

Licensed Operator Medical Issues

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Licensed Operator Medical Issues

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Two instances when the NRC requires medical information:

1. When a conditional license is requested per 10 CFR § 55.33(b)

OR

2. When a licensed individual becomes unable to perform job duties. Must be reported within 30 days of diagnosis. See, 10 CFR §§ 55.25, 55.27.

Licensed Operator Medical Issues

ANSI/ANS-3.4-1983 § 2.2 Glossary of Terms

Disqualifying or disqualifying condition

Something that precludes medical approval for nuclear reactor operator licensure.

Licensed Operator Medical Issues

ANSI/ANS-3.4-1983 § 5.1 Basis of Requirements

Operators must function during normal, abnormal & emergency conditions.

Liabilities to safe operation – any condition or corrective device that:

- Restricts mobility,
- Precludes use of PPE,
- Can cause sudden incapacitation,
- Defective hearing or vision.

Possible accommodations:

- Restricted activities for the affected individual,
- Close surveillance of the condition,
- Imposing a temporary medical regime,
- Requiring the presence of another individual.

Licensed Operator Medical Issues

ANSI/ANS-3.4-1983 § 5.3 Disqualifying Conditions

- 5.3.1** Respiratory (*Lungs & Breathing*)
- 5.3.2** Cardiovascular (*Heart & Blood Vessels*)
- 5.3.3** Endocrine, Nutritional, Metabolic (*e.g., Diabetes*)
- 5.3.4** Integumentary (*Skin*)
- 5.3.5** Hematopoietic Dysfunction (*Blood*)
- 5.3.6** Malignant Neoplasms (*Cancer*)
- 5.3.7** Neurological (*Nervous System*)
- 5.3.8** Mental (*Emotion, Intellect*)
- 5.3.9** Medication (*Side Effects*)

Licensed Operator Medical Issues

ANSI/ANS-3.4-1983 § 5.4

Specific Minimum Capacities for Medical Qualification

5.4.1 Head, Face, Neck, Scalp

5.4.2 Nose

5.4.3 Mouth and Throat

5.4.4 Ears

5.4.5 Eyes

5.4.6 Respiratory

5.4.7 Cardiovascular

5.4.8 Abdomen and Viscera

5.4.9 Musculo-skeletal

5.4.10 Skin

5.4.11 Endocrin, Nutritional, Metabolic

5.4.12 Hematopoetic

5.4.13 Lymphatic

5.4.14 Neurological

5.4.15 Psychiatric

5.4.16 Laboratory

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ANSI/ANS-3.4-1983 § 5.3 Disqualifying Conditions

5.3.1 Respiratory (*Lungs & Breathing*)

- (1) Frequent severe attacks of asthma within the previous two years or a history that indicates a need for continued or prolonged use of medication for relief, prevention, or control of attacks;
- (2) Tracheostomy or laryngectomy;
- (3) Incapacitating chronic pulmonary disease.

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ANSI/ANS-3.4-1983 § 5.3 Disqualifying Conditions

5.3.2 Cardiovascular (*Heart & Blood Vessels*)

- (1) Ischemic heart disease, myocardial infarction, coronary insufficiency or angina pectoris shall disqualify for solo operation. If thorough history, physical examination, electrocardiogram (ECG), and other test procedures indicate satisfactory cardiac function and reserve, the examinee may be considered for qualification as an operator in a multi-person facility provided it is demonstrated that all duties of such an assignment are within the physical capabilities of the examinee.
- (2) Heart failure.
- (3) Arrhythmia other than benign extrasystoles.
- (4) Prosthetic valve.
- (5) Artificial pacemaker.
- (6) Peripheral vascular insufficiency.
- (7) Arterial aneurysm.

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ANSI/ANS-3.4-1983 § 5.3 Disqualifying Conditions

5.3.3 Endocrine, Nutritional, Metabolic (*e.g., Diabetes*)

- (1) Diabetes mellitus. Uncontrolled diabetes, ketoacidosis, diabetic coma, or insulin shock within the previous two years.
 - (a) Requirements for use of insulin shall disqualify for solo operation. Well-controlled stable diabetics who require insulin may qualify for a multi-person facility if history and examination findings indicate such duties are within their physical capacity and that such duties and scheduling do not interfere with control measures for their diabetes.
 - (a) Stable diabetics adequately controlled by diet or oral medication may be qualified for solo operation.
- (2) Other conditions requiring the continued or frequent use of steroids.

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ANSI/ANS-3.4-1983 § 5.3 Disqualifying Conditions

5.3.4 Integumentary (*Skin*)

Recurrent severe dermatitis or hypersensitivity to irritants or sensitizers sufficient to interfere with wearing of personal protective equipment or likely to be aggravated by personal decontamination procedures.

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ANSI/ANS-3.4-1983 § 5.3 Disqualifying Conditions

5.3.5 Hematopoietic Dysfunction (*Blood*)

- (1) Polycythemia.
- (2) Agranulocytosis.
- (3) Leukemia and Lymphoma.
- (4) Other significant hematopoietic dyscrasia.

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ANSI/ANS-3.4-1983 § 5.3 Disqualifying Conditions

5.3.6 Malignant Neoplasms (*Cancer*)

Malignant neoplasm shall disqualify unless review of medical history and current medical evaluation indicate clinical remission that renders the examinee capable of meeting all other requirements of this standard.

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ANSI/ANS-3.4-1983 § 5.3 Disqualifying Conditions

5.3.7 Neurological (*Nervous System*)

(1) History of epilepsy shall disqualify for solo operation. Examinee may be considered for qualification for a multi-person facility if he has remained seizure free for at least the previous five years with medication or has remained seizure free during the previous two years without medication. Before considering such qualification, history and examination findings must document the fact that the residuals or, or medication to control the seizure disorder do not impair the examinee's capacity to perform all required duties. Evaluation and prognosis by a neurologist should be considered.

(2) History of a disturbance of consciousness within the past five years without satisfactory medical explanation of the cause shall disqualify for solo operation.

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ANSI/ANS-3.4-1983 § 5.3 Disqualifying Conditions

5.3.8 Mental (*Emotion, Intellect*)

An established history or clinical diagnosis of any of the following:

- (1) Any psychological or mental condition that could cause impaired alertness, judgment or motor ability shall constitute sufficient cause for disqualification. A history or clinically significant emotional or behavioral problems shall require, thorough clinical evaluation that may include, but not necessarily be limited to, psychological testing and psychiatric evaluation.
- (2) A personality disorder that is severe enough to have repeatedly manifested itself by overt acts.
- (3) History or threat of suicide attempt.

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ANSI/ANS-3.4-1983 § 5.3 Disqualifying Conditions

5.3.8 Mental (*Emotion, Intellect*)

An established history or clinical diagnosis of any of the following:

- (4) History or a psychotic disorder.
- (5) Alcoholism is used in this section to mean a condition in which a person's intake of alcohol is great enough to damage his physical health, and personal or social functioning; or a condition when alcohol has become a prerequisite to his normal functioning.
- (6) Drug dependence is used in this section to mean a condition in which a person is addicted to, or dependent on, drugs other than alcohol, tobacco, or ordinary caffeine-containing beverages, as evidenced by non-prescribed habitual use of the drug.

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ANSI/ANS-3.4-1983 § 5.3 Disqualifying Conditions

5.3.8 Mental (*Emotion, Intellect*)

An established history or clinical diagnosis of any of the following:

- (7) History or presence of any other clinically significant mental, character, behavior or personality disorder including anxiety, obsessive-compulsive, conversion, disassociative, depressive, or phobic reactions shall disqualify if the designative medical examiner finds that the condition or any treatment thereof makes the examinee potentially unable to safely perform all operator duties.

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ANSI/ANS-3.4-1983 § 5.3 Disqualifying Conditions

5.3.9 Medication (*Side Effects*)

Any medication taken in such a dosage that the taking or temporary delay of taking might be expected to result in incapacity, for example, certain dosages or requirements for steroids, anticoagulants, antiarrhythmics, sedatives, tranquilizers, or insulin.

Licensed Operator Medical Issues

ANSI/ANS-3.4-1983 § 5.4 Minimum Capacities

5.4.1 Head, Face, Neck, Scalp.

Configuration suitable for suitable for fitting and effective use of personal protective equipment.

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ANSI/ANS-3.4-1983 § 5.4 Minimum Capacities

5.4.2 Nose.

Ability to detect odor of products of combustion and of tracer or marker gases.

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ANSI/ANS-3.4-1983 § 5.4 Minimum Capacities

5.4.3 Mouth and Throat.

Capacity for clear speech.

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ANSI/ANS-3.4-1983 § 5.4 Minimum Capacities

5.4.4 Ears.

Puretone audiometric threshold average better than 30 dB (ANSI S3.6-1973) or International Organization for Standardization, Standard Reference 0 for Calibration of Pure Tone Audiometers, ISO 389-1975, for speech frequencies 500, 1000, 2000 Hz in better ear. If audiometric scores are unacceptable, qualification may be based upon onsite demonstration to the satisfaction of the facility operator of the examinee's ability to safely detect, interpret, and respond to speech and other auditory signals.

Qualification should be considered if a hearing aid is required to meet hearing requirements.

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ANSI/ANS-3.4-1983 § 5.4 Minimum Capacities

5.4.5 Eyes.

- (1) Near and distant visual acuity 20/40 in better eye, corrected or uncorrected.
- (2) Peripheral visual fields by confrontation to 120° or greater.
- (3) Color vision adequate to distinguish among red, green, and orange-yellow signal lamps, and any other coding required for safe operation of the particular facility as defined by the facility operator.
- (4) Adequate depth perception, either by stereopsis or secondary clues as demonstrated by practical test.

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ANSI/ANS-3.4-1983 § 5.4 Minimum Capacities

5.4.6 Respiratory.

Capacity and reserve to perform strenuous physical exertion in emergencies, and ability to utilize respiratory protective filters and air supply masks. Pulmonary function studies that include a forced vital capacity and forced expiratory volume at 1 second would be helpful to the examining physician in determining the candidate's ability to perform assigned work.

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ANSI/ANS-3.4-1983 § 5.4 Minimum Capacities

5.4.7 Cardiovascular.

Normal configuration and function including normal blood pressure with tolerance to postural changes and capacity for exertion during emergencies. The examining physician shall report whether asymmetrical neck and peripheral pulses or resting pulse rates less than 50 or more than 100 beats per minute are normal for the individual and of no significance. If the examination reveals significant cardiac arrhythmia, murmur, untreated hypertension (over 160/100 mm Hg), intolerance to postural changes, cardiac enlargement or other evidence of cardiovascular abnormality, a report of an evaluation by a physician proficient in cardiovascular evaluations shall accompany the medical examination report. This consultation shall include, but is not limited to, an interpretation of an ECG and chest X-ray.

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ANSI/ANS-3.4-1983 § 5.4 Minimum Capacities

5.4.8 Abdomen and Viscera.

If hernia is present it shall be adequately supported by appropriate device or not be of such nature as to interfere with the performance or assigned duty or present significant potential for incapacitation.

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ANSI/ANS-3.4-1983 § 5.4 Minimum Capacities

5.4.9 Musculo-skeletal.

Normal symmetrical structure, range of motion and power. If any impairment exists, the applicant shall demonstrate ability to effectively complete all expected duties.

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ANSI/ANS-3.4-1983 § 5.4 Minimum Capacities

5.4.10 Skin.

Capability to tolerate use of personal protective covering and decontamination procedures.

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ANSI/ANS-3.4-1983 § 5.4 Minimum Capacities

5.4.11 Endocrine, Nutritional, Metabolic.

Normal. Ability to change schedule or delay meals without potential incapacity.

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ANSI/ANS-3.4-1983 § 5.4 Minimum Capacities

5.4.12 Hematopoietic.

Normal function.

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ANSI/ANS-3.4-1983 § 5.4 Minimum Capacities

5.4.13 Lymphatic.

Normal function.

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ANSI/ANS-3.4-1983 § 5.4 Minimum Capacities

5.4.14 Neurological.

Normal central and peripheral nervous system function. Tactile discrimination (Stereognosis) sufficient to distinguish among various shapes of control knobs and handles by touch.

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ANSI/ANS-3.4-1983 § 5.4 Minimum Capacities

5.4.15 Psychiatric.

Normal mental status including orientation. Ability to function in emergencies and unusual environments such as confined or crowded spaces, alone in darkness, on elevations, on open metal grids, and on ladders. This ability is to be determined by the clinical judgment of the examining physician.

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ANSI/ANS-3.4-1983 § 5.4 Minimum Capacities

5.4.16 Laboratory.

- (1) Normal hemoglobin, white blood cell count, and differential.
- (2) In urinalysis, absence of proteins and glycosuria unless the absence of a disqualifying systemic or genitor-urinary condition has been demonstrated.
- (3) Normal ECG.
- (4) Other medical investigative procedures, including chest X-ray, that the designated medical examiner considers necessary for adequate medical evaluation.

Licensed Operator Medical Issues

Relevant regulations: 10 CFR Part 55 – Operators' Licenses

Subpart C – Medical Requirements

10 CFR § 55.25 Incapacitation because of disability or illness

10 CFR § 55.27 Documentation

Subpart D – Applications

10 CFR § 55.33 Disposition of an initial application

Licensed Operator Medical Issues

10 CFR § 55.25 Incapacitation because of disability or illness

If, during the term of the license, the licensee develops a permanent physical or mental condition that causes the licensee to fail to meet the requirements of § 55.21 of this part, the facility licensee shall notify the Commission, within 30 days of learning of the diagnosis, in accordance with § 50.74(c). For conditions for which a conditional license (as described in § 55.33(b) of this part) is requested, the facility licensee shall provide medical certification on Form NRC 396 to the Commission (as described in § 55.23 of this part).

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10 CFR § 55.27 Documentation.

The facility licensee shall document and maintain the results of medical qualifications data, test results, and each operator's or senior operator's medical history for the current license period and provide the documentation to the Commission upon request. The facility licensee shall retain this documentation while an individual performs the functions of an operator or senior operator.

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10 CFR § 55.33 Disposition of an initial application

(a) Requirements for the approval of an initial application. The Commission will approve an initial application for a license pursuant to the regulations in this part, if it finds that –

(1) *Health.* The applicants medical condition and general health will not adversely affect the performance of assigned operator job duties or cause operational errors endangering public health and safety. The Commission will base its finding upon the certification by the facility licensee as detailed in § 55.23.

(2) *Written examination and operating test.* . . .

(b) Conditional license. If an applicant's general medical condition does not meet the minimum standards under § 55.33(a)(1) of this part, the Commission may approve the application and include conditions in the license to accommodate the medical defect. The Commission will consider the recommendations and supporting evidence of the facility licensee and of the examining physician (provided on Form NRC-396) in arriving at its decision.