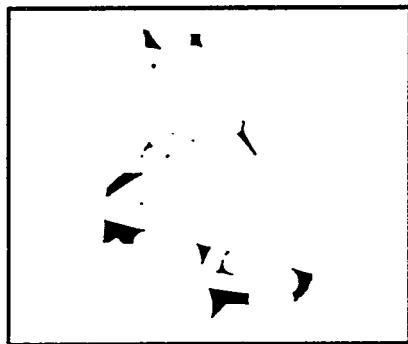
Closure Test
Part B

Name _____
Score _____

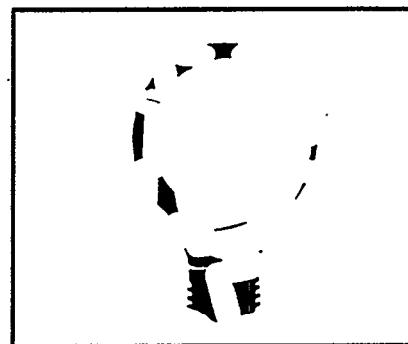
Instructions. Write in the answer that describes the object or word on the blank line under the word or figure. You have 5 minutes to complete this section.

Group Exercise

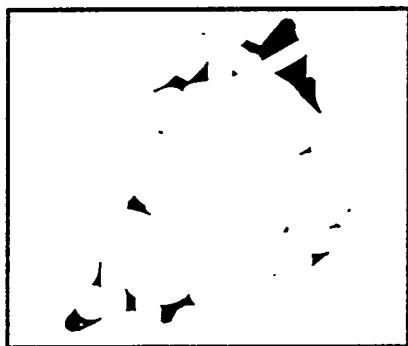
Closure Part B



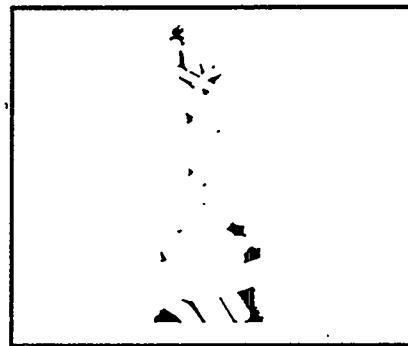
1. _____



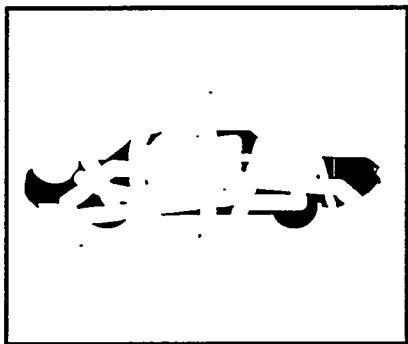
2. _____



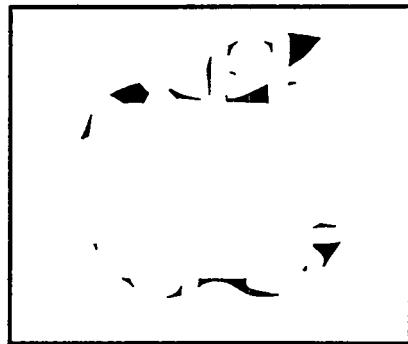
3. _____



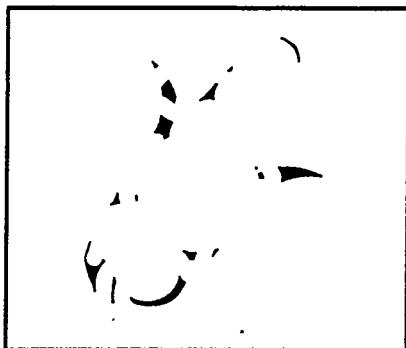
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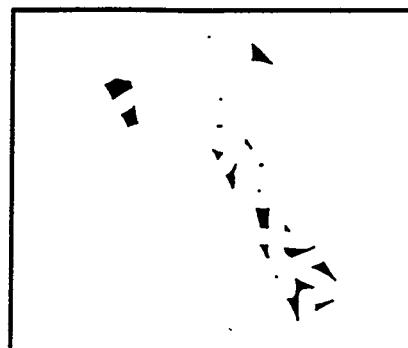
5. _____



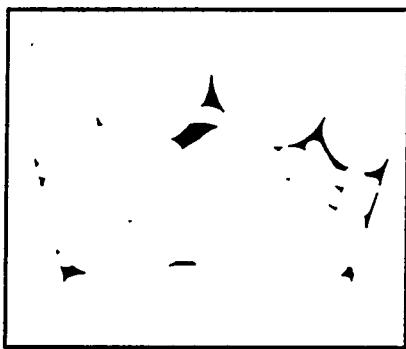
6. _____



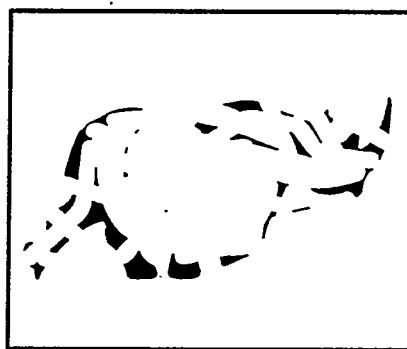
7. _____



8. _____



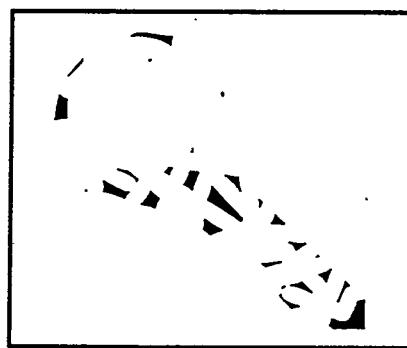
9. _____



10. _____



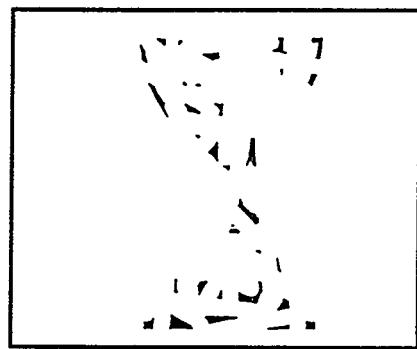
11. _____



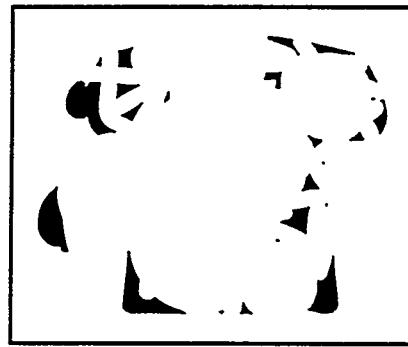
12. _____



13. _____



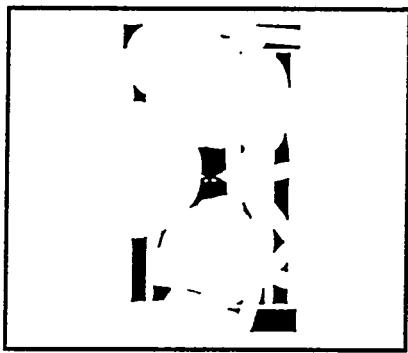
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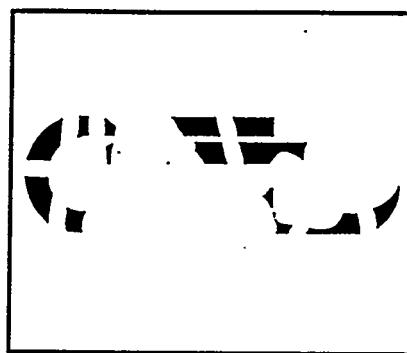
15. _____



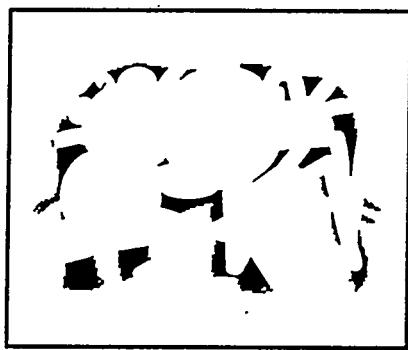
16. _____



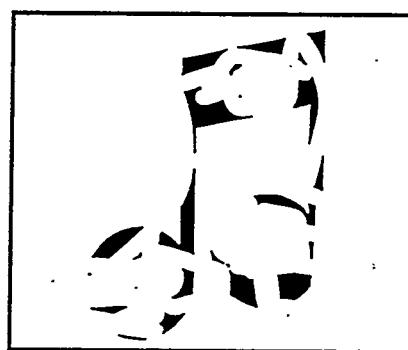
17. _____



18. _____



19. _____



20. _____

Exercises: Attention and Attention to Detail

Session 2

Materials Inspections Codes Exercise
Part A

Name _____

Score _____

Materials Inspections Codes Exercise - Part A

Instructions. In this test, you are asked to locate a sequence of numbers (target code) that represent Country, Facility, MBA, Section, and Item ID codes. Shown below is a sample table with the target code sequence that you are to locate listed at the top of the table. The target code sequence always appears more than once and all codes must appear in the same order as specified in the Target Sequence Code.

A practice table is shown below. Look for the target code (located at the top of the table in bold) and circle all the number sequences that match it. The correct answer(s) appear on the next page.

Target Sequence Code: **J JIQ JI-P OA3 9803881**

Country Code	Facility Code	MBA Code	Section Code	Item ID	Country Code	Facility Code	MBA Code	Section Code	Item ID
J	JAD	JA-D	OA2	9086754	J	JTI	JT-I	OA1	9879878
J	JBO	JB-O	OA1	9676542	J	JKI	JB-I	OA1	0090989
J	JHI	JH-I	OA2	5608076	J	JHZ	JH-Z	OA2	6577560
J	JIQ	JI-P	OA3	9803881	J	JCD	JC-D	OA2	7798009
J	JMC	JM2C	OA1	8686545	J	JIQ	JI-P	OA3	9803880
J	JMA	JM2A	OA2	5890767	J	JBK	JB-K	OA1	8789821
J	JIJ	JI-J	OA1	0908789	J	JUN	JU-N	OA1	8879090

The correct answer is highlighted below.

Country Code	Facility Code	MBA Code	Section Code	Item ID	Country Code	Facility Code	MBA Code	Section Code	Item ID
J	JAD	JA-D	OA2	9086754	J	JTI	JT-I	OA1	9879878
J	JBO	JB-O	OA1	9676542	J	JBI	JB-I	OA1	0090989
J	JHI	JH-I	OA2	5608076	J	JHZ	JH-Z	OA2	6577560
J	JIQ	JI-P	OA3	9803881	J	JCD	JC-D	OA2	7798009
J	JMC	JM2C	OA1	8686545	J	JIQ	JI-P	OA3	9803880
J	JMA	JM2A	OA2	5890767	J	JBK	JB-K	OA1	8789821
J	JIJ	JI-J	OA1	0908789	J	JUN	JU-N	OA1	8879090

Indicate your response by circling the correct item.

Please note that the Target Code is different for each page. Are there any questions on the directions for this test? You have 4 minutes to complete this test.

Target Sequence Code: J JIP JI-P OA1 9803880

Country Code	Facility Code	MBA Code	Section Code	Item ID	Country Code	Facility Code	MBA Code	Section Code	Item ID
J	JAD	JA-D	OA2	9086754	J	JTI	JT-I	OA1	9879878
J	JBO	JB-O	OA1	9676542	J	IBI	JB-I	OA1	0090989
J	JBF	JB-F	OA1	0800768	J	JHK	JHI-K	OA2	7869878
J	JPB	JB-P	OA1	8706980	J	JAA	JA2A	OA2	0902709
J	JCK	JC-K	OA2	4569800	J	JAC	JA1C	OA3	9065765
J	JEJ	JE-J	OA2	7960808	J	JSI	JS-1	OA1	8878789
J	JHD	JH-D	OA1	9803880	J	JUA	JU-A	OA1	9807786
J	JEP	JE-P	OA2	5708073	J	JIP	JI-P	OA1	9830880
J	JHR	JH-R	OA1	8087549	J	JGA	JG-A	OA2	7768789
J	JHI	JH-I	OA2	5608076	J	JHZ	JH-Z	OA2	6577560
J	JIP	JI-P	OA1	9803880	J	JCD	JC-D	OA2	7798009
J	JMC	JM2C	OA1	8686545	J	JIP	JI-P	OA1	9803880
J	JMA	JM2A	OA2	5890767	J	JBK	JB-K	OA1	8789821
J	JIJ	JI-J	OA1	0908789	J	JUN	JU-N	OA1	8879090
J	JHK	JH2K	OA2	7897678	J	JCK	JC-K	OA2	3477878
J	JHD	JH-D	OA1	8890338	J	JEI	JE-I	OA2	5673938
J	JAA	JA3A	OA2	0008086	J	JEJ	JE-J	OA2	4463883
J	JMC	JM2C	OA1	8083840	J	JSI	JS-I	OA1	9989899
J	JIP	JI-P	OA1	9303830	J	JIP	JI-P	OA1	9803880
J	JTB	JT-B	OA1	4658709	J	JSN	JS-N	OA1	9887678
J	IBI	JB-I	OA1	8906756	J	JBH	JB-H	OA1	8878566
J	JUP	JP-P	OA1	7907654	J	JEG	JE-G	OA2	7683399
J	JIO	JI-O	OA1	9708989	J	JIP	JP-K	OA1	9803880
J	JUM	JU-M	OA1	4657989	J	JEO	JE-O	OA2	2213589
J	JIP	JI-P	OA2	9803880	J	JSY	JS-Y	OA1	9800656
J	JXX	JX-X	OA1	5768878	J	JEM	JE-M	OA2	6573322
J	JWB	JW-B	OA1	0906786	J	JTC	JT-C	OA1	9989998
J	JUC	JU-C	OA1	2435679	J	JMF	JM3F	OA1	9893353
J	JBE	JB-E	OA1	9087879	J	JIP	JI-P	OA1	9803880
J	JIG	JI-G	OA1	8087890	J	JAA	JA4A	OA2	9876330
J	JMB	JM1B	OA1	9087899	J	JIP	JI-P	OA1	9800038
J	JTS	JT-S	OA1	4676865	J	JTZ	JT-Z	OA1	6833880
J	JVR	JV-R	OA1	5675457	J	JIP	JI-P	OA2	9808380
J	JZZ	JZ-Z	OA1	4676788	J	JEI	JE-I	OA2	6578330
J	JYI	JY-I	OA1	7878679	J	JSW	JS-W	OA1	9098800
J	JVQ	JV-Q	OA1	2348878	J	JTY	JT-Y	OA1	8744420
J	JIP	JI-P	OA1	9803880	J	JEH	JE-H	OA2	6547778
J	JBZ	JB-Z	OA1	9804484	J	JSR	JS-R	OA1	7743322
J	JHC	JH1C	OA2	0080032	J	JIP	JI-P	OA1	9803880
J	JAA	JA2A	OA2	6893378	J	JSM	JS-M	OA1	4300221
J	JIP	JI-P	OA1	9803881	J	JUB	JU-B	OA1	1120033
J	JEB	JE-B	OA2	2237798	J	JCK	JC-D	OA2	0093323
J	JHV	JH-V	OA1	0098872	J	JIJ	JI-J	OA1	7649989
J	JMB	JM2B	OA1	5499832	J	JMC	JM2C	OA1	4480909
J	JIP	JI-P	OA1	9803880	J	JOC	JO-C	OA2	9877030
J	JSS	JS-S	OA1	9823030	J	JP-M	JPM	OA1	4932022

Target Sequence Code: CN CNV CN-V OB1 8675309

Country Code	Facility Code	MBA Code	Section Code	Item ID	Country Code	Facility Code	MBA Code	Section Code	Item ID
CN	CNR	CN-R	OB1	0968760	CN	CNT	CN-T	OB1	8077979
CN	CNZ	CN-Z	OB1	8675009	CN	CNP	CNP2	OB1	5570908
CN	CUA	CA-A	OB1	9896687	CN	CNV	CN-V	OB1	8675309
CN	CNT	CN-T	OB1	7798999	CN	CSF	CS-F	OC1	7833443
CN	CSI	CS-1	OC1	8896688	CN	CSH	CS-H	OC1	8899334
CN	CNN	CN-N	OB1	8809999	CN	CUC	CU-C	OB1	9873303
CN	CNV	CN-V	OB1	8675309	CN	CNS	CN-S	OB1	9899843
CN	CSD	CS-D	OC1	5708073	CN	CNH	CN-H	OB1	8866733
CN	CNV	CN-V	OB1	8675309	CN	CNT	CN-T	OB1	9899980
CN	CSB	CS-B	OC1	3535366	CN	CNV	CN-V	OB1	8675309
CN	CSI	CS-I	OC1	9877879	CN	CNI	CNI1	OB1	8987667
CN	CNV	CN-Z	OB1	8675309	CN	CND	CND1	OB1	9899765
CN	CNF	CNF1	OB1	6799848	CN	CSJ	CS-J	OB1	3488798
CN	COA	CO-A	OB3	1288303	CN	CSA	CS-A	OC1	6773339
CN	CNE	CNE1	OB1	8898844	CN	CZA	CZ-A	OC1	8898767
CN	CNV	CN-V	OB1	8675309	CN	CNV	CN-A	OB1	8675309
CN	CSB	CS-B	OB1	8867650	CN	CUC	CU-C	OB1	8765330
CN	CSZ	CS-Z	OC1	5388333	CN	CNS	CN-S	OB1	6676588
CN	CNV	CN-V	OB1	8675330	CN	COA	CO-A	OB3	9807788
CN	CSF	CS-F	OC1	8977989	CN	CSH	CS-H	OC1	8898770
CN	CZC	CZ-C	OC1	8896767	CN	CSM	CS-M	OC1	9876400
CN	CNV	CN-V	OB2	8675308	CN	CNV	CN-V	OB1	8675309
CN	CNZ	CN-Z	OB1	8879779	CN	CHZ	CH-Z	OB2	7896689
CN	CNP	CNP1	OB1	7855798	CN	CH-F	CNFE	OB1	7809998
CN	CNI	CNI2	OB1	8977989	CN	COA	CO-A	OB1	9877323
CN	CNV	CN-V	OB1	8675309	CN	CNU	CN-U	OB1	8879509
CN	CNI	CNI2	OB1	8799090	CN	CNV	CN-V	OC1	8675039
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CN	CNO	CN-O	OB1	9796870	CN	CZC	CZ-C	OC1	9803880
CN	CNF	CN-F	OB1	4423090	CN	CSF	CS-F	OC1	8907099
CN	CNP	CNP1	OB1	3830080	CN	CNH	CN-H	OB1	9890380
CN	CNV	CS-V	OB1	8675809	CN	CNE	CNE1	OB1	9808989
CN	COA	CO-A	OB3	8980909	CN	CNV	CN-V	OB1	8673509
CN	CNF	CNFF	OB1	8789653	CN	CNU	CN-U	OB1	8675330
CN	CNO	CN-O	OB1	9476770	CN	CSB	CS-B	OC1	5693093
CN	CNI	CNI1	OB1	7456767	CN	CSF	CS-F	OC1	9087404
CN	CNI	CNI1	OB1	6739093	CN	CNB	CNB1	OB1	1302985
CN	CNZ	CN-Z	OB1	9874490	CN	CNU	CN-U	OB1	8976878
CN	CND	CN-D	OB1	8976954	CN	CNG	CNG1	OB1	3387329
CN	CNP	CNP1	OB1	8793309	CN	CNL	CN-L	OB1	4300221
CN	CSK	CS-K	OC1	6694090	CN	CNV	CN-V	OB1	8675319
CN	CSE	CSE1	OC1	2437869	CN	CNT	CN-T	OB1	9807608
CN	CNV	CS-V	OB1	8675809	CN	CUA	CU-A	OB1	7649989
CN	CUC	CU-C	OB1	8976540	CN	CZA	CZ-A	OC1	9869090
CN	CNP	CNP1	OB1	6685390	CN	CNI	CNI1	OB1	6098580
CN	CNU	CN-U	OA1	8909760	CN	CNZ	CN-Z	OB1	9870990

Target Sequence Code: Q QBF1 QBF1 OC2 1711771

Country Code	Facility Code	MBA Code	Section Code	Item ID	Country Code	Facility Code	MBA Code	Section Code	Item ID
Q	Q002	Q002	OC2	7717710	Q	Q018	Q018	OC2	1175600
Q	QBRL	QBRL	OC2	1771177	Q	QBF1	QBF1	OC2	1711771
Q	QDRB	QDRB	OC2	9832117	Q	QDR7	QDR7	OC2	7711909
Q	QS16	QS16	OC2	7114234	Q	Q002	Q002	OC2	3373217
Q	QUK1	QUK1	OC2	4414884	Q	QBSZ	QBSZ	OC2	7314272
Q	QBQK	QBQK	OC1	9171173	Q	QBF7	QBF7	OC2	1711711
Q	QHLB	QHLB	OC2	7197119	Q	QBSZ	QBSZ	OC2	7124877
Q	QDR7	QDR7	OC21	9871171	Q	QBF1	QBF1	OC2	1711771
Q	QHNA	QHNA	OC2	7117711	Q	QDUA	QDUA	OC2	4432187
Q	QHPL	QHPL	OC2	5230033	Q	QS12	QS12	OC2	7681917
Q	QSLF	QSLF	OC2	7129071	Q	QDUA	QDUA	OC2	7190911
Q	QS33	QS33	OC1	1171090	Q	QSZE	QSZE	OC2	9117190
Q	QCAX	QCA4	OC2	7198171	Q	QBF1	QBF1	OC2	1711771
Q	QTWS	QTWS	OC1	1717878	Q	QDUB	QDUB	OC2	0917171
Q	QUK1	QUK1	OC1	6372123	Q	QHEY	QHEY	OC2	1906571
Q	QDR6	QDR6	OC2	1711090	Q	QBLR	QBLR	OC2	7117711
Q	QMCR	QMCR	OC2	1711901	Q	QHPL	QHPL	OC2	7917181
Q	QDRB	QBR9	OC2	7198077	Q	QBF1	QBF1	OC2	1711771
Q	QBSZ	QBS6	OC2	2217717	Q	QCA3	QCA3	OC2	7639383
Q	QHLA	QHLA	OC2	9087221	Q	QS07	QS07	OC2	1771271
Q	QBFL	QBFL	OC1	1711771	Q	QS33	QS33	OC2	7717171
Q	QCAX	QCAX	OC2	8817171	Q	QBKP	QBKP	OC2	8727722
Q	QBF7	QBF7	OC1	1771771	Q	QOLD	QOLD	OC2	4310090
Q	QSSR	QSSR	OC2	6277272	Q	QRFL	QRFL	OC2	7272727
Q	QBF1	QBF1	OC2	1711771	Q	QBSZ	QBS5	OC2	7200292
Q	QHPL	QHPL	OC2	4439071	Q	QBF1	QBF1	OC2	1711717
Q	QCAX	QCA3	OC2	7171711	Q	QPKF	QPKF	OC2	6363721
Q	QS32	QS32	OC2	6723212	Q	QDR1	QDR1	OC2	9831272
Q	Q94X	Q94X	OC2	1771717	Q	QBWP	QBWP	OC2	7212711
Q	QTSA	QTSA	OC2	8787332	Q	Q002	Q002	OC2	6529202
Q	QBF1	QBF1	OC2	1717771	Q	QBSZ	QBS2	OC2	0932199
Q	QDUA	QDUA	OC2	9817171	Q	QCPL	QCPL	OC2	1898191
Q	QTWS	QTWS	OC2	1897911	Q	QCA8	QCA8	OC2	1290377
Q	QMCR	QMCR	OC2	0921667	Q	QBF1	QBF1	OC2	1711771
Q	QHNA	QHAN	OC2	1292822	Q	QSLF	QSLF	OC2	7127199
Q	QBF1	QBF1	OC2	1711771	Q	QSZE	QSZE	OC2	1117171
Q	QCAX	QCAX	OC2	7171711	Q	QDRB	QDR8	OC2	7177711
Q	QPKF	QPKF	OC2	9822822	Q	QHE2	QHE2	OC2	2113142
Q	QCSH	QCSH	OC2	9028272	Q	QSO9	QSO9	OC2	1716161
Q	QTSA	QTSA	OC2	7272209	Q	QCPL	QCPL	OC2	1717171
Q	QBFL	QBFL	OC2	1711711	Q	QBWP	QBWP	OC2	7771908
Q	QDRB	QDR8	OC2	7338737	Q	QBFL	QBFL	OC2	1711771
Q	QMCR	QMCR	OC2	1817871	Q	QHR2	QHR2	OC2	2177811
Q	QOLD	QOLD	OC2	7172728	Q	QBF7	QBF7	OC2	7177787
Q	QSLF	QSLF	OC2	7171711	Q	QCPL	QCPL	OC2	7837383
Q	QHEY	QHEY	OC2	8739390	Q	QHR2	QHR2	OC2	7111090

Target Sequence Code: F F1FL F1FL OC2 0771070

Country Code	Facility Code	MBA Code	Section Code	Item ID	Country Code	Facility Code	MBA Code	Section Code	Item ID
F	F1FL	F1FS	OC2	0771070	F	F2NG	G2NG	OC2	0838393
F	FCFC	FCLB	OC2	0272902	F	F3BG	F3BL	OC2	8903839
F	F2HG	F2LT	OC2	8202922	F	F4BG	F4BG	OC2	0803833
F	F2BG	F2BG	OC2	0202920	F	F3CA	F3DM	OC2	0393033
F	F2HG	F2HG	OC2	0282989	F	F3CA	F3CS	OC2	0929202
F	F94W	FCAP	OC2	0882822	F	F1AL	F1BL	OC2	0807373
F	FCFC	FCFC	OC2	0879333	F	F207	F207	OC2	0737373
F	F3CA	F3CA	OC2	3838309	F	F2HG	F2HG	OC2	0772111
F	F94W	FA94	OC2	9788383	F	F1FL	F1FL	OC2	0771070
F	F001	F001	OC2	7171711	F	F207	F207	OC2	9292898
F	F4BG	F4BL	OC2	2727272	F	F5BG	F5BG	OC2	0092370
F	F2BV	F2BV	OC2	0908810	F	F2C2	F2C2	OC2	0978722
F	F1FL	F1FL	OC2	0771070	F	F1BV	F1BV	OC2	0972720
F	F2HG	F2HG	OC2	0872890	F	F2HG	F2HG	OC2	0292820
F	FFBR	FLCF	OC2	0873170	F	F2HG	FACH	OC2	0972726
F	FCFC	FF-F	OC2	0989393	F	FFBR	FHAR	OC2	0983833
F	F1AL	F1AL	OC2	0893933	F	F1NG	F1FL	OC2	0983838
F	FFBR	FFBR	OC2	0983830	F	F002	F002	OC2	8974300
F	F2AL	F2AL	OC2	9087099	F	F1NG	FIPA	OC2	0873737
F	FMAS	FP1M	OC2	0484940	F	F207	F207	OC2	2098929
F	F2BV	F2BV	OC2	8398903	F	FCFC	FCKB	OC2	1019898
F	F2CA	F2CS	OC2	0918889	F	F1FL	F1FL	OC2	0771070
F	F4BG	F4BG	OC2	0893939	F	FCFC	FCCB	OC2	0292920
F	F94W	FA94	OC2	0838380	F	F5BG	F6GR	OC2	8376789
F	FFBR	FELE	OC2	8903838	F	F1FL	F1LT	OC2	0711771
F	F207	F207	OC2	9873737	F	FFBR	FHAR	OC2	0700202
F	FMAS	FP1M	OC2	0983838	F	FIPL	F1AL	OC2	0771070
F	F2NG	F2TC	OC2	0710191	F	F2AL	F2AL	OC2	0737383
F	F1BV	F1BV	OC2	7801090	F	FFBR	FLBM	OC2	0847479
F	FCFC	FCRF	OC2	0973730	F	F94W	F94W	OC2	0871700
F	F1FL	F1FL	OC2	0771070	F	FICA	FICA	OC2	0938383
F	F4BG	F4BG	OC2	7838383	F	F2AL	F2AL	OC2	0738383
F	F3BG	F2PA	OC2	7478090	F	FFBR	FLCF	OC2	0784840
F	F2HG	F8HS	OC2	0747460	F	FFBR	FLCF	OC2	9803738
F	F94W	FA94	OC2	0717171	F	F4CA	F4CN	OC2	0939300
F	F2HG	F2H1	OC2	0373710	F	F3BG	F3BL	OC2	0984890
F	F94W	F94W	OC2	9084847	F	F1FL	F1FT	OC2	0717170
F	FCFC	FELE	OC2	0848400	F	F2BV	F2BV	OC2	0737370
F	F4BG	F4BL	OC2	0717190	F	F001	F001	OC2	4847849
F	FFBR	FLCF	OC2	0738900	F	F3BG	F3BG	OC2	0986780
F	F1FL	F1FL	OC2	0771070	F	F1NG	F1PA	OC2	0787167
F	F001	F001	OC2	0778780	F	F1CA	F1CA	OC2	0763783
F	F2HG	F3H3	OC2	8474784	F	FCFC	FCKB	OC2	0834783
F	FFBR	FFBR	OC2	0871771	F	F2HG	F2H2	OC2	0836300
F	F3CA	F3CA	OC2	0836360	F	FCFC	FCRC	OC2	0867809
F	F4CA	F4CN	OC2	9717171	F	FFBR	FLCF	OC2	0771710

Materials Inspections Codes Exercise
Part B

Name _____

Score _____

Materials Inspections Codes Exercise - Part B

Instructions. In this test, you are asked to locate a sequence of numbers (target code) that represent Country, Facility, MBA, Section, and Item ID codes. Shown below is a sample table with the target code sequence that you are to locate listed at the top of the table. The target code sequence always appears more than once and all codes must appear in the same order as specified in the Target Sequence Code.

A practice table is shown below. Look for the target code (located at the top of the table in bold) and circle all the number sequences that match it. The correct answer(s) appear on the next page.

Target Sequence Code: **J JIQ JI-P OA3 9803881**

Country Code	Facility Code	MBA Code	Section Code	Item ID	Country Code	Facility Code	MBA Code	Section Code	Item ID
J	JAD	JA-D	OA2	9086754	J	JTI	JT-I	OA1	9879878
J	JBO	JB-O	OA1	9676542	J	JKI	JB-I	OA1	0090989
J	JHI	JH-I	OA2	5608076	J	JHZ	JH-Z	OA2	6577560
J	JIQ	JI-P	OA3	9803881	J	JCD	JC-D	OA2	7798009
J	JMC	JM2C	OA1	8686545	J	JIQ	JI-P	OA3	9803880
J	JMA	JM2A	OA2	5890767	J	JBK	JB-K	OA1	8789821
J	JIJ	JI-J	OA1	0908789	J	JUN	JU-N	OA1	8879090

The correct answer is highlighted below.

Country Code	Facility Code	MBA Code	Section Code	Item ID	Country Code	Facility Code	MBA Code	Section Code	Item ID
J	JAD	JA-D	OA2	9086754	J	JTI	JT-I	OA1	9879878
J	JBO	JB-O	OA1	9676542	J	JKI	JB-I	OA1	0090989
J	JHI	JH-I	OA2	5608076	J	JHZ	JH-Z	OA2	6577560
J	JHQ	JH-P	OA3	9803881	J	JCD	JC-D	OA2	7798009
J	JMC	JM2C	OA1	8686545	J	JLQ	JL-P	OA3	9803880
J	JMA	JM2A	OA2	5890767	J	JBK	JB-K	OA1	8789821
J	JLJ	JL-J	OA1	0908789	J	JUN	JU-N	OA1	8879090

Indicate your response by circling the correct item.

Please note that the Target Code is different for each page. Are there any questions on the directions for this test? You have 4 minutes to complete this test.

Target Sequence Code: RA RAI RA-I OB3 0110659

Country Code	Facility Code	MBA Code	Section Code	Item ID	Country Code	Facility Code	MBA Code	Section Code	Item ID
RA	RAI	RA-I	OB3	0110659	RA	RAB	RA-B	OB3	3645210
RA	RAH	RA-H	OB3	9894784	RA	RAV	RA-V	OB3	0546987
RA	RA9Y	RE9Y	OB2	3537670	RA	RA3X	RA3X	OB3	9863102
RA	RAD	RA-D	OB2	1101870	RA	RA0	RA-O	OB3	0352486
RA	RAU1	RAU1	OB3	1684008	RA	RA8Z	RA8Z	OB3	0215674
RA	RAM	RA-M	OB3	1098489	RA	RAK	RA-K	OB3	0219654
RA	RA8Z	RA8Z	OB3	0484942	RA	RAL	RA-L	OB3	2105984
RA	RAB	RA-B	OB3	9858589	RA	RAI	RA-J	OB3	0110659
RA	RAK	RA-K	OB3	1525309	RA	RAQ	RA-Q	OB3	9854109
RA	RAO	RA-O	OB3	4747480	RA	RAN	RA-N	OB3	4585360
RA	RAX6	RAX6	OB3	5757895	RA	RAU4	RAU4	OB3	1545630
RA	RA5Z	RA5Z	OB3	4947484	RA	RAL	RA-I	OB3	0110659
RA	RAG	RA-G	OB3	0686822	RA	RAD1	RAD1	OB3	4684312
RA	RAB	RA-B	OB3	3647580	RA	RAU	RA-U	OB3	8546324
RA	RAV	RA-V	OB3	5857495	RA	RAL	RA-L	OB3	0116591
RA	RAU4	RAU4	OB3	4856586	RA	RAI	RA-I	OB3	0110659
RA	RA9Y	RAY9	OB3	5958860	RA	RAC	RA-C	OB3	5630004
RA	RA9Z	RAZ9	OB3	1750590	RA	RA2Y	RAY2	OB3	8466218
RA	RAI	RA-I	OB3	0116590	RA	RAR	RA-R	OB3	3204580
RA	RAM	RA-M	OB3	6487596	RA	RAI	RA-I	OB3	0110659
RA	RAT	RA-T	OB3	4576576	RA	RAS	RA-S	OB3	5456721
RA	RA2Z	RAZ2	OB3	1004894	RA	RAH	RA-H	OB3	5423485
RA	RAI	RA-I	OB3	0212194	RA	RAB	RA-B	OB3	1054580
RA	RA5X	RAX5	OB3	9031189	RA	RA9Z	RA9Z	OB3	6823201
RA	RAQ	RA-Q	OB3	0285480	RA	RA4X	RA4X	OB3	7542852
RA	RAP	RA-P	OB3	9484844	RA	RAB	RA-B	OB3	0110695
RA	RAI	RA-I	OB3	0110639	RA	RAE	RA-E	OB3	8101956
RA	RAL	RA-L	OB3	4749343	RA	RAI	RA-I	OB3	0110659
RA	RAU	RA-U	OB3	0484744	RA	RAR	RA-R	OB3	8512593
RA	RAI	RA-I	OB3	0110659	RA	RAL	RA-L	OB3	0110689
RA	RAD	RA-D	OB3	5859033	RA	RAG	RA-G	OB3	6763689
RA	RAK	RA-K	OB3	0393822	RA	RAI	RA-I	OB3	0110695
RA	RA7Z	RAZ-7	OB3	4849300	RA	RAU3	RAU3	OB3	6842862
RA	RA1Y	RAY1	OB3	1001910	RA	RA1Z	RA1Z	OB3	5821384
RA	RAH	RA-H	OB3	5858593	RA	RAB	RA-B	OB3	0974384
RA	RIF	RI-F	OB3	9038301	RA	RAK	RA-K	OB3	4739033
RA	RAL	RA-L	OB3	0119760	RA	RAF	RA-F	OB3	0937483
RA	RAI	RA-I	OB3	0110659	RA	RAU3	RAU3	OB3	0284948
RA	RAT	RA-T	OB3	8575748	RA	RAG	RA-G	OB3	9403993
RA	RAC	RA-C	OB3	4940393	RA	RA9X	RA9X	OB3	0112359
RA	RA0	RA-O	OB3	3857590	RA	RA1	RA-I	OB3	0110695
RA	RAN	RA-N	OB3	5758933	RA	RAS	RA-S	OB3	3098220
RA	RAI	RA-I	OB3	0116059	RA	RAC	RA-C	OB3	4949082
RA	RAI	RA-I	OB3	0110659	RA	RAK	RA-K	OB3	0194949
RA	RAU4	RAU4	OB3	4894901	RA	RAV	RA-V	OB3	8595043
RA	RAD1	RAD1	OB3	4902092	RA	RAI	RA-I	OB3	0110659

Target Sequence Code: U UXYN UXYN OB1 0901956

Country Code	Facility Code	MBA Code	Section Code	Item ID	Country Code	Facility Code	MBA Code	Section Code	Item ID
U	UYTN	UYTN	OB1	1995632	U	UXYN	UXYN	OB1	0901956
U	UXIR	UXIR	OB1	0658521	U	UAVA	UAVA	OB1	2546398
U	UYZR	UYZR	OB1	0481354	U	UVCM	UVCM	OB1	1258963
U	UYZM	UYZM	OB1	0457838	U	UZED	UZED	OB1	0132785
U	UZAJ	UZAJ	OB1	0150944	U	UYOC	UYOC	OB1	0154783
U	UZYN	UZYN	OB1	0854353	U	ULE	ULE	OB1	0246987
U	UXIS	UXIS	OB1	9463551	U	UYNF	UYNF	OB1	3654892
U	UXXS	UXXS	OB1	9864522	U	UZBE	UZBE	OB1	0756249
U	UZBY	UZBY	OB1	0457001	U	UXYN	UXYN	OB1	0199564
U	UYOY	UYOY	OB1	0547575	U	UXIR	UXIR	OB1	0159633
U	UXYN	UXYN	OB1	0901956	U	UYLM	UYLM	OB1	5648213
U	UXDR	UXDR	OB1	0135498	U	UXTE	UXTE	OB1	9875213
U	UYRZ	UYRZ	OB1	5685421	U	UXGV	UXGV	OB1	1094650
U	UYPK	UYPK	OB1	0135755	U	UZKD	UZKD	OB1	5647213
U	UYSG	UYSG	OB1	3259870	U	UXYN	UXYN	OB1	0901956
U	UXYN	UXYN	OB1	0450135	U	UXYN	UXYN	OB1	0901965
U	UYBC	UYBC	OB1	0565321	U	UZXZ	UZXZ	OB1	0199560
U	UYST	UYST	OB1	9854321	U	UYMX	UYMX	OB1	1546877
U	UZYN	UZYN	OB1	0102565	U	UYRW	UYRW	OB1	1546922
U	UXFT	UXFT	OB1	9843565	U	UXSG	UXSG	OB1	2456831
U	UXLA	UXLA	OB1	8423835	U	UXYN	UXYN	OB1	0901956
U	UXYN	UXYN	OB1	0909156	U	UXVY	UXVY	OB1	4685213
U	UZIN	UZIN	OB1	1995654	U	UXCL	UXCL	OB1	0754369
U	UZPQ	UZPQ	OB1	9852146	U	UXWW	UXWW	OB1	8736542
U	UXJH	UXJH	OB1	0156547	U	UXTG	UXTG	OB1	2159874
U	UXYU	UXYU	OB1	0458696	U	UXYN	UXYN	OB1	0901956
U	UYOC	UYOC	OB1	0199560	U	UXLT	UXLT	OB1	2598746
U	UXYN	UKYN	OB1	0901956	U	UXBO	UXBO	OB1	0124687
U	UAVB	UAVB	OB1	0984512	U	UZAJ	UZAJ	OB1	0254523
U	UXLD	UXLD	OB1	0945621	U	UYPY	UYPY	OB1	5874563
U	UXXH	UXXH	OB1	0654852	U	ULE	ULE	OB1	1257488
U	UZCR	UZCR	OB1	0541540	U	UZXZ	UZXZ	OB1	1254598
U	UYST	UYST	OB1	2653654	U	UYNF	UYNF	OB1	5486233
U	UZGV	UZGV	OB1	0945821	U	UYND	UYND	OB1	0154561
U	UXBO	UXBO	OB1	1205467	U	UXYN	UXYN	OB1	0901956
U	UXYX	UXYX	OB1	0264554	U	UYUF	UYUF	OB1	0199560
U	UXYN	UXYN	OB1	0901966	U	UYZS	UYZS	OB1	0195456
U	UZED	UZED	OB1	2545623	U	UXYN	UXYN	OB1	0901965
U	UYZR	UYZR	OB1	1542310	U	UXXJ	UXXJ	OB1	1995015
U	UXEF	UXEF	OB1	0153463	U	UXHC	UXHC	OB1	0199561
U	UXFY	UXFY	OB1	0654850	U	UXLT	UXLT	OB1	5546821
U	UXGO	UXGO	OB1	0195654	U	UAUA	UAUA	OB1	1245377
U	UYNV	UYNV	OB1	5720789	U	UZSB	UZSB	OB1	1254646
U	UZED	UZED	OB1	9851246	U	UYOY	UYOY	OB1	5468992
U	UXYN	UXYN	OB1	0901956	U	UXLK	UXLK	OB1	2424888
U	UXCL	UXCL	OB1	0459863	U	UARF	UARF	OB1	3564978

Target Sequence Code: DF WKRP WKRP OC3 1868938

Country Code	Facility Code	MBA Code	Section Code	Item ID	Country Code	Facility Code	MBA Code	Section Code	Item ID
DF	WXPR	WKPR	OC3	1868938	DF	WWKN	WWKN	OC3	1154561
DF	WFHK	WFHK	OC3	5648521	DF	WABL	WABL	OC3	6574521
DF	WKWO	WKWO	OC3	5475326	DF	WBFB	WBFB	OC3	5241036
DF	WKWR	WKWR	OC3	1458235	DF	WKRP	WKRP	OC3	1868938
DF	WLER	WLER	OC3	1054986	DF	WKRP	WKRP	OC3	1548213
DF	WNAR	WNAR	OC3	5486521	DF	WAMB	WAMB	OC3	1549870
DF	WKRP	WKRP	OC3	0451282	DF	WBLG	WBLG	OC3	5497852
DF	WNEC	WNEC	OC3	0545696	DF	WBZA	WBZA	OC3	5496312
DF	WNEA	WNEA	OC3	0174657	DF	WAUH	WAUH	OC3	0154952
DF	WMAN	WMAN	OC3	1045896	DF	WBBK	WBBK	OC3	2458963
DF	WKKG	WKKG	OC3	2045862	DF	WKWR	WKWR	OC3	2549873
DF	WF2K	WF2K	OC3	4632589	DF	WGVE	WGVE	OC3	9853014
DF	WFHA	WFHA	OC3	8546582	DF	WKRP	WKRP	OC3	1868938
DF	WLFL	WLFL	OC3	8236547	DF	WMEH	WMEH	OC3	4596310
DF	WKLF	WKLG	OC3	2718752	DF	WLRN	WLRN	OC3	1205469
DF	WFUB	WFUB	OC3	0459621	DF	WHZK	WHZK	OC3	8654210
DF	WGMB	WGMB	OC3	2546893	DF	WHER	WHER	OC3	0159763
DF	WKRP	WKRP	OC3	8045982	DF	WFHU	WFHU	OC3	4578631
DF	WHUM	WHUM	OC3	1056481	DF	WABL	WABL	OC3	0159761
DF	WDDZ	WZZD	OC3	8752360	DF	WBBK	WBBK	OC3	2458621
DF	WABL	WABL	OC3	1205644	DF	WBGR	WBGR	OC3	0147652
DF	WBZA	WBZA	OC3	0654892	DF	WNEC	WNEC	OC3	0168452
DF	WFHA	WFHA	OC3	1059874	DF	WNKV	WNKV	OC3	0549874
DF	WEXL	WEXL	OC3	2579641	DF	WKKA	WKKA	OC3	0549763
DF	WEKO	WEKO	OC3	1047823	DF	WLUM	WLUM	OC3	1542111
DF	WASF	WASF	OC3	1498750	DF	WKRP	WKRP	OC3	1868958
DF	WAVR	WAVR	OC3	2056894	DF	WKFH	WKFH	OC3	0457878
DF	WHZN	WHZN	OC3	1247856	DF	WGFE	WGFE	OC3	5879416
DF	WKVS	WKVS	OC3	5896452	DF	WALW	WALW	OC3	0548546
DF	WKRP	WKRP	OC3	1868938	DF	WDDZ	WDDZ	OC3	2454548
DF	WNCD	WNCD	OC3	4765892	DF	WEXL	WEXL	OC3	6986465
DF	WKRP	WKRP	OC3	1869838	DF	WAMD	WAMD	OC3	2546854
DF	WNAR	WNAR	OC3	0458632	DF	WBAF	WBAF	OC3	5241542
DF	WBMD	WBMD	OC3	1048963	DF	WFHA	WFHA	OC3	5648425
DF	WAUH	WAUH	OC3	0478962	DF	WMEH	WMEH	OC3	4575622
DF	WDDH	WDDH	OC3	4572252	DF	WNKV	WNKV	OC3	5864523
DF	WFHH	WFHH	OC3	4596301	DF	WMPS	WMPS	OC3	5423108
DF	WHPT	WHPT	OC3	0135789	DF	WLGA	WLGA	OC3	0245632
DF	WALW	WALW	OC3	0124896	DF	WKRP	WKRP	OC3	1863938
DF	WBBK	WBBK	OC3	1420568	DF	WKLH	WKLH	OC3	2456782
DF	WFHF	WFHF	OC3	0124863	DF	WKLG	WKLG	OC3	5486211
DF	WJWH	WJWH	OC3	5422781	DF	WSLG	WKLG	OC3	5489613
DF	WKWR	WKWR	OC3	0195648	DF	WEMS	WEMS	OC3	5477745
DF	WLGA	WLGA	OC3	2458674	DF	WBBB	WBBB	OC3	2015455
DF	WNEC	WNEC	OC3	5468230	DF	WKRP	WKRP	OC3	1868938
DF	WKWR	WKWR	OC3	8965431	DF	WBMP	WBMP	OC3	5485421

Target Sequence Code: J JTI JT-I OA1 6838038

Country Code	Facility Code	MBA Code	Section Code	Item ID	Country Code	Facility Code	MBA Code	Section Code	Item ID
J	JTI	JT-I	OA1	6838038	J	JSG	JS-G	OA1	6893256
J	JTP	JT-P	OA1	6528683	J	JSE	JS-E	OA1	3689631
J	JWL	JW-L	OA1	6838214	J	JXX	JX-K	OA1	3212458
J	JSD	JS-D	OA1	0368520	J	JPW	JP-W	OA1	2153268
J	JUB	JU-B	OA1	6843201	J	JSM	JS-M	OA1	2458963
J	JVG	JV-G	OA1	0684753	J	JSO	JS-O	OA1	2458962
J	JUB	JU-B	OA1	6845201	J	JUG	JU-G	OA1	3698652
J	JTZ	JT-Z	OA1	6987520	J	JTV	JT-V	OA1	3256974
J	JTV	JT-V	OA1	6832163	J	JNV	JN-V	OA1	6896368
J	JTT	JT-T	OA1	3685463	J	JWE	JW-E	OA1	8963568
J	JSC	JS-C	OA1	3536851	J	JXJ	JX-J	OA1	6963896
J	JTI	JT-I	OA1	6838038	J	JWQ	JW-Q	OA1	2358741
J	JTU	JT-U	OA1	3689632	J	JUD	JU-D	OA1	2545842
J	JSL	JS-L	OA1	8632368	J	JSM	JS-M	OA1	6896325
J	JTJ	JT-J	OA1	3689632	J	JTW	JT-W	OA1	6896863
J	JUF	JU-F	OA1	6835683	J	JTI	JT-I	OA1	6838038
J	JTQ	JT-Q	OA1	8645823	J	JTX	JT-X	OA1	5457852
J	JSM	JS-M	OA1	3987563	J	JSK	JS-K	OA1	2548963
J	JWH	JW-H	OA1	3568522	J	ISR	IS-R	OA1	2458565
J	JWX	JW-X	OA1	0135896	J	JTI	JT-I	OA1	6838038
J	JXX	JX-X	OA1	0345860	J	JUP	JU-P	OA1	2545896
J	JTS	JT-S	OA1	3589630	J	JVY	JV-Y	OA1	9868682
J	JSB	JS-B	OA1	3568452	J	JWY	JW-Y	OA1	3698963
J	JTP	JT-P	OA1	3589652	J	JXH	JX-H	OA1	3698686
J	JWH	JW-H	OA1	3258452	J	JPS	JP-S	OA1	3689638
J	JVW	JV-W	OA1	3459862	J	JSI	JS-I	OA1	3697896
J	JUN	JU-N	OA1	6838386	J	JSN	JS-N	OA1	3689686
J	JSL	JS-L	OA1	6838458	J	JTT	JT-T	OA1	3688566
J	JWL	JW-L	OA1	3589653	J	JTI	JT-I	OA1	6838038
J	JXL	JX-L	OA1	3458651	J	JSC	JS-C	OA1	3689632
J	JWO	JW-O	OA1	3569874	J	JSM	JS-M	OA1	9896868
J	JUQ	JU-Q	OA1	6598754	J	JWB	JW-B	OA1	3698963
J	JTL	JT-L	OA1	3654855	J	JVV	JV-V	OA1	3689367
J	JPA	JP-A	OA1	6893239	J	JUX	JU-X	OA1	9896368
J	JSJ	JS-J	OA1	3986893	J	JWS	JW-S	OA1	6896323
J	JWX	JW-X	OA1	3986863	J	JUQ	JU-Q	OA1	3698963
J	JWE	JW-E	OA1	9863698	J	JTV	JT-V	OA1	3689321
J	JVR	JV-R	OA1	3896326	J	JXW	JS-W	OA1	0158975
J	JPS	JP-S	OA1	9863368	J	JSS	JS-S	OA1	0698968
J	JSB	JS-B	OA1	9856858	J	JSW	JS-W	OA1	5458965
J	JVS	JV-S	OA1	5457574	J	JSI	JS-I	OA1	0369545
J	JUC	JU-C	OA1	3685452	J	JTB	JT-B	OA1	0865854
J	JTI	JT-I	OA1	6838038	J	JUI	JU-I	OA1	0369896
J	JTT	JT-T	OA1	8684574	J	JWA	JW-A	OA1	4574515
J	JTS	JT-S	OA1	3698754	J	JWZ	JW-Z	OA1	3568452
J	JSG	JS-G	OA1	3568451	J	JSB	JS-B	OA1	6893254

Hidden Figures Test
Part A

Hidden Figures Test

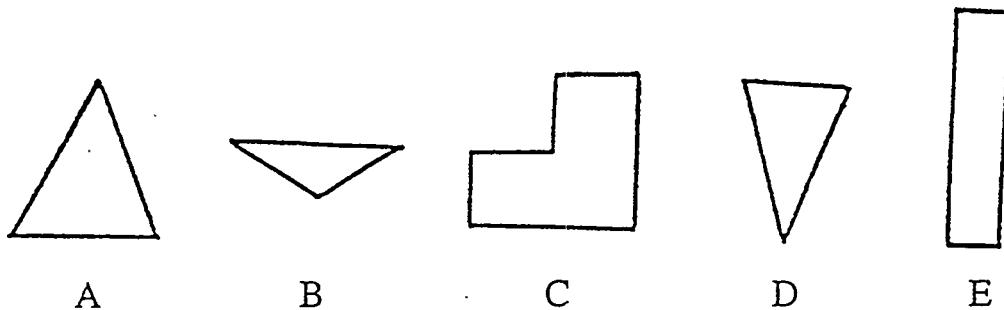
In this test, you are to find simple shapes which are part of larger, more complex patterns of shapes. At the top of each page of the test is a set of simple shapes. These are labeled A, B, C, D, and E. Shown below the simple shapes are a number of more complex patterns. For each of these more complex patterns, you are to find the one simple shape that is hidden in it. When you have found the simple shape, darken the lettered circle for that shape — found directly underneath each complex pattern.

Two practice items are shown below. Look for the simple shape in each of the complex patterns. Rules for finding the simple shapes are listed below:

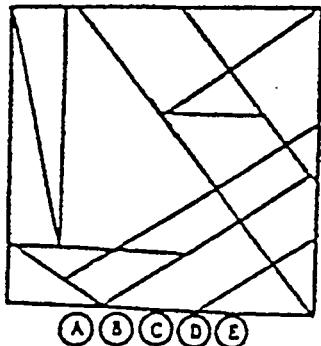
Only one simple shape will appear in each of the complex patterns.

The simple shape will always be the same size and in the same position (with the same side up) as it appears at the top of the page.

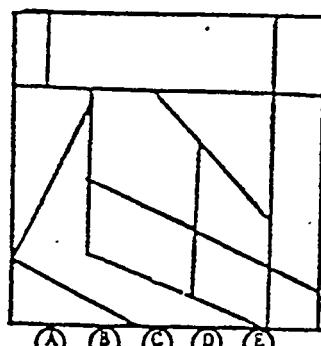
Now work the two practice problems below. Mark your answer by darkening the appropriate lettered circle.



1.

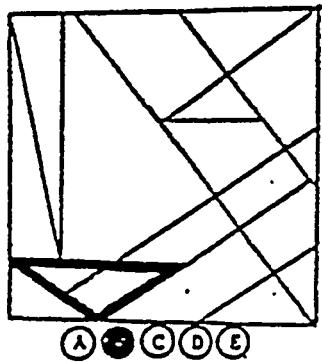


2.

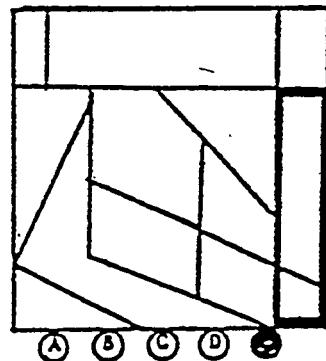


The correct answer for the practice item 1 is B. The correct answer for the practice item 2 is E. The patterns below show where the simple shapes appear in the practice items.

1.

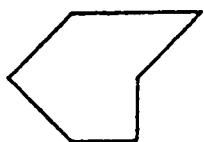


2.

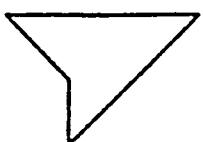


Note that the simple shapes are different on each page of the test. Be sure to refer to the top of each page of the test for the simple shapes to find on that page.

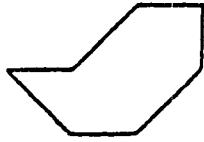
Are there any questions on the directions for this test? You have 10 minutes to complete this test.



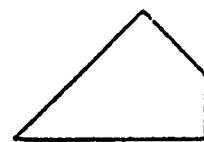
A



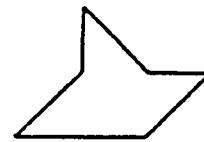
B



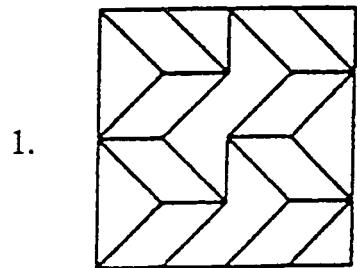
C



D

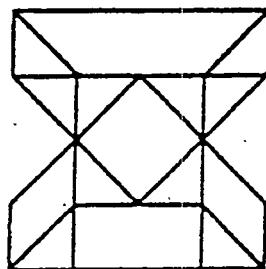


E



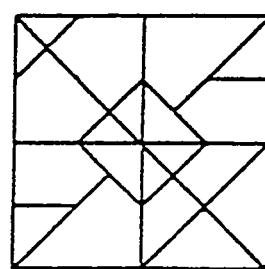
1.

A B C D E



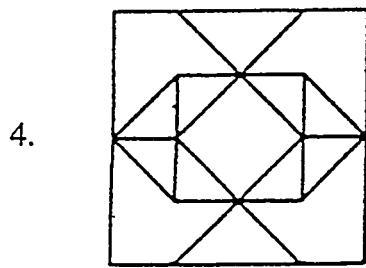
2.

A B C D E



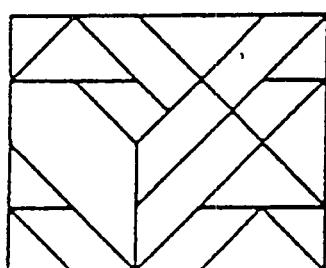
3.

A B C D E



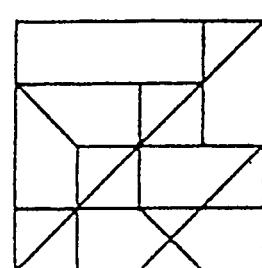
4.

A B C D E



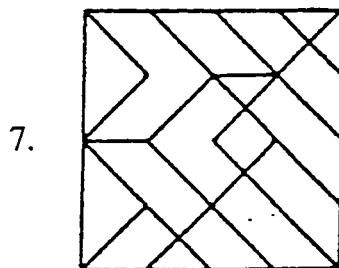
5.

A B C D E



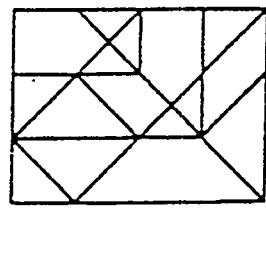
6.

A B C D E



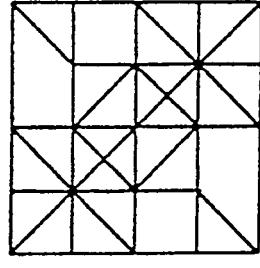
7.

A B C D E



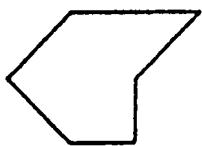
8.

A B C D E

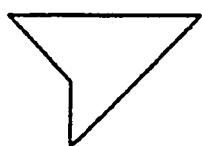


9.

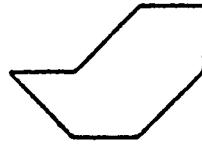
A B C D E



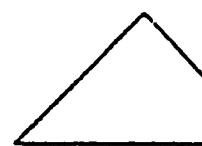
A



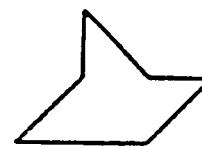
B



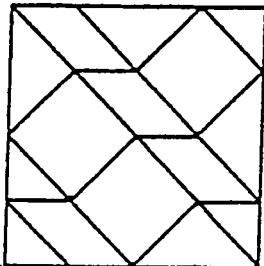
C



D

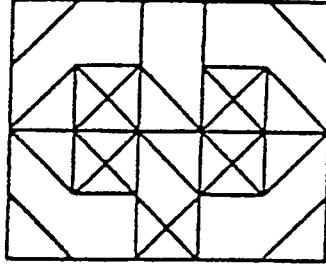


E



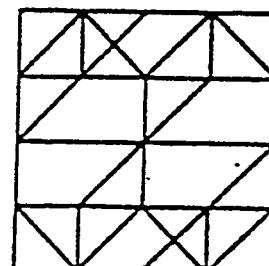
0.

11.



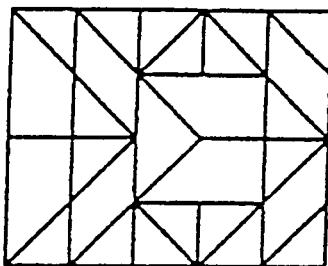
A B C D E

12.



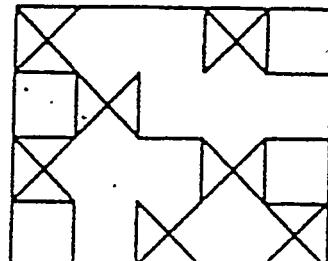
A B C D E

13.



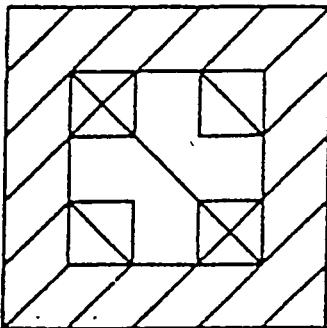
A B C D E

14.



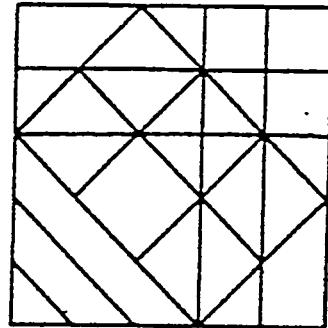
A B C D E

15.



A B C D E

16.

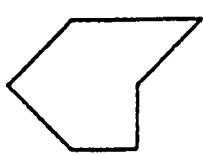


A B C D E

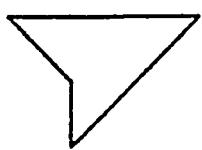
Hidden Figures Test
Part B

Name _____

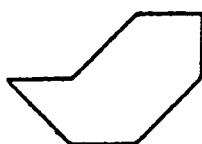
Score _____



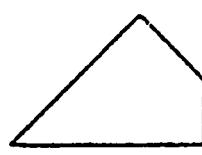
A



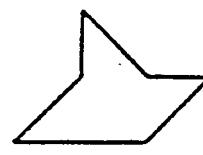
B



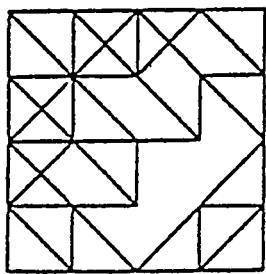
C



D

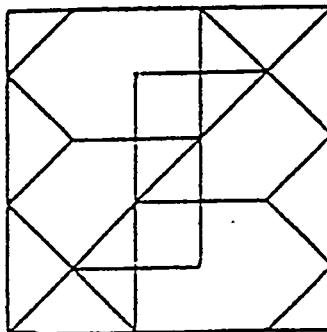


E



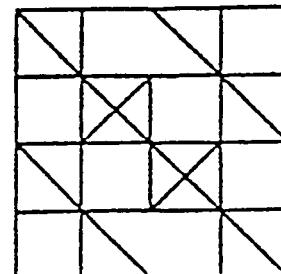
1.

A B C D E



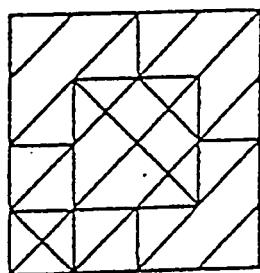
2.

A B C D E



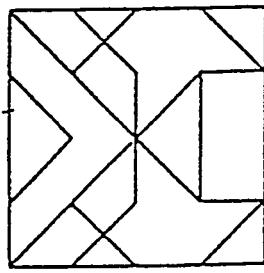
3.

A B C D E



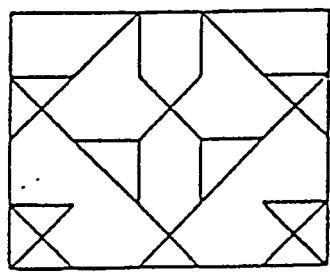
4.

A B C D E



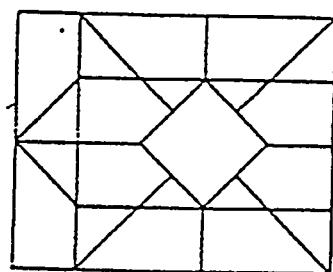
5.

A B C D E



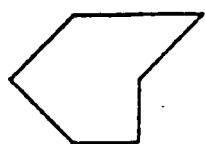
6.

A B C D E

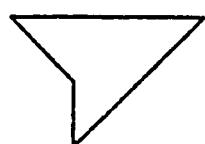


7.

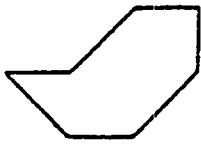
A B C D E



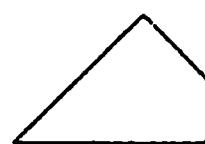
A



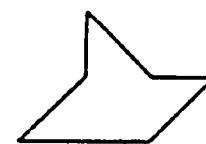
B



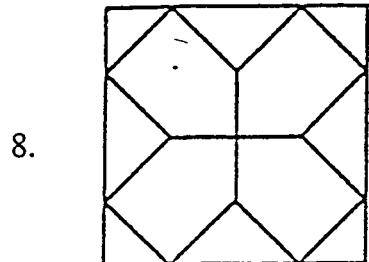
C



D

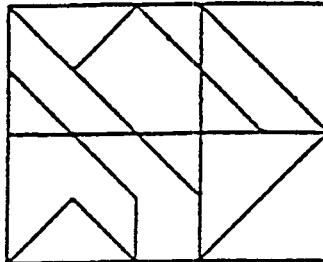


E



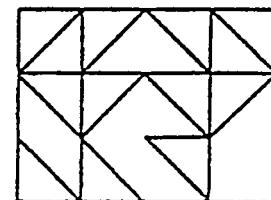
8.

A B C D E



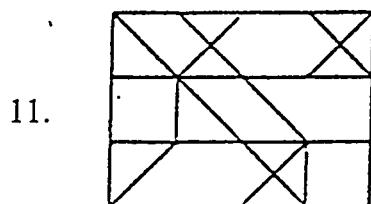
9.

A B C D E



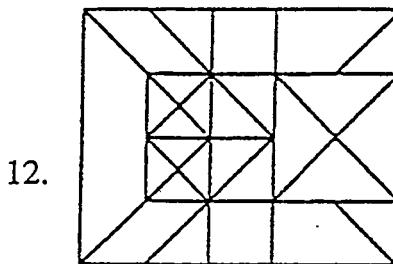
10.

A B C D E



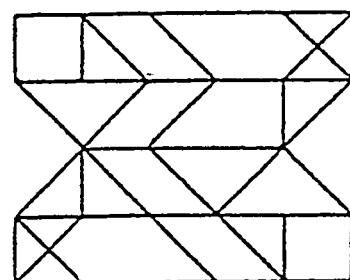
11.

A B C D E



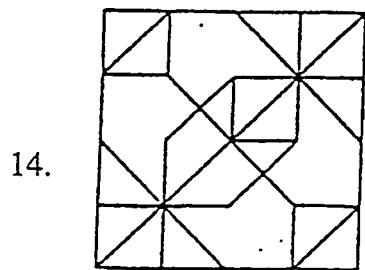
12.

A B C D E



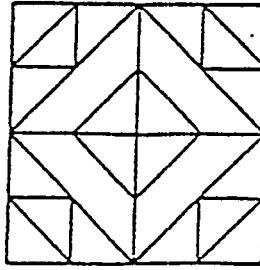
13.

A B C D E



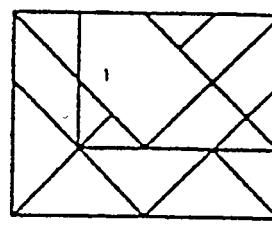
14.

A B C D E



15.

A B C D E



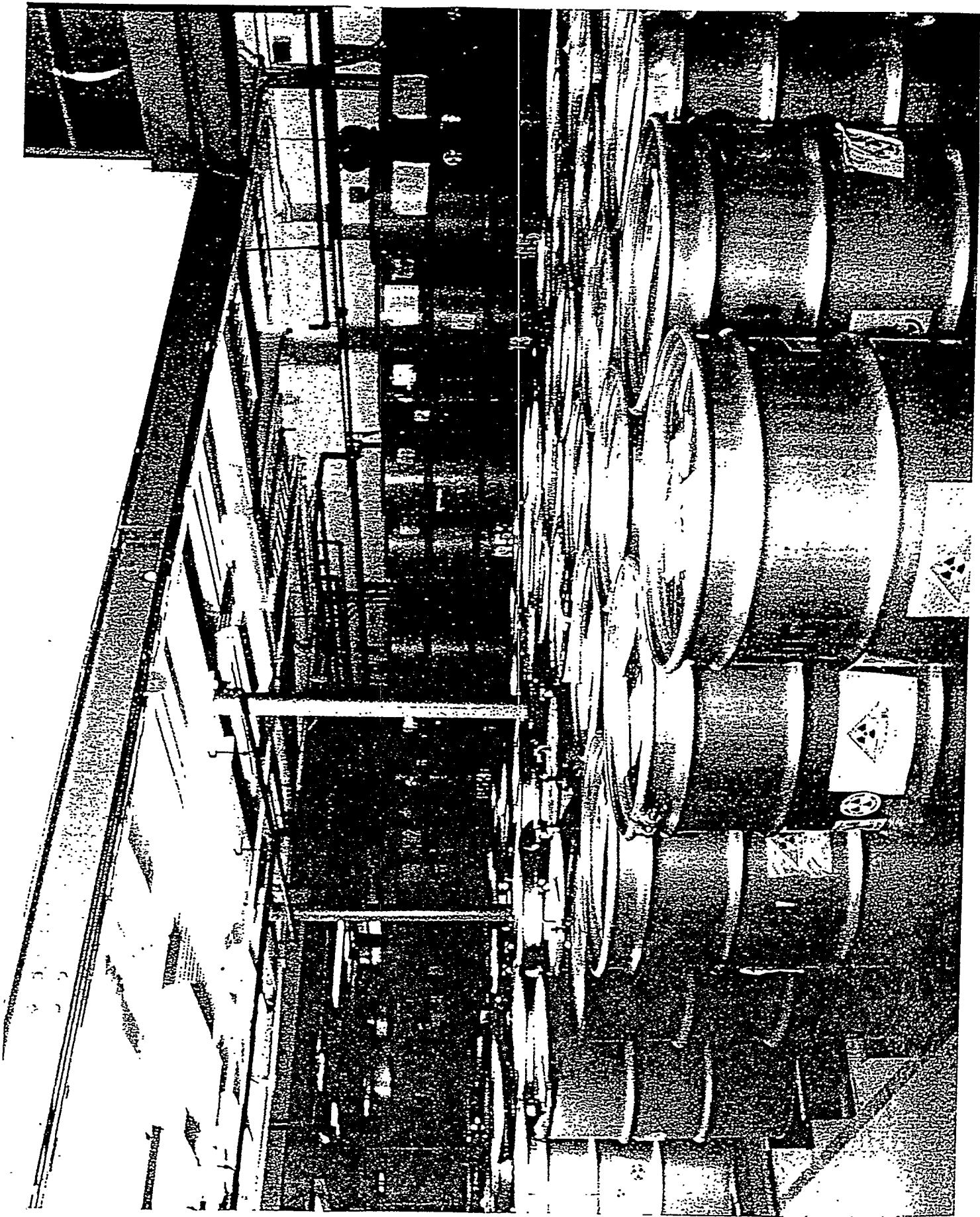
16.

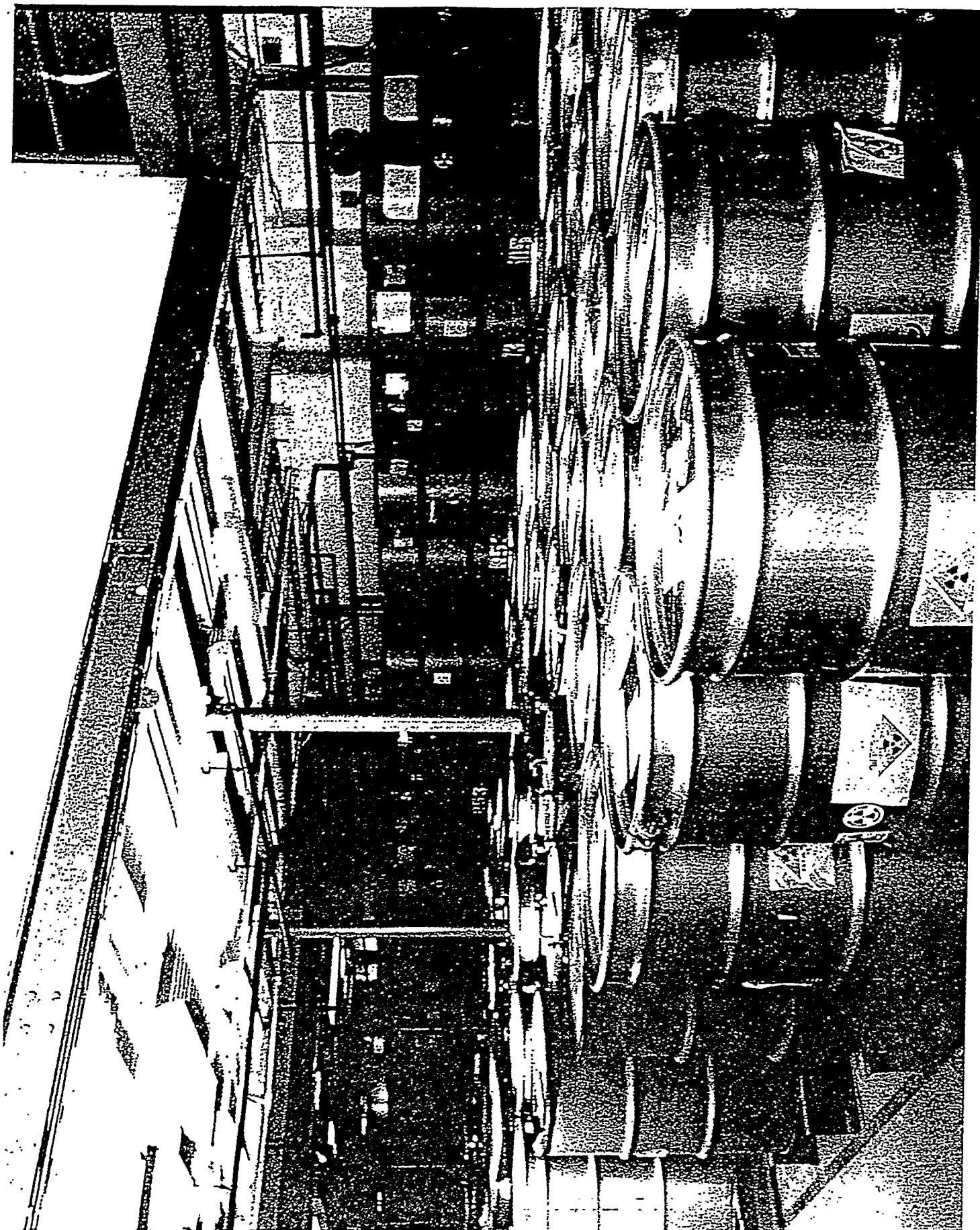
A B C D E

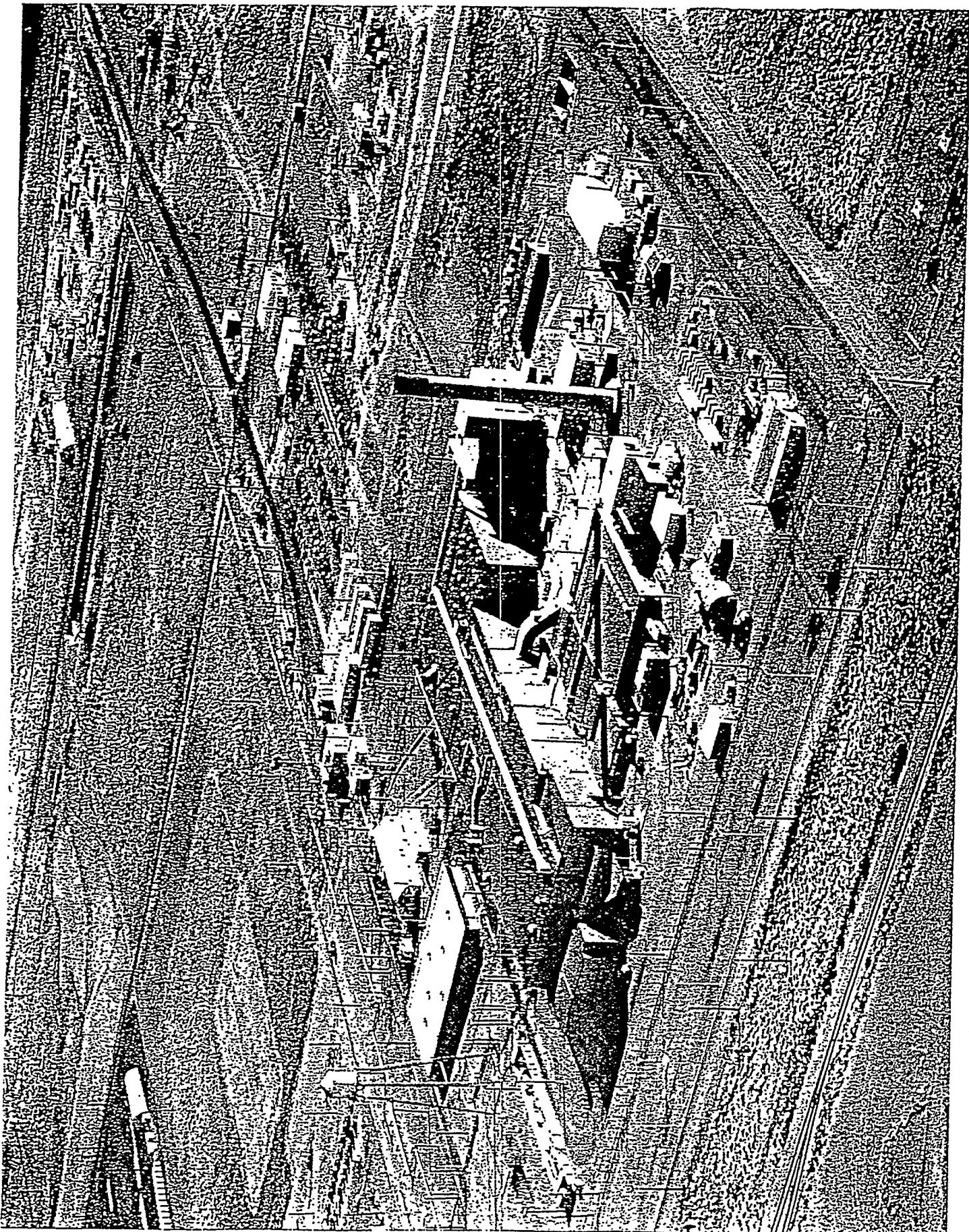
Attention to Detail: Exercise 1

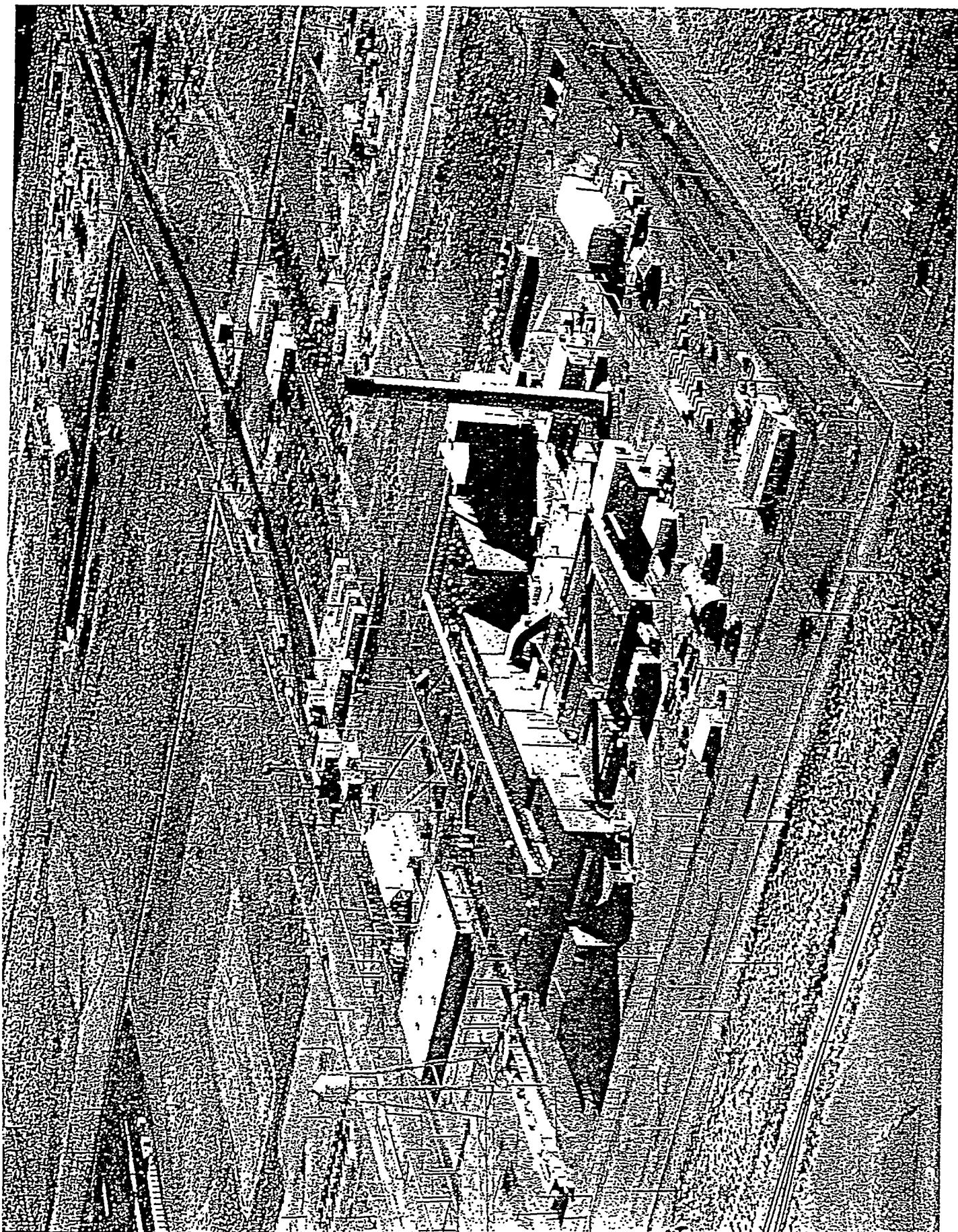
Picture Comparisons: Identify the Differences*

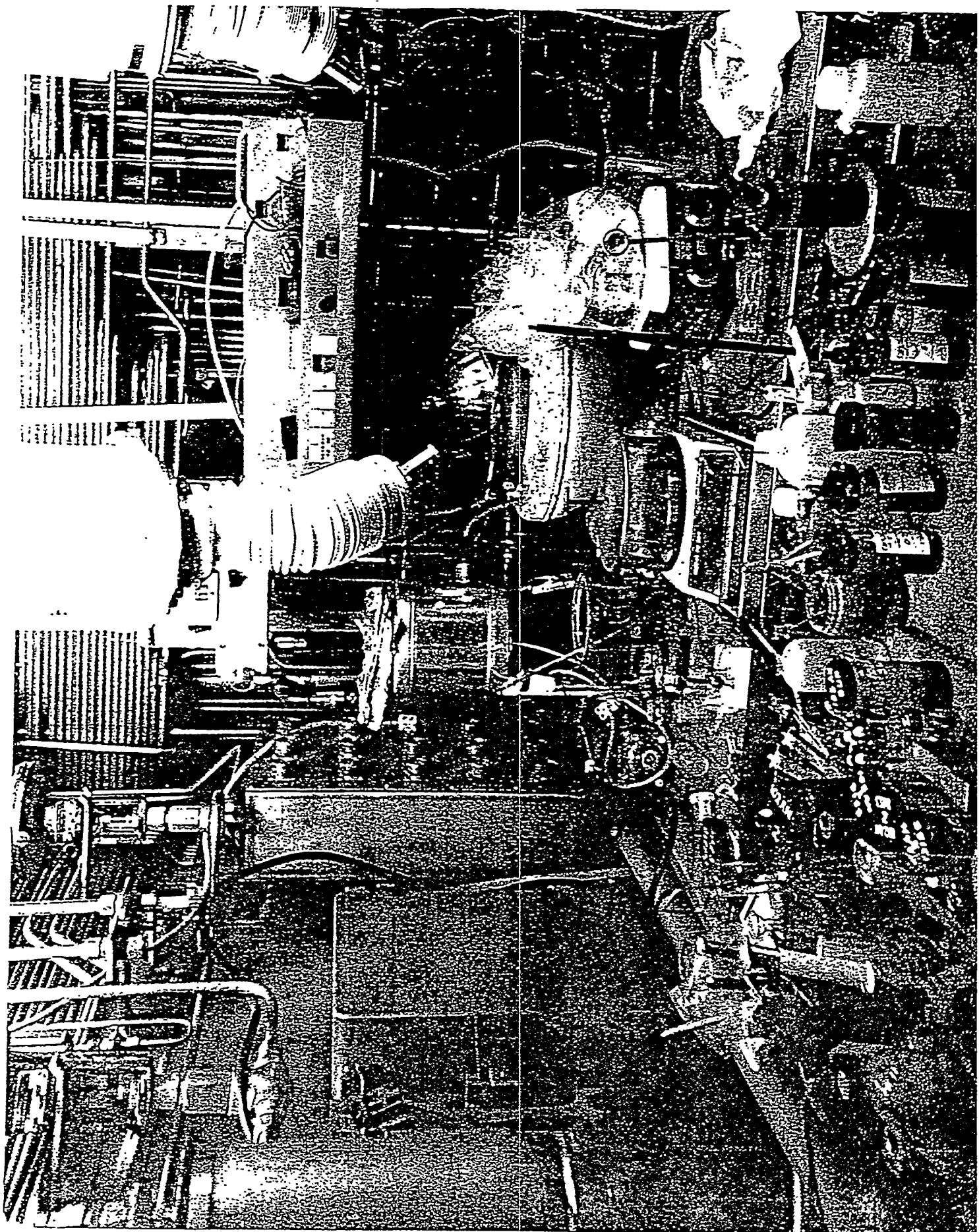
***Note: High-resolution color photos
were used during the in-class exercise**

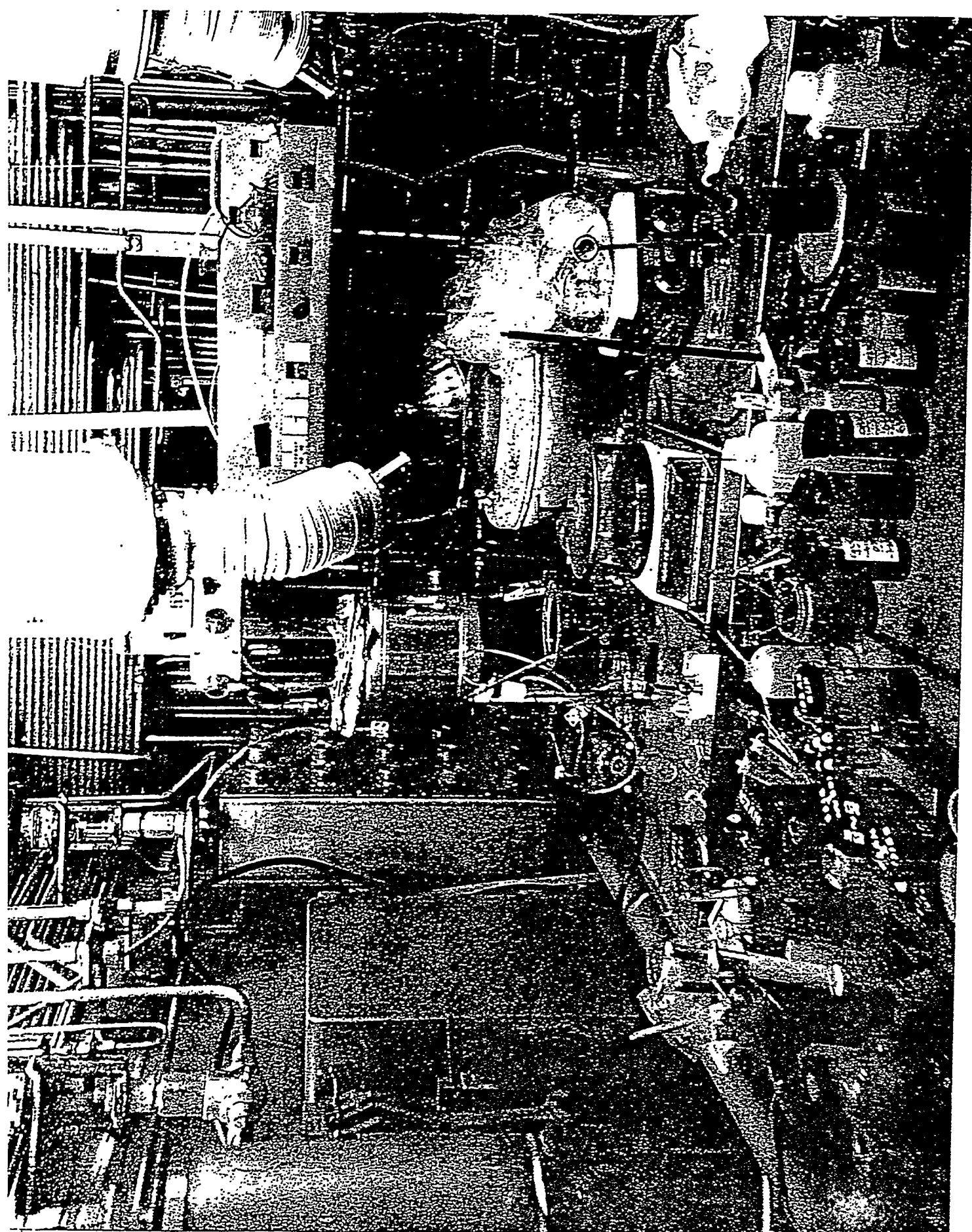






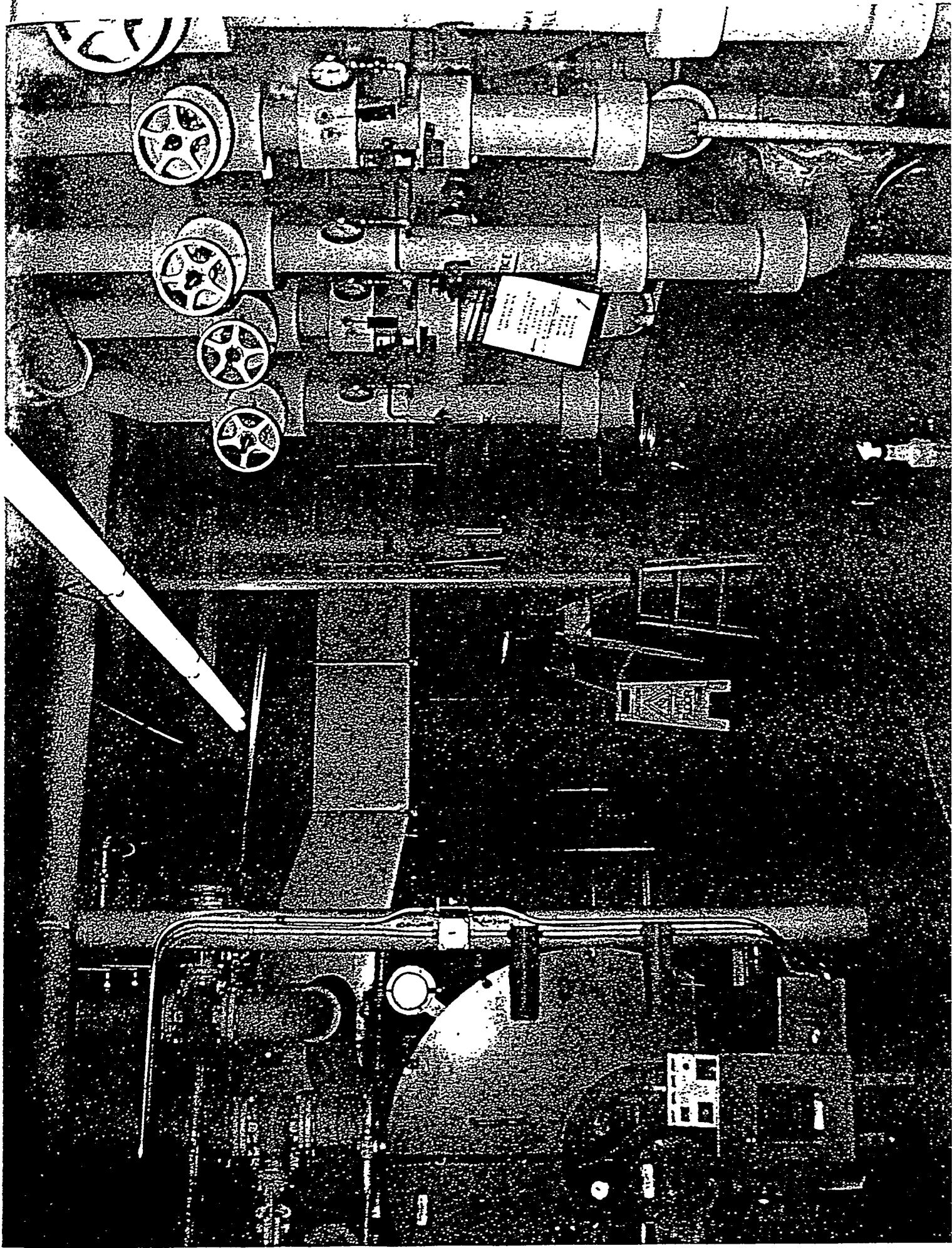


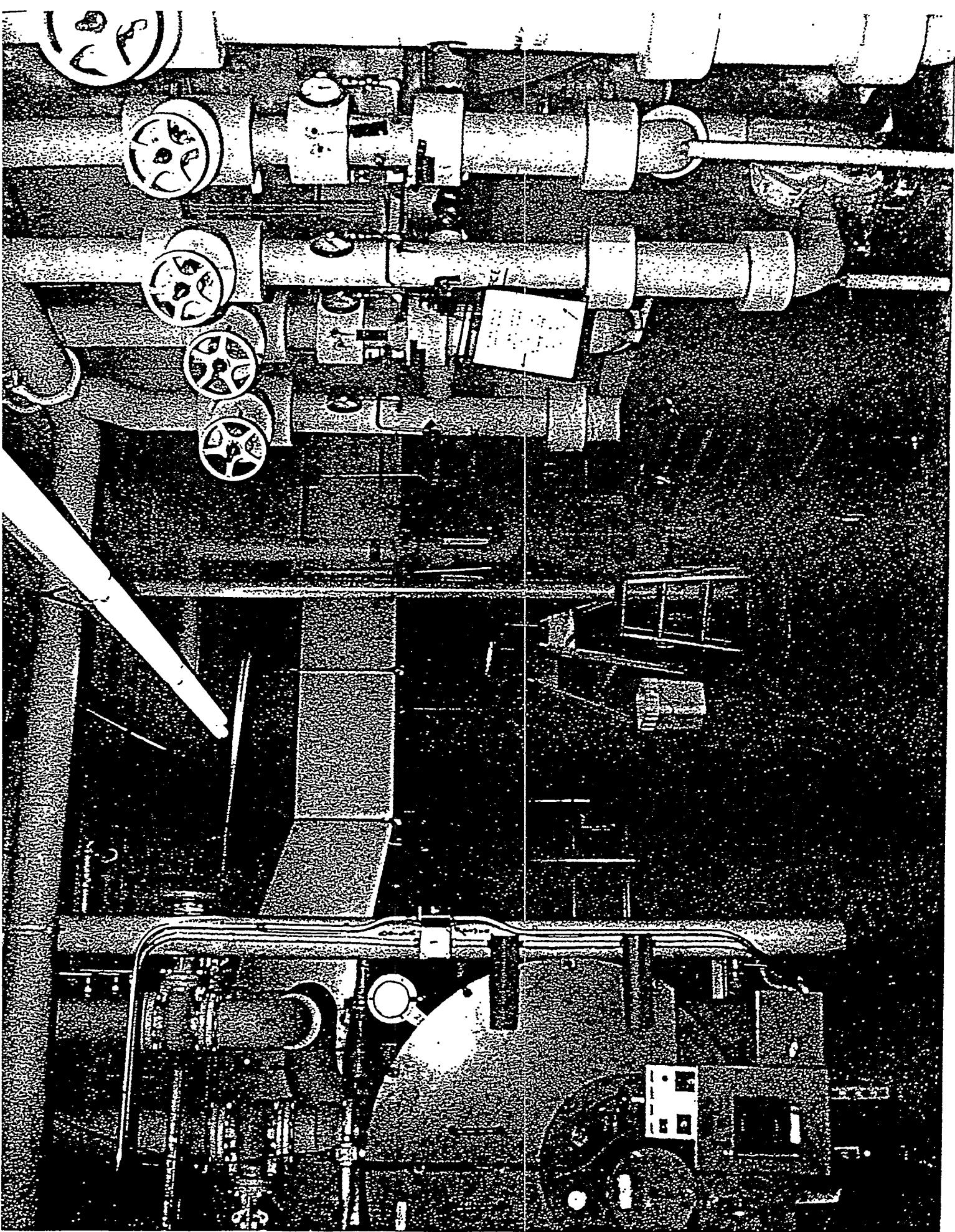




Attention to Detail: Exercise 2

Picture Comparison: Identify the Differences



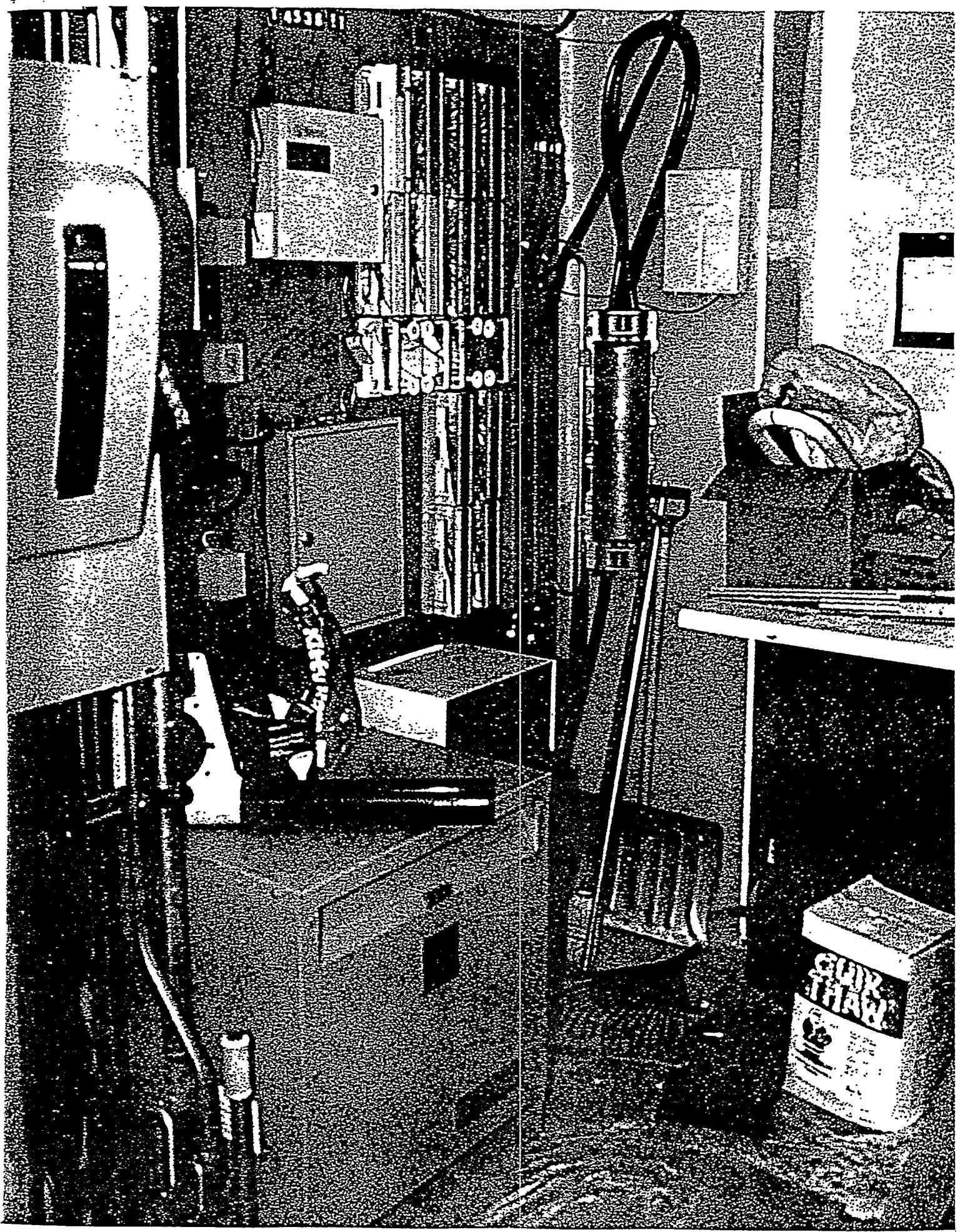


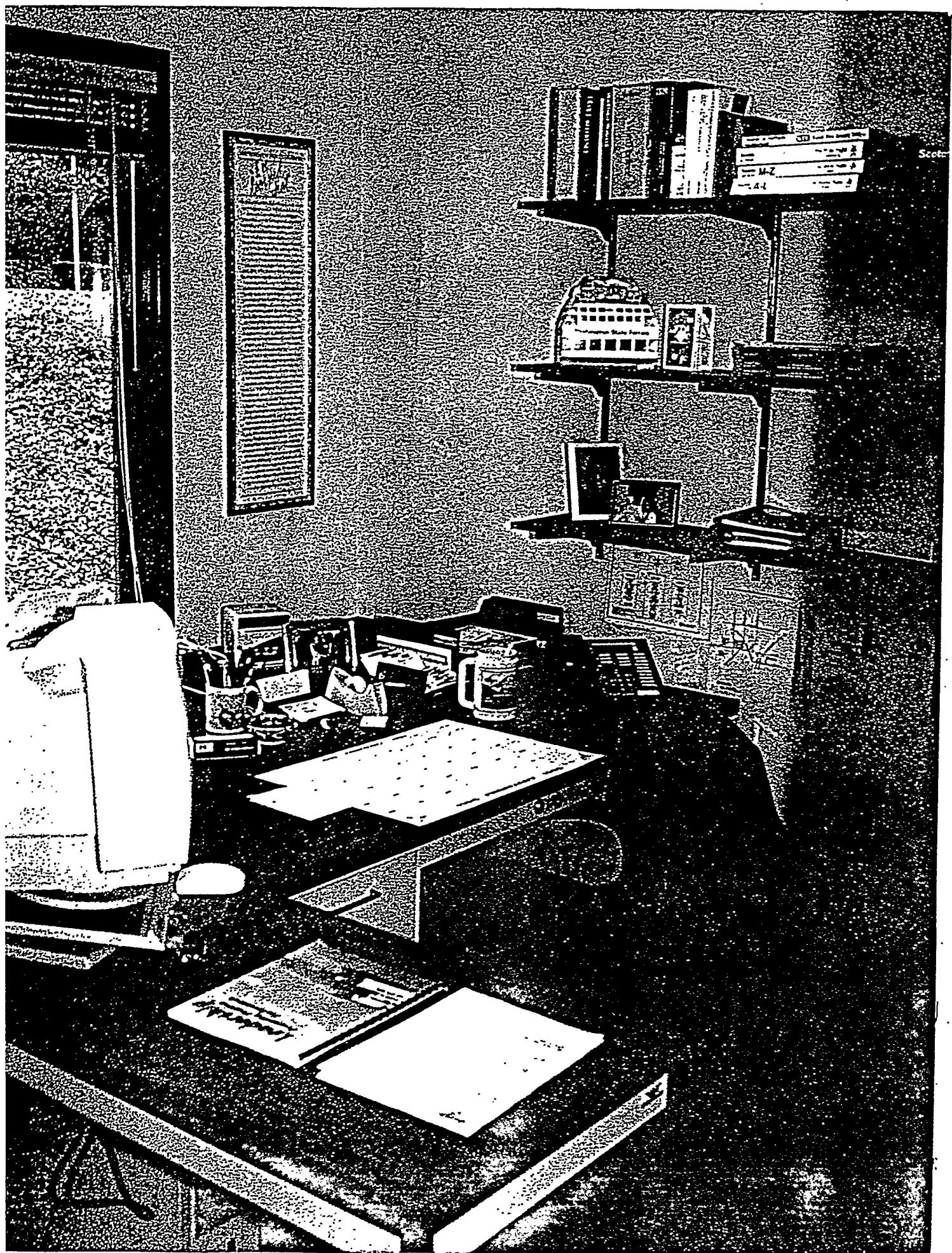
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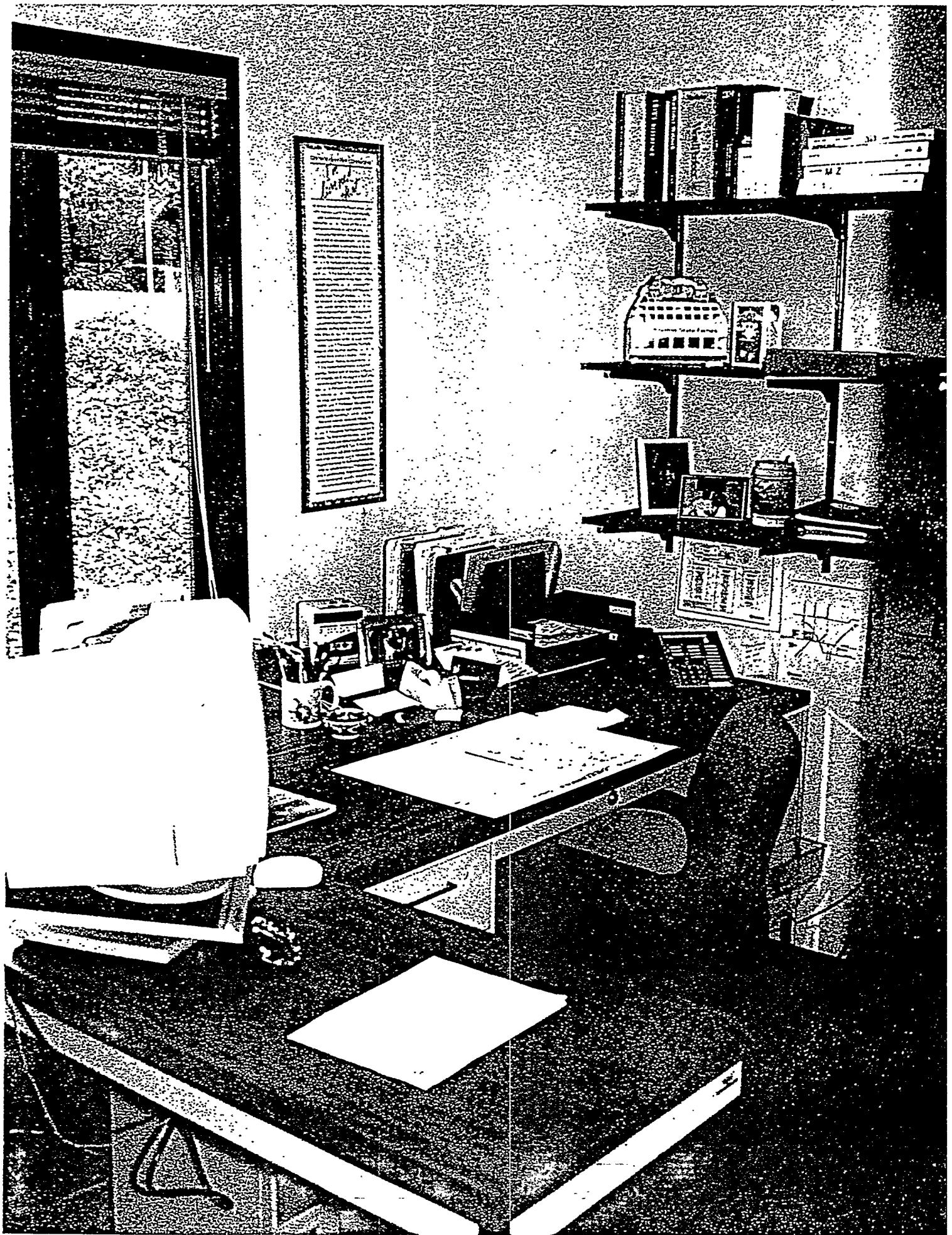
99-00
80-00

Willy's
Wares
keyboards

SURF
WARS







Exercises: Memory

Session 3

MEMORY QUESTIONNAIRE

This questionnaire was developed by John Harris and Alan Sunderland to test lapses in everyday memory. Answer each question, scoring in the spaces provided. Score your answer to each question as follows:

- 1 Not at all in the last six months
- 2 About once in the last six months
- 3 More than once in the last six months, but not as often as once a month
- 4 About once a month
- 5 More than once a month but not as often as once a week
- 6 About once a week
- 7 More than once a week but not as often as once a day
- 8 About once a day
- 9 More than once a day

- 1. Do you forget where you have put things? Lose things around your office or home? _____
- 2. Do you fail to recognize places that you are told you have often been to before? _____
- 3. Do you find film or television stories difficult to follow? _____
- 4. Have you forgotten a change in your daily routine, such as a change in the place where something is kept, or a change in the time something happens? Have you followed your old routine by mistake? _____
- 5. Have you had to go back to check whether you have done something that you meant to do? _____
- 6. Have you forgotten when something happened? For example, whether something happened yesterday or last week? _____
- 7. Have you completely forgotten to take things with you, or left things behind and had to go back and fetch them? _____
- 8. Have you forgotten that you were told something yesterday or a few days ago, and had to be reminded about it? _____
- 9. Have you started to read something (such as a memo or report) without realizing you have read it before? _____
- 10. Have you let yourself ramble on about unimportant or irrelevant things? _____
- 11. Have you failed to recognize, by sight, colleagues or facility personnel that you meet frequently? _____
- 12. Have you had difficulty picking up a new skill? For example, learning a new procedure or operating a new instrument after you have practiced once or twice? _____
- 13. Have you found that a word is "on the tip of your tongue?" You know what it is but cannot quite find it. _____
- 14. Have you completely forgotten to do things you said you would do, and things you planned to do? _____

15. Have you forgotten important details of what you did or what happened to you the day before? _____

16. When talking to someone, have you forgotten what you have just said? Maybe saying, "What was I talking about?" or "Where was I?" _____

17. When reading a newspaper or magazine, have you been unable follow the thread of a story or lost track of what it is about? _____

18. Have you forgotten to tell somebody something important? _____

19. Have you forgotten important details about yourself? For example, your date of birth or where you live? _____

20. Have you got the details of what someone has told you mixed up and confused? _____

21. Have you told someone a story or joke that you have told them already? _____

22. Have you forgotten the details of things you do regularly, whether at home or at work? For example, details of what to do, or at what time to do something? _____

23. Have you found that the faces of famous people, seen on television or in photographs, look unfamiliar? _____

24. Have you forgotten where things are normally kept or looked for them in the wrong place? _____

25. (a) Have you got lost or taken a wrong turn on a journey, a walk, or in a building where you have OFTEN been before? _____
(b) Have you got lost or taken a wrong turn on a journey, a walk, or in a building where you have only been ONCE OR TWICE been before? _____

26. Have you done some routine thing twice by mistake? _____

27. Have you repeated to someone what you have just told them or asked them the same question twice? _____

TOTAL _____

Adapted from: Alan Baddeley, Your Memory: A User's Guide (London: PRION, 1993).

DIGIT SPAN

This exercise will give you a sense of your ability to remember a sequence of numbers.

When the instructor asks you to begin, position the index card you have been given so that it just covers the first item in the list. Then move the index card down so that the first item is just visible, read the numbers in that sequence to yourself, then move the card back up to cover the item, and write down the number sequence from memory in the adjoining space. Repeat this procedure for the second item, then the third, and on down through the list.

When you are finished, compare each of your written entries to the corresponding item. Note the longest sequence that you were able to recall correctly. The length of this sequence approximates your "digit span," although this informal exercise does not provide a definitive measure of this ability.

8137	_____
6246	_____
9852	_____
37486	_____
96321	_____
84752	_____
376417	_____
728954	_____
485931	_____
5296192	_____
9347291	_____
1845398	_____
62025343	_____
75925534	_____
62284238	_____
719438256	_____
837822643	_____
135298278	_____
5223185674	_____
8398625448	_____
2547547649	_____

RETRIEVAL CUES

This exercise is designed to illustrate the concept of retrieval cues as a trigger for recalling information that you cannot quite remember, but which may be "on the tip of the tongue."

Cover up the column on the far right. Then read quickly through the list of countries and try to think of the capital city of each. Enter the answer next to those countries for which you can immediately produce the answer and strike through those countries for which you are sure you do not know the answer. Then focus on the remaining countries. If you are still not able to confidently produce the answer, uncover the column on the right and see if knowing the first letter jogs your memory.

	Country	Capital city	First letter of capital
1	Liberia	_____	M
2	Romania	_____	B
3	Australia	_____	C
4	Venezuela	_____	C
5	Kenya	_____	N
6	Bulgaria	_____	S
7	Paraguay	_____	A
8	Saudi Arabia	_____	R
9	Malaysia	_____	K
10	Turkey	_____	A
11	Sri Lanka	_____	C
12	Costa Rica	_____	S
13	Finland	_____	H
14	Zimbabwe	_____	H
15	Haiti	_____	P
16	Cyprus	_____	N
17	Gabon	_____	L
18	Iceland	_____	R
19	Colombia	_____	B
20	Afghanistan	_____	K

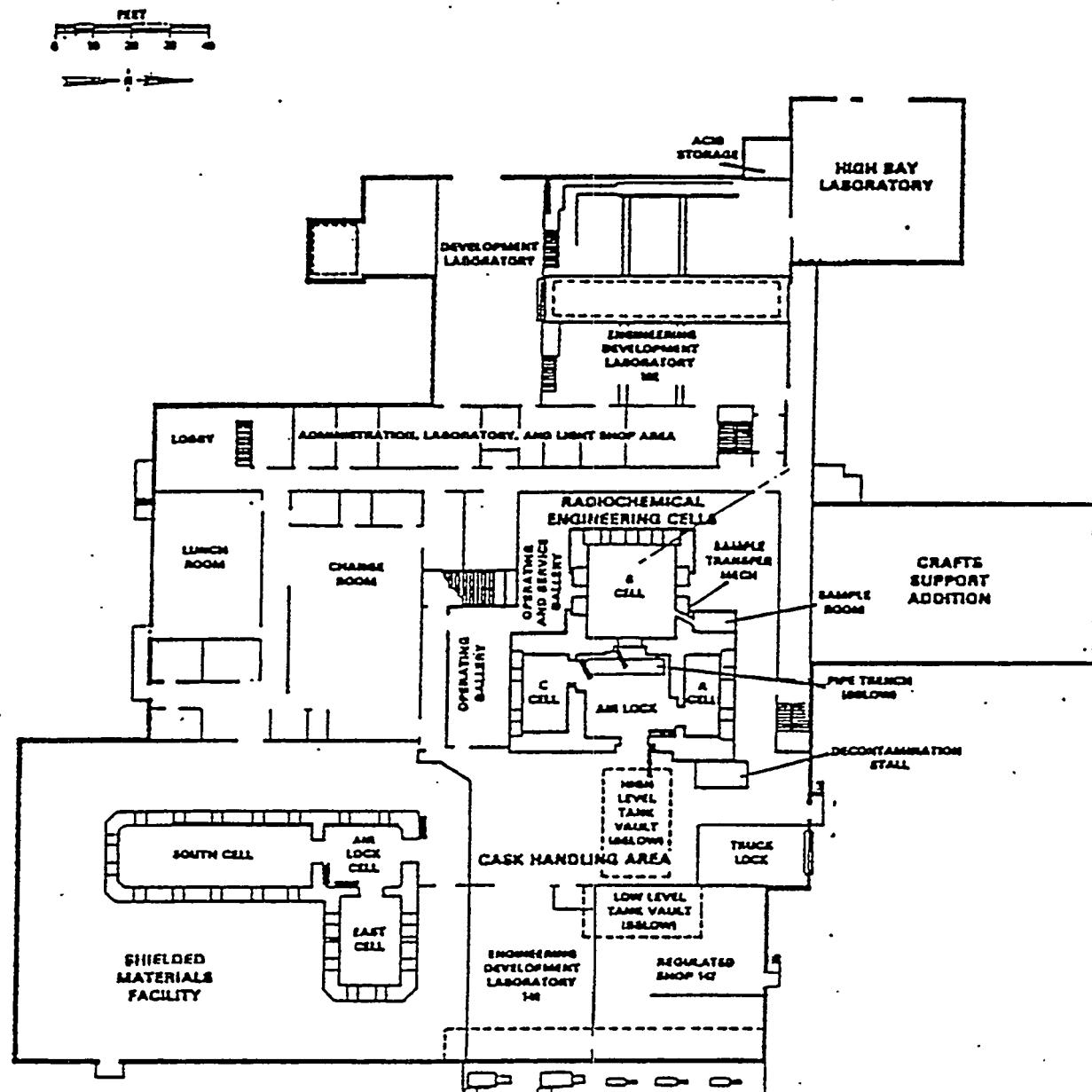
Exercises: Mental Images, Maps, and Models

Session 4

MAP LEARNING EXERCISE

Instructions: When the instructor asks you to begin, turn the page. You will have 2 minutes to study the site diagram. When the instructor asks you to stop studying, turn the diagram over so that you cannot see it. Then try to draw as much of the diagram as you can remember on the blank sheet of paper. You will have 5 minutes. When the instructor asks you to stop drawing, take a few minutes to compare your drawing with the actual diagram to see how well you did.

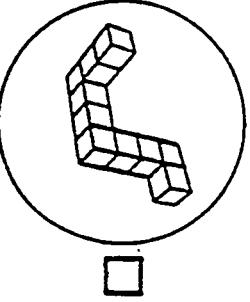
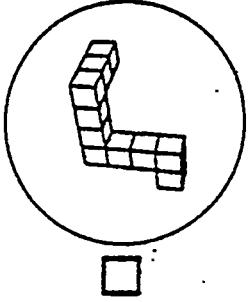
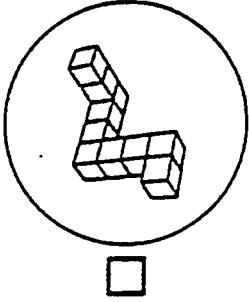
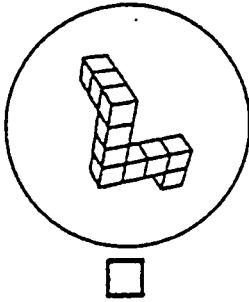
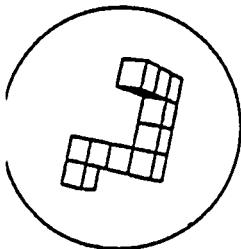
When the instructor asks you to begin again, you will have another 2 minutes to study the diagram. When the instructor asks you to stop studying, once more turn the diagram over so that you cannot see it. Then again try to draw as much of the diagram as you can remember on a blank sheet of paper. As before, you will have 5 minutes. When the instructor asks you to stop drawing, compare your new drawing with the actual diagram and your previous effort to see whether your memory of the diagram improved with the second trial.



MENTAL ROTATIONS TEST

Look at this object:

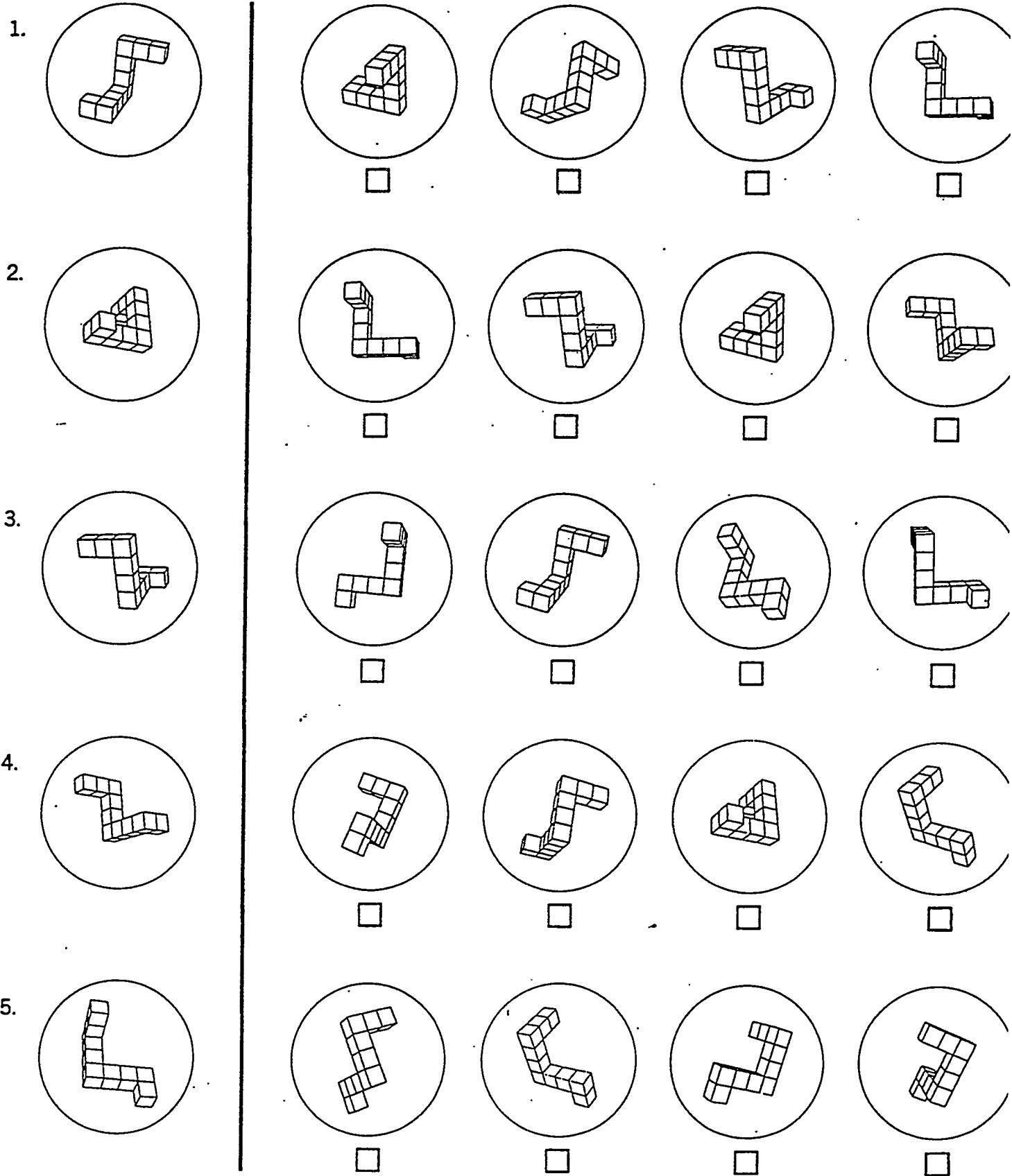
Instructions: Two of these four drawings show the same object. Can you find those two? Put X's in the boxes below them.

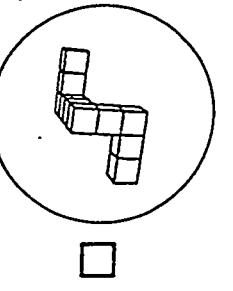
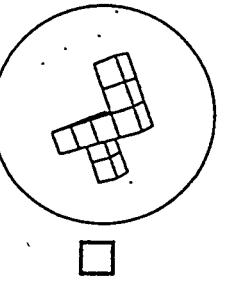
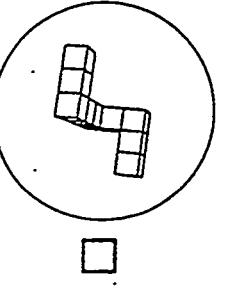
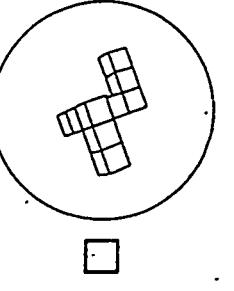
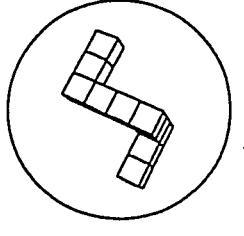
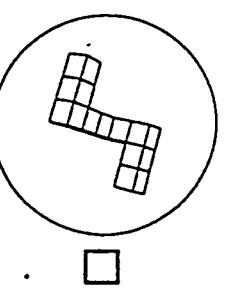
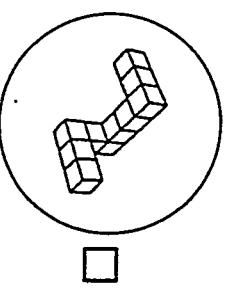
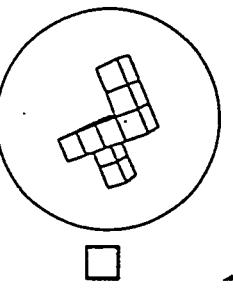
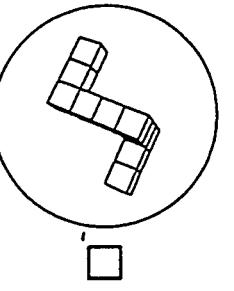
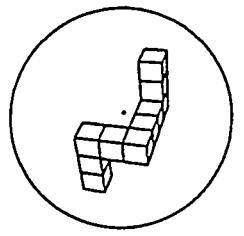
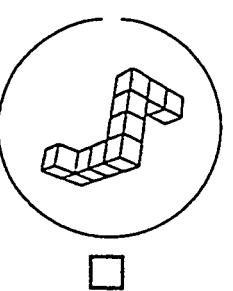
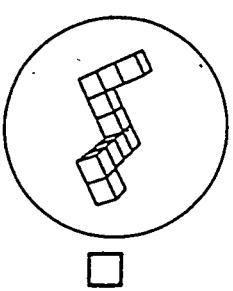
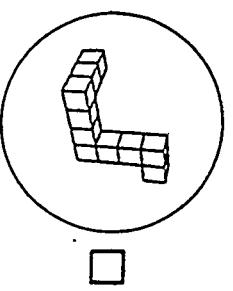
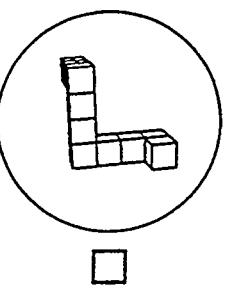
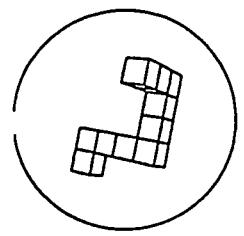
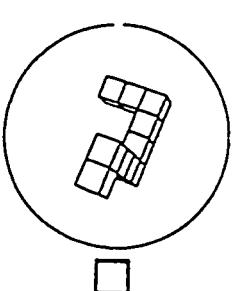
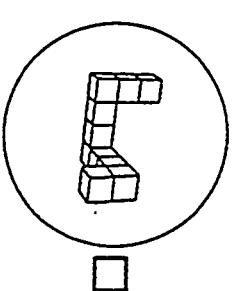
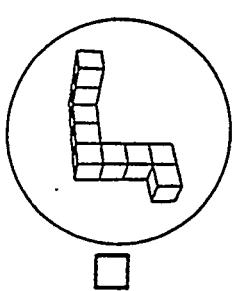
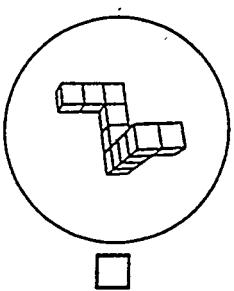
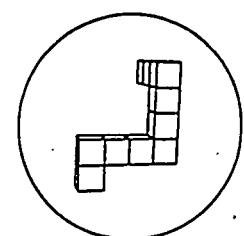
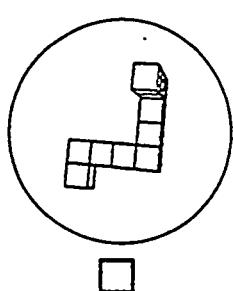
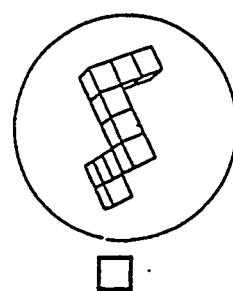
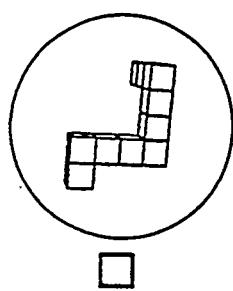
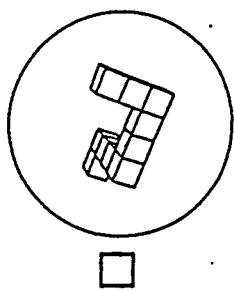
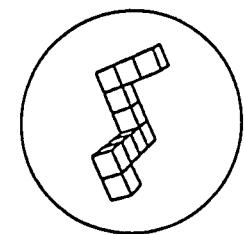


When the signal is given, turn to the next page.

There are always two and only two correct answers for each item. You have three minutes to complete this section.

STOP!





Exercises: Judgment and Decision Making

Session 5

Pay-Off Matrix

Name _____

Pay-Off Matrix

		Prediction	
		Diversion	Non-Diversion
True Outcome	Diversion	False Negative Value _____	True Negative Value _____
	Non-Diversion	True Positive Value _____	False Negative Value _____

Judgment Heuristic Exercise
Part A

Judgment Heuristic Exercise

Problem 1: The following companies were ranked by Morgan Stanley Capital International to be among the 100 largest in market value (in billions of US dollars) in 1991:

Group A: Nippon Telegraph and Telephone, Allianz Company, Unilever, Abbott Laboratories, British Communications

Group B: Mitsubishi Heavy Industries, Siemens, Toshiba, McDonalds, British Petroleum

Which group, A or B, had the largest combined market value in 1991 (in billions of US dollars)?

Problem 2: Which of the following countries had a higher life expectancy rate in 1988?

- A) Cuba
- B) Austria

Problem 3A: In four pages of a novel (about 2,000 words), how many words would you expect to find that have the form

_____ *ing* (seven-letter words ending with *ing*)? Indicate your best estimate by circling one of the values below:

0 1-2 3-4 5-7 8-10 11-15 16+

Problem 3B: In four pages of a novel (about 2,000 words), how many words would you expect to find that have the form

_____ *n* _____ (Seven-lettered words having the letter *n* in the sixth position)? Indicate your best answer by circling one of the values below:

0 1-2 3-4 5-7 8-10 11-15 16+

Problem 4: A certain town is served by two hospitals. In the larger hospital about 45 babies are born each day and in the smaller hospital about 15 babies are born each day. As you know, about 50 percent of all babies are boys. However, the exact percentage varies from day to day; sometimes it may be higher than 50 percent, sometimes lower.

For a period of one year, each hospital recorded the days in which more than 60 percent of the babies born were boys. Which hospital do you think recorded more such days?

- The larger hospital?
- The smaller hospital?
- About the same? (that is, within 5 percent of each other)

Problem 5: A newly hired engineer for a computer firm in Vienna has four years of experience and good all-around qualifications. When asked to estimate the starting salary for this employee, my secretary (knowing very little about the profession or the industry) guessed an annual salary of 260,000AS. What is your estimate?

AS per year.

Problem 6: (Adapted from Einhorn and Hogarth, 1978) It claimed that when a particular analyst predicts a rise in the stock market, the stock market always rises. You are to check this claim. Examine the information available about the following four events (cards):

Card 1
Prediction:
Favorable
report

Card 2
Prediction:
Unfavorable
report

Card 3
Outcome:
Rise in the
market

Card 4
Outcome:
Fall in the
market

You currently see the predictions (cards 1 and 2) or outcomes (cards 3 and 4) associated with four events. You are seeing one side of the card. On the other side of cards 1 and 2 is the actual outcome, while on the other side of cards 3 and 4 is the prediction that the analyst made. Evidence about the claim is potentially available by turning over the card(s). Which cards would you turn over for the evidence that you need to check the analyst's claim? (Circle the appropriate cards)

Judgment Heuristic Exercise
Part B

Judgment Heuristic Exercise

Problem 1: The following companies were ranked by Morgan Stanley Capital International to be among the 100 largest in market value (in billions of US dollars) in 1991:

Group A: Nippon Telegraph and Telephone, Allianz Company, Unilever, Abbott Laboratories, British Communications

Group B: Mitsubishi Heavy Industries, Siemens, Toshiba, McDonalds, British Petroleum

Which group, A or B, had the largest combined market value in 1991 (in billions of US dollars)?

Problem 2: Which of the following countries had a higher life expectancy rate in 1988?

- A) Cuba
- B) Austria

Problem 3A: In four pages of a novel (about 2,000 words), how many words would you expect to find that have the form

_____ *ing* (seven-letter words ending with *ing*)? Indicate your best estimate by circling one of the values below:

0 1-2 3-4 5-7 8-10 11-15 16+

Problem 3B: In four pages of a novel (about 2,000 words), how many words would you expect to find that have the form

_____ *n* _____ (Seven-lettered words having the letter *n* in the sixth position)? Indicate your best answer by circling one of the values below:

0 1-2 3-4 5-7 8-10 11-15 16+

Problem 4: A certain town is served by two hospitals. In the larger hospital about 45 babies are born each day and in the smaller hospital about 15 babies are born each day. As you know, about 50 percent of all babies are boys. However, the exact percentage varies from day to day; sometimes it may be higher than 50 percent, sometimes lower.

For a period of one year, each hospital recorded the days in which more than 60 percent of the babies born were boys. Which hospital do you think recorded more such days?

- The larger hospital?
- The smaller hospital?
- About the same? (that is, within 5 percent of each other)

Problem 5: A newly hired engineer for a computer firm in Vienna has four years of experience and good all-around qualifications. When asked to estimate the starting salary for this employee, my secretary (knowing very little about the profession or the industry) guessed an annual salary of 500,000AS. What is your estimate?

AS per year.

Problem 6: (Adapted from Einhorn and Hogarth, 1978) It claimed that when a particular analyst predicts a rise in the stock market, the stock market always rises. You are to check this claim. Examine the information available about the following four events (cards):

Card 1 Prediction: Favorable report	Card 2 Prediction: Unfavorable report	Card 3 Outcome: Rise in the market	Card 4 Outcome: Fall in the market
--	--	---	---

You currently see the predictions (cards 1 and 2) or outcomes (cards 3 and 4) associated with four events. You are seeing one side of the card. On the other side of cards 1 and 2 is the actual outcome, while on the other side of cards 3 and 4 is the prediction that the analyst made. Evidence about the claim is potentially available by turning over the card(s). Which cards would you turn over for the evidence that you need to check the analyst's claim? (Circle the appropriate cards)

Pre-Course

and

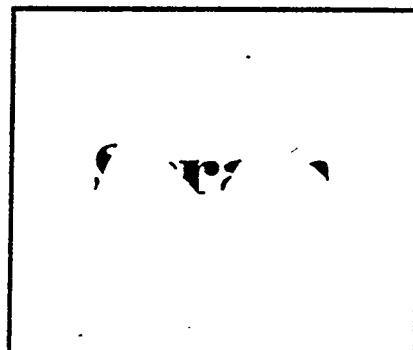
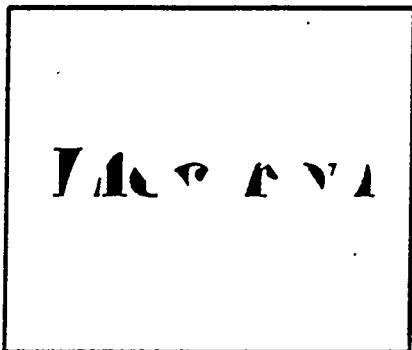
Post-Course Exercises

**IAEA Visual Observation Skill
Pre-Course Exercise**

I. Closure

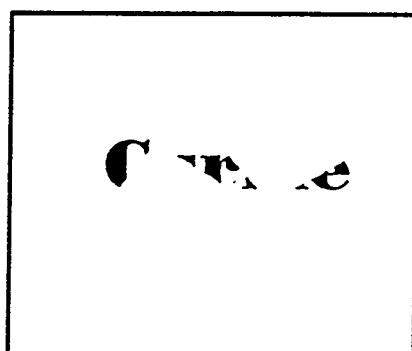
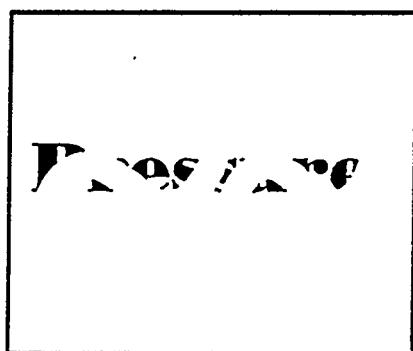
Instructions. Write in the answer that describes the object or word on the blank line under the word or figure. You have 3 minutes to complete this section.

Words



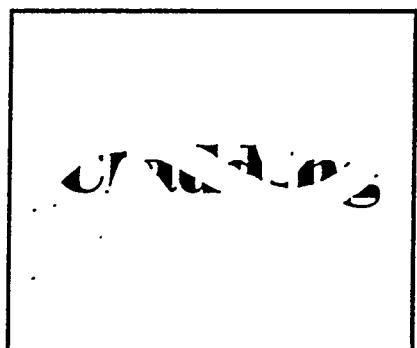
1. _____

2. _____



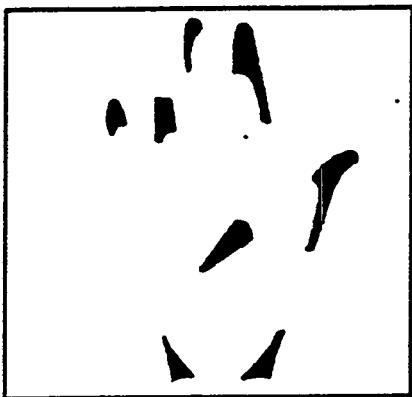
3. _____

4. _____

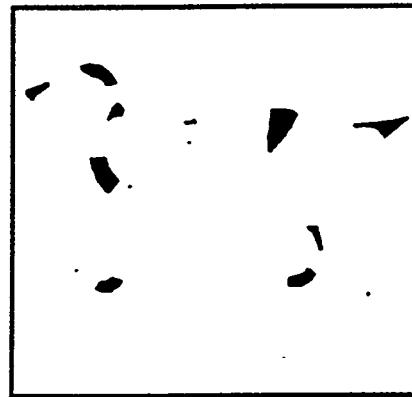


5. _____

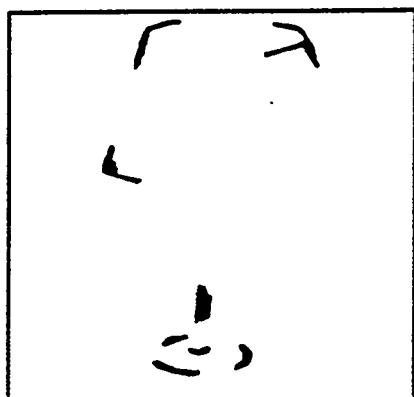
Figures



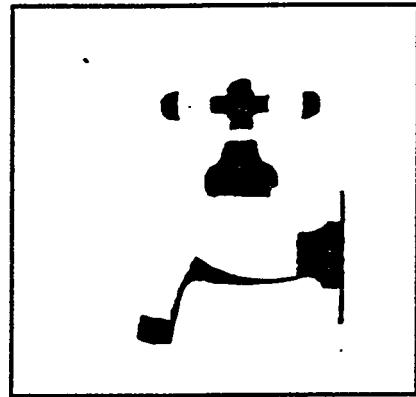
1. _____



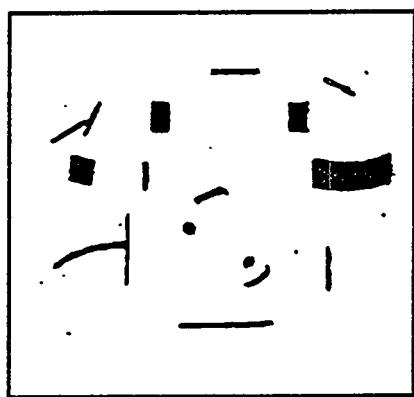
2. _____



3. _____



4. _____



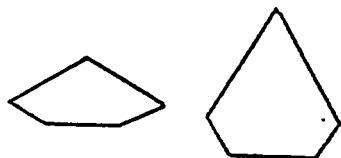
5. _____

STOP!

II. Hidden Figures Test

Instructions. This is a test of your ability to tell which one of five simple figures can be found in a more complex pattern. At the top of each page are five figures lettered A, B, C, D, and E. Beneath each row of figures is a set of patterns. Each pattern has a row of letters beneath it. Your task is to choose which figure from the top of the page can be found in each pattern. Indicate your answer by circling the letter of the figure which you find in the pattern. You have two minutes to complete this section.

Note: There is only one of these figures in each pattern, and this figure will always be the same side up and exactly the same size as one of the five lettered figures.

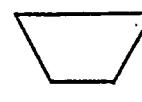


A

B



C

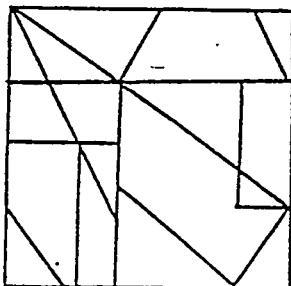


D



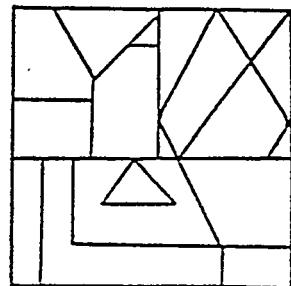
E

1.



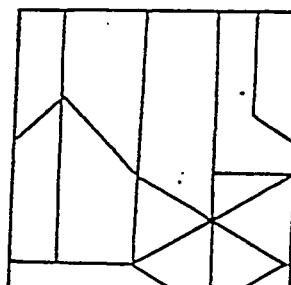
A B C D E

2.



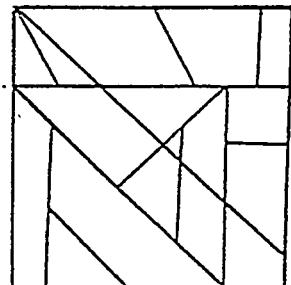
A B C D E

3.



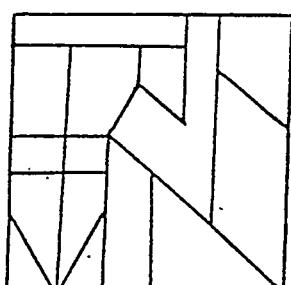
A B C D E

4.



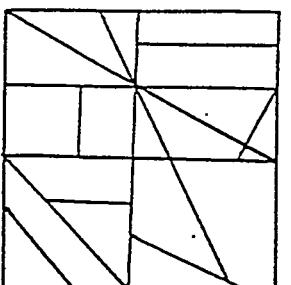
A B C D E

5.



A B C D E

6.

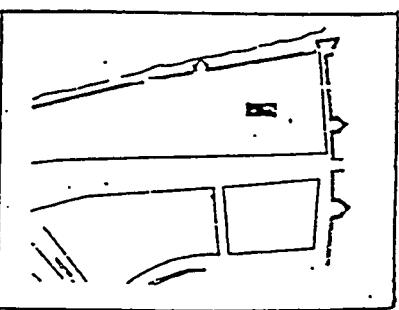
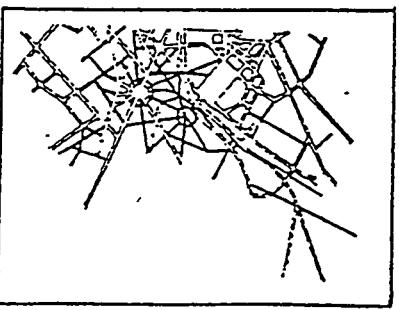
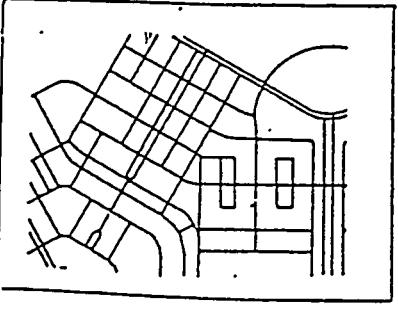
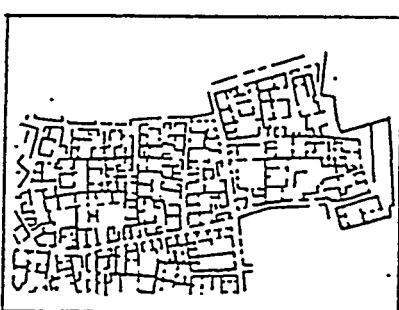
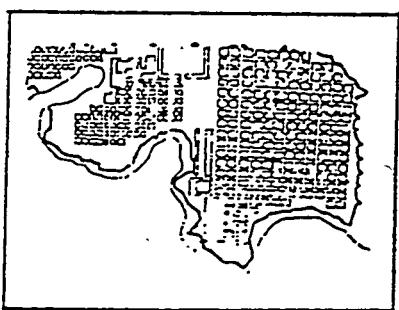
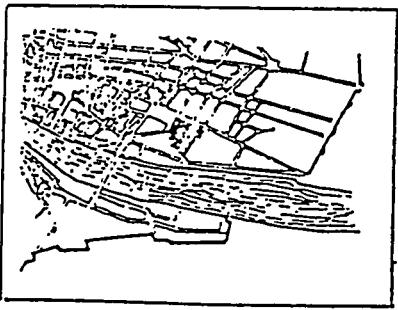
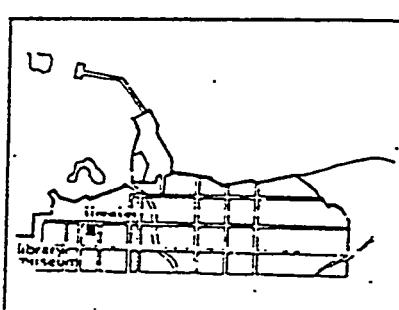
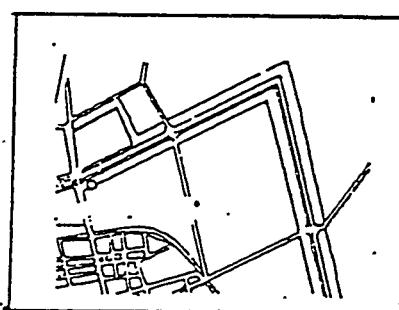
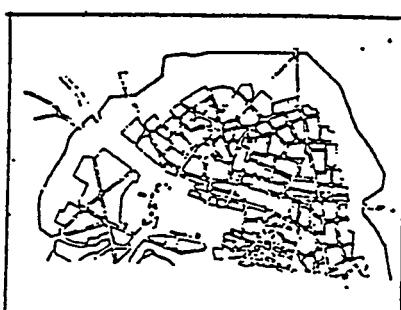
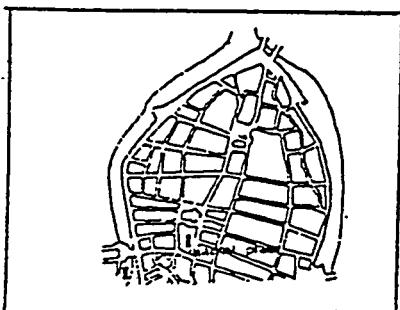
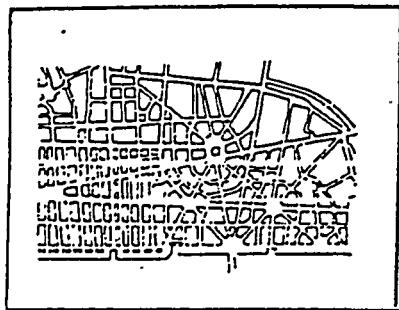


A B C D E

III. Map Memory

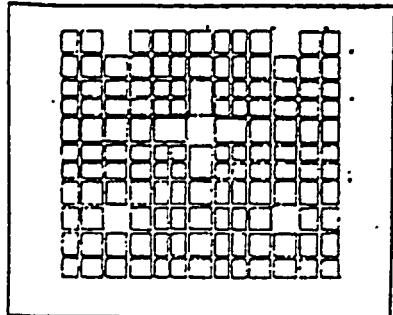
Instructions: This is a test of your ability to remember part of a map so that you can recognize it when you see it again.

Study this page for three minutes. DO NOT TURN THE PAGE UNTIL TOLD TO DO SO.

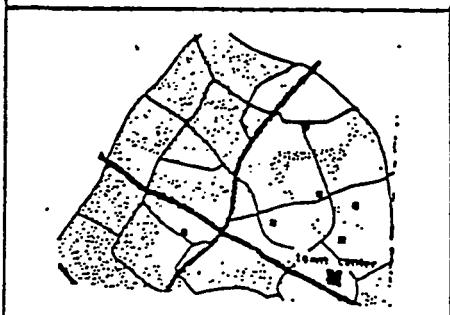


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Which of the following maps are the ones you saw on the study page? Mark the Y (yes) beneath the maps you studied. Mark the N (no) beneath the maps you have not seen before. You have five minutes to complete this section.

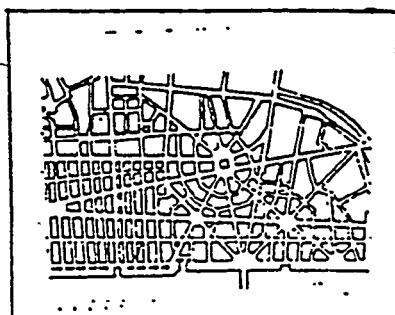


Y N



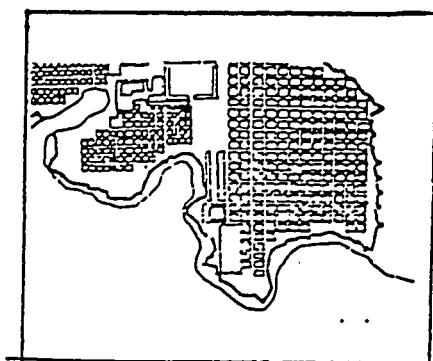
2.

Y N

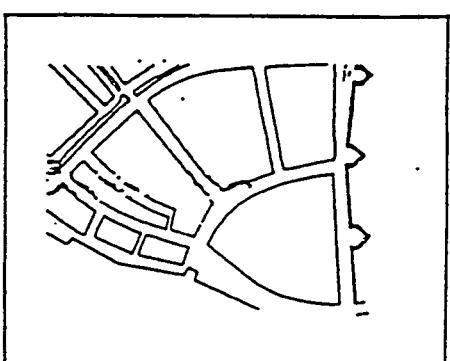


3.

Y N

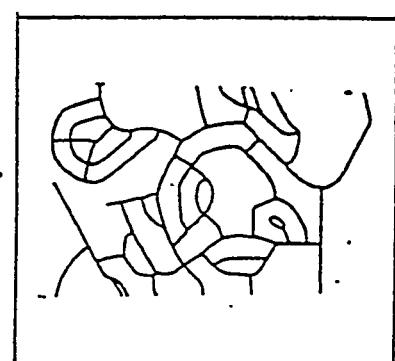


Y N



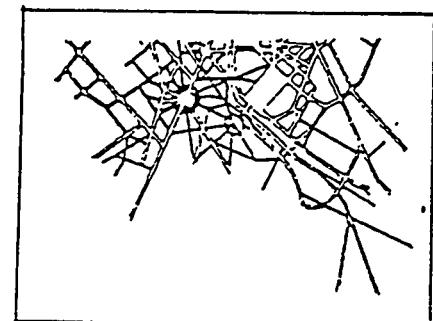
5.

Y N

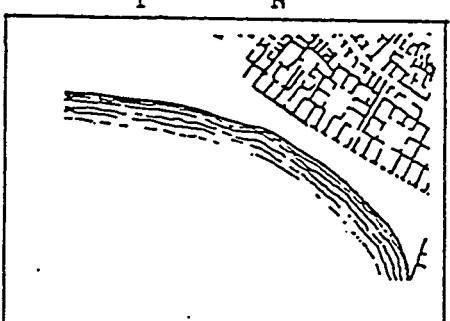


6.

Y N

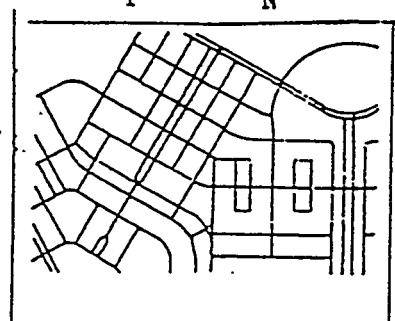


Y N



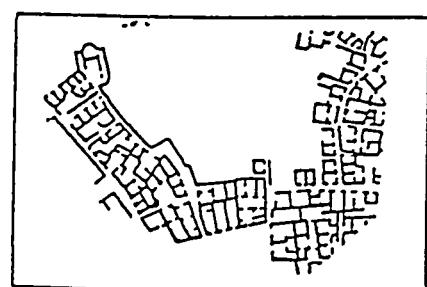
8.

Y N



9.

Y N

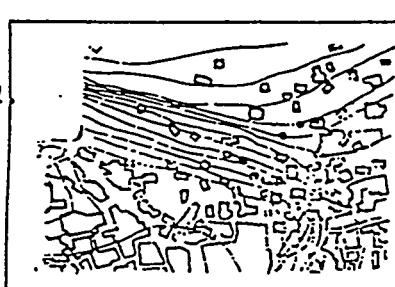


Y N



11.

Y N



12.

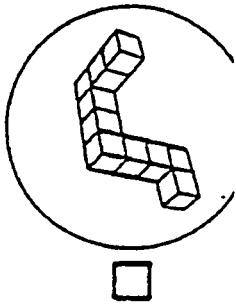
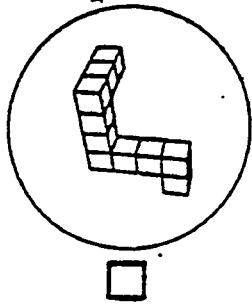
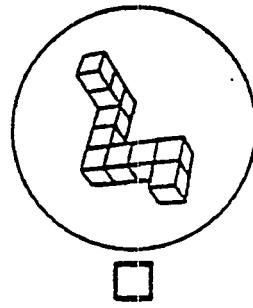
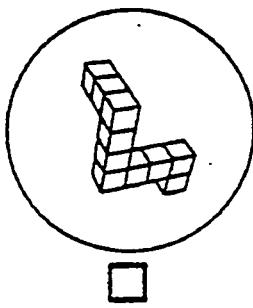
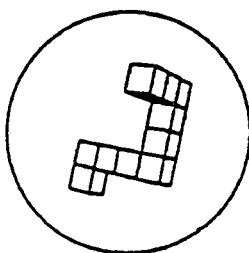
Y N

STOP!

IV. Mental Rotations

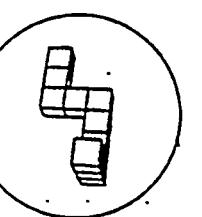
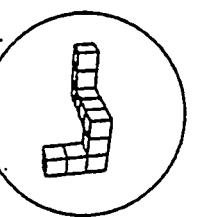
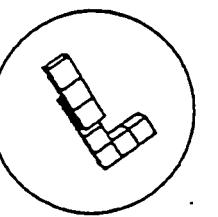
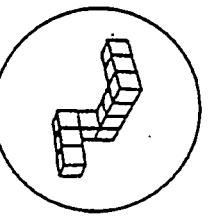
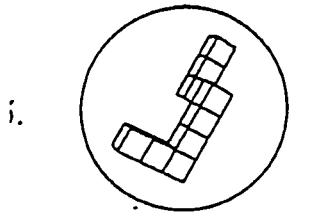
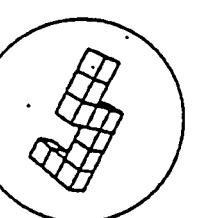
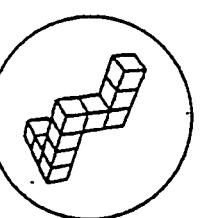
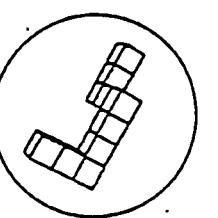
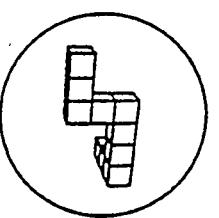
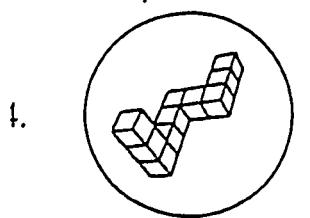
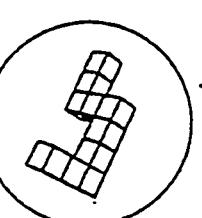
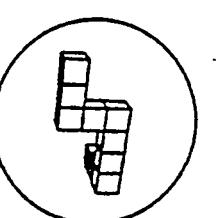
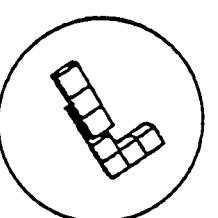
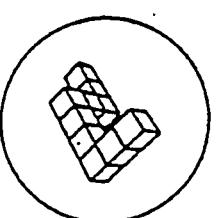
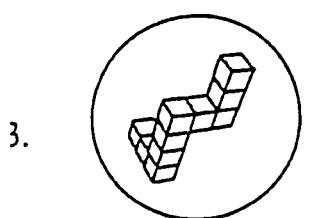
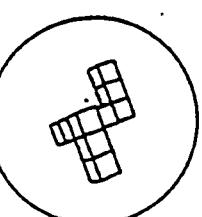
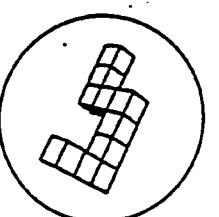
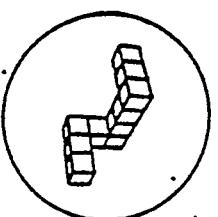
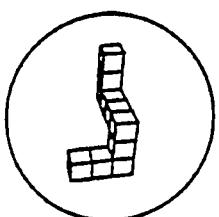
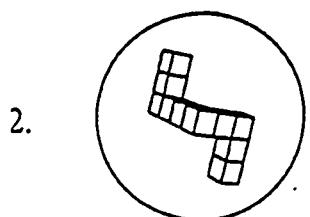
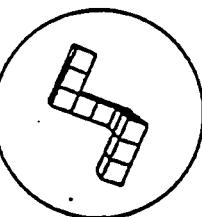
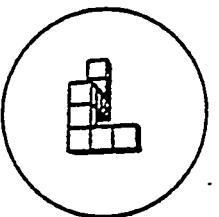
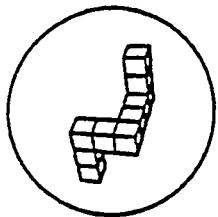
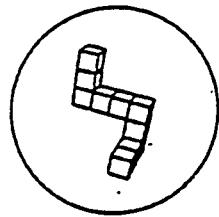
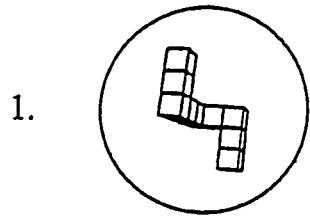
Look at this object:

Two of these four drawings show the same object. Can you find those two? Put X's in the boxes below them.



When the signal is given, turn to the next page.

There are always two and only two correct answers for each item. You have three minutes to complete this section.

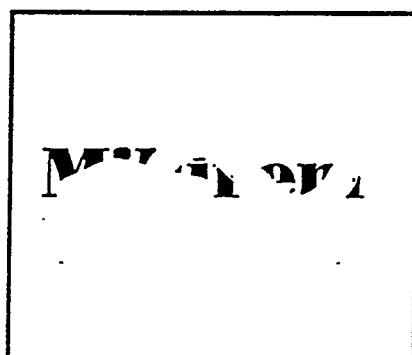
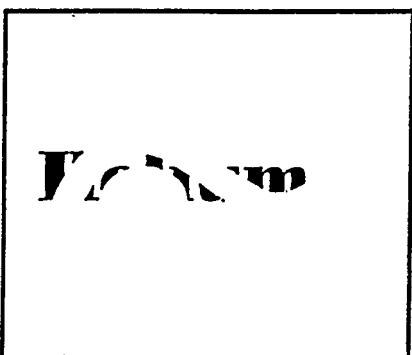


**IAEA Visual Observation Skill
Post-Course Exercise**

I. Closure

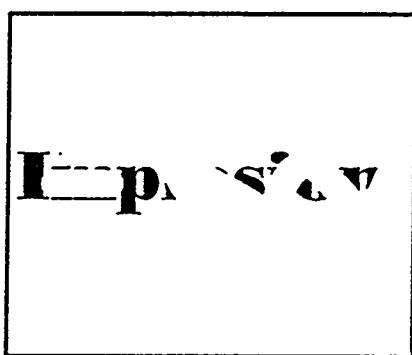
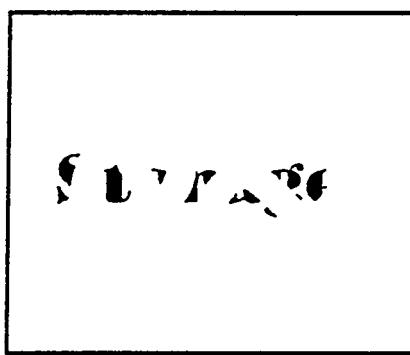
Instructions. Write in the answer that describes the object or word on the blank line under the word or figure. You have 3 minutes to complete this section.

Words



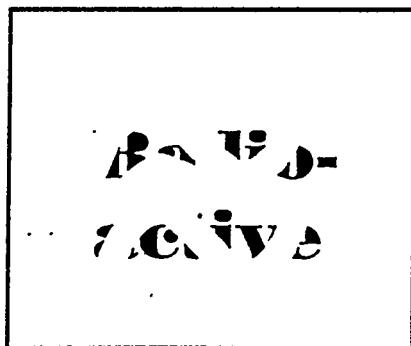
1. _____

2. _____



3. _____

4. _____

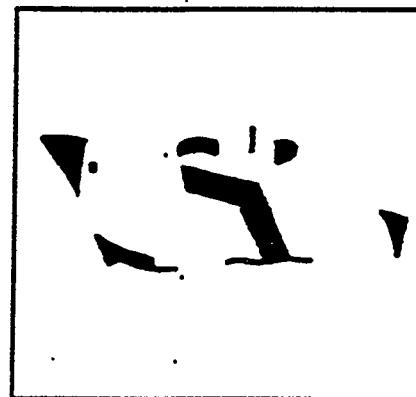


5. _____

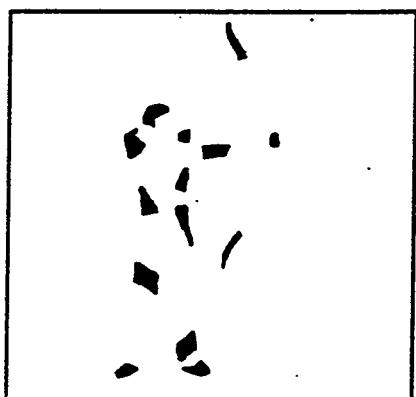
Figures



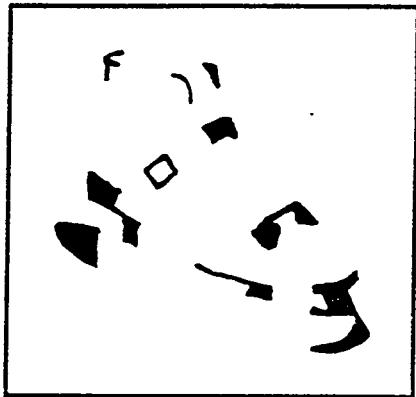
1. _____



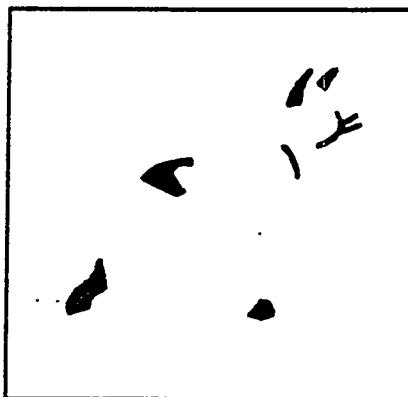
2. _____



3. _____



4. _____

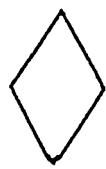


5. _____

II. Hidden Figures Test

Instructions. This is a test of your ability to tell which one of five simple figures can be found in a more complex pattern. At the top of each page are five figures lettered A, B, C, D, and E. Beneath each row of figures is a set of patterns. Each pattern has a row of letters beneath it. Your task is to choose which figure from the top of the page can be found in each pattern. Indicate your answer by circling the letter of the figure which you find in the pattern. You have two minutes to complete this section.

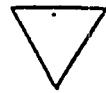
Note: There is only one of these figures in each pattern, and this figure will always be the same side up and exactly the same size as one of the five lettered figures.



A



B



C

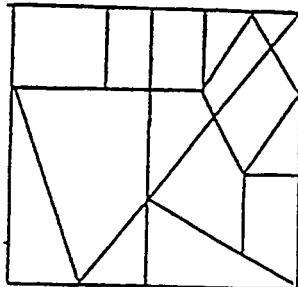


D



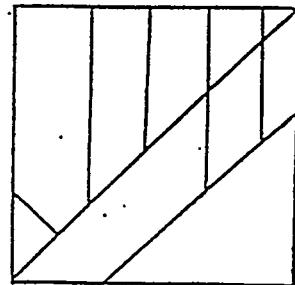
E

1.



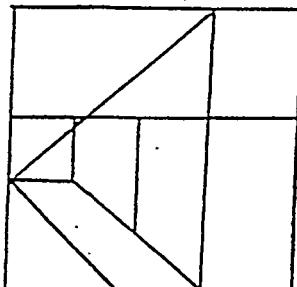
A B C D E

2.



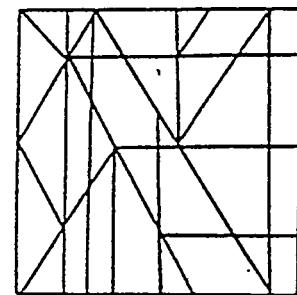
A B C D E

3.



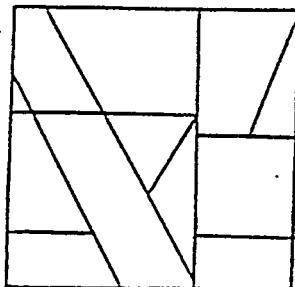
A B C D E

4.



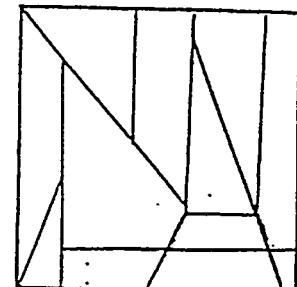
A B C D E

5.



A B C D E

6.

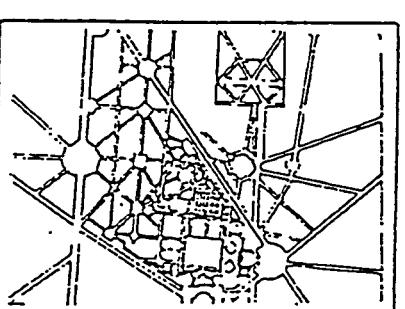
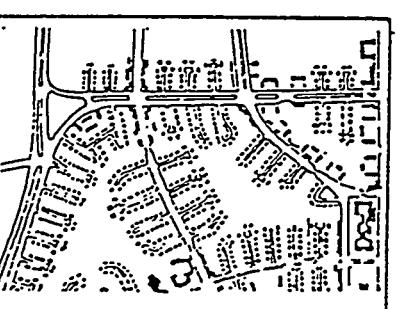
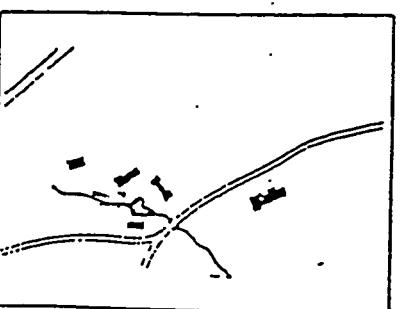
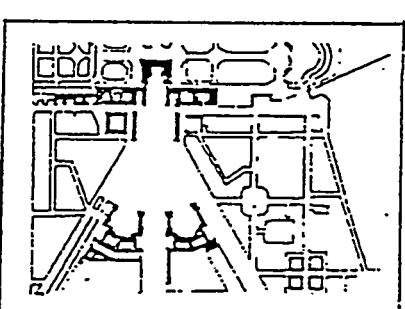
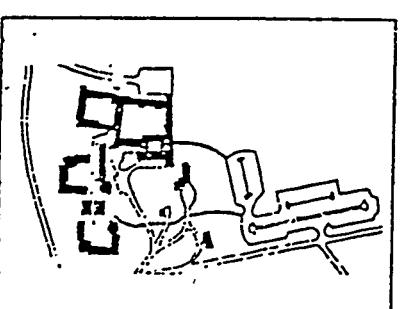
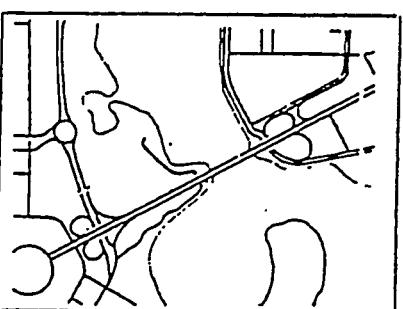
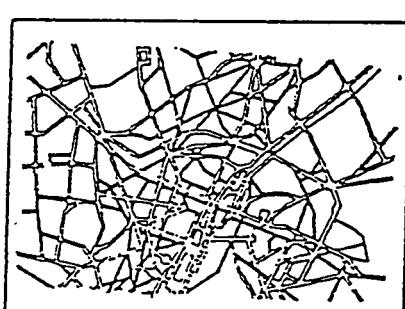
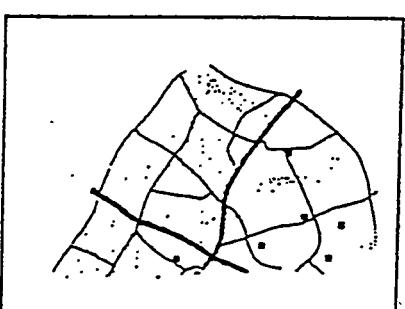
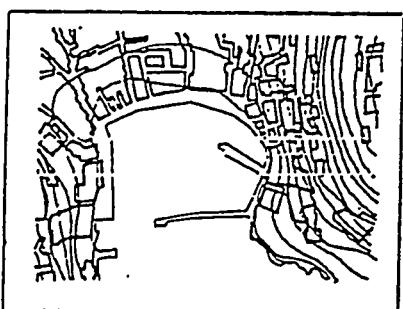
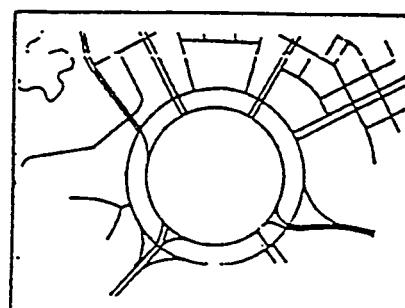
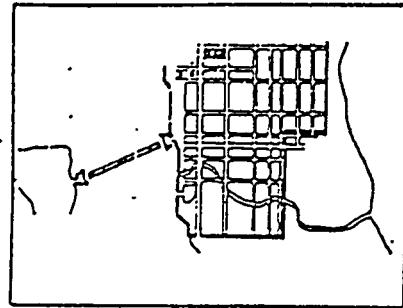


A B C D E

III. Map Memory

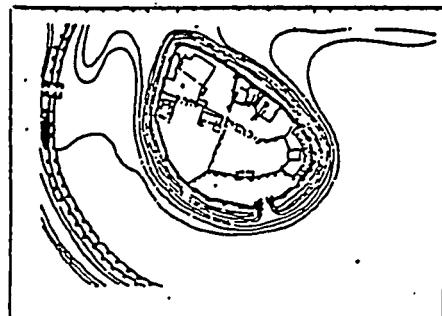
Instructions: This is a test of your ability to remember part of a map so that you can recognize it when you see it again.

Study this page for three minutes. DO NOT TURN THE PAGE UNTIL TOLD TO DO SO.

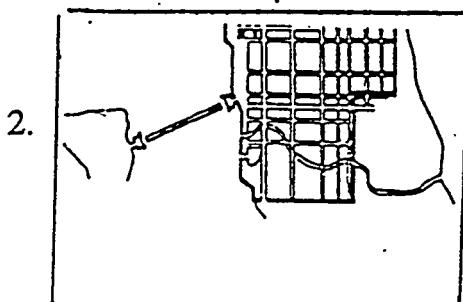


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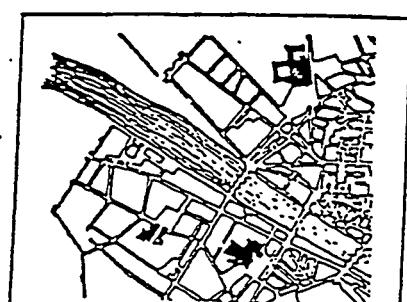
Which of the following maps are the ones you saw on the study page? Mark the Y (yes) beneath the maps you studied. Mark the N (no) beneath the maps you have not seen before. You have five minutes to complete this section.



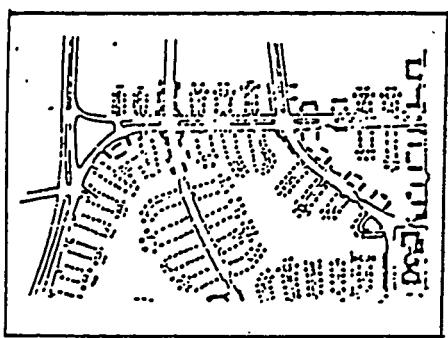
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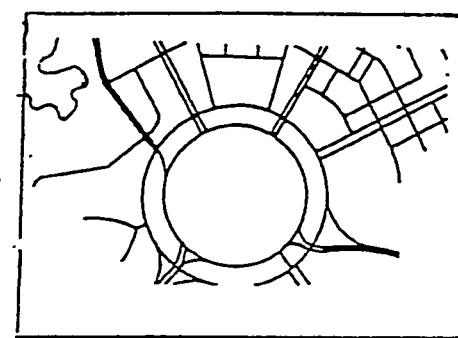
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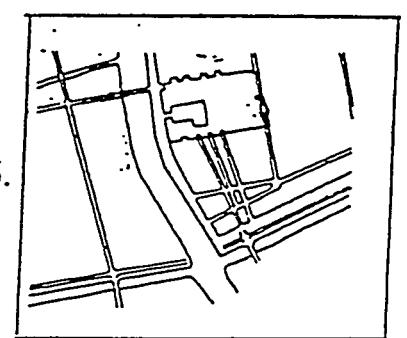
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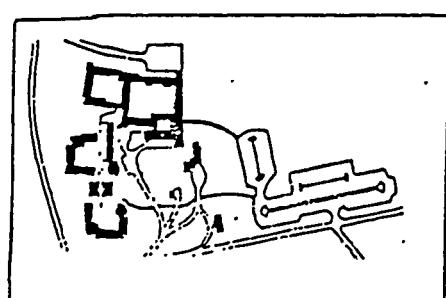
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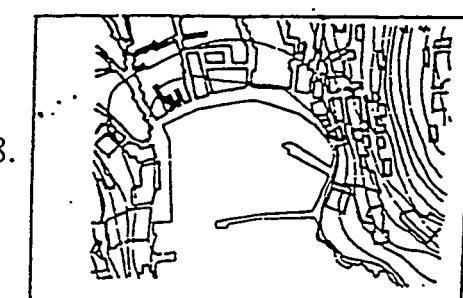
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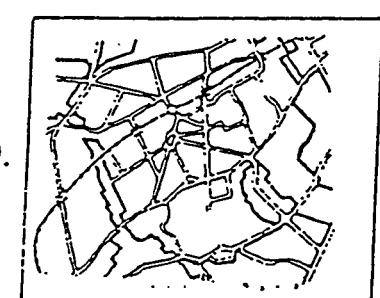
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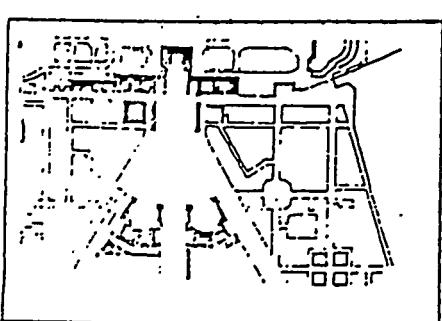
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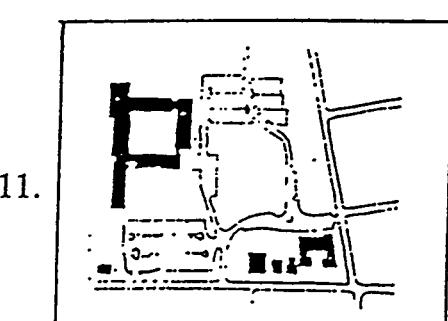
Y N



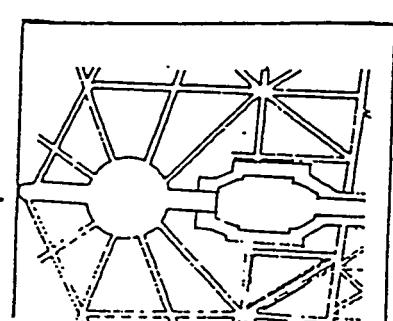
Y N



Y N



Y N

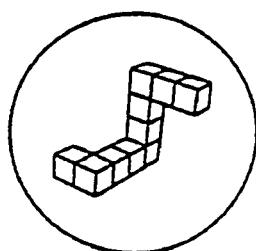
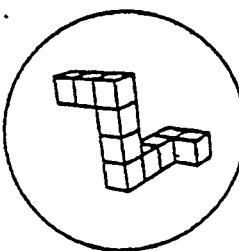
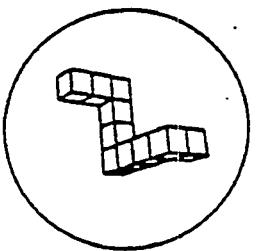
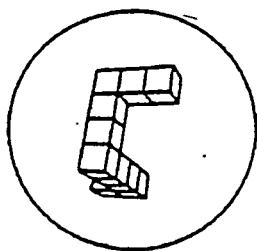
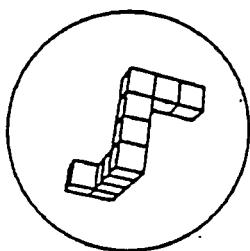


Y N

IV. Mental Rotations

Look at this object:

Two of these four drawings show the same object. Can you find those two? Put X's in the boxes below them.



When the signal is given, turn to the next page.

There are always two and only two correct answers for each item. You have three minutes to complete this section.

Final Examination

Name _____

Final Examination

Visual Observation Skills Course

Please answer each question in the space provided. You will have 25 minutes to complete this test.

1. Perception is used to organize, interpret, and selectively extract sensory information. Identify three of the five features discussed that influence perception.

a. _____
b. _____
c. _____

2. Identify two techniques for improving perception and recognition.

a. _____
b. _____

3. Three theories of recognition were discussed - template matching, prototype matching, and recognition by components. Describe the one theory that you use to recognize objects or figures.

4. Three types of attention were discussed - focused, selective, and divided attention.

Select one of these types and describe an example of it using your inspection experience.

5. Describe how stress levels influence performance. Provide an example from your inspections experience.

6. If you have difficulty in accurately transcribing digital readout from instruments, what stage of your memory needs improvement? What two techniques could you employ to improve it?

7. What mental task must you successfully perform in order to durably store information for later retrieval? Name two techniques that you could employ in order to improve your performance of this task.

8. Describe two techniques that you could use to learn a map or diagram.
 - a. _____

 - b. _____

9. Describe an instance in which you discovered that you had an incorrect mental model (either in your job or in everyday life), and briefly explain how you discovered that it was incorrect.

10. Identify and define one common judgment heuristic that people often use in evaluating information.
11. The decision making process includes five steps - sampling inputs, integrating cues, generating hypotheses, testing hypotheses, and evaluating decisions. Identify two techniques for improving your decision making process.

a. _____

b. _____

Training Evaluation Form

**Training Course for IAEA Inspectors
Basic Visual Observation Skills
IAEA Headquarters - Vienna**

15-18 May 1995

PARTICIPANTS COMMENTS AND EVALUATION FORM

The course organizers would appreciate your input on the questions below. Please read each statement and mark the number that best reflects the extent to which you agree or disagree with the statement.

A. OVERALL COURSE CONTENT

	Disagree	Agree	Strongly Agree	
1. The course objectives were met	1	2	3	4
2. The course provided adequate opportunities (case studies, role plays, exercises, discussions) to practice what I learned	1	2	3	4
3. The course content is of value to my job performance	1	2	3	4
4. What session if any, would you have liked in greater depth, or to have spent more time with?				

5. What session was the most important or relevant to you?

6. What session was the least important or relevant to you?

B. SESSIONS

Perception and Recognition Skills

	Disagree	Agree	Strongly Agree	
1. The session content was clear	1	2	3	4
2. The objective of this session was met	1	2	3	4
3. The session content balanced theory and application	1	2	3	4
4. The session material was of value in fully understanding the course content	1	2	3	4
5. The class exercises and activities were useful in understanding the content	1	2	3	4
6. How much of what you learned do you expect to use on the job				5
100%	75%	50%	very little	none

Comments _____

Attention and Attention to Detail

	Disagree	Agree	Strongly Agree	
1. The session content was clear	1	2	3	4
2. The objective of this session was met	1	2	3	4
3. The session content balanced theory and application	1	2	3	4
4. The session material was of value in fully understanding the course content	1	2	3	4
5. The class exercises and activities were useful in understanding the content	1	2	3	4

6. How much of what you learned do you expect to use on the job

100% 75% 50% very little none

Comments _____

Memory

	Disagree		Agree		Strongly Agree
1. The session content was clear	1	2	3	4	5
2. The objective of this session was met	1	2	3	4	5
3. The session content balanced theory and application	1	2	3	4	5
4. The session material was of value in fully understanding the course content	1	2	3	4	5
5. The class exercises and activities were useful in understanding the content	1	2	3	4	5
6. How much of what you learned do you expect to use on the job					

100% 75% 50% very little none

Comments _____

Mental Images, Maps, and Models

	Disagree	Agree	Strongly Agree	
1. The session content was clear	1	2	3	4
2. The objective of this session was met	1	2	3	4
3. The session content balanced theory and application	1	2	3	4
4. The session material was of value in fully understanding the course content	1	2	3	4
5. The class exercises and activities were useful in understanding the content	1	2	3	4
6. How much of what you learned do you expect to use on the job				

100%

75%

50%

very little

none

Comments _____

Judgment and Decision Making

	Disagree	Agree	Strongly Agree	
1. The session content was clear	1	2	3	4
2. The objective of this session was met	1	2	3	4
3. The session content balanced theory and application	1	2	3	4
4. The session material was of value in fully understanding the course content	1	2	3	4
5. The class exercises and activities were useful in understanding the content	1	2	3	4

6. How much of what you learned do you expect to use on the job

100% 75% 50% very little none

Comments _____

Skill Integration

	Disagree		Agree		Strongly Agree
1. The session content was clear	1	2	3	4	5
2. The objective of this session was met	1	2	3	4	5
3. Time allocated for this exercise was adequate	1	2	3	4	5
4. How much of what you learned do you expect to use on the job					

100% 75% 50% very little none

Comments _____

C. INSTRUCTORS AND CLASS FORMAT

	Disagree		Agree		Strongly Agree
1. Instructors presented the material in a clear fashion	1	2	3	4	5
2. Instructors knew the material well	1	2	3	4	5
3. There was ample time for questions and discussions	1	2	3	4	5
4. The course was scheduled appropriately	1	2	3	4	5
5. The workshop staff were available for discussion after class	1	2	3	4	5

Comments _____

D. FUTURE TRAINING

INTEGRATING EXERCISES

Integrating Training Exercise

Visual Observation in a Nuclear Facility Surrounding

Training Objective

The training objective of this exercise is to provide you with practice in using basic visual observation skills in a simulated nuclear facility to identify possible discrepancies between what you observe and the declared purpose of the facility. It will allow you to exercise many of your skills in the areas of perception, attention, attention to detail, memory, mental images, maps, and models, and judgment. This exercise will help improve your understanding of how good observational skills apply to inspection activities.

The exercise involves the use of actual nuclear physical structures placed in the context of a hypothetical inspection scenario. This exercise contains information typical of that which would be important to an inspector during the course of an inspection.

How the Training Plan Works

There are 10 parts to this exercise. Two of the parts involve splitting the participants into two groups. The exercise map in Figure 1 indicates the sequence in which these parts will proceed:

- Read Pre-inspection Briefing
Review, Prepare for Walk-through
- View Tape (together as one group)
Take notes (written or mental)
- Individual Written Observations
- Group Deliberations
- Group Debriefings / Coffee (two groups)
- Presentation of Debriefing Results
- Comments by Each Group and Individuals
- Real Story
- View Video Again with Comments
- Relate Exercise to Course Techniques

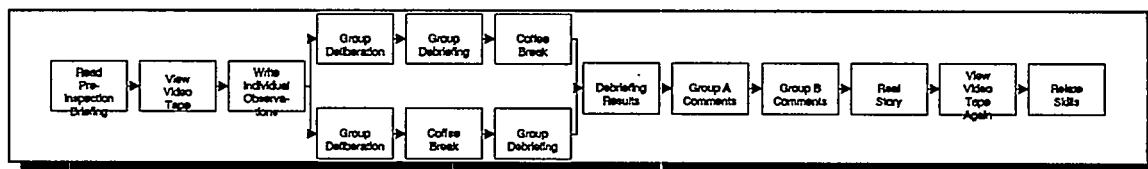


Figure 1 - Exercise Plan

In the first step of the exercise, you will be provided with a written Pre-inspection Briefing document which contains information about a nuclear center which will be inspected. This briefing contains information about the declared purpose of the facilities at the nuclear center, as well as an explanation why a non-routine walk through a previously uninspected facility has been arranged. While reading this briefing, you may take notes on the briefing paper for reference while viewing the video tape. You will have 15 minutes to read the briefing and prepare for watching the video tape.

The next step involves viewing the video tape. The video tape lasts for approximately 17 minutes and consists of three parts:

- A welcome and description of the nuclear center by the facility operator;
- Scenes around the nuclear center showing various buildings and facilities;
- The walkthrough of one of the facilities at the nuclear center.

During the viewing of the video tape, you should remember specific details in the video which could have safeguards significance. You should also note things which you would make inquiries to the operator about, or otherwise follow up. You may take written notes, but be sure to not let writing notes distract you from viewing the video tape. You will have an opportunity afterwards to write down observations and other remarks.

The next step consists of transcribing your individual observations, questions, and details requiring follow-up onto another paper. You should list as many discrete observations as possible in the time allowed. You should also make a list of questions which you would like to ask the Operator, and items observed in the video which you would like to be able to examine more closely. You will have ten minutes for this step. At the end of this step, your written observations will be collected and copied for later review by the instructors, and returned to you.

Next, the participants will be split into two groups of approximately equal size. Each of the two groups will meet separately to compare individual observations, and prepare for their debriefing. During this group deliberation, a group spokesperson should be selected. This spokesperson will present the group's observations and comments later on. Fifteen minutes are allocated for this deliberation step.

Next, Group A will be debriefed. During this debriefing, the group spokesperson, with additional input from the group members, will describe safeguards significant observations identified by the group. The Debriefer will ask a set of questions to assist in organizing the

observations into groups. This will permit easier comparisons between the observations of the two groups. While Group A is being debriefed, Group B will have time for a coffee break. At the end of the period, Group B will be debriefed, and Group A will have its coffee break. Fifteen minutes are allowed for the debriefing and coffee break periods.

In the next step, the Debriefefer will present the major observations made by the two groups. The differences and similarities between the two groups' observations will be examined. This step will last for 10 minutes.

Then, Group A will have 10 minutes to make any additional remarks about its observations. This may include a discussion of subjective observations - observations based on attitudes, feelings, what the Inspector "sensed" during the walkthrough. After Group A has made its additional remarks, Group B will have 10 minutes for its remarks, etc.

The next step will include a description by the Debriefefer of the actual situation at the nuclear facility. This will last for 10 minutes.

After this, the video tape will be viewed again. This will permit the participants to take another look at the walkthrough to evaluate his or her observation performance. The Debriefefer will point out specific details during this review. This will take approximately 20 minutes.

Finally, the observational skills and the techniques for improving them covered in the course will be reviewed in context of their application to the walkthrough exercise.

Pre-Briefing for Inspection at PRP2-42

IAEA Observation Skills Training Course

General Background Information

Description of the Radioisotope Production Complex

Development of this nuclear complex began in 1970. Its purpose is the production, separation, and packaging of radioisotopes for use within the country for industrial and medical purposes. The complex consists of four main facilities with additional support facilities. Those four facilities are: the radioisotope production reactor; a former radiochemistry research laboratory; the irradiation target manufacturing plant; and the radioisotope separation facility.

Radioisotope Production Reactor

Construction of the RIPR-42 (Radioisotope Production Reactor) began in 1970. It is designed for irradiating targets for producing industrial and medical radioisotopes. This reactor is rated at 50 MW thermal, is heavy water moderated, and contains 185 natural uranium fuel elements. The reactor began operation in 1975, and except for design modifications carried out in 1982-83, the reactor has operated continuously since commissioning. Spent fuel is stored on site in a spent fuel pond inside the reactor containment, and fresh fuel is stored in the reactor support building in the shipping containers in which it is received. Irradiation targets consist of metal-encapsulated cylinders which are inserted into the core via pneumatic transfer tubes, or are manually inserted into specific locations in or around the core for long-term irradiation. The irradiated targets are transferred to shielded drums for transfer to the Radioisotope Separation Facility.

This reactor has been under routine IAEA inspection since 1983. Inspection activities involve checking seals on the reactor core and review of surveillance tapes covering the reactor refueling area. Fresh fuel is sealed in the shipping containers, and those seals are checked annually by IAEA inspectors. Cherenkov viewing devices are used to verify spent fuel in the spent fuel pond. The reactor is normally inspected at three-month intervals.

Radiochemistry Research Laboratory

Directly north of the reactor is a radiochemistry research facility (designated MPRF-42) which was used to perform basic research on radioisotope separation on several of the first radioisotope targets irradiated in the RIPR-42. This facility contains heavily shielded

gloveboxes which suffered serious damage and contamination during a fire in 1978. The facility has been shut down since that time, and except for general maintenance and radiation monitoring functions, there are no activities within the building.

This facility contains no fissile materials, and is therefore not under IAEA safeguards.

Irradiation Target Manufacturing Plant

Adjacent to MPRF-42, to the east, is the Irradiation Target Manufacturing Plant (PRP1-42). This facility produces the cylindrical metal-encapsulated targets used in the RIPR-42. Contained in this building are mechanical workshops for manufacturing the capsules, and chemistry laboratories for preparing materials to be placed inside the targets. It houses approximately 50 full-time employees.

This facility contains no fissile materials, and is therefore not under IAEA safeguards.

Radioisotope Separation Facility

The Radioisotope Separation Facility (PRP2-42) is located to the west of the MPRF-42 facility. The purpose of this plant is the processing of irradiated targets to separate and purify radioisotopes for medical and industrial use within the country. The facility consists of a hot cell complex for opening targets and processing target materials with highly penetrating radiation. It also includes chemical laboratories for analyzing and purifying lower dose-rate radioisotope materials to prepare them for final use in hospitals and industrial applications. In addition, this building houses radiation protection and health physics staff for both the PRP2-42 and RIPR-42 facilities. Approximately 275 full-time employees work in the building.

This facility contains no fissile materials, and is therefore not under IAEA safeguards.

Detailed Briefing Information

Accident at the RIPR-42 Facility

The IAEA received notification of a serious accident at RIPR-42 four days before the date of a scheduled routine inspection. A failure within the primary cooling system of the reactor and human errors in applying the appropriate shut-down procedures resulted in fuel damage

within the reactor core. The facility estimates that 8-12% of the fuel in the core was damaged. Large quantities of fission products were released into the containment, and an accidental venting of containment resulted in significant amounts of those contaminants being released into the atmosphere. A subsequent uranium metal fire involving previously discharged irradiated fuel in storage caused additional contamination of the site with fission products and transuranic elements. Light levels of contamination resulted within the one mile exclusion area around the site.

Inspection at RIPC-42

The scheduled inspection at the facility was postponed, due to the seriousness of the accident. This non-routine inspection was requested by the IAEA because of the loss of continuity over significant quantities of materials in the reactor core and spent fuel pond.

Inspection activities at the RIPC-42 reactor during this inspection will consist of:

- 1) Verifying fresh fuel by seal replacement;
- 2) Reviewing accident data to ascertain validity of accident claim.

No inspection activities will be performed within the reactor building due to high radiation levels. Contamination levels within the reactor building prevent the recovery of IAEA surveillance cameras installed within the reactor containment and will be abandoned.

Special Inspection at PRP2-42

The accident at the RIPC-42 reactor has raised concerns that unverifiable fuel within the reactor could have been removed. The timing of the accident (just prior to the previously scheduled routine inspection), and the subsequent delay provides substantial time during which fuel removal and separation could have taken place. Facilities within the Radioisotope Separation Plant are suspected of being used to separate plutonium from the fuel in a clandestine reprocessing facility.

The IAEA has requested permission to inspect the Radioisotope Separation Facility (PRP2-42). This is to confirm that this facility, because of its hot cell complex, does not possess the capability of processing spent fuel from the RIPC-42 reactor. State authorities agreed to a limited walkthrough of the facility.

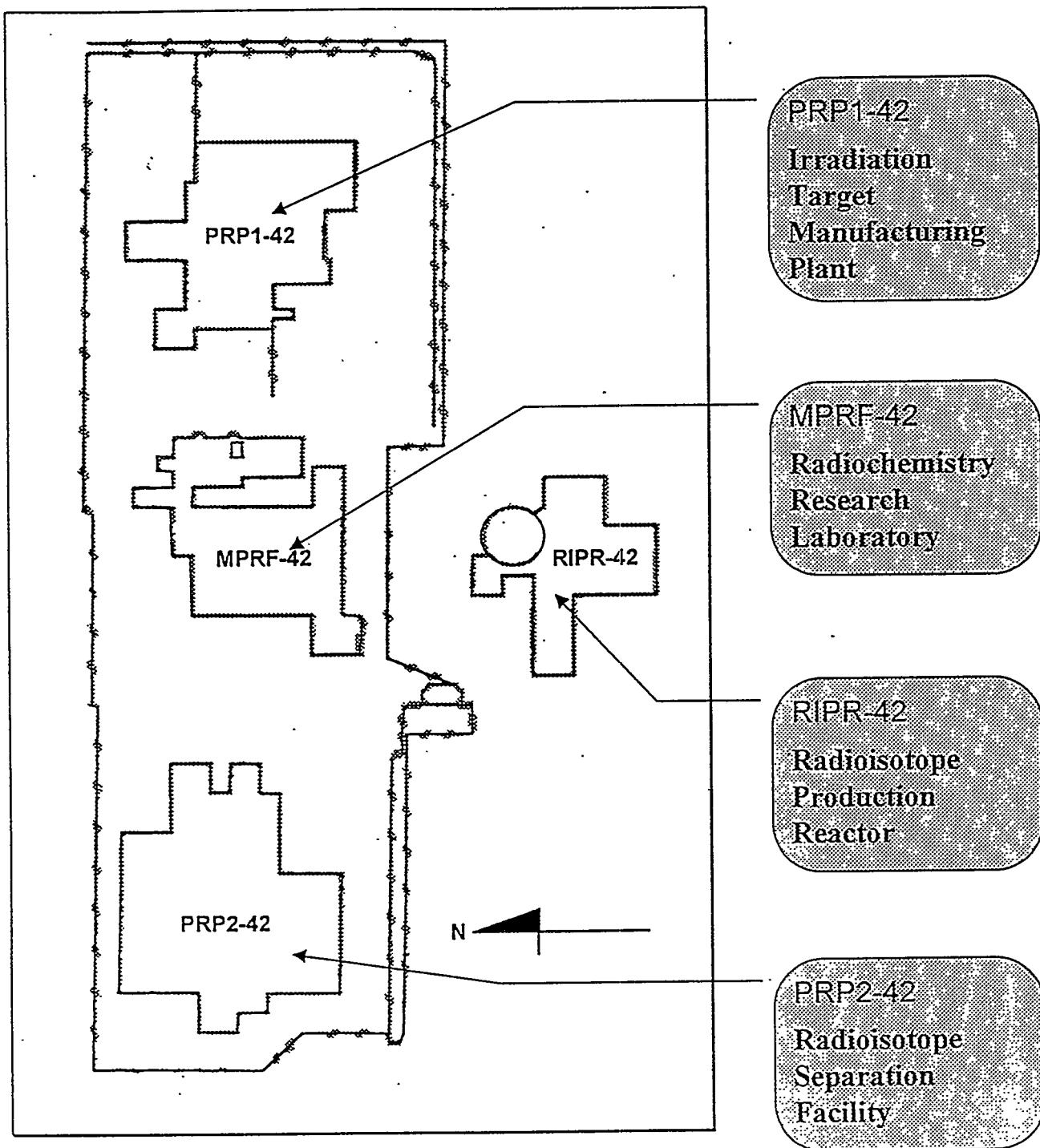


Figure 1 - Radioisotope Production Center

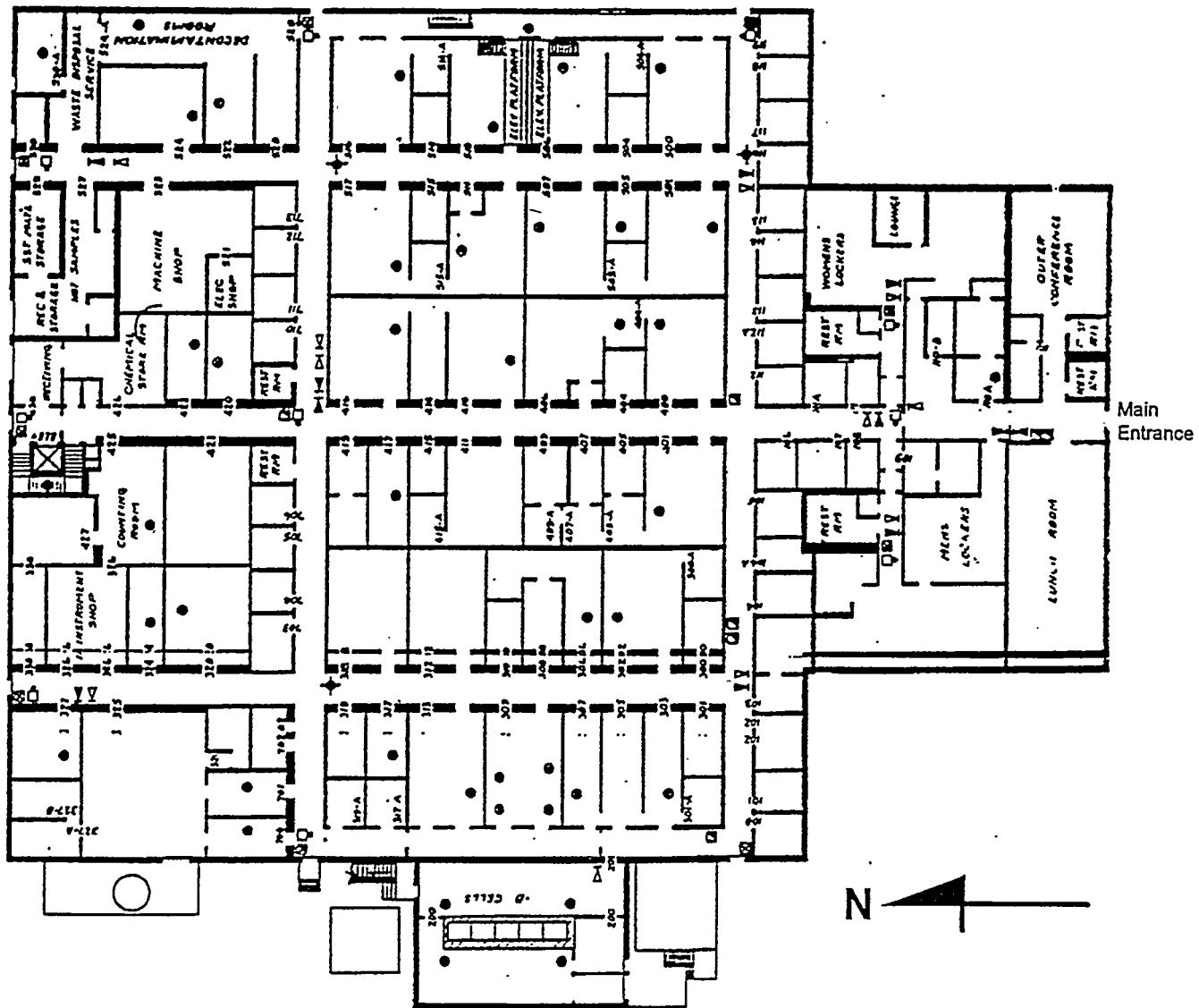


Figure 2 - Radioisotope Separation Facility

RIPR-42 Reactor Design Data

- Natural uranium, heavy water moderated
- 6 tons natural uranium in the core
- 185 fuel assemblies
- Each fuel assembly: 9 meters long, 3 clusters, 7 pins per cluster
- 50 MW thermal
- 50 kg U per fuel element
- 75 g Pu per fuel element at end of fuel life
- 2000 MW-days/ton burnup at end of fuel life

COGNITIVE SKILLS EXAMPLES FROM INTEGRATING EXERCISE

Perception/Recognition

Over the course of the walk-through did you note objects or features that you would like to have examined more closely (e.g., you wanted to ask Operator guide about specific elements or objects in the facility)?

Were you able to quickly (and accurately) recognize objects visible to you during the walk-through? Were there any objects (easily visible) that were difficult to recognize?

Did you find yourself using closure skills to fill-in missing information to identify or more clearly perceive objects or features you observed or information that the Operator guide was providing you? [E.g., recognizing the spent fuel cask even though it is obscured by the tarp.]

Blueprints located on the desk in the hallway of the construction area. If time had permitted, the observer should take a closer look at these.

Attention/ Attention to Detail

Challenges of allocating your attention among what you observe as the walk-through proceeds, what the Operator is telling you, and the information on the site plan, the facility diagram, and the prebriefing document: did you find yourself focusing your attention on one source or dividing your attention among the various sources?

(Try to listen and view at once, relying on your memory of the written materials as much as possible, referring to them selectively only when necessary to clarify what you hear or see.)

Three support facilities are surrounded by high-security fences, while the reactor appears to have no fencing at all. (May want to include mental modeling and judgement to determine that this discrepancy may suggest alternative activities in the support facilities.)

Detect the presence of a double fence around only parts of the support facilities. (This should lead to assessment of one's mental models to determine the need for such fencing.)

Detect the criticality alarms and radiation monitor in the hallway.

Noticing that the facility designators for the three support facilities do not form obviously meaningful acronyms, as they do for the Radioisotope Production Reactor.

Memory

Did you develop a **memory strategy** to take advantage of available knowledge in the world - - e.g., since you were able to keep the Prebriefing document, with site plan and facility diagram. How would your memory strategy have differed if **you did not have access to design information** during the walk-through?

Did you attempt to **encode key information** in the Prebriefing Document, including the site plan, facility diagram, as well as in the Operator's overview, to use as reference during the walk-through?

Did you make **notes** as you read and as you went on the walk-through? Did you **mark up** your site plan and facility diagram?

Did you remember that the Prebriefing document did not mention the **uranium fire** referred to in the Site Orientation.

Did you remember that we did not **exit** through the door indicated by the Operator in the Site Orientation.

Did you remember the **accident and fire** and noticing the inconsistency with the **open hatch** to the reactor containment.

Mental Imaging

Did you **analyze spatial relationships** during the walk-through (e.g., by **comparing size, dimensions, and locations of particular places to their stated purpose**)?

Did you compare the size of the **Irradiation Target Manufacturing Plant, the Radiochemistry Research Laboratory, and the Radioisotope Separation facility** with the size one would expect given their stated purpose.

Did you notice that the actual **footprint of PRP1-42** is inconsistent with the site plan (temporary buildings to the south).

Did you question why the **decontamination rooms** are located so far from the hot cells.

Mental Mapping

Did you attempt to **systematically learn the site plan and the facility diagram** so that you would not have to constantly refer to them during the walk-through?

Did you attempt to **relate the site plan and the facility diagram to each other?** To the **actual layout of the facility?** (Relating the PRP2-42 facility diagram to the route indicated by the Operator and the route actually followed.)

Were you generally able to **follow where you were** relative to your mental map of the facility or the facility diagram itself?

Did you notice and use the **numbering system** to which the operator was referring?

Did you notice that the **footprint of PRP2-42** on the site plan is not consistent with the facility diagram, or the actual building as observed in the external walk-around.

Did you question why the Hot Cell area is marked "**B Cells**," when neither the facility diagram nor the walk-through indicate "**A Cells**."

Mental Models

Did you form a **mental model of the declared purposes** of the facilities? Did you refer to **alternative mental models** (e.g., of spent fuel reprocessing) and compare your observations to what one would expect given these alternative mental models?

Did you notice that the **exhaust stack on PRP1-41** is not consistent with its declared function.

Did you notice that **PRP2-42 is taller** than would be consistent with its declared function.

Did you notice that the **curtains in the 200 corridor** are inconsistent with a radiological protection zone.

Did you have a **sufficiently flexible mental model of a potential reprocessing facility** to entertain the possibility that it might be spread over **multiple buildings**.

Judgment

Access hatch to reactor containment is open. This is **not consistent with the accident and fire** which would have rendered the inside of the reactor vessel inaccessible. (Before a judgment could be made, however, the inspector would need to attend to the open hatch, assess the mental model of a hatch following a fire, and then determine that the open hatch was inconsistent with the fire and conclude that the report of a fire was unlikely.)

Curtains in the 200 corridor are inconsistent with a radiological protection zone. (This requires knowledge of radiological protection zones and prohibitions against such material).

How would you reach an **overall decision or conclusion?** You did not observe enough to reliably conclude the **true purpose** of the facility -- but you did receive enough information to **update your judgment about the likelihood that the declaration is incomplete in some respect.**