ATTACHMENT 3

LICENSED OPERATOR REQUALIFICATION TRAINING PROGRAM DESCRIPTION

TMI - 1

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1.0 PURPOSE

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The goal of the operator regualification program is to enhance nuclear plant safety and reliability by maintaining a high level of skill and knowledge in licensed senior operators and licensed operators.

To achieve this goal, the operator regualification program is designed to be sufficiently broad in scope to review areas of knowledge necessary for safe plant operation and flexible enough to cover recent operating experience and operational changes so that proficiency can be enhanced and operational safety maintained.

The regualification program described in this document is implemented utilizing four interrelated segments. These segments are:

- 1) Pre-Planned Lecture Series
- 2) Skills Training and Evaluation
- 3) Operational Review Program
- 4) Annual Examination and Evaluation

Each program segment is described separately. The operator requalification program shall be conducted on a cyclic basis so that all program requirements are completed in a period not to exceed two years. Successive regualification programs shall be conducted on a schedule enabling a continuing program to exist.

The operator requalification program shall be established with fixed performance standards and specified remerial training requirements in the event of deficiencies occurring. The program training materials, performance results and records shall be maintained in a fully auditable manner.

Guidelines pertaining to duration of training in the requalification program are estimates of the time needed for retraining of licensed personnel. The training sessions needed to cover special nuclear plant operating situations or significant ductear industry operating experiences may result in adjustments to these estimates. The duration of training shall also be adjusted as appropriate in order to assure that licensed personnel performance meets or exceeds established performance standards.

2.0 REFERENCES

- a) 10 CFR 55, Appendix A, Draft Revision 5/14/80
- b) NRR letter of March 28, 1980 on Qualifications of Reactor Operators
- c) NUREG 0737, Enclosure 3
- a) ANS 3.1, Drait Revision 10/80

- e) Reg. Guide 1.8, Draft Revision 9/80
- f) INPO-Nuclear Power Plant Regualification Program of Licensed Personnel

3.0 DEFINITIONS

The definitions given below are of a restricted nature for the purpose of this program.

<u>Drill</u> - A supervised training exercise conducted in a work environment for the purpose of developing and maintaining skills required to cope with plant abnormal/emergency conditions and including an evaluation of performance.

<u>Contact Hour of Instruction</u> - A one hour period in which the course instructor is present or immediately available for instructing or assisting students: lectures, seminars, discussions, problem solving sessions, and examinations are considered contact periods under this definition.

Licensed Operator (RO) - Any individual wno possesses an operator's license pursuant to Title 10, Code of Federal Regulations, Part 55, "Operators' Licenses".

Licensed Senior Operator (SRO) - Any individual who possesses a

senior operator's license pursuant to Title 10, Code of Federal Regulations, Part 55, ' verators' Licenses".

<u>Annual</u> - As referred to in the operator regualification program, is twelve (12) months, not to exceed fifteen (15) months, in order to accomodate plant operations. March 1, and subsequent anniversaries of this date, will be considered the starting date of each annual cycle of regualification program operation.

Shall, Should, and May - The word "shall" is used to denote a requirement; the word "should" to denote a recommendation; and the word "may" to denote permission - neither a requirement nor a recommendation.

4.0 PROGRAM DESCRIPTION

4.1 OBJECTIVES

The Regualification Program objectives are to:

- 1) Maintain nuclear plant opera ional safety and reliability.
- Assure that licensed personnel maintain the high level of skill and knowledge required to accomplish routine and emergency duties.

 Establish a system for evaluating and documenting licensed personnel proficiency and competency.

4.2 PRE-PLANNED LECTURE SERIES

The operator regualification program shall include pre-planned training sessions conducted on a regular and continuing basis. The training sessions shall include two types of lecture series as follows:

1) Fundamentals Review Lecture Series

2) Operational Proficiency Lecture Series

4.2.1 Fundamentals Review Lecture Series

The Fundamentals Rev ew training sessions cover areas in which the knowledge required of a licensed individual is relatively constant.

4.2.1.1 Lecture Series Topics The Fundamentals Review lecture topics are selected on an as-needed basis and shall

include the following:

Theory and Principles of Reactor
 Operation.

 Heat Transfer, Fluid Flow and Thermodynamics.

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- Features of Facility Design including Plant Systems.
- General and Specific Plant Operating Characteristics including Expected Response to Equipment Failure.
- Plant Instrumentation and Control Systems.
- 6) Plant Protection Systems.
- 7) Engineered Safety Systems.
- Radiation Control and Safety and Plant Chemistry.
- Applicable Portions of Title 10,
 Chapter I, Code of Federal Regulations.
- 10) Fuel Handling and Core Parameters

4.2.1.2 Lecture Series Topic Selection

The topics presented in the Fundamentals Review series should reflect the general results of the annual examinations and performance of the licensed personnel as evaluated by the Manager of Operations and the Operations and Maintenance Director. The scope of the lecture series should be determined by the Supervisor, Licensed Operator Training and approved by the Operator Training Manager. The dept, of coverage in each topic should reflect typical deficiencies identified by the annual examinations.

4.2.2 Operational Proficiency Lecture Series

The Operational Proficiency training sessions cover areas which involve essential plant operational guidelines.

4.2.2.1 Lecture Series Topics

The Operational Proficiency lecture topics are selected to ensure coverage of essential plant operational guidelines and to ensure operational changes and experiences are integrated into licensed individual's training. The lecture topics should include the following:

- Normal, Abnormal and Emergency Operating Procedures and Changes Thereto.
- 2) Technical Specifications.
- 3) Administrative Procedures, Conditions

and Limitations and Changes Thereto.

- 4) Major Operational Evolutions.
- 5) Facility Design and License Changes.
- 6) Operating History and Problems.
- Related Nuclear Industry Operating Experience.
- 8) Mitigation of Accidents Involving a Degraded Core.

4.2.2.2 Lecture Series Topic Selection

The topics presented in the Operational Proficiency Series shall include all the topics listed in Section 4.2.2.1, unless the applicable information is covered in another appropriate manner, such as staff discussion sessions or Operational Review Program (Section 4.4) discussion sessions.

The scope of the lecture series should be determined by the Supervisor, Licensed Operator Training and the Operator Training Manager taking into account the Manager of Operation's and the Operations and Maintenance Director's inputs. The depth of the coverage in each topic should

reflect the knowledge required of the Licensed Senior Operator

4.2.3 P---Planned Lecture Series Schedule

The Pre-planned Lecture Series shall be scheduled on an annual basis. Lectures may be deferred due to unanticipated events, but should be conducted as soon as practicable thereafter and within the annual cycle.

The lecture series shall be held on a continuing basis with a weekly schedule of lectures designed to be repeated for each shift when that shift is designated for its training week. The program and schedule will be determined by unit operations or projected operations and must take into account planned and unplanned outages and available simulator time. It shall typically involve approximately 240 contact hours of instruction divided among the program topics and appropriately scheduled throughout the year. Records of the topics covered in each session shall be maintained by the Training Department.

4.2.4 Pre-Planned Lecture Series Attendance

Attendance of all licensed personnel shall be recorded. Absences should be approved in advance by

the Manager of Operations or the Operations and Maintenance Director, Unit 1, and should be limited to one training week per year. Additional absences unless approved by the Manager of Operations shall result in the individual being removed from licensed duties and placed in an accelerated regualification program until such time as the missed material is made up. in any case, the individual who misses training st l be responsible for the material presented in s absence and shall take the guiz that was given on a missed material. Those personnel whose annual written examination scores indicate that a mandatory upgrading of their knowledge level is required, as indicated by a grade of less than 80% in any section, must attend the applicable pre-planned lecture series presentation. Mandatory attendance requirements shall be determined by the Supervisor, Licensed Operator Training.

4.2.5 <u>Pre-Planned Lecture Series Training Methods</u> The pre-planned lecture series shall use training sessions supported by prepared lesson plans.

4.2.5.1 Lecture Presentation

For each training session in the lecture

series, a lesson plan shall be prepared, reviewed, and approved in accordance with Training Department Procedures TD 1103 and TD 1104.

The incorporation of training aids such as trainee handouts, films, slides, models, transparencies, and videotape presentations is encouraged. The lesson plan shall become the reference source for the information covered during the lecture and shall be retained as part of the program records.

In the event that videotape or film presentations or computer-based instruction are used, an instructor shall be available to embellish, explain or emphasize the presentation and to respond to any questions or comments from the trainees.

4.2.5.1 Study Periods

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Study periods should be scheduled in conjunction with the Pre-Planned Lecture Series to provide licensed trainees an

opportunity to reinforce the lecture series learning experience and to study new or additional materials. While individual self-study is encouraged, it should not be substituted for training sessions implemented by an instructor conducted as part of the Pre-planned Lecture Series.

4.2.5.3 Instructor Qualifications

 Training Department and facility instructors who teach systems, integrated responses and transient courses shall have demonstrated their competence to the NRC by successful completion of a senior operator examination.

2. "Guest" lecturers who are experts in a particular subject area need not possess the above qualification. The scheduling and appearance of "Guest" lecturers shall be approved in writing by the Operator Training Manager or Manager, Plant Training.

3. Training Department instructors should attend the first Instructor Development Program presented following their selection as instructors. Waivers may be approved by the Manager, Plant Training based on previous experience.

4.2.6 Pre-Planned Lecture Series Evaluation

The lecture series shall be evaluated by conducting evaluations of the trainee's knowledge, effectiveness of the overall lecture series, and effectiveness of the instructors.

4.2.6.1 Lecture Series Quiz

After each week of lectures, all trainees shall take a written, closed-book guiz covering the lecture topic(s).

4.2.6.1.1 <u>Quiz Administration</u>
During or at the completion of
a group of lectures, an
evaluation of trainee
knowledge shall be made. The
evaluation shall contain
guestions related to the

lesson plan objectives covered during the lectures. All lecture topics covered during the training session should be represented by questions in the evaluation. In addition, questions shall be included from selected abnormal and emergency procedures as designated by the Supervisor Licensed Operator Training, such that all abnormal and emergency procedures are tested on a biannual basis.

A variety of question types may be used, but questions requiring analysis or detailed discussion should predominate. An answer key with predetermined question point values should be prepared for evaluation and record keeping purposes.

4.2.6.1.2 Quiz Standards

Quizzes shall be evaluated and a grade determined for each trainee. A performance standard of 80% shall be established for a written quiz. Trainees who do not meet these performance standards should complete a remedial review process within six (6) weeks consisting of:

- Trainee review of the training session material associated with identified knowledge deficiencies.
- Trainee review of associated reference material identified by the instructor.
- Administration of a second quiz covering at least the identified knowledge deficiencies.

If the second quiz is completed satisfactorily, the trainee should receive credit for completion of the required lecture. If the second quiz is unsatisfactory, the Supervisor Licensed Operator Training_shall notify the Manager of Operations with copies to the Operations and Maintenance Director and the Director, TMI-1, via the Operator Training Manager and Manager, Plant Training of the evaluation results and provide a recommendation regaring the trainee's removal from licensed duties and entrance into an accelerated regualification program (Section 4.6.1).

Trainees whose attendance at all or part of the training sessions covered by a particular guiz is mandatory based on the previous annual

examination, but must achieve a score of at least 80% on the applicable sections of the first quiz or be assigned an accelerated regualification program per section 4.6.1.

4.2.6.2 Lecture Series Effectiveness

The effectiveness of the lecture series should be evaluated by the trainees, Manager of Operations and the Supervisor, Licensed Operator Training. The results of this evaluation should be factored into subsequent regualification training.

4.2.6.2.1 Lecture Series Evaluation

An overall evaluation of the annual lecture series should be conducted on at least an annual basis. The evaluation bould encompass the instructors, training materials, presentation techniques, quiz tecnniques, and classroom facilities.

This evaluation should be conducted by individuals designated by the Supervisor, Licensed Operator Training and should consider input from the trainees, Manager of Operations and the program instructors. Significant problems should be considered and resolved by the Supervisor, Licensed Operator Training and the Operator Training Manager.

4.2.6.2.2 <u>Presentation Evaluation</u> Evaluation of selected lecture series training sessions shall be conducted periodically. The evaluations should be directed toward ensuring overall guality of instruction for the lecture series. The evaluation should encompass instructor preparation, presentation techniques, and

technical content of the lecture. This evaluation should be conducted by personnel designated by the Manager, Plant Training or the Sperator Training Manager.

Problems identified by these evaluations should be resolved by the instructor and the Supervisor, Licensed Operator Training.

4.3 SKILLS TRAINING AND EVALUATION

In order to maintain an acceptable level of skills and familiarity associated with the nuclear plant systems, controls, and operational procedures, each licensed individual shall participate in frequent and varied plant evolutions. Each licensed individual shall demonstrate operational proficiency by participating in the following activities:

- 1) Reactivity Manipulations and Plant Evolutions
- 2) Nuclear Plant Simulator Exercises
- 3) Plant Drill Program

To maintain these skills, licensed operators shall actually manipulate the controls while licensed senior operators may either manipulate or actively supervise manipulation of the controls. Training to achieve proficiency should be planned so that skills training exercises are repeated until proficiency is demonstrated.

4.3.1 Reactivity Manipulations and Plant Evolutions

During the two year term of the NRC license, each licensed individual shall participate in a variety of reactivity control manipulations and plant evolutions.

4.3.1.1 Normal Plant Evolutions

On an annual basis, each licensed individual shall participate in the following plant evolutions either at the nuclear plant or at a nuclear plant simulator:

 Plant or reactor startup and power escalation to a range where reactivity feedback from nuclear heat addition is noticeable and heatup rate is established.

2) Plant shutdown.

- 3) Manual control of steam generator water level and/or feedwater flow during plant startup and/or shutdown.
- Boration and/or dilution during 'ower operation.
- Reactor power changes of 10% or greater where rod control is in manual.
- 6) Reactor power changes of 10% or greater where load change is performed with load control on manual.
- Operation of turbine controls in manual during turbine startup.
- 8) Decay heat removal system operation.
- 9) Incore monitoring system operation.
- Control room calculations including heat balance, coolant inventory balance, and reactivity balance.

Individual performance during these plant evolutions shall be monitored and deficiencies corrected so that satisfactory proficiency is demonstrated.

4.3.1.2 Abnormal/Emergency Plant Evolutions

On an annual basis, each licensed

individual shall participate in training exercises covering the following plant abnormal/emergency conditions either at a nuclear power plant simulator or during the plant drill program:

- 1) Reactor trip
- 2) Turbine or generator trip
- 3) Loss of coolant including:
 - a) Significant steam generator leaks
 - b) Significant pressurizer leaks
 - c) Large and small leaks located inside and outside primary containment (including leak rate determination for small leaks inside containment)
 - d) Saturated reactor coolant system
 response
- Loss of coolant flow/natural circulation
- 5) Loss of all feedwater (normal and emergency)
- 6) Control room inaccessibility
- 7) Loss of shutdown cooling.

On a two-year cyclic basis, each licensed individual shall participate in training exercises covering the following plant abnormal/emergency conditions either at a nuclear plant simulator or during the plant drill program.

- 1) Nuclear instrumentation failure(s)
- Loss of protective system channel(s)
- Mispositioned control rod(s) (or rod drops)
- 4) Inability to drive control rods
- Conditions requiring use of emergency boration or standby liquid control system.
- Fuel cladding failure or high activity in reactor coolant or offgas
- Malfunction of automatic control system(s) which affect reactivity
- Malfunction of reactor coolant pressure/volume control system
- 9) Loss of instrument air
- Loss of electrical power and/or degraded power sources
- 11) Loss of condenser vacuum

- 12) Loss of service water
- Loss of component cooling system or cooling to an individual component
- 14) Loss of normal feedwater or normal feedwater system failure
- 15) Main steam line break (inside or outside containment).

Response to abnormal/emergency conditions should include use of alternate methods of accomplishing a given function, such as alternate methods of core cooling. Exercises involving multiple failures and/or operator error shall be included. Utilization of applicable plant procedures and technical specifications during the training exercises should not be minimized.

Individual and operational team performance during the abnormal/emergency training exercises shall be monitored and deficiencies corrected so that satisfactory proficiency is demonstrated.

4.3.1.3 Performance of Reactivity Manipulations and Plant Evolutions

Reactivity manipulations and plant

evolutions shall be conducted either at the nuclear plant or at a suitable nuclear plant simulator.

4.3.1.3.1 <u>Performance of Normal Plant</u> <u>Evolutions</u>

Normal plant evolutions shall be either performed at the nuclear plant or performed at a suitable nuclear plant simulator (Section 4.3.2).

4.3.1.3.2 Performance of Abnormal/

Emergency Plant Evolutions Abnormal/emergency plant evolutions shall be either performed at a nuclear plant simulator (Section 4.3.2) or conducted during the plant drill program (Section 4.3.3).

In the event that an actual abnormal/emergency condition occurs at the plant and performance of the licensed

personnel coping with the condition is satisfactory (as determined by the Manager of Operations), credit for completion of a trairing exercise may be taken.

4.3.2 Nuclear Plant Simulator Exercises

A nuclear plant simulator provides a means of training licensed individuals to conduct normal plant evolutions and to cope with nuclear plant transient and accident conditions. Licensed individuals shall participate in a structured training program utilizing a nuclear plant simulator on an annual basis.

During the simulator training sessions, the team concept should be utilized, emphasizing individual roles in reporting, assignment of operational duties, use of plant procedures and use of technical specifications. Assignment to simulator training sessions which are direct interactions with the nuclear plant control panel should be made on a crew basis with other licensed individuals integrated into

the crews not to exceed one additional individual per crew.

Each licensed individual shall complete nuclear plant simulator training sessions involving at least twenty (20) nours of direct interaction with the simulator nuclear plant control panel on an annual basis. Brief post-evolution critiques conducted at the simulator nuclear plant control panels may be considered as part of the direct interaction session.

Lecture sessions conducted in conjunction with a simulator training program covering topics designated in the Pre-planned Lecture Series may be credited toward fulfilling the requirements of Section 4.2.

Reactivity manipulations, plant evolutions, and exercises which should be considered in the simulator training program include:

- 1) Normal Plant Evolutions (Section 4.3.1.1).
- Abnormal/Emergency Plant Evolutions (Section 4.3.1.2).
- 3) Verification of Plant Operating Procedure Adequacy
- Demonstration of plant response to conditions identified from nuclear industry operating

experiences.

Instructors presenting simulator training sessions snall have demonstrated their competence to the NRC by successful completion of a Senior Operator Examination.

4.3.3 Plant Drill Program

Plant drills provide a means of training licensed individuals in responding to plant abnormal/emergency conditions. Licensed individuals shall participate in the plant drill program on an annual basis.

4.3.3.1 Plant Drills

On an annual basis each licensed individual shall participate in plant drills. Plant drills shall be conducted so that each licensed individual actively participates in drills covering abnormal/emergency plant evolution... (Section 4.3.1.2) which are not adequately covered in the nuclear plant simulator training program (Section 4.3.2).

Participation in a plant dr' _ involves either responding to drill conditions or being an assigned monitor for observing/evaluating response to a drill. Plant drills may be structured to review or carry out actions required to respond to abnormal/emergency plant conditions.

Plant drills may be conducted with the approval of the Manager of Operations, on an individual or team basis and may involve:

- 1) Reviewing plant procedure steps.
- Identifying actions required to establish stable plant conditions.
- Identifying equipment control locations and functions.
- Identifying expected plant
 instrumentation and alarm response.
- Reviewing communications necessary to gather information or coordinate team actions.
- 6) Identifying supplementary actions aimed at mitigating results or causes of plant abnormal/emergency conditions.

4.3.3.2 Plant Drill Scenarios

Each plant drill must be carefully planned and monitored in order to ensure actual abnormal/emergency conditions are not inadvertently initiated during the drill and in order to evaluate individual or team response to the drill conditions.

Each plant drill streatured to include carrying out actions should be planned in a prepared drill scenario, approved by the Manager of Operations. The Operations and Maintenance Director and Director TMI-1 shall approve scenerios for major emergency drills. The drill scenario should include the following:

- 1) Purpose/objectives of the drill
- 2) Initial conditions
- 3) General description
- 4) Method of initiation
- 5) Precautions and limitations
- 6) Sequence of expected actions
- Point of termination/conditions under which the drill is to be secured
- 8) Final conditions
- 9) Monitors required/location

The drill performance should be eviduated and deficiencies identified. A drill critique should be held by the Senior Monitor with the drill participants. Deficiencies identified should be reviewed by the Supervisor, Licensed Operator Training. Additions or modifications to training programs required to correct performance deficiencies should be initiated by the Supervisor, Licensed Operator Training and/or the Manager of Operations.

4.3.4 Skills Evaluation System

Licensed personnel performance and competency related to performing licensed duties shall be periodically evaluated. Repeated errors or other indicators of degraded proficiency should be reviewed by the Manager of Operations and the Operator Training Manager and appropriate training initiated.

Evaluation of licensed personnel job performance should be utilized to relate job performance to regualification training. The Manager of Operations should provide the Supervisor, Licensed Operator

Training or the Operator Training Manager with periodic observations identifying job performance results related to regualification training. Each licensed individual's performance shall be evaluated during the following situations:

- 1) Nuclear Plant simulator exercises
- 2) Plant drills

The Supervisor, Licensed Operator Training should ensure evaluations are conducted during the simulator and drill exercises.

4.3.5 Skills Training Participation

In the event that skills training guidelines for participation in normal plant evolutions (Section 4.3.1.1), abnormal/emergency plant evolutions (Section 4.3.1.2) or plant drills (Section 4.3.3.1) are not met, exercises which will fulfill the requirements should be schedul, and completed within twelve (12) weeks of the required period. If the requirements are not completed within the twelve (12) week period, the Supervisor, Licensed Operator Training shall notify plant management and the Director TMI-1 via the Operator Training Manager and the Manager, Plant Training and provide a

recommendation regarding the licensed individual's removal from licensed duties.

In addition to meeting the requirements for participation noted above, Off snift licensed personnel assigned to the Operations Department shall actively participate in control room operation a minimum of one shift per month. Licensed instructors from the Training Department staff shall actively participate in control room operation a minimum of two shifts per month. During this period these licensed personnel must assume (actual or under instruction) and perform the duties of the on shift licensed operator as indicated by completing Appendix A and forwarding to the Training Department.

Based on schedule constraints, satisfactory participation shall be defined as meeting the requirements on a quarterly basis. If an individual has not spent six shifts in the control room over a given quarter, he shall have one month in which to make up the missed shifts. Failure to do so shall result in his being placed in the Inactive Status Retraining program, Section 4.6.2.

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4.4 OPERATIONAL REVIEW PROGRAM

The operational review program provides a system for on-shift review of selected operational experiences and changes to existing operating guidance or equipment. The operational review program enables r ntinuing updaling of on-shift personnel and establishes a means of disseminating new or changing informatic, on a short term basis.

4.4.1 Modification Review

A continuing system shall be established by the Manager of Operations so licensed individuals review documented plant design changes, equipment modifications, procedure changes and technical specification changes. Selected changes and modifications should be analyzed and information pertinent to the basis for the changes and their operational implications collected. This information should be formally transmitted to all licensed individuals with acknowledgement of review required. Changes to emergency procedures, technical specifications and safety related systems shall be reviewed prior to the licensee assuming shift operation responsibilities. The Manager of Operations and the Supervisor, Licensed Operator Training should specify changes and modifications to be analyzed, with information for review transmitted in accordance with the urgency of the situation. The Manage. of Operations should ensure that all on-shift licensed personnel review the selected information in a timely manner.

Expanded coverage of plant design changes, equipment modifications, procedure changes and technical specification changes in the Operational Proficiency Lecture Series (Section 4.2.2) should be considered by the Supervisor, Licensed Operator Training.

On-shift supervisory (SRO) personnel should provide guidance to on-shift operators in interpreting and reviewing changes and modifications. An on-shift discussion period to review changes and modifications is encouraged.

4.4.2 Operating Experience Review

A continuing system shall be established by the Manager of Operations so licensed individuals review operating experience from TMI and from applicable segments of the nuclear industry. Selected operational events and reportable occurrences at the

facility should be analyzed and information pertinent to the event collected. Selected operational information from the nuclear industry should be analyzed. The following sources of information shall be considered:

- 1) Licensee Event Reports
- 2) Audit, evaluation, and inspection reports
- Publications and periodicals covering nuclear industry information.
- 4) NS²C/INPO Significant Event Reports

This information should be formally transmitted to all licensed individuals with required acknowledgement of review. The Manager of Operations should ensure that all on-shift licensed personnel review the information in a timely manner.

Technical Functions personnel assigned to assess plant operating experience and the Supervisor, Licensed Operator Training shall specify operating experience to be analyzed for training purposes, with information transmitted to all licensed personnel for review. Subsequent coverage of operating experience in the Operational Proficiency Lecture Series (Section 4.2.2) should be considered by the Supervisor,

Licensed Operator Training. Selected nuclear plant accident/transient situations shall be analyzed and integrated into the Nuclear Plant Simulator Exercises (Section 4.3.2) or the Plant Drill Program (Section 4.3.3).

4.5 ANNUAL REQUALIFICATION EXAMINATION

In order to determine each 1? msed individual's knowledge of topics covered in the regualification program and provide a basis for determining areas in which retraining is needed, an annual regualification examination shall be given. The annual examination shall be given to all licensed individuals prior to the completion of each annual regualification program cycle and shall consist of an oral examination and a written examination.

4.5.1 Annual Written Examination

An annual written examination shall be administered to all licensed individuals.

4.5.1.1 Written Examination Content

The written examination shall contain examination guestions covering the following topics:

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- Theory and Principles of Reactor
 Operation
- Heat Transfer, Fluid Flow and Thermodynamics
- 3) Features of Facility Design
- General and Specific Plant Operating Characteristics
- Plant Instrumentation and Control Systems
- 6) Plant Protection System
- 7) Engineered Safety Systems
- 8) Radiation Control and Safety
- Applicable Portions of Title 10,
 Chapter I, Code of Federal Regulations
- 10) Fuel Handling and Cr :e Parameters
- 11) Normal, Abnormal and Emergency Operating Procedures
- 12) Technical Specifications
- 13) Administrative Procedures, Conditions and Limitations
- 14) Nuclear Industry Operating Experience

The transformed shall be grouped into at least six (6) examination categories for

evaluation purposes. The examination shall be structured so that the level of questioning is consistent with the individual's license level (RO or SRO).

4.5.1.2 Written Examination Administration

The written examination should be prepared under a structure enabling consistency of questioning and minimizing possible compromise of examinations prior to administration. The following guidelines should be considered:

- An examination guestion file shall be assembled containing guestions and answers on each examination topic.
- Questions should be formulated from many sources including:
 - a) Licensed personnel
 training program.
 - b) Regualification programs
 - c) Plant documents such as technical specifications and procedures.
 - d) Previous examinations.
 - e) Manager of Operations.

- f) Operating experience.
- g) Plant design changes and system modifications.
- 3) The examination should include a variety of question types, but questions requiring analysis and/or explanation should predominate.
- Questions and answers should be reviewed and approved by the Supervisor, Licensed Operator Training prior to use.
- 5) The Supervisor, Licensed Operator Training shall designate individuals to update the examination guestions and answers file annual?

Personnel designated by the Supervisor, Licensed Operator Training shall prepare the written examination(s) utilizing the examination question file. The number of different examinations prepared should be consistent with preventing examination compromise. The examination may be administered in segments. The examination, answer key and grading system

should be reviewed and approved by the Supervisor, Licensed Operator Training, Operator Training Manager or Manager of Operations prior to examination administration.

The Supervisor, Licensed Operator Training shall designate qualified personnel to grade the written examination and shall review the graded examinations for grading techniques and consistency.

4.5.1.3 Examination Performance Standards

A licensed individual receiving a grade of less than 70% in any examination category of an overall grade of less than 80% shall be relieved of his license duties and placed in an accelerated gualification program (Section 4.6.1).

Under special circumstances where a grade of less than 70% has been scored in a single section, the Director, TMI-1 may document the special circumstances and authorize an oral and written reexamination of the failed section within one (1) week. If the oral exam is

completed satisfactorily and a grade of 80% or greater is scored on the written section, the individual may return to shift in a licensed status with the approval of the Director, TMI-1.

4.5.2 Annual Oral Examination

An annual oral examination shall be administered to all licensed individuals.

4.5.2.1 Oral Examination Content

The oral examination should contain guestions covering the following areas:

- Licensed duties and responsibilities
 of the operating position
 corresponding to the individual's
 license level.
- Actions in the event of abnormal conditions.
- Actions in the event of emergency conditions.
- Interpretation of instrumentation responses.
- 5) Plant transient and accident response.
- 6) Plant modifications.

- 7) Procedure changes.
- 8) Technical Specificacions.
- 9) Emergency Plan.
- 10) Plant Operating history and problems.
- Related nuclear industry operating experiences.

4.5.2.2 Oral Examination Administration

The oral examination shall be conducted under a structure enabling consistency of guestioning and evaluation. The following guidelines should be considered.

- A checklist identifying the areas to be covered shall be used.
- Overall evaluation shall be made on a pass/fail basis.
- Comments on individual strengths and weaknesses shall be made.

The Supervisor, Licensed Operator Training and the Manager of Operations shall establish the oral examination schedule.

Personnel assigned to conduct an oral evaluation shall be designated by the

Supervior, Licensed Operator Training and approved by the Manager of Operations. Oral examinations shall be conducted by a Licensed Senior Operator or personnel who have successfully completed education and training programs required for a senior operator's license. Each oral examination should be structured so that an examination time of two (2) hours or more is appropriate.

The Oral examination should involve sessions conducted in the plant control room and in plant areas occupied by individuals whose actions are directed by the licensed operator.

4.5.2.3 Examination Performance Standards

A failing overall oral examination grade shall require the licensed individual to be removed from his license duties and be placed in an accelerated regualification program (Section 4.6.1).

4.6 SPECIAL RETRAINING PROGRAMS

Specific retraining programs for licensed individuals may be required to upgrade or refresh knowledge and skills related to licensed duties.

4.6.1 Accelerated Regualification Program

The accelerated regualification program is for licensed individuals having identified deficiencies requiring assignment to a special retraining effort.

4.6.1.1 Required Attendance

Licensed individuals meeting one or more of the following criteria shall be assigned to an accelerated regualification program:

- Annual regualification written examination performance deficiencies per Section 4.5.1.3.
- Annual regualification oral examination performance deficiencies per Section 4.5.2.3.
- Pre-planned lecture series quiz performance deficiencies per Section 4.2.6.1.2.

 Significant licensed duty performance deficiencies identified by the Manager of Operations and/or the Supervisor, Licensed Operator Training.

4.6.1.2 Program Content

The accelerated requalification program content shall be specifical. structured to upgrade knowledge and skills identified as deficient. Examination categories and areas in which performance standards were not met shall be covered in the program.

The Supervisor, Licensed Operator Training shall be responsible for formulating individual accelerated regualification programs. They shall be approved by the Operator Training Manager and the Manager of Operations.

4.6.1.3 Program Administration

The accelerated regualification program may involve a variety of training exercises including:

1) Directed self-study.

- Oral interviews and discussion sessions.
- 3) Pre-planned lectures
- Skills training exercises at the plant or utilizing a simulator.

Personnel assigned to implement the training exercises shall be qualified in accordance with Section 4.2.5.3 or 4.3.2 as appropriate.

Program duration should be dictated by the extent of training required and trainee's performance.

4.6.1.4 Performance Standards

Successful completion of the accelerated requalification program shall be determined by administering an examination. The examination shall cover all categories of the requalification written examination and/or all areas of the regualification oral examination originally failed. The examination format should be similar to the original

examination, and the examination shall be conducted by individuals designated by the Supervisor, Licensed Operator Training.

Performance standards for the accelerated requalification program shall be as follows:

- A score of at least 30% on each accelerated regualification written examination category.
- A passing evaluation on the accelerated regualification oral examination.

In the event that these standards are not met, the individual's suitability for resuming licensed duties will be reviewed by the Supervisor, Licensed Operator Training. He shall provide a recommendation to plant management and the Director TMI-1, via the Operator Training Manager and Manager, Plant Training regarding the individual's permanent removal from licensed duties or additional upgrading efforts to be considered.

If appropriate, another accelerated regualification program shall be structured to correct deficiencies.

4.6.2 Inactive Status Retraining

If a licensed individual has not actively carried out licensed duties for a period in excess of four (4) months, a special retraining program and/or evaluation is required prior to resuming licensed duties.

Active status can be maintained by performance of licensed duties and participation in the licensed personnel regualification program. Performance of licensed duties involves manipulation of controls which directly affect reactivity or power level of the reactor or directing the licensed activities of licensed operators, and for those licensed individuals not normally assigned to an operating shift, completing the requirements of Section 5.5 for participation in control room operations.

In the event that a licensed individual does not maintain an active status, the Supervisor, Licensed Operator Training shall designate, subject to

approval of the Manager of Operations, a Licensed Senior Operator to conduct an oral examination similar in scope and format to an annual oral examination prior to resuming licensed duties. In addition, evaluation of performance in the current Pre-planned Lecture Series shall be conducted. If performance in the Pre-planned Lecture Series is unsatisfactory, a written examination similar in scope and format to the annual written examination (Section 4.5.1) shall be administered to the licensed individual prior to resuming licensed duties. Consideration should be given by the Manager of Operations to assigning the licensed individual to a training status on an operating snift prior to resuming licensed duties.

The performance standards applied to the annual regualification examination shall be used in evaluating the results of the oral and written examinations. If the performance standards are not met, the licensed individual shall complete an accelerated regualification program prior to resuming licensed duties.

Licensed duties may be resumed only upon certification of the Director TMI-1, which must be forwarded to the NPC.

4.6.3 Newly Licensed Individuals

Newly licensed individuals shall enter the requalification program and participate in the annual program cycle upon receipt of their license. Newly licensed individuals successfully completing their NRC licensing examination less than three(3) months prior to an annual requalification examination may be excused from taking the current annual written and oral examinations.

4.7 REQUALIFICATION PROGRAM EVALUATION

A regualification program review and evaluation shall be conducted on an annual basis by the Supervisor, Licensed Operator Training. The areas encompassed by the review should include:

- Inspection, audit and evaluation reports of requalification training completed by outside organizations and facility personnel.
- Licensed individual performance evaluations related to licensed duties.

- 3) Program oral and written examination results.
- Plant operational problems related to licensed individual knowledge or skills deficiencies.
- Licensee Event Reports related to licensed individual performance from the plant and the nuclear industry.
- 6) Changes in job assignments related to licensed duties and/or safety related functions of licensed operators.
- Regulations and standards affecting licensed operator retraining.
- Assessment of licensed personnel performance deficiencies related to training prepared by the Manager of Operations.

Requalification program curriculum deficiencies and licensed operator retraining needs determined by the review shall be identified, recommended corrective actions structured and a report formulated for review by the training organization through the Director of Nuclear Assurance and the operations organization through the Director, TMI-1.

Requalification program deficiencies or required changes which need immediate action or significant program modification should be evaluated by the Supervisor, Licensed Operator Training as soon as provinciable. Necessary corrective action shall as a curgared by the Supervisor, Licensed Operator The curgared by the Supervisor,

4.8 RESPONSIBILITIES

- A. Supervisor, Licensed Operator Training is responsible for the following:
- Determining the scope of the Fundamentals Review and
 Operational Proficiency Lecture Series.
- Determining mandatory attendance requirements at regualification lectures based on weaknesses on previous annual regualification examination.
- Designating those abnormal and emergency procedures to be the basis of the guiz guestions for each six weeks' cycle such that all abnormal and emergency procedures are tested biannually.
- Preparing notification for plant management and the Director, TMI-1 of unsatisfactory guiz results from the lecture series.
- Designating individuals to conduct overall evaluation of the annual lecture series and resolving problems described in these evaluations.
- Resolving problems identified by evaluation of lecture series training sessions.

 Reviewing plant drill critiques and initiating additions or modifications to training programs to correct performance deficiencies noted.

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- Ensuring performance evaluations are conducted during simulator and drill exercises.
- Preparing notification for plant management and the Director, TMI-1 of unsatisfactory skills training participation.
- Specifying changes and ¬odifications to be analyzed for review in the operational review program.
- Determining expanded coverage of plant design changes, equipment modifications, procedure changes, and technical specification changes in the Operational Prc.iciency Lecture Series.
- Specifying, in conjunction with Technical Functions, operating experience to be analyzed for training purposes and integrating the information into the training program.
- Designating personnel to prepare and grade the annual written examination, approving the examination, answer key and grading system, and reviewing the graded

examination for grading techniques and consistency.

- Designating personnel to review and update the examination guestion file.
- Establishing the annual oral examination schedule.
- Designating personnel to conduct oral examinations.
- Identifying significant licensed performance deficiencies requiring accelerated requalification programs.
- Formulating individual accelerated regualification programs and designating individuals to conduct the associated examinations.
- Preparing recommendations to plant management and the Director, TMI-l regarding the permanent removal from licensed duties or additional upgrading efforts to be considered for those individuals failing to meet the standards of the accelerated regualification program.
- Designating licensed SRO's to conduct oral examinations for those individuals failing to maintain an active status.

- Conducting an annual regualification program review and evaluation, submitting a report on this review, and taking immediate corrective action where necessary.
- Establishing the regualification program records identified in Section 4.9.
- B. Operator Training Manager is responsible for the following:
- Approving the scope of the Fundamentals Review and Operational Proficiency Lecture Series.
- Approving scheduling and appearance of "Guest" lecturers.
- Designating personnel to evaluate selected lecture series training sessions.
- Reviewing repeated personnel errors or other indicators of degraded proficiency and initiating appropriate training.
- Approving the annual written examination, answer key and grading system.

Approving accelerated regualification programs.

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- C. Manager, Plant Training is responsible for the following:
- Approving waivers of attendance requirements for the Instructor Development Program.
- Designating personnel to evaluate selected lecture series training sessions.
- Ensuring that the Training Department's Administrative
 Support Section maintains the records identified in
 Section 4.9.
- D. Manager of Operations is responsible for the following:
- Providing inputs to the Training Department on topics to be presented in the Fundamentals Review and Operational Proficiency Lecture Series.
- Approving absences of licensed personnel from lecture series.
- Approving Plant Drill Scenerios, the conduct of plant drills and additions or modifications to training

programs as a result of drill critiques.

- Reviewing repeated personnel errors or other indicators of degraded proficiency and initiating appropriate training.
- Providing periodic observation to the Training Department identifying job performance results related to regualification training.
- Establishing a continuing system so that licensed personnel review documented plant design changes, equipment modifications, procedure changes and technical specification changes, specifying the changes and modifications to be analyzed, and ensuring that on-shift licensed personnel review the selected information in a timely manner.
- Establishing a continuing system so that licensed personnel review operating experience from TMI and applicable segments of the nuclear industry and ensuring that on-shift licensed personnel review the information in a timely manner.
- Approving the annual written examination, answer key, and

grading system.

- Establishing the annual oral examination schedule.
- Approving personnel designated to conduct oral examinations.
- Identifying significant licensed performance deficiencies requiring accelerated regualification programs.
- Approving accelerated regualification programs.
- Approving SRO's designated to conduct oral examinations for those individuals failing to maintain an active status.
- Establishing and maintaining operational review series participation records.

4.9 REQUALIFICATION PROGRAM RECORDS

Records of licensed individuals' performance in the regualification program shall be maintained in an auditable manner. The Supervisor, Licensed Operator Training is responsible for establishing the following regualification

program records:

. . .

- Oral and written examination results for each licensee.
- 2) Written examination guestions and a swer keys.
- 3) Lecture series attendance records.
- 4) Lecture series lesson plans.
- 5) Plant drill participation records.
- Reactivity manipulation and plant evolution participation records.
- 7) Simulator training participation records.

These records shall be maintained by the Training Department's Administrative Support Section.

Operational review series participation records shall be established and maintained by the Operations Department.

4.10 PROGRAM APPROVAL

 The Director of Unit 1, through the Operations and Maintenance Director and the Manager of Operations, certifies operators for regualification and relicensing. The Manager of Operations retains the responsibility to ensure that the overall level of training of plant operators is satisfactory through the approval of program content, schedules and administrative procedures and changes thereto.

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- The Manager, Plant Training through the Operator Training Manager, is responsible to ensure that the training program is developed to meet the requirements established by the Director of Unit 1 through the Manager of Operations and that proper records and documentation are provided and maintained.
- Lesson plans for implementation of the training program shall be reviewed by the Supervisor, Licensed Operator Training and approved by the Operator Training Manager.
- All changes to this program description shall be approved by the Manager of Operations and Manager, Plant Training.

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APPENDIX A

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OFF SHIFT LICENSED OPERATOR

WATCH STANDING DOCUMENTATION

I certify that ______has satisfactorily Off Shift Licensed Operator

assumed and performed the SS/SF/CRO duties (actual or under (Circle One)

Shift Supervisor

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NADIATION PROTECTION EXAMINATION

ANSWER SHEET

TYPE OF COURSE (CIRCLE ONE) :	TEST (CIRCLE ONF)
BASIC	1 2 2
INTERMEDIATE	1 2 3

MET-ED	EMPLOYEE NO. 3272	
(PLEASE	PRINT) PERMANENT TMI: YES () MJ	1
NAME :	HARDY E. WILLIAMS JR	
DATE:	4-28-79	
COMPANY	1: GREGE FECUDITU	

INSTRUCTIONS: There is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darken spaces appear for any question your answer will be considered wrong.

> . . NOTE: Please make sure the other side of this form is signed and dated before giving to the instructor for grading.

PASSED: 1 STEVEN LAVIE) Instructor

UN DATE: UNS SCORE:

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RADIATION PROTECTION EXAMINATION ANSWER SHEET

ATTACHMENT 5

TYPE OF COURSE (CIRCLE ONE)	TEST (CIRCLE ONE)
BASIC .	1 2 3
INTERMEDIATE	1 2 3

MET-ED EMPLOYEE NO. (PLEASE PRINT) PERMANENT TMI: YES () NO (>) NAME : DATE: 4/25/79 COMPANY: CATALYTIC

INSTRUCTIONS: There is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.

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Please make sure the ot tide of this form is signed and dated before giving to the in ctor for grading. NOTE: Please make sure the ot 11.10

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	Inst	ructor
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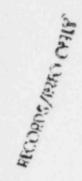
RADIATION PROTECTION EXAMINATION ANSWER SHEET

TYPE OF COURSE (CIRCLE ONE) ;	TEST (CIRCLE ONE)
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NAME :								
DATE:	4-2	8-79						

INSTRUCTIONS: There is only one correct answer for each question. Therefore, darken only the space for the one inswer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.

COMPANY: CATALYTIC



. NOTE: Please make sure the other side of this form is signed and dated before giving to the instructor for grading.

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RADIATION PROTECTION EXAMIMATION

ANSWER SHEET

TYPE OF COURSE (CIRCLE ONE) ;	TEST (CIRCLE ONE)
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MET-ED EMPLOYEE NO. (PLEASE PRINT) PERMANENT TMI: YES () NO (x) NAME : DATE: 4/28/79

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INSTRUCTIONS:

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These is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.

COMPANY: CATHLYT

NOTE: Please make sure the other side of this form is signed and dated before giving to the instructor for grading.

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SCORE:	.44	DATE:	4/28/79

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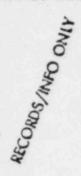
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4/20/79 DATE: COMPANY: CAT

INSTRUCTIONS:

There is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for a guestion your answer will be considered wrong.



NOTE: Please make sure the other side of this form is signed and dated efore giving to the instructor for grading.

PASSED: SCORE: 42 DATE:

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RADIATION PROTECTION EXAMINATION ANSWER SHEET

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INTERMEDIATE	1 2 3

MET-ED EMPLOYEE NO.

(PLEASE PRINT) PERMANENT TMI: YES () NO (X)

DATE: 4-28-79 COMPANY: Catalytic

INSTRUCTIONS:

There is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.



NOTE: Please make sure the other side of this form is signed and dated before giving to the instructor for grading.

PASSED:	X.B. Waton
	Instructor.

40 SCORE:

DATE:

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	RADIATION	ANSWER SHEET
TYPE OF COURSE (CIRCLE ONE)	TEST (CIRCLE ONE)	MET-ED EMPLOYEE NO. 6040
BASIC INTERMEDIATE	123	(PLEASE PRINT) PERMANENT TMI: YES () NO () NAME:
		COMPANY: CATALYTIC

There is only one correct answer for each question. Therefore, darken only INSTRUCTIONS: the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened COSSIE OUNOTE: spaces appear for any question your answer will be considered wrong.

Please make sure the other side of this form is signed and dated before giving to the instructor for grading.

PASSED:	KB Water	
	Instructor.	-,

4/28/79 SCORE: 44 DATE:

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TYPE OF COURSE (CIRCLE ONE) ;	TEST (CIRCLE ONE)
BASIC	
INTERMEDIATE	123

MET-ED	EMPLOYE	E NO	_		
(PLEASE	PRINT	PERMANENT TH	II: YES () NO	(X)
NAME:					
DATE:	4-	28-79	_		
COMPANY	1: C	ATALY	TIC		

INSTRUCTIONS: There is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.

PASSED: A a Instructor 4/28/79 41 SCORE: DATE:

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RADIATION PROTECTION EXAMINATION

ANSWER SHEET

TYPE OF COURSE (CIRCLE ONE)	TEST (CIRCLE ONE)
BASIC	123
INTERMEDIATE	1 2 3

MET-ED	EMPLOYE	E NO. 5 _					
		PERMANENT		YES	(* ⁻)	NO	(1)
NAME:							
DATE:	4-	28-79					
COMPANY	: _C	fylefe	ie			•	

INSTRUCTIONS:

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There is only <u>one</u> correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.

NOTE: Please make sure the other side of this form is signed and dated before giving to the instructor for grading.

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TYPE OF COURSE (CIRCLE ONE)	TEST (CIRCLE ONE)
BASIC	
INTERMEDIATE	123

DATE: 7128173 CATALYTIC COMPANY :

INSTRUCTIONS: 1

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There is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.

PASSED: a nstructor 38 SCORE: DATE:

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TYPE OF COURSE (CIRCLE ONE)	TEST (CIRCLE ONE)
BASIC	
INTERMEDIATE	1 2 3

MET-ED	EMPLOYE	E NO					
(PLEASE	PRINT)	PERMANENT	TMI:	YES	()	NO	
NAME:							1
DATE:	4-2	8 - 79					
COMPANY	: Co	talyti	2				

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INSTRUCTIONS: There is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.

PASSED: nstructor

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42 DATE:

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RADIATION PROTECTION EXAMIMATION

ANSWER SHEET

TYPE OF COURSE	TEST
(CIRCLE ONE) ;	(CIRCLE ONE)
BASIC	123

MET-ED	EMPLOYE	E NO.					
(PLEASE	PRINT)	PERMANENT	TMI:	YES	()	N
NAME:							
DATE:	Amil	28 197	q				

INSTRUCTIONS:

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COMPANY: Cataly Lie

NOTE: Please make sure the other side of this form is signed and dated before giving to the instructor for grading.

PASSED: ructor

SCORE: 36

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TYPE OF COURSE (CIRCLE ONE)	TEST (CIRCLE ONE)
BASIC	
INTERMEDIATE	1 2 3

MET-ED	EMPLOYS	E NO						
(PLEASE	PRINT)	PERMANENT	TMI:	YES	()	NO	¢
NAME :								
DATE:	4- 2	8-29						
COMPANY	: 1	NSS						

INSTRUCTIONS:

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There is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placin your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.

NOTE: Please make sure the other side of this form is signed and dated , before giving to the instructor for grading.

PASSED: SCORE:

Instructor 123

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TYPE OF COURSE (CIRCLE ONE) :	TEST (CIRCLE ONE)
BASIC	1.0.0
INTERMEDIATE	1 2 3

MET-ED EMPLOYEE NO	
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(PLEASE PRINT)	PERMANENT	TMI:	YES	()	NO	(
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NAME :

DATE: 4-28-79

COMPANY: CATALYTIC

INSTRUCTIONS: RECORDS AND ONLY

There is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.

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PASSED: Instructor. SCORE:

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TYPE OF COURSE (CIRCLE ONE)	TEST (CIRCLE ONE)
BASIC	
INTERMEDIATE	1 2 3

MET-ED	EMPLOYE	E NO				
(PLEASE	PRINT)	PERMANENT TMI:	YES ()	NO	C
NAME:						
DATE:	4-2	8 79				

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INSTRUCTIONS: There is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.

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Instructor

SCORE:

PASSED:

DATE:

COMPANY: CATALYTIC,

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RADIATION PROTECTION EXAMINATION

ANSWER SHEET

TYPE OF COURSE (CIRCLE ONE) ;	TEST (CIRCLE ONE)
BASIC	
INTERMEDIATE	1 2 3

MET-ED	EMPLOYE	E NO						
(PLEASE	PRINT)	PERMANENT	TMI:	YES	()	×Ó	,
NAME :								
DATE:	4-2	8-79						
COMPANY	1:	1. Sec. 1.	•					

INSTRUCTIONS:

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There is only <u>one</u> correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.

NOTE: Please make sure the other side of this form is signed and dated before giving to the instructor for grading.

DATE:

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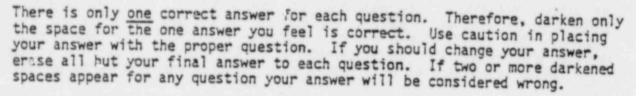
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TYPE OF COURSE (CIRCLE ONE) ;	TEST (CIRCLE ONE)
BASIC	
INTERMEDIATE	1 2 3

MET-ED EMPLOYEE NO. (FLEASE PRINT) PERMANENT TMI: YES () NO (4) NAME: 4/281.79 DATE CATALYTIC COMPANY:

INSTRUCTIONS:

WAND ONLY



NOTE: Please make sure the other side of this form is tigned and dated before giving to the instructor for grading.

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tructor SCORE:

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TYPE OF COURSE (CIRCLE ONE)	TES (CI)		ONE)
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INTERMEDIATE		-	3

MET-ED	EMPLOYEE	NO						
(PLEASE	PRINT)	PERMANENT	TMI:	YES	()	NO	

NAME:

4/28/79 DATE: CATAlyTic COMPANY:

INSTRUCTIONS:

Cold Street

23

There is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened ARES WHAT SORO spaces appear for any question your answer will be considered wrong.

nstructor.

NOTE: Please make sure the other side of this form is signed and dated before giving to the instructor for grading.

DATE:

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SCORE:	44
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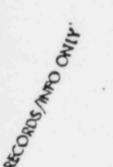
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TYPE OF COURSE (CIRCLE ONE) :	TEST (CIRCLE ONE)
BASIC	
INTERMEDIATE	1 2 3

MET-ED EMPLOYEE NO. (PLEASE PRINT) PERMANENT TMI: YES () NO NAME : DATE: FUN COMPANY:

111

INSTRUCTIONS:



There is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.

NOTE: Please make sure the other side of this form is signed and dated before giving to th

PASSED:	1
SCORE:	Inst UJ

ne instructor	for grading.	
Instructor	/	
7 DATE:	129/74	

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ANSWER SHEET

TYPE OF COURSE	TEST
(CIRCLE ONE)	(CIRCLE ONE)
BASIC	1 2 3

MET-ED EMPLOYEE NO. _____ (PLEASE PRINT) PERMANENT TMI: YES () NO (~) NAME: DATE: ______ COMPANY: _______ COMPANY: _______

INSTRUCTIONS:

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: There is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.

PASSED: Instructor. SCORE: 6 DATE:

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	RADIATION	PROTECTION EXAMINATION
	1	ANSWER SHEET
TYPE OF COURSE (CIRCLE ONE) ;	(CIRCLE ONE)	MET-ED EMPLOYEE NO
BASIC	1 2 3	NAME: DATE: 4/28/79
		COMPANY: COT

INSTRUCTIONS:

RECORDS/INTO CHIN'

There is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.

NOTE: Please make sure the <u>other side</u> of this form is <u>signed and dated</u> before giving to the instructor for grading. PASSED: B. B. Water

Instructor 43 DATE: SCORE:

	ANSWER						ANSW	ER				ANSW	ER			ANSWER					
UESTION	a.	ь.	c.	d.		a.	b.	с.	d.		a.	b.	c.	d.		a.'	b.	c.	d.		
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9.	1		X	1	24.			X		39.		1	X	X	54.		1	-	-		
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RADIATION PROTECTION EXAMINATION +

ANSWER SHEET

TYPE OF COURSE (CIRCLE OME)	TEST (CIRCLE ONE)
BASIC	
INTERMEDIATE	1 2 3

MET-ED EMPLOYEE NO.

(PLEASE PRINT) PERMANENT TMI: YES () NO (X) NAME :

H-28-79 DATE: +A COMPANY :

INSTRUCTIONS:

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There is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.

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PASSED: Instructor 4/28/79 38 SCORE:

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TYPE OF COURSE (CIRCLE ONE) ;	TEST (CIRCLE ONE)
BASIC	1 2 2
INTERMEDIATE	1 2 3

MET-ED	EMPLOYE	E NO.					
(PLEASE	PRINT)	PERMANENT	TMI:	YES ()	NO	4
NAME:							1
DATE:	4-2	8-79					
COMPAN	Y: C	ATALY	ic				

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INSTRUCTIONS: There is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.

> NOTE: Please make sure the other side of this form is signed and dated before giving to the instructor for grading.

> > DATE:

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SCORE:

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RADIATION PROTECTION EXAMINATION

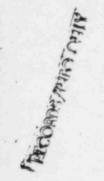
ANSWER SHEET

TYPE.OF COURSE (CIRCLE ONE)	TEST (CIRCLE ONE)
BASIC	
INTERMEDIATE	1 2 3

MET-ED EMPLOYEE NO. (PLEASE PRINT) PERMANENT TMI: YES () NO (X) NAME :

DATE: 4-27 79 COMPANY: 277900

INSTRUCTIONS: There is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.



PASSED: alan tructor 4/28/29 43 SCORE: DATE:

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TYPE OF COURSE (CIRCLE ONE)	TEST (CIRCLE ONE)
BASIC	
INTERMEDIÀTE	1 2 3

MET-ED EMPLOYEE NO. 17418 (PLEASE PRINT) PERMANENT TMI: YES () NO NAME: DATE: 3/28/19

COMPANY: CATALYTIC

INSTRUCTIONS:

There is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.

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NOTE: Please make sure the other side of this form is signed and dated before giving to the instructor for grading.

PASSED:	KBNDE	
	Instructor.	

46 SCORE:

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RADIATION PROTECTION EXAMINATION

ANSWER SHEET

TYPE OF COURSE (CIRCLE ONE) ;	TEST (CIRCLE ONE)
BASIC	1 2 2
INTERMEDIATE	123

(PLEASE	PRINT)	PERMANENT	TMI:	YES	() NO	(~)
NAME:							
DATE:	4-28-	79					

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INSTRUCTIONS: There is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use Caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.

PASSED: E. instructor. SCORE: DATE:

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TYPE OF COURSE (CIRCLE ONE)	TEST (CIRCLE ONE)
BASIC	
INTERMEDIATE	1 2 3

MET-ED	EMPLOYE	E NU						
(PLEASE	PRINT)	PERMANENT	TMI:	YES	()	NO	(4)
NAME:								
DATE:	4-	28-79						

COMPANY: CATALYTIC

INSTRUCTIONS.

There is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.

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	Instr	uctor.
SCORE: _	44	DATE: 4/

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ANSWER SHEET

TYPE OF COURSE (CIRCLE ONE)	TEST (CIRCLE ONE)
BASIC	
INTERMEDIATE	1 2 3

MET-ED	EMPLOYE	E NO.						
(PLEASE	PRINT)	PERMANENT	TMI:	YES	()	NO	
NAME :								
DATE:	-1- 2	5-78						
COMPANY	1: _	+ "+ LYTIC						

INSTRUCTIONS:

There is only <u>one</u> correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.

PASSED: nst SCORE: DATE:

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	RADIATIÓN	PROTECTION EXAMINATION			
		ANSWER SHEET			
TYPE OF COURSE (CIRCLE ONE)	TEST (CIRCLE ONE)	MET-ED EMPLOYEE NO.			
BASIC INTERMEDIATE	123	(PLEASE PRINT) PERMANENT TMI: NAME:	YES () NO	X
	<u> </u>	DATE: 4-28-79 COMPANY: CAT.			

INSTRUCTIONS:

RECORDS/INFO ONLY

There is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.

NCTE: Please make sure the other side of this form is signed and dated before giving to the instructor for grading.

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ORE:	46	DATE:	4/20

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TYPE OF COURSE (CIRCLE ONE)	TEST (CIRCLE ONE)
BASIC	1.2.2
INTERMEDIATE	1 2 3

MET-ED EMPLOYEE NO. 5414

(PLEASE PRINT) PERMANENT TMI: YES () NO (

4-28-79 DATE: COMPANY: CZTALYTIC INC

INSTRUCTIONS:

There is only <u>one</u> correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.



NOTE: Please make sure the other side of this form is signed and dated before giving to the instructor for grading.

DATE:

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PASSED:	14	
	Instr	uctor
SCORE:	38	DAT

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UESTION	a.	ь.	c.	d.		a.	b.	c.	d.		a.	b.	c.	d.		a.'	b.	c.	d.
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RADIATION PROTECTION EXAMINATION

ANSWER SHEET

TYPE OF COURSE (CIRCLE ONE)	TEST (CIRCLE ONE
BASIC	
INTERMEDIATE	1 2 3

MET-ED EMPLOYEE NO. (PLEASE PRINT) PERMANENT TMI: YES () NO X NAME: DATE: 4/28/79 atalytic COMPANY:

INSTRUCTIONS:

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There is only one correct answer for each question. Therefore, darken only the space for the one answer you feel is correct. Use caution in placing your answer with the proper question. If you should change your answer, erase all but your final answer to each question. If two or more darkened spaces appear for any question your answer will be considered wrong.

NOTE: Please make sure the other side of this form is signed and dated before giving to the anstructor for grading.

PASSED: Instructor. SCORE: 43

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TYPE OF COURSE (CIRCLE ONE)	TEST (CIRCLE ONE)
BASIC	
INTERMEDIATE	1 2 3

MET-ED	EMPLOYE	E NO				
(PLEASE	PRINT)	PERMAN	ENT TMI:	YES () NO	in
NAME :						
DATE:	APTIL	28	1979			
COMPAN	: CA	TALY	TIC			

INSTRUCTIONS:

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4.	1				19				1	34.		1		49	1		
5.	1				20.		1			35.			1	50.			1
6.			1		21.	1				36.		1		51.			
7.	1				22.				1	37.			1	52.			
8.	1				23.				1	38.	1			53.			
9.		1			24.	1				39.		1		54.		-	
10.			1		25.			1	-	40.		1		55.			
11.			1		25.	1		1		41.	1		1	56.			
12.	. 1				27.					42.		9	X	57.			
13.				1	28.	1				43.				58.			
14.				1	29.		1			44.		1		59.			