

(7) For applicants previously licensed in another state, territory or possession of the United States or in another country, verification of the applicant's licensure in the licensing jurisdiction of original licensure or, if the applicant has permitted his or her licensure in the jurisdiction of original licensure to lapse, verification of licensure in the licensing jurisdiction where the applicant is currently licensed and where the applicant was last engaged in the practice of professional geology.

(8) For applicants who have a pending criminal charge or have been convicted of a crime, all related information necessary for the professional geologist section to determine whether the circumstances of the pending criminal charge or criminal conviction are substantially related to the circumstances of the practice of geology.

(9) Any additional data, exhibits or references showing the extent and quality of the applicant's experience that may be required by the professional geologist section.

(10) Evidence of successful completion of the fundamentals of geology examination and the principles and practice of geology examination.

Note: Application forms, including the "Supervised Geologic Experience" form and the "Peer Evaluation" form are available upon request to the Professional Geologist Section of the board at 1400 East Washington Avenue, P.O. Box 8935, Madison, Wisconsin 53708.

**GHSS 2.04 Experience as a professional geologist.** (1) To qualify as satisfactory professional geologic work for the purposes of s. 470.04 (2) (c), Stats., an applicant's experience shall include the application of accepted principles in the practice of geology and shall demonstrate an applicant's progressive development of competence to practice as a professional geologist. The experience shall be acquired in the areas of the practice of geology listed in sub. (2) (a) to (m) or in other areas of the practice of geology which in the opinion of the professional geologist section provide the applicant with a knowledge of principles and data related to the practice of geology at least equivalent to that which would be acquired by experience in the areas of practice listed. Experience in every listed area is not required.

(2) Areas of experience in the practice of professional geology include:

(a) Mineralogy, including identification of minerals and mineral assemblages, the determination of physical and chemical properties of rocks, and determination of probable genesis and sequence of mineral assemblages.

(b) Petrography or petrology, including identification and classification of major rock types, determination of physical and chemical properties of rocks, and determination of probable genesis and sequence of rock formation.

(c) Geochemistry, including evaluation of geochemical data, and construction of geologic models based on geochemical analyses.

(d) Stratigraphy or historical analysis, including identification of rock sequences, establishment of the relative position of rock units, determination of the ages of rock units,

interpretation of depositional environments and geologic histories, performance of facies analyses, and establishment of stratigraphic classifications.

(e) Structural geology, including identification of structural features and their interrelationships, determination of the orientation of structural features, performance of qualitative and quantitative structural analyses, correlation of separated structural features, and interpretation of structural features and tectonic histories.

(f) Paleontology, including determination of estimated relative geologic ages of rocks, identification of fossils and fossil assemblages, correlation of rock biostratigraphy, and paleoecological interpretation.

(g) Geomorphology, including identification of landforms, performance of geomorphic field investigations, determination of geomorphic processes and the development and age relationships of landforms and soils, and interpretation of geomorphic field data.

(h) Geophysics, including performance of geophysical investigations in the field, performance of geological interpretations of geophysical data, and identification of potentially hazardous geological conditions by use of geophysical techniques.

(i) Hydrogeology, including design and interpretation of hydrologic and hydrogeologic testing programs, utilization of physical and chemical data to evaluate hydrogeologic conditions, development and interpretation of groundwater geologic maps and sections, application of geophysical methods to analyze hydrogeologic conditions, determination of the physical and chemical properties of aquifers and vadose zones, determination of groundwater resources and quality, design of wells and drilling programs, development of groundwater resource management plans, and development of remedial action programs.

(j) Engineering geology, including geologic interpretation for engineering design, identification and interpretation of potential seismic and geologic hazards, development and interpretation of engineering geology maps and sections, evaluation of materials resources, establishment of site selection and evaluation criteria, design and implementation of field and laboratory programs, and provision of sample soils for geologic analysis and materials properties testing.

(k) Mining geology, including formulation of exploration programs, implementation of field investigations on prospects, performance of geologic interpretations for mineral reserves, performance of economic analyses and appraisals, provision of geologic interpretations for mineral resource, mine development, and mine reclamation or abandonment.

(l) Petroleum geology, including formulation of exploration plans, implementation of field investigations on prospects, performance of geologic interpretations of physical properties and hydrocarbon reserves, performance of petroleum economic analyses and appraisals, and provision of geologic interpretations for development and abandonment of hydrocarbon reservoirs.

(m) Glacial geology, including understanding glacial processes, deposits, landforms and environments; identification and classification of glacial sediment; performance of facies analyses; identification of glacial sequences and establishment of stratigraphic classifications; determination of glacial histories; and development and interpretation of glacial geologic maps and sections.

(3) Not more than one year of satisfactory experience credit may be granted for any calendar year.

**GHSS 2.05 Education.** (1) In satisfaction of the education requirement under s. 470.04 (2) (b), Stats., the professional geologist section shall accept a bachelor degree in geology, or a degree reflecting that the applicant has completed at least 30 semester hours or 45 quarter hours of course credits in geology of a variety and nature sufficient to constitute a major in geology, granted by a college or university accredited by a regional accrediting agency approved by the state board of education in the state in which the college or university is located, or accredited by a Canadian accrediting agency satisfactory to the board.

(2) If the degree is from an educational institution not meeting the requirements of sub. (1), the applicant must provide an official evaluation by a transcript evaluation service acceptable to the professional geologist section which shows that the degree is equivalent to a bachelor degree in geology or a bachelor degree with a major in geology meeting the requirements under sub. (1).

(3) In order to be considered a major in geology, an applicant must have completed at least 30 semester hours or 45 quarter hours of course credits which include credits in at least 4 of the following areas:

- (a) Geochemistry or geophysics.
- (b) Geologic field methods.
- (c) Glacial geology or geomorphology.
- (d) Hydrogeology or hydrology.
- (e) Mineralogy.
- (f) Petrology or petrography.
- (g) Stratigraphy or sedimentology.
- (h) Structural geology.

(4) In addition to the coursework required under sub. (3), other coursework that may be used to satisfy the 30 semester hour or 45 quarter hour requirement includes, but is not limited to, the following:

- (a) Engineering geology.
- (b) Historical geology.
- (c) Mining geology.
- (d) Paleontology.
- (e) Petroleum geology.
- (f) Physical geology.

**GHSS 2.06 Examinations.** (1) **REQUIRED EXAMINATIONS.** An applicant for initial licensure as a professional geologist shall pass examinations for the professional practice of geology approved by the professional geologist section. Required examinations shall include a fundamentals examination and a principles and practice of geology examination.

(2) **FUNDAMENTALS EXAMINATION.** The fundamentals examination requires an understanding of the physical and mathematical sciences involved in the fundamentals of geology. To be eligible to take the fundamentals examination, an applicant shall have done one of the following:

(a) Completed at least 24 semester hours or 36 quarter hours of course credits in geology and be of not less than second semester senior standing in a bachelor program meeting the requirements of s. GHSS 2.05.

(b) Completed at least 4 years of experience, which is determined by the professional geologist section to be equivalent to the requirements of s. GHSS 2.04 (1).

(3) **PRINCIPLES AND PRACTICE EXAMINATION.** The principles and practice examination requires the ability to apply geologic principles and judgment to problems in the practice of professional geology. To be eligible to take the principles and practice examination, an applicant shall have done one of the following

(a) To be eligible to take the principles and practice examination, an applicant under s. 470.04 (2) (c) 1., Stats., shall have done all of the following:

1. Met the requirements under s. 470.04 (2) (a), Stats.
2. Met the requirement under s. 470.04 (2) (b) Stats., or have at least 5 years of professional experience in addition to the qualifying experience under subd. 3., which is determined by the professional geologist section to be substantially equivalent to the requirement under s. 470.04 (2) (b), Stats.
3. Completed at least 4 years of professional experience in geologic work of a character satisfactory to the professional geologist section, or completed at least 3 years of professional experience in geologic work of a character satisfactory to the section if the applicant has



one or more advanced degrees relevant to the practice of professional geology, demonstrating that the applicant is qualified to assume responsible charge of geologic work. At least one year of the qualifying professional experience under this subdivision must have been performed under the supervision of one or more of the following:

a. A person who is at the time of application licensed as a professional geologist under this chapter or who, during the period of supervised experience, was licensed as a professional geologist under ch. 470, 1997 Stats.

b. A person who, during the period of supervised experience, was licensed as a professional geologist in another state, territory or possession of the United States or in another country that has licensure requirements for professional geologists that are not lower than the requirements for licensure under this chapter.

c. A person who, during the period of supervised experience, is deemed by the professional geologist section to have been qualified to have responsible charge of geologic work.

(b) To be eligible to take the principles and practice examination, an applicant under s. 470.04 (2) (c) 2., Stats., shall have done all of the following:

1. Met the requirements under s. 470.04 (2) (a), Stats.

2. Met the requirement under s. 470.04 (2) (b), Stats., or have at least 5 years of professional experience in addition to the qualifying experience under subd. 3., which is determined by the professional geologist section to be equivalent to the requirement under s. 470.04 (2) (b), Stats.

3. Completed at least 6 years of professional experience in geologic work of a character satisfactory to the professional geologist section, or completed at least 5 years of professional experience in geologic work of a character satisfactory to the section if the applicant has one or more advanced degrees relevant to the practice of professional geology, demonstrating that the applicant is qualified to assume responsible charge of geologic work. At least one year of the qualifying professional experience under this subdivision must have been performed under a peer review system approved by the professional geologist section.

(3) APPLICATION FOR EXAMINATION. An applicant for initial licensure shall file an application for examination with the board not less than 2 months before the scheduled date of the examination.

(4) AMERICANS WITH DISABILITIES ACT. Otherwise qualified applicants with disabilities shall be provided with reasonable accommodations.

(5) EXAMINATION AND REFUND FEES. The fee for the examinations for professional geologists and the requirements for refund of fees are specified in s. 440.05 (1) (b), Stats., and s. RL 4.06, respectively.

(6) PLACE AND TIME OF EXAMINATIONS. The examinations required by this section shall be held at sites and on dates designated by the professional geologist section.

(7) PASSING SCORES. (a) The passing scores set by the professional geologist section represent the minimum competency required to protect public health and safety.

(b) All required examinations are scored separately. The fundamentals of geology and the principles and practice of geology examinations of the association of state boards of geology, and the examination on the elements of practice essential to the public health, safety or welfare are scored separately. An applicant shall achieve a passing score on each of the required examinations to qualify for licensure.

(c) The professional geologist section may accept the recommendations of the association of state boards of geology for the passing score on the fundamentals of geology and the principles and practice of geology examinations.

(d) The professional geologist section shall make the determination of the passing score on the examination on the elements of practice essential to the public health, safety or welfare after consultation with subject matter experts who have reviewed a representative sample of the examination questions and available candidate performance statistics.

(8) CHEATING. The professional geologist section may deny release of scores or issuance of a credential if the board determines that the applicant violated rules of conduct of the examination or otherwise acted dishonestly in taking the examination.

## CHAPTER GHSS 3

### PROFESSIONAL HYDROLOGIST LICENSE

**GHSS 3.01 Authority and purpose.** The rules in this chapter are adopted under authority in ss. 15.08 (5) (b), 227.11 (2), 470.03 (1) (a) and 470.04, Stats. The purpose of the rules in this chapter is to interpret basic education, experience and examination requirements for licensure as a professional hydrologist as specified in ss. 470.04 and 470.05, Stats.

**GHSS 3.02 Applications.** An applicant who files an application but does not comply with a request for information related to the application within one year from the date of the request shall file a new application.

Note: Applications are available upon request to the Professional Hydrologist Section of the board at 1400 East Washington Avenue, P.O. Box 8935, Madison, Wisconsin 53708.

**GHSS 3.03 Experience as a professional hydrologist.** (1) To qualify as satisfactory professional hydrologic work for the purposes of s. 470.04 (3) (c), Stats., an applicant's experience shall include the application of accepted principles in the practice of hydrology and shall demonstrate an applicant's progressive development of competence to practice as a professional hydrologist. The

experience shall be acquired in the areas of the practice of hydrology listed in sub. (2) (a) to (c), or in other areas of the practice of hydrology which in the opinion of the professional hydrologist section provide the applicant with a knowledge of principles and data related to the practice of hydrology at least equivalent to that which would be acquired by experience in the areas of practice listed. Experience in every listed area is not required.

(2) Areas of experience in the practice of professional hydrology include but are not limited to:

(a) Collection and inventory of hydrological data, including monitoring and characterizing surface and subsurface water quality and flow; monitoring precipitation quality, quantity and distribution; assessing surface and subsurface water quality, conditions and impacts; inventorying and assessing sources of water contamination; assessing conditions affecting surface and subsurface water quantity, quality and timing of flow; conducting field tests to determine the hydraulic characteristics of saturated and unsaturated media; inventorying channel and flood plain conditions affecting flow and habitat; inventorying physical, chemical or biological characteristics of lakes and wetlands; designing, installing and maintaining monitoring networks and equipment, such as stream gauges and monitoring wells, used to evaluate surface and subsurface water flow and quality; selecting sampling protocols for measuring surface and subsurface water; measuring surface water flow utilizing current meters and flow control structures; and conducting boring programs and tests to characterize conditions that affect subsurface water flow, contaminant flux, and the source and extent of subsurface contamination.

(b) Interpretation, analysis and modeling of hydrological processes, including estimating the frequency of hydrologic events; estimating water budgets of surface water and aquifer systems; estimating pollutant loads; modeling and assessing surface and subsurface water contaminant fate and transport; modeling and assessing watershed hydrology; modeling and assessing urban watersheds and stream flow; modeling and assessing surface water quality, modeling and assessing soil erosion and sediment transport; delineating regulatory floodplains; interpreting water chemistry data; evaluating subsurface water flow and quality characteristics; evaluating subsurface water discharge and recharge areas and rates; modeling subsurface water flow, quality and transport; analyzing the hydraulic characteristics of saturated and unsaturated media; and evaluating subsurface contamination and remedial alternatives.

(c) Planning, design, and management of hydrological systems, including designing water control structures, designing watershed management plans, designing runoff and erosion control measures, designing slope stabilization measures, designing detention and retention ponds, designing urban storm water management plans, designing for stream bank and lakeshore protection, designing channels and stream restoration work, designing subsurface remediation systems, and designing water supply wells and wellhead protection plans.

(3) Not more than one year of satisfactory experience credit may be granted for any calendar year.

**GHSS 3.04 Education.** (1) In satisfaction of the education requirement under s. 470.04 (3) (b), Stats., the professional hydrologist section shall accept a bachelor degree in hydrology or water

resources, or a degree reflecting that the applicant has completed at least 30 semester hours or 45 quarter hours of course credits in hydrology or water resources of a variety and nature sufficient to constitute a major in hydrology or water resources, granted by a college or university accredited by a regional accrediting agency approved by the state board of education in the state in which the college or university is located, or accredited by a Canadian accrediting agency satisfactory to the board.

(2) If the degree is from an educational institution not meeting the requirements of sub. (1), the applicant shall provide an official evaluation by a transcript evaluation service acceptable to the professional hydrologist section which shows that the degree is equivalent to a bachelor degree in hydrology or water resources or a bachelor degree with a major in hydrology or water resources meeting the requirements under sub. (1).

(3) In order to be considered a major in hydrology, the applicant must have completed at least 12 semester hours or 18 quarter hours of course credits in hydrology or water resources in at least 3 of the following areas:

- (a) Contaminant surface and subsurface water hydrology.
- (b) Field methods in surface and subsurface water hydrology.
- (c) Fluid mechanics or dynamics.
- (d) Fluvial geomorphology.
- (e) Open channel flow and hydraulics.
- (f) Stochastic hydrology.
- (g) Subsurface water hydrology.
- (h) Subsurface water and well hydraulics.
- (i) Surface or subsurface water modeling.
- (j) Surface water hydrology.
- (k) Unsaturated zone hydrology.
- (L) Water resource management.

(4) In addition to the coursework required under sub. (3), other hydrology or water resource related coursework that may be used to satisfy the 30 semester hour or 45 quarter hour requirement include, but are not limited to, courses in the following areas:

- (a) Aquatic biology.

- (b) Engineering.
- (c) Environmental health and toxicology.
- (d) Forestry.
- (e) Geography.
- (f) Geology.
- (g) Limnology.
- (h) Meteorology.
- (i) Natural resources.
- (j) Soil science.
- (i) Water chemistry.

**GHSS 3.05 Examinations.** (1) **REQUIRED EXAMINATIONS.** An applicant for initial licensure as a professional hydrologist shall pass examinations for the professional practice of hydrology approved by the professional hydrologist section. Required examinations shall include a fundamentals examination and a principles and practice examination.

(2) **FUNDAMENTALS EXAMINATION.** The fundamentals examination requires an understanding of the physical and mathematical sciences involved in the fundamentals of hydrology. To be eligible to take the fundamentals examination, an applicant shall have done one of the following:

(a) Completed at least 24 semester hours or 36 quarter hours of course credits in hydrology or water resources and be of not less than second semester senior standing in a bachelor program meeting the requirements of s. GHSS 3.04.

(b) Completed at least 5 years of experience which is determined by the professional hydrologist section to be equivalent to the requirements of s. GHSS 3.04.

(3) **PRINCIPLES AND PRACTICE EXAMINATION.** The principles and practice examination requires the ability to apply hydrologic principles and judgment to problems in the practice of professional hydrology. To be eligible to take the principles and practice examination, an applicant shall have done one of the following:

(a) To be eligible to take the principles and practice examination, an applicant under s. 470.04 (3) (c) 1., Stats., shall have done the following:

1. Met the requirements under s. 470.04 (3) (a), Stats.

2. Met the requirement under s. 470.04 (3) (b), Stats., or have at least 5 years of professional experience in addition to the qualifying experience under subd. 3., which is determined by the professional hydrologist section to be equivalent to the requirement under s. 470.04 (3) (b), Stats.

3. Completed at least 4 years of professional experience in hydrologic work of a character satisfactory to the professional hydrologist section, or completed at least 3 years of professional experience in hydrologic work of a character satisfactory to the section if the applicant has one or more advanced degrees relevant to the practice of professional hydrology, demonstrating that the applicant is qualified to assume responsible charge of hydrologic work. At least one year of the qualifying professional experience under this subdivision must have been performed under the supervision of one or more of the following:

a. A person who is at the time of application licensed as a professional hydrologist under this chapter or who, during the period of supervised experience, was licensed as a professional hydrologist under ch. 470, 1997 Stats.

b. A person who, during the period of supervised experience, was licensed as a professional hydrologist in another state, territory or possession of the United States or in another country that has licensure requirements for professional hydrologists that are not lower than the requirements for licensure under this chapter.

c. A person who, during the period of supervised experience, is deemed by the professional hydrologist section to have been qualified to have responsible charge of hydrologic work.

(b) To be eligible to take the principles and practice examination, an applicant under s. 470.04 (3) (c) 2., Stats., shall have done the following:

1. Met the requirements under s. 470.04 (3) (a), Stats.

2. Met the requirement under s. 470.04 (3) (b), Stats., or have at least 5 years of professional experience in addition to the qualifying experience under subd. 3., which is determined by the professional hydrologist section to be equivalent to the requirement under s. 470.04 (3) (b), Stats.

3. Completed at least 6 years of professional experience in hydrologic work of a character satisfactory to the professional hydrologist section, or completed at least 5 years of professional experience in hydrologic work of a character satisfactory to the section if the applicant has one or more advanced degrees relevant to the practice of professional hydrology, demonstrating that the applicant is qualified to assume responsible charge of hydrologic work. At least one year of the qualifying professional experience under this subdivision must have been performed under a peer review system approved by the professional hydrologist section.

(3) APPLICATION FOR EXAMINATION. An applicant for initial licensure shall file an application for examination with the professional hydrologist section of the board not less than 2 months before the scheduled date of the examination.

(4) AMERICANS WITH DISABILITIES ACT. Otherwise qualified applicants with disabilities shall be provided with reasonable accommodations.

(5) EXAMINATION AND REFUND FEES. The fee for the examinations for professional hydrologists and the requirements for refund of fees are specified in s. 440.05, Stats., and ch. RL 4, respectively.

(6) PLACE AND TIME OF EXAMINATIONS. The examinations required by this section shall be held at sites and on dates designated by the professional hydrologist section.

(7) PASSING SCORES. (a) The passing scores set by the professional hydrologist section represent the minimum competency required to protect public health and safety.

(b) The fundamentals of hydrology and the principles and practice of hydrology examinations, and the examination on the elements of practice essential to the public health, safety or welfare are scored separately. An applicant shall achieve a passing score on each of the required examinations to qualify for licensure.

(c) The professional hydrologist section shall make the determination of the passing score on each required examination after consultation with subject matter experts who have reviewed a representative sample of the examination questions and available candidate performance statistics.

(8) CHEATING. The professional hydrologist section may deny release of scores or issuance of a credential if the board determines that the applicant violated rules of conduct of the examination or otherwise acted dishonestly.

**GHSS 3.06 Application contents.** An application for licensure as a professional hydrologist shall include:

(1) Either of the following:

(a) Official transcripts of graduate and undergraduate training, properly attested to by the degree granting institution and submitted by the institution directly to the professional hydrologist section establishing that the applicant has been granted a bachelor degree in hydrology or water resources or a degree with a hydrology or water resources major meeting the requirements under s. 470.04 (3) (b), Stats., granted by a college or university accredited by a regional accrediting agency approved by the state board of education in the state in which the college or university is located, or accredited by a Canadian accrediting agency satisfactory to the board, or

(b) A chronological history of the applicant's employment or other qualifying experience in satisfaction of s. 470.04 (7), Stats.

(2) A chronological history of the applicant's employment or other qualifying experience in satisfaction of s. 470.04 (3) (c) 1. or 470.04 (3) (c) 2., Stats.

(3) For applicants applying under s. 470.04 (3) (c) 1., Stats., a completed "supervised hydrologic experience" form completed by a supervisor relating to professional hydrology and who is one of the following:

(a) A professional hydrologist who, during the time of the supervised practice, was licensed in this state.

(b) A professional hydrologist who, during the time of the supervised practice, was licensed in another licensing jurisdiction that has licensure requirements not lower than the requirements for licensure in this state.

(c) A person who the professional hydrologist section determines is qualified to have responsible charge of hydrologic work.

(4) For applicants applying under s. 470.04 (3) (c) 2., Stats., submission of at least 3 "peer evaluation" forms satisfactory to the professional hydrologist section completed by licensed professional hydrologists who have had professional contact with the applicant's practice and who certify that the applicant is qualified to assume responsible charge of hydrologic work.

(5) References from at least 5 individuals, at least 3 of whom shall be professionally competent to evaluate the applicant's practice.

(6) The fee required under s. 440.05 (1), Stats.

(7) For applicants previously licensed in another state, territory or possession of the United States or in another country, verification of the applicant's licensure in the licensing jurisdiction of original licensure or, if the applicant has permitted his or her licensure in the jurisdiction of original licensure to lapse, verification of licensure in the licensing jurisdiction where the applicant is currently licensed and where the applicant was last engaged in the practice of professional hydrology.

(8) For applicants who have a pending criminal charge or have been convicted of a crime, all related information necessary for the professional hydrologist section to determine whether the circumstances of the pending criminal charge or criminal conviction are substantially related to the circumstances of the practice of hydrology.

(9) Any additional data, exhibits or references showing the extent and quality of the applicant's experience that may be required by the professional hydrologist section.

(10) Evidence of successful completion of fundamentals of hydrology and the principles and practice of hydrology examinations.



Note: Application forms, including the "Supervised Hydrologic Experience" form and the "Peer Evaluation" form are available upon request to the Professional Hydrologist Section of the board at 1400 East Washington Avenue, P.O. Box 8935, Madison, Wisconsin 53708.

## Chapter GHSS 4

### PROFESSIONAL SOIL SCIENTIST LICENSE

**GHSS 4.01 Authority and purpose.** The rules in this chapter are adopted under authority in ss. 15.08 (5) (b), 227.11 (2), 470.03 (1) (a) and 470.04, Stats. The purpose of the rules in this chapter is to interpret basic education, experience and examination requirements for licensure as a professional soil scientist as specified in ss. 470.04 and 470.05, Stats.

**GHSS 4.02 Applications.** An applicant who files an application but does not comply with a request for information related to the application within one year from the date of the request shall file a new application.

Note: Applications are available upon request to the Professional Soil Scientist Section of the board at 1400 East Washington Avenue, P.O. Box 8935, Madison, Wisconsin 53708.

**GHSS 4.03 Experience as a professional soil scientist.** (1) To qualify as satisfactory professional soil science work for the purposes of s. 470.04 (4) (c), Stats., an applicant's experience shall include the application of accepted principles in the practice of soil science and shall demonstrate an applicant's progressive development of competence to practice as a professional soil scientist. The experience shall be acquired in the areas of the practice of soil science listed in sub. (2) (a) to (h), or in other areas of the practice of soil science which in the opinion of the professional soil scientist section provide the applicant with a knowledge of principles and data related to the practice of soil science at least equivalent to that which would be acquired by experience in the areas of practice listed. Experience in every listed area is not required.

(2) Areas of experience in the practice of professional soil science include:

(a) Soil physics: the study of the physical properties of porous media, including soils; and the determination of the state, distribution, transport and balances of matter and energy in porous media, especially as related to water, gas and heat.

(b) Soil chemistry: the determination of the chemical constituents, chemical properties, and chemical reactions in porous media, including soils.

(c) Soil classification, morphology and mapping: the description, classification, interpretation and mapping of soil materials in the landscape.

(d) Soil mineralogy: the study of soil science that deals with porous media inorganic materials, including the soils of the earth's crust to the depth of weathering or of sedimentation.

(e) Soil biochemistry: the study of soil science concerned with enzymes, and the reactions, activities and products of soil microorganisms.

(f) Soil biology: the assessment of soil-inhabiting microorganisms and macroorganisms, including their identification, functions, activities and cycles.

(g) Soil fertility: the analysis, interpretation and management of the soil to enhance soil quality and provide nutrients in adequate amounts and in proper balance for the growth of specified plants.

(h) Land use management: the management and practices associated with land waste application, nutrient management, non-point source contaminant control, soil and water conservation, and other land use issues associated with soil management.

(3) Not more than one year of satisfactory experience credit may be granted for any calendar year.

**GHSS 4.04 Education.** (1) In satisfaction of the education requirement under s. 470.04 (4) (b), Stats., the professional soil scientist section shall accept a bachelor's degree in soil science, or a post baccalaureate degree reflecting that the applicant has completed at least 30 semester hours or 45 quarter hours of course credits in soil science of a variety and nature sufficient to constitute a major in soil science, granted by a college or university accredited by a regional accrediting agency approved by the state board of education in the state in which the college or university is located, or accredited by a Canadian accrediting agency satisfactory to the board.

(2) If the degree is from an educational institution not meeting the requirements of sub. (1), the applicant must provide an official evaluation by a transcript evaluation service acceptable to the professional soil scientist section which shows that the degree is equivalent to a bachelor's degree in soil science or a bachelor's degree with a major in soil science meeting the requirements under sub. (1).

(3) In order to be considered a major in soil science, an applicant must have completed at least 30 semester hours or 45 quarter hours of course credits which include not less than 15 semester credits or 23 quarter credits in at least 3 of the following areas:

- (a) Soil biology.
- (b) Soil chemistry.
- (c) Soil classification, morphology and mapping.
- (d) Soil conservation and management.
- (e) Soil fertility.
- (f) Soil physics.

(4) In addition to the coursework required under sub. (3), other coursework that may be used to satisfy the 30 semester hour or 45 quarter hour requirement include, but are not limited to, the following:

- (a) Agronomy.
- (b) Bacteriology.
- (c) Botany.
- (d) Engineering.
- (e) Forestry.
- (f) Geography.
- (g) Geology.
- (h) Horticulture.
- (i) Hydrology.
- (j) Meteorology.
- (k) Plant pathology.

**GHSS 4.05 Examinations.** (1) **REQUIRED EXAMINATIONS.** All applicants for initial licensure as a professional soil scientist shall pass examinations for the professional practice of soil science approved by the professional soil scientist section. Required examinations shall include a fundamentals examination and a principles and practice examination.

(2) **FUNDAMENTALS EXAMINATION.** The fundamentals examination requires an understanding of the physical and mathematical sciences involved in the fundamentals of soil science. To be eligible to take the fundamentals examination, an applicant shall have done one of the following:

- (a) Be of not less than second semester senior standing in a bachelor of science program in soil science meeting the requirements of s. GHSS 4.04.
- (b) Have completed at least 24 semester hours or 36 quarter hours of course credits for the degree in soil science meeting the requirements of s. GHSS 4.04.
- (c) Have at least 5 years of experience which is determined by the professional soil scientist section to be equivalent to the requirements of s. GHSS 4.04.

(3) PRINCIPLES AND PRACTICE EXAMINATION. The principles and practice examination requires the ability to apply soil science principles and judgment to problems in the practice of professional soil science.

(a) To be eligible to take the principles and practice examination, an applicant under s. 470.04 (4) (c) 1., Stats., shall have done the following:

1. Met the requirements under s. 470.04 (4) (a), Stats.
2. Met the requirement under s. 470.04 (4) (b), Stats., or have at least 5 years of professional experience in addition to the qualifying experience under subd. 3., which is determined by the professional soil scientist section to be equivalent to the requirement under s. 470.04 (4) (b), Stats.
3. Completed at least 4 years of professional experience in soil science work of a character satisfactory to the professional soil scientist section, or completed at least 3 years of professional experience in soil science work of a character satisfactory to the section if the applicant has one or more advanced degrees relevant to the practice of professional soil science, demonstrating that the applicant is qualified to assume responsible charge of soil science work. At least one year of the qualifying professional experience under this subdivision must have been performed under the supervision of one or more of the following:

a. A person who is at the time of application licensed as a professional soil scientist under this chapter or who, during the period of supervised experience, was licensed as a professional soil scientist under ch. 470, 1997 Stats.

b. A person who, during the period of supervised experience, was licensed as a professional soil scientist in another state, territory or possession of the United States or in another country that has licensure requirements for professional soil scientists that are not lower than the requirements for licensure under this chapter.

c. A person who, during the period of supervised experience, is deemed by the professional soil scientist section to have been qualified to have responsible charge of soil science work.

(b) To be eligible to take the principles and practice examination, an applicant under s. 470.04 (4) (c) 2., Stats., shall have done the following:

1. Met the requirements under s. 470.04 (4) (a), Stats.
2. Met the requirement under s. 470.04 (4) (b), Stats., or have at least 5 years of professional experience in addition to the qualifying experience under subd. 3., which is determined by the professional soil scientist section to be equivalent to the requirement under s. 470.04 (4) (b), Stats.

3. Completed at least 6 years of professional experience in soil science work of a character satisfactory to the professional soil scientist section, or completed at least 5 years of professional experience in soil science work of a character satisfactory to the section if the applicant has one or more advanced degrees relevant to the practice of professional soil science, demonstrating that the applicant is qualified to assume responsible charge of soil science work. At least one year of the qualifying professional experience under this subdivision must have been performed under a peer review system approved by the professional soil scientist section.

(3) APPLICATION FOR EXAMINATION. An applicant for initial licensure shall file an application for examination with the professional soil scientist section not less than 2 months before the scheduled date of the examination.

(4) AMERICANS WITH DISABILITIES ACT. Otherwise qualified applicants with disabilities shall be provided with reasonable accommodations.

(5) EXAMINATION AND REFUND FEES. The fee for the examinations for professional soil scientists and the requirements for refund of fees are specified in s. 440.05, Stats., and ch. RL 4, respectively.

(6) PLACE AND TIME OF EXAMINATIONS. The examinations required by this section shall be held at sites and on dates designated by the professional soil scientist section.

(7) PASSING SCORES. (a) The passing scores set by the professional soil scientist section represent the minimum competency required to protect public health and safety.

(b) The fundamentals of soil science and the principles and practice of soil science examinations, and the examination on the elements of practice essential to the public health, safety or welfare are scored separately. An applicant shall achieve a passing score on each of the required examinations to qualify for licensure.

(c) The professional soil scientist section may accept the recommendations of the examination provider for the passing scores on the fundamentals of soil science and the principles and practice of soil science examinations.

(d) The professional soil scientist section shall make the determination of the passing score on the examination on the elements of practice essential to the public health, safety or welfare after consultation with subject matter experts who have reviewed a representative sample of the examination questions and available candidate performance statistics.

(8) CHEATING. The professional soil scientist section may deny release of scores or issuance of a credential if the board determines that the applicant violated rules of conduct of the examination or otherwise acted dishonestly.

**GHSS 4.06 Application contents.** An application for licensure as a professional soil scientist shall include:

(1) Either of the following:

(a) Official transcripts of graduate and undergraduate training, properly attested to by the degree granting institution and submitted by the institution directly to the professional soil scientist section establishing that the applicant has been granted a bachelor's degree in soil science or a bachelor's degree with a soil science major meeting the requirements under s. 470.04 (4) (b), Stats., granted by a college or university accredited by a regional accrediting agency approved by the state board of education in the state in which the college or university is located, or accredited by a Canadian accrediting agency satisfactory to the board, or

(b) A chronological history of the applicant's employment or other qualifying experience in satisfaction of s. 470.04 (7), Stats.

(2) A chronological history of the applicant's employment or other qualifying experience in satisfaction of s. 470.04 (4) (c) 1. or 470.04 (4) (c) 2., Stats.

(3) For applicants applying under s. 470.04 (4) (c) 1., Stats., a completed "supervised soil science experience" form completed by a supervisor relating to professional soil science and who is one of the following:

(a) A professional soil scientist who, during the time of the supervised practice, was licensed in this state.

(b) A professional soil scientist who, during the time of the supervised practice, was licensed in another licensing jurisdiction that has licensure requirements not lower than the requirements for licensure in this state.

(c) A person who the board determines is qualified to have responsible charge of soil science work.

(4) For applicants applying under s. 470.04 (4) (c) 2., Stats., submission of at least 3 "peer evaluation" forms satisfactory to the board completed by licensed professional soil scientists who have had professional contact with the applicant's practice and who certify that the applicant is qualified to assume responsible charge of soil science work.

(5) References from at least 5 individuals, at least 3 of whom shall be professionally competent to evaluate the applicant's practice.

(6) The fee required under s. 440.05 (1), Stats.

(7) For applicants previously licensed in another state, territory or possession of the United States or in another country, verification of the applicant's licensure in the licensing jurisdiction of original licensure or, if the applicant has permitted his or her licensure in the jurisdiction of original licensure to lapse, verification of licensure in the licensing jurisdiction where the applicant is currently licensed and where the applicant was last engaged in the practice of professional soil science.

(8) For applicants who have a pending criminal charge or have been convicted of a crime, all related information necessary for the professional soil scientist section to determine whether the circumstances of the pending criminal charge or criminal conviction are substantially related to the circumstances of the practice of soil science.

(9) Any additional data, exhibits or references showing the extent and quality of the applicant's experience that may be required by the professional soil scientist section.

(10) Evidence of successful completion of fundamentals of soil science and principles and practice of soil science examinations.

Note: Application forms are available upon request to the Professional Soil Scientist Section of the board at 1400 East Washington Avenue, P.O. Box 8935, Madison, Wisconsin 53708.

## Chapter GHSS 5

### UNPROFESSIONAL CONDUCT

**GHSS 5.01 Authority.** The rules of conduct in this chapter are adopted under authority of ss. 15.08 (5) (b), 227.11 (2), 470.03 (1) and 470.08, Stats.

**GHSS 5.02 Intent.** The intent of the board in adopting this chapter is to establish rules of professional conduct for the professions of geology, hydrology and soil science. A violation of any standard specified in this chapter may result in disciplinary action under s. 470.08 (2) (g), Stats.

**GHSS 5.03 Unprofessional conduct.** "Unprofessional conduct" includes any of the following or aiding another person who is violating any of the following:

(1) Making a material misstatement in an application for a license or for renewal of a license.

(2) In sitting for any licensure examination, soliciting or knowingly disclosing examination content.

(3) Failing to cooperate with the board or a section of the board in an investigation under this section.

(4) Engaging in gross negligence in the practice of professional geology, professional hydrology or professional soil science through the performance of professional services which do not comply with an acceptable standard of practice that has a significant relationship to the protection of health, safety or public welfare and is performed in a manner indicating that the professional knew or should have known, but acted with indifference to or disregard of, the accepted standard of practice.

(5) Providing incompetent services in the practice of professional geology, professional hydrology or professional soil science which demonstrate any of the following:

(a) Lack of ability or fitness to discharge the duty owed by a professional geologist, professional hydrologist or professional soil scientist to a client or employer or to the public.

(b) Lack of knowledge of the fundamental principles of the profession or an inability to apply fundamental principles of the profession.

(c) Failure to maintain competency in the current practices and methods applicable to the profession.

(6) Subject to ss. 111.321, 111.322 and 111.335, Stats., engaging in the practice of professional geology, professional hydrology or professional soil science while the person's ability to engage in the practice was impaired by alcohol or other drugs.

(7) Having been adjudicated mentally incompetent by a court of competent jurisdiction.

(8) Subject to ss. 111.321, 111.322 and 111.335, Stats., having violated federal or state laws, local ordinances or administrative rules relating to the practice of professional geology, professional hydrology or professional soil science.

(9) Preparing deficient plans, drawings, maps, specifications or reports.

(10) Engaging in conduct which evidences a lack of trustworthiness to transact the business required by the profession.

(11) Misrepresenting professional qualifications such as education, specialized training or experience.

(12) Failing to provide appropriate supervision to those to whom a licensee has delegated services constituting the practice of professional geology, professional hydrology or professional soil science, including the following:

(a) Indirect or casual review or inspection of prepared plans, drawings, specifications, maps, plats, charts, reports or other documents.

(b) Delegation of any decision requiring professional judgment.

(c) Mere assumption by a professional geologist, professional hydrologist or professional soil scientist of responsibility for work without having control of the work.

(d) Assumption of charge, control or direct supervision of work in which the professional geologist, hydrologist or soil scientist does not have technical proficiency.

(13) When offering to perform professional services as a professional geologist, professional hydrologist or professional soil scientist, failing to accurately and truthfully represent to a prospective client or employer the capabilities and qualifications which the licensee has to perform the services to be rendered or the costs and completion times of a proposed project.



(14) Offering to perform or performing services which the licensee is not qualified to perform by education or experience without retaining the services of another who is qualified.

(15) Using false, fraudulent or deceptive advertising or publicity; or practicing or attempting to practice under another's name.

(16) Falsely representing that the licensee is engaged in a partnership or association with another unless there exists in fact a partnership or association, or practicing under a firm name that misrepresents the identity of those practicing in the firm or misrepresents the type of services which the firm is authorized and qualified to perform.

(17) Collecting a fee for recommending the services of another unless written notice is first given to all parties concerned.

(18) Any conflict of interest, unless the licensee informs the client or employer of all the circumstances which may interfere with or impair the licensee's obligation to provide professional services, and unless the licensee has the full approval and consent of the client or employer.

(19) Failing to notify an employer or client and to withdraw from employment at any time if it becomes apparent that it is not possible to faithfully discharge the responsibilities and duties owed to the client or employer; or agreeing to perform professional services for a client or employer if the registrant has a significant financial or other interest which would impair or interfere with the registrant's responsibility to faithfully discharge professional services on behalf of the client or employer.

(20) Accepting payment from any party other than a client or employer for a particular project or having any direct or indirect financial interest in a service or phase of a service to be provided as part of a project unless the employer or client approves.

(21) Soliciting or accepting anything of value from material or equipment suppliers in return for specifying or endorsing a product.

(22) Violating the confidences of a client or employer, except as otherwise required by law.

(23) Providing services for a client or employer while a full-time employee of another employer without notifying all parties concerned.

(24) Aiding or abetting the unlicensed practice of professional geology, professional hydrology or professional soil science.

(25) Signing, sealing or stamping any plans, drawings, documents, specifications or reports for professional geology, professional hydrology or professional soil science practice which are not prepared by the licensee or under his or her personal direction and control.

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(END OF TEXT OF RULE)  
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The rules adopted in this order shall take effect on the first day of the month following publication in the Wisconsin administrative register, pursuant to s. 227.22 (2) (intro.), Stats.

Dated \_\_\_\_\_ Agency \_\_\_\_\_  
Chairperson  
Examining Board of Professional Geologists,  
Hydrologists and Soil Scientists

FISCAL EFFECT

These rules implement the regulation of professional geologists, hydrologists and soil scientists as enacted by 1997 Wisconsin Act 300. The Joint Committee on Finance approved position authority and funds to implement this legislation through the 16.515 process on October 28, 1998. This approval was for FY99, FY00 and FY01. The staffing and funding for this licensure needs to be reviewed for the 2001-03 biennium.

The cost to implement this legislation for FY99 includes \$69,547 for salary and fringe (3.0 FTE); \$17,633 for Board expenses; \$8,036 for supplies and services; and \$16,500 for one-time costs (computers and office furniture). Annual costs for FY00 and FY01 are estimated at \$122,000 annually.

These rules neither increases the department's revenues or expenditures. This rule does not appear to have any impact on local government costs.

FINAL REGULATORY FLEXIBILITY ANALYSIS

These proposed rules will have no significant economic impact on small businesses, as defined in s. 227.114 (1) (a), Stats.

g:\rules\ghss1final.doc  
9/20/99



Tommy G. Thompson  
Governor

Marlene A. Cummings  
Secretary

1400 E. WASHINGTON AVENUE  
P. O. BOX 8935  
MADISON, WISCONSIN 53708-8935  
E-Mail: dori@mail.state.wi.us  
(608) 266-2112  
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October 7, 1999

Senator Judy Robson, Co-Chairperson  
Joint Committee for Review of Administrative Rules  
15 South, State Capitol  
Madison, WI 53702

Representative Glenn Grothman, Co-Chairperson  
Joint Committee for Review of Administrative Rules  
15 North, State Capitol  
Madison, WI 53702

RE: Request for Extension of Emergency Rules Regulating the Professions of Professional Geology, Hydrology and Soil Scientists

Dear Senator Robson and Representative Grothman:

I am writing on behalf of the Examining Board of Professional Geologists, Hydrologists and Soil Scientists. This is a follow-up to my letter of September 20, 1999.

Senator Robert Wirch's Committee on Economic Development, Housing and Government Operations has requested that the Examining Board consider some specific modifications. They were: replacing the restrictive use of the term "bachelor" degree requirement under s. GHSS 4.01(1) with "post-baccalaureate" degree and to remove the incorrect use of "registered" when referring to how each profession is credentialed, as well as the need to correct other inaccurate administrative rule and statutory citations. Senator Wirch's committee also requested that a new rule be drafted to make clear that the practice of wetland mapping did not require a professional license in any of the three disciplines.

The Examining Board of Professional Geologists, Hydrologists and Soil Scientists therefore has made the following modifications, based upon comment by Senator Wirch's committee as identified by page and correction.

Page	Correction Chapters GHSS 2-4
4	2.03(3)(a), 2.03(3)(b), 2.03(4), 2.03(5) "registered" to "licensed"
8	2.06(2)(a) "2.04 to "2.05"
8	2.06(2)(b) "5" to "4"
8	2.06(3)(a)2 "470.04(2)(c)(2)" to 470.04(2)(b)
9	2.06(3)(a)3a, 2.06(3)(a)3b "registered" to "licensed"
10	3.03 "470.02(3)(c)" to "470.04(3)(c)"
14	3.05(3)(a)3a and 3.05(3)(a)3b "registered" to "licensed" - two times
16	3.06(3)(a), 3.06(3)(b) and 3.06(4) "registered" to "licensed"
17	4.03 "470.02(3)(c)" to "470.04(4)(c)"
18	4.04 replace the second "bachelors" with "post-baccalaureate."
20	4.05(3)(a)3a and 4.05(3)(a)3b "registered" to "licensed" - two times
22	4.06(3)(a), 4.06(3)(b) and 4.06(4) "registered" to "licensed"

Regulatory Boards

Accounting; Architects, Landscape Architects, Professional Engineers, Designers and Land Surveyors; Professional Geologists, Hydrologists and Soil Scientists; Auctioneer; Barbering and Cosmetology; Chiropractic; Controlled Substances; Dentistry; Dietitians; Funeral Directors; Hearing and Speech; Medical; Nursing; Nursing Home Administrator; Optometry; Pharmacy; Physical Therapists; Podiatry; Psychology; Real Estate; Real Estate Appraisers; Social Workers, Marriage and Family Therapists and Professional Counselors; and Veterinary.

Senator Robson and Representative Grothman

Page 2

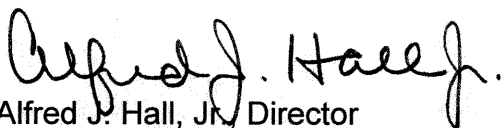
October 7, 1999

**GHSS 1.06 Wetlands mapping by non-licensee.** No license is required under s. 470.02, Stats., for persons publicly or privately engaged in wetlands mapping as described in s. 23.32 (2)(c), Stats., unless the person performing the wetlands mapping: (a) engages in the practice of other than wetlands mapping for which a license is required under s. 470.02, Stats.; or (b) uses a title, or advertises or otherwise engages in a business practice tending to imply, represent or convey the impression he or she is engaged in the practice of professional geology, professional hydrology or professional soil science for which a license is required under s. 470.02, Stats.

A copy of the modified GHSS 1,2,3,4 and 5 rules is enclosed with this correspondence for your review.

If you have any questions, please feel free to call me at 266-3423.

With respect,



Alfred J. Hall, Jr. Director

Bureau of Business and Design Professions on Behalf of the  
Examining Board of Professional Geologists, Hydrologists and Soil Scientists

Enclosure: Chapter GHSS Revised (9/29/99)

Cc: Senator Robert W. Wirch, Chair Committee on Economic Development, Housing  
and Government Operations  
Marlene A. Cummings, Secretary  
Examining Board of Professional Geologists, Hydrologists and Soil Scientists  
File: I:BDP/RULES/HALL-ROBSON9-29.DOC

STATE OF WISCONSIN  
EXAMINING BOARD OF PROFESSIONAL GEOLOGISTS,  
HYDROLOGISTS AND SOIL SCIENTISTS

---

IN THE MATTER OF RULE-MAKING : PROPOSED ORDER OF THE  
PROCEEDINGS BEFORE THE : EXAMINING BOARD OF  
EXAMINING BOARD OF : PROFESSIONAL GEOLOGISTS,  
PROFESSIONAL GEOLOGISTS, : HYDROLOGISTS AND SOIL  
HYDROLOGISTS AND : SCIENTISTS ADOPTING RULES  
SOIL SCIENTISTS : (CLEARINGHOUSE RULE 99-088)

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PROPOSED ORDER

An order of the Examining Board of Professional Geologists, Hydrologists and Soil Scientists to create chapters GHSS 1 to 5 relating to the licensure and regulation of professional geologists, hydrologists and soil scientists.

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ANALYSIS

Statutes authorizing promulgation: ss. 15.08 (5) (b) and 227.11 (2), Stats., and ss. 470.03 and 470.04, Stats., as created by 1997 Wisconsin Act 300.

Statutes interpreted: Chapter 470, Stats.

This rule-making order of the Examining Board of Professional Geologists, Hydrologists and Soil Scientists creates rules as authorized by 1997 Wisconsin Act 300. The purpose of the rules is to specify requirements and procedures applicable to each of the three sections of the Examining Board of Professional Geologists, Hydrologists and Soil Scientists.

Chapter GHSS 1 describes the stamp or seal required to be utilized by licensees of the board, and identifies the requirements for affixing the stamp or seal to plans, drawings, specifications and reports prepared by licensees of the board. Chapter GHSS 1 also sets forth the requirements for firms offering to provide services in Wisconsin. Finally, GHSS 1 sets forth the various requirements for notifying the board of changes in address and for renewing licenses.

Chapters GHSS 2, 3 and 4 specify the licensure requirements for professional geologists, professional hydrologists and professional soil scientists, respectively, including required areas of experience, educational requirements, required examinations, examination procedures, and requirements for application content.

Chapter GHSS 5 sets forth the board's disciplinary rules which define conduct constituting unprofessional conduct, gross negligence and incompetence.

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## TEXT OF RULE

SECTION 1. Chapters GHSS 1 to 5 are created to read:

### CHAPTER GHSS 1

#### GENERAL REQUIREMENTS AND PROCEDURES

**GHSS 1.01 Purpose.** The purpose of this chapter is to specify general requirements and procedures which apply to all 3 sections of the board. Requirements specific to professional geologists, professional hydrologists and professional soil scientists are specified in chs. GHSS 2, 3 and 4. Rules of professional conduct for all licensees are specified in ch. GHSS 5.

**GHSS 1.02 Definitions.** In chs. GHSS 1 to 5:

(1) "Board" or "joint board" means the examining board of professional geologists, hydrologists and soil scientists.

(2) "Department" means the department of regulation and licensing.

(3) "Licensee" means a person licensed as a professional geologist, professional hydrologist or professional soil scientist.

(4) "Section of the board" means either the professional geologist section, the professional hydrologist section or the professional soil scientist section.

**GHSS 1.03 Licensure seals.** (1) Each professional geologist, hydrologist and soil scientist shall obtain a seal that complies with board specifications for licensure seals. The overall diameter may not be less than 1 5/8 inches nor more than 2 inches. Each seal shall include the licensee's name, license or permit number and city.

(2) The following designs for licensure seals have been approved:

*[Designs not included. See the seal design set forth at sec. A-E 2.02, Code]*

(3) A rubber stamp, identical in size, design and content to a board-approved seal, may be used as a substitute for a licensure seal.

(4) Each sheet of plans, drawings, documents, specifications and reports for professional geology, hydrology and soil science practice shall be signed, sealed and dated by the licensee who prepared, or directed and controlled preparation of, the written material, except as specified in sub. (5).

(5) If more than one sheet is bound together in a volume, the licensee who prepared or directed and controlled the preparation of the volume, may sign, seal and date only the title or index sheet if the signed sheet identifies clearly all other sheets comprising the bound volume and if any

other sheets in the bound volume which are prepared by or under the direction and control of another licensee are signed, sealed and dated by the other licensee.

(6) Any addition, deletion or other revision to each sheet of plans, drawings, documents, specifications and reports prepared for professional geology, hydrology, or soil science practice which affects public health and safety or any state or local code requirements may not be made unless signed, sealed and dated by the licensee who made or directed and controlled the making of the revision.

(7) All seals or stamps affixed to drawings to be filed as public documents shall be original. No stickers or electronically scanned images may be used. All seals and stamps on drawings shall be signed and dated by the licensed professional in permanent ink contrasting with both the seal and the background.

**GHSS 1.04 Change of address.** A licensee shall notify the board of a change of name or address as required under s. 440.11 (1), Stats. The notice shall include the person's or firm's former and new addresses and each license or certification number held.

**GHSS 1.05 Failure to renew a license.** (1) If a licensee who fails to renew his or her license by the established renewal date applies for renewal of the license less than 5 years after its expiration, the license shall be renewed upon payment of the renewal fee specified in s. 440.08 (3), Stats.

(2) (a) If a licensee applies for renewal of his or her license more than 5 years after its expiration, the board shall determine whether the applicant is competent to practice under the license in this state. The inquiry shall include a review of the applicant's practice within the previous 5 years, if any, in other licensing jurisdictions.

(b) After inquiry, the board may impose any reasonable conditions on reinstatement of the license as the board deems appropriate, including a requirement that the applicant complete any current requirement for original licensure.

**GHSS 1.06 Wetlands mapping by non-licensee.** No license is required under s. 470.02, Stats., for persons publicly or privately engaged in wetlands mapping as described in s. 23.32 (2) (c), Stats., unless the person performing the wetlands mapping does one of the following:

(1) Engages in the practice of other than wetlands mapping for which a license is required under s. 470.02, Stats.; or

(2) Uses a title, or advertises or otherwise engages in a business practice tending to imply, represent or convey the impression he or she is engaged in the practice of professional geology, professional hydrology or professional soil science for which a license is required under s. 470.02, Stats.

## CHAPTER GHSS 2

### PROFESSIONAL GEOLOGIST LICENSE

**GHSS 2.01 Authority and purpose.** This chapter is adopted under authority in ss. 15.08 (5) (b), 227.11 (2), 470.03 (1) (a) and 470.04, Stats. The purpose of this chapter is to interpret basic education, experience and examination requirements for licensure as a professional geologist as specified in ss. 470.04 and 470.05, Stats.

**GHSS 2.02 Applications.** An applicant for a professional geologist license shall file an application. An applicant who does not comply with a request for information related to the application within one year from the date of the request shall file a new application.

Note: Applications are available upon request to the Professional Geologist Section of the board at 1400 East Washington Avenue, P.O. Box 8935, Madison, Wisconsin 53708.

**GHSS 2.03 Application contents.** An application for licensure as a professional geologist shall include:

(1) Either of the following:

(a) Official transcripts of graduate and undergraduate training, properly attested to by the degree granting institution and submitted by the institution directly to the board establishing that the applicant has been granted a bachelor degree in geology or a bachelor degree with a geology major meeting the requirements under s. 470.04 (2) (c), Stats., granted by a college or university accredited by a regional accrediting agency approved by the state board of education in the state in which the college or university is located, or accredited by a Canadian accrediting agency satisfactory to the board, or

(b) A chronological history of the applicant's employment or other qualifying experience in satisfaction of s. 470.04 (7), Stats.

(2) A chronological history of the applicant's employment or other qualifying experience in satisfaction of s. 470.04 (2) (c) 1., Stats.

(3) For applicants applying under s. 470.04 (2) (c)1. or 470.04 (2) (c) 2., Stats., a completed "supervised geologic experience" form completed by a supervisor relating to professional geology and who is one of the following:

(a) A professional geologist who, during the time of the supervised practice, was licensed in this state.

(b) A professional geologist who, during the time of the supervised practice, was licensed in another licensing jurisdiction that has licensure requirements not lower than the requirements for licensure in this state.



(c) A person whom the professional geologist section determines is qualified to have responsible charge of geologic work.

(4) For applicants applying under s. 470.04 (2) (c) 2., Stats., submission of at least 3 "peer evaluation" forms satisfactory to the professional geologist section completed by licensed professional geologists who have had professional contact with the applicant's practice and who certify that the applicant is qualified to assume responsible charge of geologic work.

(5) References from at least 5 individuals, at least 3 of whom shall be professionally competent to evaluate the applicant's practice and at least one of whom shall be licensed as a professional geologist in this state or in a state where an applicant by reciprocity is currently licensed.

(6) The fee required under s. 440.05 (1), Stats.

(7) For applicants previously licensed in another state, territory or possession of the United States or in another country, verification of the applicant's licensure in the licensing jurisdiction of original licensure or, if the applicant has permitted his or her licensure in the jurisdiction of original licensure to lapse, verification of licensure in the licensing jurisdiction where the applicant is currently licensed and where the applicant was last engaged in the practice of professional geology.

(8) For applicants who have a pending criminal charge or have been convicted of a crime, all related information necessary for the professional geologist section to determine whether the circumstances of the pending criminal charge or criminal conviction are substantially related to the circumstances of the practice of geology.

(9) Any additional data, exhibits or references showing the extent and quality of the applicant's experience that may be required by the professional geologist section.

(10) Evidence of successful completion of the fundamentals of geology examination and the principles and practice of geology examination.

Note: Application forms, including the "Supervised Geologic Experience" form and the "Peer Evaluation" form are available upon request to the Professional Geologist Section of the board at 1400 East Washington Avenue, P.O. Box 8935, Madison, Wisconsin 53708.

**GHSS 2.04 Experience as a professional geologist.** (1) To qualify as satisfactory professional geologic work for the purposes of s. 470.04 (2) (c), Stats., an applicant's experience shall include the application of accepted principles in the practice of geology and shall demonstrate an applicant's progressive development of competence to practice as a professional geologist. The experience shall be acquired in the areas of the practice of geology listed in sub. (2) (a) to (m) or in other areas of the practice of geology which in the opinion of the professional geologist section provide the applicant with a knowledge of principles and data related to the practice of geology at least equivalent to that which would be acquired by experience in the areas of practice listed. Experience in every listed area is not required.

(2) Areas of experience in the practice of professional geology include:

(a) Mineralogy, including identification of minerals and mineral assemblages, the determination of physical and chemical properties of rocks, and determination of probable genesis and sequence of mineral assemblages.

(b) Petrography or petrology, including identification and classification of major rock types, determination of physical and chemical properties of rocks, and determination of probable genesis and sequence of rock formation.

(c) Geochemistry, including evaluation of geochemical data, and construction of geologic models based on geochemical analyses.

(d) Stratigraphy or historical analysis, including identification of rock sequences, establishment of the relative position of rock units, determination of the ages of rock units, interpretation of depositional environments and geologic histories, performance of facies analyses, and establishment of stratigraphic classifications.

(e) Structural geology, including identification of structural features and their interrelationships, determination of the orientation of structural features, performance of qualitative and quantitative structural analyses, correlation of separated structural features, and interpretation of structural features and tectonic histories.

(f) Paleontology, including determination of estimated relative geologic ages of rocks, identification of fossils and fossil assemblages, correlation of rock biostratigraphy, and paleoecological interpretation.

(g) Geomorphology, including identification of landforms, performance of geomorphic field investigations, determination of geomorphic processes and the development and age relationships of landforms and soils, and interpretation of geomorphic field data.

(h) Geophysics, including performance of geophysical investigations in the field, performance of geological interpretations of geophysical data, and identification of potentially hazardous geological conditions by use of geophysical techniques.

(i) Hydrogeology, including design and interpretation of hydrologic and hydrogeologic testing programs, utilization of physical and chemical data to evaluate hydrogeologic conditions, development and interpretation of groundwater geologic maps and sections, application of geophysical methods to analyze hydrogeologic conditions, determination of the physical and chemical properties of aquifers and vadose zones, determination of groundwater resources and quality, design of wells and drilling programs, development of groundwater resource management plans, and development of remedial action programs.

(j) Engineering geology, including geologic interpretation for engineering design, identification and interpretation of potential seismic and geologic hazards, development and interpretation of engineering geology maps and sections, evaluation of materials resources, establishment of site selection and evaluation criteria, design and implementation of field and

laboratory programs, and provision of sample soils for geologic analysis and materials properties testing.

(k) Mining geology, including formulation of exploration programs, implementation of field investigations on prospects, performance of geologic interpretations for mineral reserves, performance of economic analyses and appraisals, provision of geologic interpretations for mineral resource, mine development, and mine reclamation or abandonment.

(l) Petroleum geology, including formulation of exploration plans, implementation of field investigations on prospects, performance of geologic interpretations of physical properties and hydrocarbon reserves, performance of petroleum economic analyses and appraisals, and provision of geologic interpretations for development and abandonment of hydrocarbon reservoirs.

(m) Glacial geology, including understanding glacial processes, deposits, landforms and environments; identification and classification of glacial sediment; performance of facies analyses; identification of glacial sequences and establishment of stratigraphic classifications; determination of glacial histories; and development and interpretation of glacial geologic maps and sections.

(3) Not more than one year of satisfactory experience credit may be granted for any calendar year.

**GHSS 2.05 Education.** (1) In satisfaction of the education requirement under s. 470.04 (2) (b), Stats., the professional geologist section shall accept a bachelor degree in geology, or a degree reflecting that the applicant has completed at least 30 semester hours or 45 quarter hours of course credits in geology of a variety and nature sufficient to constitute a major in geology, granted by a college or university accredited by a regional accrediting agency approved by the state board of education in the state in which the college or university is located, or accredited by a Canadian accrediting agency satisfactory to the board.

(2) If the degree is from an educational institution not meeting the requirements of sub. (1), the applicant must provide an official evaluation by a transcript evaluation service acceptable to the professional geologist section which shows that the degree is equivalent to a bachelor degree in geology or a bachelor degree with a major in geology meeting the requirements under sub. (1).

(3) In order to be considered a major in geology, an applicant must have completed at least 30 semester hours or 45 quarter hours of course credits which include credits in at least 4 of the following areas:

- (a) Geochemistry or geophysics.
- (b) Geologic field methods.
- (c) Glacial geology or geomorphology.

- (d) Hydrogeology or hydrology.
- (e) Mineralogy.
- (f) Petrology or petrography.
- (g) Stratigraphy or sedimentology.
- (h) Structural geology.

(4) In addition to the coursework required under sub. (3), other coursework that may be used to satisfy the 30 semester hour or 45 quarter hour requirement includes, but is not limited to, the following:

- (a) Engineering geology.
- (b) Historical geology.
- (c) Mining geology.
- (d) Paleontology.
- (e) Petroleum geology.
- (f) Physical geology.

**GHSS 2.06 Examinations.** (1) **REQUIRED EXAMINATIONS.** An applicant for initial licensure as a professional geologist shall pass examinations for the professional practice of geology approved by the professional geologist section. Required examinations shall include a fundamentals examination and a principles and practice of geology examination.

(2) **FUNDAMENTALS EXAMINATION.** The fundamentals examination requires an understanding of the physical and mathematical sciences involved in the fundamentals of geology. To be eligible to take the fundamentals examination, an applicant shall have done one of the following:

(a) Completed at least 24 semester hours or 36 quarter hours of course credits in geology and be of not less than second semester senior standing in a bachelor program meeting the requirements of s. GHSS 2.05.

(b) Completed at least 4 years of experience, which is determined by the professional geologist section to be equivalent to the requirements of s. GHSS 2.04 (1).

(3) **PRINCIPLES AND PRACTICE EXAMINATION.** The principles and practice examination requires the ability to apply geologic principles and judgment to problems in the practice of professional geology. To be eligible to take the principles and practice examination, an applicant shall have done one of the following

(a) To be eligible to take the principles and practice examination, an applicant under s. 470.04 (2) (c) 1., Stats., shall have done all of the following:

1. Met the requirements under s. 470.04 (2) (a), Stats.
2. Met the requirement under s. 470.04 (2) (b) Stats., or have at least 5 years of professional experience in addition to the qualifying experience under subd. 3., which is determined by the professional geologist section to be substantially equivalent to the requirement under s. 470.04 (2) (b), Stats.
3. Completed at least 4 years of professional experience in geologic work of a character satisfactory to the professional geologist section, or completed at least 3 years of professional experience in geologic work of a character satisfactory to the section if the applicant has one or more advanced degrees relevant to the practice of professional geology, demonstrating that the applicant is qualified to assume responsible charge of geologic work. At least one year of the qualifying professional experience under this subdivision must have been performed under the supervision of one or more of the following:

a. A person who is at the time of application licensed as a professional geologist under this chapter or who, during the period of supervised experience, was licensed as a professional geologist under ch. 470, 1997 Stats.

b. A person who, during the period of supervised experience, was licensed as a professional geologist in another state, territory or possession of the United States or in another country that has licensure requirements for professional geologists that are not lower than the requirements for licensure under this chapter.

c. A person who, during the period of supervised experience, is deemed by the professional geologist section to have been qualified to have responsible charge of geologic work.

(b) To be eligible to take the principles and practice examination, an applicant under s. 470.04 (2) (c) 2., Stats., shall have done all of the following:

1. Met the requirements under s. 470.04 (2) (a), Stats.
2. Met the requirement under s. 470.04 (2) (b), Stats., or have at least 5 years of professional experience in addition to the qualifying experience under subd. 3., which is determined by the professional geologist section to be equivalent to the requirement under s. 470.04 (2) (b), Stats.
3. Completed at least 6 years of professional experience in geologic work of a character satisfactory to the professional geologist section, or completed at least 5 years of professional experience in geologic work of a character satisfactory to the section if the applicant has one or more advanced degrees relevant to the practice of professional geology,

demonstrating that the applicant is qualified to assume responsible charge of geologic work. At least one year of the qualifying professional experience under this subdivision must have been performed under a peer review system approved by the professional geologist section.

(3) APPLICATION FOR EXAMINATION. An applicant for initial licensure shall file an application for examination with the board not less than 2 months before the scheduled date of the examination.

(4) AMERICANS WITH DISABILITIES ACT. Otherwise qualified applicants with disabilities shall be provided with reasonable accommodations.

(5) EXAMINATION AND REFUND FEES. The fee for the examinations for professional geologists and the requirements for refund of fees are specified in s. 440.05 (1) (b), Stats., and s. RL 4.06, respectively.

(6) PLACE AND TIME OF EXAMINATIONS. The examinations required by this section shall be held at sites and on dates designated by the professional geologist section.

(7) PASSING SCORES. (a) The passing scores set by the professional geologist section represent the minimum competency required to protect public health and safety.

(b) All required examinations are scored separately. The fundamentals of geology and the principles and practice of geology examinations of the association of state boards of geology, and the examination on the elements of practice essential to the public health, safety or welfare are scored separately. An applicant shall achieve a passing score on each of the required examinations to qualify for licensure.

(c) The professional geologist section may accept the recommendations of the association of state boards of geology for the passing score on the fundamentals of geology and the principles and practice of geology examinations.

(d) The professional geologist section shall make the determination of the passing score on the examination on the elements of practice essential to the public health, safety or welfare after consultation with subject matter experts who have reviewed a representative sample of the examination questions and available candidate performance statistics.

(8) CHEATING. The professional geologist section may deny release of scores or issuance of a credential if the board determines that the applicant violated rules of conduct of the examination or otherwise acted dishonestly in taking the examination.

## CHAPTER GHSS 3

### PROFESSIONAL HYDROLOGIST LICENSE

**GHSS 3.01 Authority and purpose.** The rules in this chapter are adopted under authority in ss. 15.08 (5) (b), 227.11 (2), 470.03 (1) (a) and 470.04, Stats. The purpose of the rules in this chapter

is to interpret basic education, experience and examination requirements for licensure as a professional hydrologist as specified in ss. 470.04 and 470.05, Stats.

**GHSS 3.02 Applications.** An applicant who files an application but does not comply with a request for information related to the application within one year from the date of the request shall file a new application.

Note: Applications are available upon request to the Professional Hydrologist Section of the board at 1400 East Washington Avenue, P.O. Box 8935, Madison, Wisconsin 53708.

**GHSS 3.03 Experience as a professional hydrologist.** (1) To qualify as satisfactory professional hydrologic work for the purposes of s. 470.04 (3) (c), Stats., an applicant's experience shall include the application of accepted principles in the practice of hydrology and shall demonstrate an applicant's progressive development of competence to practice as a professional hydrologist. The experience shall be acquired in the areas of the practice of hydrology listed in sub. (2) (a) to (c), or in other areas of the practice of hydrology which in the opinion of the professional hydrologist section provide the applicant with a knowledge of principles and data related to the practice of hydrology at least equivalent to that which would be acquired by experience in the areas of practice listed. Experience in every listed area is not required.

(2) Areas of experience in the practice of professional hydrology include but are not limited to:

(a) Collection and inventory of hydrological data, including monitoring and characterizing surface and subsurface water quality and flow; monitoring precipitation quality, quantity and distribution; assessing surface and subsurface water quality, conditions and impacts; inventorying and assessing sources of water contamination; assessing conditions affecting surface and subsurface water quantity, quality and timing of flow; conducting field tests to determine the hydraulic characteristics of saturated and unsaturated media; inventorying channel and flood plain conditions affecting flow and habitat; inventorying physical, chemical or biological characteristics of lakes and wetlands; designing, installing and maintaining monitoring networks and equipment, such as stream gauges and monitoring wells, used to evaluate surface and subsurface water flow and quality; selecting sampling protocols for measuring surface and subsurface water; measuring surface water flow utilizing current meters and flow control structures; and conducting boring programs and tests to characterize conditions that affect subsurface water flow, contaminant flux, and the source and extent of subsurface contamination.

(b) Interpretation, analysis and modeling of hydrological processes, including estimating the frequency of hydrologic events; estimating water budgets of surface water and aquifer systems; estimating pollutant loads; modeling and assessing surface and subsurface water contaminant fate and transport; modeling and assessing watershed hydrology; modeling and assessing urban watersheds and stream flow; modeling and assessing surface water quality, modeling and assessing soil erosion and sediment transport; delineating regulatory floodplains; interpreting water chemistry data; evaluating subsurface water flow and quality characteristics; evaluating subsurface water discharge and recharge areas and rates; modeling subsurface water flow, quality and transport; analyzing the

hydraulic characteristics of saturated and unsaturated media; and evaluating subsurface contamination and remedial alternatives.

(c) Planning, design, and management of hydrological systems, including designing water control structures, designing watershed management plans, designing runoff and erosion control measures, designing slope stabilization measures, designing detention and retention ponds, designing urban storm water management plans, designing for stream bank and lakeshore protection, designing channels and stream restoration work, designing subsurface remediation systems, and designing water supply wells and wellhead protection plans.

(3) Not more than one year of satisfactory experience credit may be granted for any calendar year.

**GHSS 3.04 Education.** (1) In satisfaction of the education requirement under s. 470.04 (3) (b), Stats., the professional hydrologist section shall accept a bachelor degree in hydrology or water resources, or a degree reflecting that the applicant has completed at least 30 semester hours or 45 quarter hours of course credits in hydrology or water resources of a variety and nature sufficient to constitute a major in hydrology or water resources, granted by a college or university accredited by a regional accrediting agency approved by the state board of education in the state in which the college or university is located, or accredited by a Canadian accrediting agency satisfactory to the board.

(2) If the degree is from an educational institution not meeting the requirements of sub. (1), the applicant shall provide an official evaluation by a transcript evaluation service acceptable to the professional hydrologist section which shows that the degree is equivalent to a bachelor degree in hydrology or water resources or a bachelor degree with a major in hydrology or water resources meeting the requirements under sub. (1).

(3) In order to be considered a major in hydrology, the applicant must have completed at least 12 semester hours or 18 quarter hours of course credits in hydrology or water resources in at least 3 of the following areas:

- (a) Contaminant surface and subsurface water hydrology.
- (b) Field methods in surface and subsurface water hydrology.
- (c) Fluid mechanics or dynamics.
- (d) Fluvial geomorphology.
- (e) Open channel flow and hydraulics.
- (f) Stochastic hydrology.
- (g) Subsurface water hydrology.
- (h) Subsurface water and well hydraulics.



- (i) Surface or subsurface water modeling.
- (j) Surface water hydrology.
- (k) Unsaturated zone hydrology.
- (L) Water resource management.

(4) In addition to the coursework required under sub. (3), other hydrology or water resource related coursework that may be used to satisfy the 30 semester hour or 45 quarter hour requirement include, but are not limited to, courses in the following areas:

- (a) Aquatic biology.
- (b) Engineering.
- (c) Environmental health and toxicology.
- (d) Forestry.
- (e) Geography.
- (f) Geology.
- (g) Limnology.
- (h) Meteorology.
- (i) Natural resources.
- (j) Soil science.
- (i) Water chemistry.

**GHSS 3.05 Examinations.** (1) **REQUIRED EXAMINATIONS.** An applicant for initial licensure as a professional hydrologist shall pass examinations for the professional practice of hydrology approved by the professional hydrologist section. Required examinations shall include a fundamentals examination and a principles and practice examination.

(2) **FUNDAMENTALS EXAMINATION.** The fundamentals examination requires an understanding of the physical and mathematical sciences involved in the fundamentals of hydrology. To be eligible to take the fundamentals examination, an applicant shall have done one of the following:

(a) Completed at least 24 semester hours or 36 quarter hours of course credits in hydrology or water resources and be of not less than second semester senior standing in a bachelor program meeting the requirements of s. GHSS 3.04.

(b) Completed at least 5 years of experience which is determined by the professional hydrologist section to be equivalent to the requirements of s. GHSS 3.04.

(3) PRINCIPLES AND PRACTICE EXAMINATION. The principles and practice examination requires the ability to apply hydrologic principles and judgment to problems in the practice of professional hydrology. To be eligible to take the principles and practice examination, an applicant shall have done one of the following:

(a) To be eligible to take the principles and practice examination, an applicant under s. 470.04 (3) (c) 1., Stats., shall have done the following:

1. Met the requirements under s. 470.04 (3) (a), Stats.
2. Met the requirement under s. 470.04 (3) (b), Stats., or have at least 5 years of professional experience in addition to the qualifying experience under subd. 3., which is determined by the professional hydrologist section to be equivalent to the requirement under s. 470.04 (3) (b), Stats.

3. Completed at least 4 years of professional experience in hydrologic work of a character satisfactory to the professional hydrologist section, or completed at least 3 years of professional experience in hydrologic work of a character satisfactory to the section if the applicant has one or more advanced degrees relevant to the practice of professional hydrology, demonstrating that the applicant is qualified to assume responsible charge of hydrologic work. At least one year of the qualifying professional experience under this subdivision must have been performed under the supervision of one or more of the following:

a. A person who is at the time of application licensed as a professional hydrologist under this chapter or who, during the period of supervised experience, was licensed as a professional hydrologist under ch. 470, 1997 Stats.

b. A person who, during the period of supervised experience, was licensed as a professional hydrologist in another state, territory or possession of the United States or in another country that has licensure requirements for professional hydrologists that are not lower than the requirements for licensure under this chapter.

c. A person who, during the period of supervised experience, is deemed by the professional hydrologist section to have been qualified to have responsible charge of hydrologic work.

(b) To be eligible to take the principles and practice examination, an applicant under s. 470.04 (3) (c) 2., Stats., shall have done the following:

1. Met the requirements under s. 470.04 (3) (a), Stats.
2. Met the requirement under s. 470.04 (3) (b), Stats., or have at least 5 years of professional experience in addition to the qualifying experience under subd. 3., which is determined by the professional hydrologist section to be equivalent to the requirement under s. 470.04 (3) (b), Stats.
3. Completed at least 6 years of professional experience in hydrologic work of a character satisfactory to the professional hydrologist section, or completed at least 5 years of professional experience in hydrologic work of a character satisfactory to the section if the applicant has one or more advanced degrees relevant to the practice of professional hydrology, demonstrating that the applicant is qualified to assume responsible charge of hydrologic work. At least one year of the qualifying professional experience under this subdivision must have been performed under a peer review system approved by the professional hydrologist section.

(3) APPLICATION FOR EXAMINATION. An applicant for initial licensure shall file an application for examination with the professional hydrologist section of the board not less than 2 months before the scheduled date of the examination.

(4) AMERICANS WITH DISABILITIES ACT. Otherwise qualified applicants with disabilities shall be provided with reasonable accommodations.

(5) EXAMINATION AND REFUND FEES. The fee for the examinations for professional hydrologists and the requirements for refund of fees are specified in s. 440.05, Stats., and ch. RL 4, respectively.

(6) PLACE AND TIME OF EXAMINATIONS. The examinations required by this section shall be held at sites and on dates designated by the professional hydrologist section.

(7) PASSING SCORES. (a) The passing scores set by the professional hydrologist section represent the minimum competency required to protect public health and safety.

(b) The fundamentals of hydrology and the principles and practice of hydrology examinations, and the examination on the elements of practice essential to the public health, safety or welfare are scored separately. An applicant shall achieve a passing score on each of the required examinations to qualify for licensure.

(c) The professional hydrologist section shall make the determination of the passing score on each required examination after consultation with subject matter experts who have reviewed a representative sample of the examination questions and available candidate performance statistics.

(8) CHEATING. The professional hydrologist section may deny release of scores or issuance of a credential if the board determines that the applicant violated rules of conduct of the examination or otherwise acted dishonestly.

**GHSS 3.06 Application contents.** An application for licensure as a professional hydrologist shall include:

(1) Either of the following:

(a) Official transcripts of graduate and undergraduate training, properly attested to by the degree granting institution and submitted by the institution directly to the professional hydrologist section establishing that the applicant has been granted a bachelor degree in hydrology or water resources or a degree with a hydrology or water resources major meeting the requirements under s. 470.04 (3) (b), Stats., granted by a college or university accredited by a regional accrediting agency approved by the state board of education in the state in which the college or university is located, or accredited by a Canadian accrediting agency satisfactory to the board, or

(b) A chronological history of the applicant's employment or other qualifying experience in satisfaction of s. 470.04 (7), Stats.

(2) A chronological history of the applicant's employment or other qualifying experience in satisfaction of s. 470.04 (3) (c) 1. or 470.04 (3) (c) 2., Stats.

(3) For applicants applying under s. 470.04 (3) (c) 1., Stats., a completed "supervised hydrologic experience" form completed by a supervisor relating to professional hydrology and who is one of the following:

(a) A professional hydrologist who, during the time of the supervised practice, was licensed in this state.

(b) A professional hydrologist who, during the time of the supervised practice, was licensed in another licensing jurisdiction that has licensure requirements not lower than the requirements for licensure in this state.

(c) A person who the professional hydrologist section determines is qualified to have responsible charge of hydrologic work.

(4) For applicants applying under s. 470.04 (3) (c) 2., Stats., submission of at least 3 "peer evaluation" forms satisfactory to the professional hydrologist section completed by licensed professional hydrologists who have had professional contact with the applicant's practice and who certify that the applicant is qualified to assume responsible charge of hydrologic work.

(5) References from at least 5 individuals, at least 3 of whom shall be professionally competent to evaluate the applicant's practice.

(6) The fee required under s. 440.05 (1), Stats.

(7) For applicants previously licensed in another state, territory or possession of the United States or in another country, verification of the applicant's licensure in the licensing jurisdiction of original licensure or, if the applicant has permitted his or her licensure in the jurisdiction of original

licensure to lapse, verification of licensure in the licensing jurisdiction where the applicant is currently licensed and where the applicant was last engaged in the practice of professional hydrology.

(8) For applicants who have a pending criminal charge or have been convicted of a crime, all related information necessary for the professional hydrologist section to determine whether the circumstances of the pending criminal charge or criminal conviction are substantially related to the circumstances of the practice of hydrology.

(9) Any additional data, exhibits or references showing the extent and quality of the applicant's experience that may be required by the professional hydrologist section.

(10) Evidence of successful completion of fundamentals of hydrology and the principles and practice of hydrology examinations.

Note: Application forms, including the "Supervised Hydrologic Experience" form and the "Peer Evaluation" form are available upon request to the Professional Hydrologist Section of the board at 1400 East Washington Avenue, P.O. Box 8935, Madison, Wisconsin 53708.

#### Chapter GHSS 4

#### PROFESSIONAL SOIL SCIENTIST LICENSE

**GHSS 4.01 Authority and purpose.** The rules in this chapter are adopted under authority in ss. 15.08 (5) (b), 227.11 (2), 470.03 (1) (a) and 470.04, Stats. The purpose of the rules in this chapter is to interpret basic education, experience and examination requirements for licensure as a professional soil scientist as specified in ss. 470.04 and 470.05, Stats.

**GHSS 4.02 Applications.** An applicant who files an application but does not comply with a request for information related to the application within one year from the date of the request shall file a new application.

Note: Applications are available upon request to the Professional Soil Scientist Section of the board at 1400 East Washington Avenue, P.O. Box 8935, Madison, Wisconsin 53708.

**GHSS 4.03 Experience as a professional soil scientist.** (1) To qualify as satisfactory professional soil science work for the purposes of s. 470.04 (4) (c), Stats., an applicant's experience shall include the application of accepted principles in the practice of soil science and shall demonstrate an applicant's progressive development of competence to practice as a professional soil scientist. The experience shall be acquired in the areas of the practice of soil science listed in sub. (2) (a) to (h), or in other areas of the practice of soil science which in the opinion of the professional soil scientist section provide the applicant with a knowledge of principles and data related to the practice of soil science at least equivalent to that which would be acquired by experience in the areas of practice listed. Experience in every listed area is not required.

(2) Areas of experience in the practice of professional soil science include:

(a) Soil physics: the study of the physical properties of porous media, including soils; and the determination of the state, distribution, transport and balances of matter and energy in porous media, especially as related to water, gas and heat.

(b) Soil chemistry: the determination of the chemical constituents, chemical properties, and chemical reactions in porous media, including soils.

(c) Soil classification, morphology and mapping: the description, classification, interpretation and mapping of soil materials in the landscape.

(d) Soil mineralogy: the study of soil science that deals with porous media inorganic materials, including the soils of the earth's crust to the depth of weathering or of sedimentation.

(e) Soil biochemistry: the study of soil science concerned with enzymes, and the reactions, activities and products of soil microorganisms.

(f) Soil biology: the assessment of soil-inhabiting microorganisms and macroorganisms, including their identification, functions, activities and cycles.

(g) Soil fertility: the analysis, interpretation and management of the soil to enhance soil quality and provide nutrients in adequate amounts and in proper balance for the growth of specified plants.

(h) Land use management: the management and practices associated with land waste application, nutrient management, non-point source contaminant control, soil and water conservation, and other land use issues associated with soil management.

(3) Not more than one year of satisfactory experience credit may be granted for any calendar year.

**GHSS 4.04 Education.** (1) In satisfaction of the education requirement under s. 470.04 (4) (b), Stats., the professional soil scientist section shall accept a bachelor's degree in soil science, or a post baccalaureate degree reflecting that the applicant has completed at least 30 semester hours or 45 quarter hours of course credits in soil science of a variety and nature sufficient to constitute a major in soil science, granted by a college or university accredited by a regional accrediting agency approved by the state board of education in the state in which the college or university is located, or accredited by a Canadian accrediting agency satisfactory to the board.

(2) If the degree is from an educational institution not meeting the requirements of sub. (1), the applicant must provide an official evaluation by a transcript evaluation service acceptable to the professional soil scientist section which shows that the degree is equivalent to a bachelor's degree in soil science or a bachelor's degree with a major in soil science meeting the requirements under sub. (1).

(3) In order to be considered a major in soil science, an applicant must have completed at least 30 semester hours or 45 quarter hours of course credits which include not less than 15 semester credits or 23 quarter credits in at least 3 of the following areas:

- (a) Soil biology.
- (b) Soil chemistry.
- (c) Soil classification, morphology and mapping.
- (d) Soil conservation and management.
- (e) Soil fertility.
- (f) Soil physics.

(4) In addition to the coursework required under sub. (3), other coursework that may be used to satisfy the 30 semester hour or 45 quarter hour requirement include, but are not limited to, the following:

- (a) Agronomy.
- (b) Bacteriology.
- (c) Botany.
- (d) Engineering.
- (e) Forestry.
- (f) Geography.
- (g) Geology.
- (h) Horticulture.
- (i) Hydrology.
- (j) Meteorology.
- (k) Plant pathology.

**GHSS 4.05 Examinations.** (1) **REQUIRED EXAMINATIONS.** All applicants for initial licensure as a professional soil scientist shall pass examinations for the professional practice of soil science approved by the professional soil scientist section. Required examinations shall include a fundamentals examination and a principles and practice examination.

(2) FUNDAMENTALS EXAMINATION. The fundamentals examination requires an understanding of the physical and mathematical sciences involved in the fundamentals of soil science. To be eligible to take the fundamentals examination, an applicant shall have done one of the following:

(a) Be of not less than second semester senior standing in a bachelor of science program in soil science meeting the requirements of s. GHSS 4.04.

(b) Have completed at least 24 semester hours or 36 quarter hours of course credits for the degree in soil science meeting the requirements of s. GHSS 4.04.

(c) Have at least 5 years of experience which is determined by the professional soil scientist section to be equivalent to the requirements of s. GHSS 4.04.

(3) PRINCIPLES AND PRACTICE EXAMINATION. The principles and practice examination requires the ability to apply soil science principles and judgment to problems in the practice of professional soil science.

(a) To be eligible to take the principles and practice examination, an applicant under s. 470.04 (4) (c) 1., Stats., shall have done the following:

1. Met the requirements under s. 470.04 (4) (a), Stats.

2. Met the requirement under s. 470.04 (4) (b), Stats., or have at least 5 years of professional experience in addition to the qualifying experience under subd. 3., which is determined by the professional soil scientist section to be equivalent to the requirement under s. 470.04 (4) (b), Stats.

3. Completed at least 4 years of professional experience in soil science work of a character satisfactory to the professional soil scientist section, or completed at least 3 years of professional experience in soil science work of a character satisfactory to the section if the applicant has one or more advanced degrees relevant to the practice of professional soil science, demonstrating that the applicant is qualified to assume responsible charge of soil science work. At least one year of the qualifying professional experience under this subdivision must have been performed under the supervision of one or more of the following:

a. A person who is at the time of application licensed as a professional soil scientist under this chapter or who, during the period of supervised experience, was licensed as a professional soil scientist under ch. 470, 1997 Stats.

b. A person who, during the period of supervised experience, was licensed as a professional soil scientist in another state, territory or possession of the United States or in another country that has licensure requirements for professional soil scientists that are not lower than the requirements for licensure under this chapter.



c. A person who, during the period of supervised experience, is deemed by the professional soil scientist section to have been qualified to have responsible charge of soil science work.

(b) To be eligible to take the principles and practice examination, an applicant under s. 470.04 (4) (c) 2., Stats., shall have done the following:

1. Met the requirements under s. 470.04 (4) (a), Stats.
2. Met the requirement under s. 470.04 (4) (b), Stats., or have at least 5 years of professional experience in addition to the qualifying experience under subd. 3., which is determined by the professional soil scientist section to be equivalent to the requirement under s. 470.04 (4) (b), Stats.
3. Completed at least 6 years of professional experience in soil science work of a character satisfactory to the professional soil scientist section, or completed at least 5 years of professional experience in soil science work of a character satisfactory to the section if the applicant has one or more advanced degrees relevant to the practice of professional soil science, demonstrating that the applicant is qualified to assume responsible charge of soil science work. At least one year of the qualifying professional experience under this subdivision must have been performed under a peer review system approved by the professional soil scientist section.

(3) APPLICATION FOR EXAMINATION. An applicant for initial licensure shall file an application for examination with the professional soil scientist section not less than 2 months before the scheduled date of the examination.

(4) AMERICANS WITH DISABILITIES ACT. Otherwise qualified applicants with disabilities shall be provided with reasonable accommodations.

(5) EXAMINATION AND REFUND FEES. The fee for the examinations for professional soil scientists and the requirements for refund of fees are specified in s. 440.05, Stats., and ch. RL 4, respectively.

(6) PLACE AND TIME OF EXAMINATIONS. The examinations required by this section shall be held at sites and on dates designated by the professional soil scientist section.

(7) PASSING SCORES. (a) The passing scores set by the professional soil scientist section represent the minimum competency required to protect public health and safety.

(b) The fundamentals of soil science and the principles and practice of soil science examinations, and the examination on the elements of practice essential to the public health, safety or welfare are scored separately. An applicant shall achieve a passing score on each of the required examinations to qualify for licensure.

(c) The professional soil scientist section may accept the recommendations of the examination provider for the passing scores on the fundamentals of soil science and the principles and practice of soil science examinations.

(d) The professional soil scientist section shall make the determination of the passing score on the examination on the elements of practice essential to the public health, safety or welfare after consultation with subject matter experts who have reviewed a representative sample of the examination questions and available candidate performance statistics.

(8) CHEATING. The professional soil scientist section may deny release of scores or issuance of a credential if the board determines that the applicant violated rules of conduct of the examination or otherwise acted dishonestly.

**GHSS 4.06 Application contents.** An application for licensure as a professional soil scientist shall include:

(1) Either of the following:

(a) Official transcripts of graduate and undergraduate training, properly attested to by the degree granting institution and submitted by the institution directly to the professional soil scientist section establishing that the applicant has been granted a bachelor's degree in soil science or a bachelor's degree with a soil science major meeting the requirements under s. 470.04 (4) (b), Stats., granted by a college or university accredited by a regional accrediting agency approved by the state board of education in the state in which the college or university is located, or accredited by a Canadian accrediting agency satisfactory to the board, or

(b) A chronological history of the applicant's employment or other qualifying experience in satisfaction of s. 470.04 (7), Stats.

(2) A chronological history of the applicant's employment or other qualifying experience in satisfaction of s. 470.04 (4) (c) 1. or 470.04 (4) (c) 2., Stats.

(3) For applicants applying under s. 470.04 (4) (c) 1., Stats., a completed "supervised soil science experience" form completed by a supervisor relating to professional soil science and who is one of the following:

(a) A professional soil scientist who, during the time of the supervised practice, was licensed in this state.

(b) A professional soil scientist who, during the time of the supervised practice, was licensed in another licensing jurisdiction that has licensure requirements not lower than the requirements for licensure in this state.

(c) A person who the board determines is qualified to have responsible charge of soil science work.

(4) For applicants applying under s. 470.04 (4) (c) 2., Stats., submission of at least 3 "peer evaluation" forms satisfactory to the board completed by licensed professional soil scientists who have had professional contact with the applicant's practice and who certify that the applicant is qualified to assume responsible charge of soil science work.

(5) References from at least 5 individuals, at least 3 of whom shall be professionally competent to evaluate the applicant's practice.

(6) The fee required under s. 440.05 (1), Stats.

(7) For applicants previously licensed in another state, territory or possession of the United States or in another country, verification of the applicant's licensure in the licensing jurisdiction of original licensure or, if the applicant has permitted his or her licensure in the jurisdiction of original licensure to lapse, verification of licensure in the licensing jurisdiction where the applicant is currently licensed and where the applicant was last engaged in the practice of professional soil science.

(8) For applicants who have a pending criminal charge or have been convicted of a crime, all related information necessary for the professional soil scientist section to determine whether the circumstances of the pending criminal charge or criminal conviction are substantially related to the circumstances of the practice of soil science.

(9) Any additional data, exhibits or references showing the extent and quality of the applicant's experience that may be required by the professional soil scientist section.

(10) Evidence of successful completion of fundamentals of soil science and principles and practice of soil science examinations.

Note: Application forms are available upon request to the Professional Soil Scientist Section of the board at 1400 East Washington Avenue, P.O. Box 8935, Madison, Wisconsin 53708.

## Chapter GHSS 5

### UNPROFESSIONAL CONDUCT

**GHSS 5.01 Authority.** The rules of conduct in this chapter are adopted under authority of ss. 15.08 (5) (b), 227.11 (2), 470.03 (1) and 470.08, Stats.

**GHSS 5.02 Intent.** The intent of the board in adopting this chapter is to establish rules of professional conduct for the professions of geology, hydrology and soil science. A violation of any standard specified in this chapter may result in disciplinary action under s. 470.08 (2) (g), Stats.

**GHSS 5.03 Unprofessional conduct.** "Unprofessional conduct" includes any of the following or aiding another person who is violating any of the following:

(1) Making a material misstatement in an application for a license or for renewal of a license.

(2) In sitting for any licensure examination, soliciting or knowingly disclosing examination content.

(3) Failing to cooperate with the board or a section of the board in an investigation under this section.

(4) Engaging in gross negligence in the practice of professional geology, professional hydrology or professional soil science through the performance of professional services which do not comply with an acceptable standard of practice that has a significant relationship to the protection of health, safety or public welfare and is performed in a manner indicating that the professional knew or should have known, but acted with indifference to or disregard of, the accepted standard of practice.

(5) Providing incompetent services in the practice of professional geology, professional hydrology or professional soil science which demonstrate any of the following:

(a) Lack of ability or fitness to discharge the duty owed by a professional geologist, professional hydrologist or professional soil scientist to a client or employer or to the public.

(b) Lack of knowledge of the fundamental principles of the profession or an inability to apply fundamental principles of the profession.

(c) Failure to maintain competency in the current practices and methods applicable to the profession.

(6) Subject to ss. 111.321, 111.322 and 111.335, Stats., engaging in the practice of professional geology, professional hydrology or professional soil science while the person's ability to engage in the practice was impaired by alcohol or other drugs.

(7) Having been adjudicated mentally incompetent by a court of competent jurisdiction.

(8) Subject to ss. 111.321, 111.322 and 111.335, Stats., having violated federal or state laws, local ordinances or administrative rules relating to the practice of professional geology, professional hydrology or professional soil science.

(9) Preparing deficient plans, drawings, maps, specifications or reports.

(10) Engaging in conduct which evidences a lack of trustworthiness to transact the business required by the profession.

(11) Misrepresenting professional qualifications such as education, specialized training or experience.

(12) Failing to provide appropriate supervision to those to whom a licensee has delegated services constituting the practice of professional geology, professional hydrology or professional soil science, including the following:

(a) Indirect or casual review or inspection of prepared plans, drawings, specifications, maps, plats, charts, reports or other documents.

(b) Delegation of any decision requiring professional judgment.

(c) Mere assumption by a professional geologist, professional hydrologist or professional soil scientist of responsibility for work without having control of the work.

(d) Assumption of charge, control or direct supervision of work in which the professional geologist, hydrologist or soil scientist does not have technical proficiency.

(13) When offering to perform professional services as a professional geologist, professional hydrologist or professional soil scientist, failing to accurately and truthfully represent to a prospective client or employer the capabilities and qualifications which the licensee has to perform the services to be rendered or the costs and completion times of a proposed project.

(14) Offering to perform or performing services which the licensee is not qualified to perform by education or experience without retaining the services of another who is qualified.

(15) Using false, fraudulent or deceptive advertising or publicity; or practicing or attempting to practice under another's name.

(16) Falsely representing that the licensee is engaged in a partnership or association with another unless there exists in fact a partnership or association, or practicing under a firm name that misrepresents the identity of those practicing in the firm or misrepresents the type of services which the firm is authorized and qualified to perform.

(17) Collecting a fee for recommending the services of another unless written notice is first given to all parties concerned.

(18) Any conflict of interest, unless the licensee informs the client or employer of all the circumstances which may interfere with or impair the licensee's obligation to provide professional services, and unless the licensee has the full approval and consent of the client or employer.

(19) Failing to notify an employer or client and to withdraw from employment at any time if it becomes apparent that it is not possible to faithfully discharge the responsibilities and duties owed to the client or employer; or agreeing to perform professional services for a client or employer if the registrant has a significant financial or other interest which would impair or interfere with the registrant's responsibility to faithfully discharge professional services on behalf of the client or employer.

(20) Accepting payment from any party other than a client or employer for a particular project or having any direct or indirect financial interest in a service or phase of a service to be provided as part of a project unless the employer or client approves.

(21) Soliciting or accepting anything of value from material or equipment suppliers in return for specifying or endorsing a product.

(22) Violating the confidences of a client or employer, except as otherwise required by law.

(23) Providing services for a client or employer while a full-time employee of another employer without notifying all parties concerned.

(24) Aiding or abetting the unlicensed practice of professional geology, professional hydrology or professional soil science.

(25) Signing, sealing or stamping any plans, drawings, documents, specifications or reports for professional geology, professional hydrology or professional soil science practice which are not prepared by the licensee or under his or her personal direction and control.

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(END OF TEXT OF RULE)  
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The rules adopted in this order shall take effect on the first day of the month following publication in the Wisconsin administrative register, pursuant to s. 227.22 (2) (intro.), Stats.

Dated \_\_\_\_\_

Agency \_\_\_\_\_

Chairperson

Examining Board of Professional Geologists,  
Hydrologists and Soil Scientists

FISCAL EFFECT

These rules implement the regulation of professional geologists, hydrologists and soil scientists as enacted by 1997 Wisconsin Act 300. The Joint Committee on Finance approved position authority and funds to implement this legislation through the 16.515 process on October 28, 1998. This approval was for FY99, FY00 and FY01. The staffing and funding for this licensure needs to be reviewed for the 2001-03 biennium.

The cost to implement this legislation for FY99 includes \$69,547 for salary and fringe (3.0 FTE); \$17,633 for Board expenses; \$8,036 for supplies and services; and \$16,500 for one-time costs (computers and office furniture). Annual costs for FY00 and FY01 are estimated at \$122,000 annually.

These rules neither increases the department's revenues or expenditures. This rule does not appear to have any impact on local government costs.

FINAL REGULATORY FLEXIBILITY ANALYSIS

These proposed rules will have no significant economic impact on small businesses, as defined in s. 227.114 (1) (a), Stats.

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