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additional
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October 7, 1999

THE HONORABLE SENATOR ROBERT WIRCH, CHAIR
COMMITTEE ON ECONOMIC DEVELOPMENT, HOUSING
AND GOVERNMENT OPERATIONS
ROOM 310 SOUTH STATE CAPITOL
MADISON WI 53702

RE: Senate Clearinghouse Rule 99-088 Relating To The Regulation And Licensing Of
The Professions of Geology, Hydrology And Soil Science

Dear Senator Wirch:

The Examining Board of Professional Geologists, Hydrologists and Soil Scientists (Examining Board), met on September 9, 1999, to discuss the request made by your committee pertaining to scientists performing wetland delineation. Your committee requested that the board consider modifying Senate Clearinghouse Rule 99-088 to exclude wetland delineation scientists from licensure in order for them to continue practicing without fear of prosecution. The Examining Board heard testimony from six wetland delineation scientists presenting information on what constitutes their scope of practice.

The Examining Board of Professional Geologists, Hydrologists and Soil Scientists determined that the practice of wetland delineation, while within the scope of practice of professional geology, professional hydrology and professional soil scientists does not require licensure by any of the sections of the board. The Examining Board proposes to modify its rule creating s. GHSS 1.06, Wis. Adm. Code. The newly created rule follows below.

The Examining Board of Professional Geologists, Hydrologists and Soil Scientists also proposes to make the following modifications, 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"

SENATOR ROBERT WIRCH

Page 2

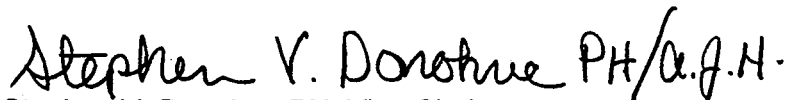
October 7, 1999

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.

In your September 1, 1999, letter you asked the Examining Board of Professional Geologists, Hydrologists and Soil Scientists to modify the rule in these specific areas. I believe that the Board has addressed your requests.

I hope these few lines address all your concerns and I look forward to hearing from you.

Respectfully,



Stephen V. Donohue PH, Vice-Chair
Examining Board of Professional Geologists, Hydrologists and Soil Scientists

SVD:ajh

Enclosure: Final Draft of GHSS 1-5 (9/29/99)

Cc: Representative Eugene Hahn
Marlene A. Cummings, Secretary
File: I:DATABASE2G/BDP/RULES/UNDERWD-WIRCH9-29.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)

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.

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.

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.

(END OF TEXT OF RULE)

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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10/5/99

Smith, Beth

From: Erickson, Pat
Sent: Tuesday, October 12, 1999 1:22 PM
To: Smith, Beth
Subject: FW: Rule 99-088

-----Original Message-----

From: Parker, Eric [mailto:Eric.Parker@GASAI.com]
Sent: Tuesday, October 12, 1999 11:28 AM
To: 'sen.wirch@legis.state.wi.us'
Cc: 'Gunderson, Scott'; 'Day, Betsey WWA'; 'Thompson, Alice WWA'; Horzen, Scott; Karczewski, Brian; 'sen.lazich@legis.state.wi.us'
Subject: Rule 99-088

Dear Senator Wirch:

I am writing in regard to the above-referenced draft rules (GHSS 1-5) recently proposed to carry out sections of Act 300, Chapter 470 which were passed last year.

I am a wetland scientist who may be affected by these new regulations and the proposed rules due to their very broad definitions. I have a B.S. degree from the University of Wisconsin - Stevens Point (1983) in Watershed Management with a Soil Science minor. This educational background I have found to fit in well with my profession as a wetland scientist which requires that I be a generalist in biology, soil science and hydrology. I have been practicing wetland science for about 12 years now. In 1995 I was granted a "Professional Wetland Scientist" certification by the Society of Wetland Scientists (# 000838).

I discovered after looking into the State of Wisconsin application packet about a year ago that I do not possess the coursework requirements to be a state licensed "hydrologist" or "soil scientist" per Act 300/Chapter 470. This was not a surprise to me because I do not claim to be either of these titles. Fortunately I do have co-workers at my consulting company who do have these qualifications and have been granted their state licenses this year. However, I do not think that a practicing wetland scientist needs to be licensed in soil science or hydrology - at least to the extent to which the state licensure requirements entail. I would welcome a state licensure process for wetland scientists who are involved in the practice of wetland science. This practice may include wetland delineation, wetland functional assessment, state and federal wetland permit application preparation and wetland mitigation site searches, designs, management and monitoring. According to the Board, your committee recommended to them that they include an exemption in the rules for the practice of wetland delineation. This is presumably in response to my colleagues' testimony at the August 17 hearing. Please realize that a wetland scientist is often involved in more than just wetland delineation.

A wetland scientist like myself who is not able to obtain either a state hydrology or soil science license should be able to practice the above described work without the threat of legal consequences.

My colleague, Betsey Day, has offered the following three suggestions which I also think would more thoroughly address these licensure problems related to the practice of wetland science in Wisconsin.

1. Exempt wetland delineation and all consulting services associated with the service of delineation.
2. Establish a threshold of some type (i.e. proportion of time spent, etc.) for the application of hydrologic or soil science principles to the performance of professional services in related fields. Wetland scientists or other professionals who apply hydrology or soil science in their profession for less than the stated threshold should be exempt.
3. The rules should be clarified as to how one can legally perform work that makes marginal application of hydrology or soil science. For example, if work is performed under the auspices of a company or agency that employs other professionals who are licensed, would those professionals have to be present in the field, or just review results. Would their signature be required?

Please feel free to contact me with any questions you may have. Thank you for your

consideration.
Sincerely,

Eric C. Parker, P.W.S.
Senior Wetland Scientist

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125 South 84th Street, Suite 401
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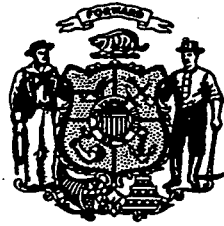
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CLEARINGHOUSE REPORT TO AGENCY

[THIS REPORT HAS BEEN PREPARED PURSUANT TO S. 227.15, STATS. THIS IS A REPORT ON A RULE AS ORIGINALLY PROPOSED BY THE AGENCY; THE REPORT MAY NOT REFLECT THE FINAL CONTENT OF THE RULE IN FINAL DRAFT FORM AS IT WILL BE SUBMITTED TO THE LEGISLATURE. THIS REPORT CONSTITUTES A REVIEW OF, BUT NOT APPROVAL OR DISAPPROVAL OF, THE SUBSTANTIVE CONTENT AND TECHNICAL ACCURACY OF THE RULE.]

CLEARINGHOUSE RULE 99-088

AN ORDER to create chapters GHSS 1 to 5, relating to the registration and regulation of professional geologists, hydrologists and soil scientists.

Submitted by **DEPARTMENT OF REGULATION AND LICENSING**

05-14-99 RECEIVED BY LEGISLATIVE COUNCIL.

06-14-99 REPORT SENT TO AGENCY.

RNS:DD:jal;rv

LEGISLATIVE COUNCIL RULES CLEARINGHOUSE REPORT

This rule has been reviewed by the Rules Clearinghouse. Based on that review, comments are reported as noted below:

1. STATUTORY AUTHORITY [s. 227.15 (2) (a)]

Comment Attached YES NO

2. FORM, STYLE AND PLACEMENT IN ADMINISTRATIVE CODE [s. 227.15 (2) (c)]

Comment Attached YES NO

3. CONFLICT WITH OR DUPLICATION OF EXISTING RULES [s. 227.15 (2) (d)]

Comment Attached YES NO

4. ADEQUACY OF REFERENCES TO RELATED STATUTES, RULES AND FORMS [s. 227.15 (2) (e)]

Comment Attached YES NO

5. CLARITY, GRAMMAR, PUNCTUATION AND USE OF PLAIN LANGUAGE [s. 227.15 (2) (f)]

Comment Attached YES NO

6. POTENTIAL CONFLICTS WITH, AND COMPARABILITY TO, RELATED FEDERAL REGULATIONS [s. 227.15 (2) (g)]

Comment Attached YES NO

7. COMPLIANCE WITH PERMIT ACTION DEADLINE REQUIREMENTS [s. 227.15 (2) (h)]

Comment Attached YES NO

WISCONSIN LEGISLATIVE COUNCIL STAFF

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CLEARINGHOUSE RULE 99-088

Comments

[NOTE: All citations to "Manual" in the comments below are to the Administrative Rules Procedures Manual, prepared by the Revisor of Statutes Bureau and the Legislative Council Staff, dated September 1998.]

Prefatory Comment

Because chs. GHSS 2, 3 and 4 are parallel in format and organization, comments to ch. GHSS 2 apply generally as well to chs. GHSS 3 and 4.

2. Form, Style and Placement in Administrative Code

- a. The analysis of the rule is inadequate. While it is clearly unnecessary to specify all the details of the rule, the analysis does not begin to summarize the rule's content.
- b. In s. GHSS 1.01, first sentence, "rules in" should be deleted.
- c. Section GHSS 1.02 (2) states that "(t)he following designs for licensure seals have been approved:"; but goes on to state "[*designs not included*]." The designs should have been included.
- d. In s. GHSS 1.02 (6), should "prepared" follow "reports"?
- e. In s. GHSS 1.02 (7), last sentence, "shall" may be deleted.
- f. In s. GHSS 1.03 (1) (b), "currently-" should be deleted. [See s. 1.01 (9) (b), Manual.]

g. In s. GHSS 1.03 (2) (intro.), "A" should replace "Every." The same change should be made to ss. GHSS 1.03 (3) and 1.04.

h. Sections GHSS 1.04 and 1.05 reference "licensee." The term should be defined. Should the reference to "licensee" in s. GHSS 1.05 (2) (a) be to a "former" licensee?

i. In s. GHSS 1.05 (2) (b), it appears that "may" should be substituted for "shall."

j. The first sentence of s. GHSS 2.01 may begin: "This chapter is adopted under authority in" In the second sentence, "the rules in" may be deleted.

k. Section GHSS 2.02 should begin: "An applicant for a professional geologist license shall file an application for licensure."

l. It is suggested that s. GHSS 2.06 follow s. GHSS 2.02.

m. Section GHSS 2.03 (2) (m) uses semicolons to separate the specified areas; the other paragraphs of the subsection use commas. The provisions should be consistent in this regard. See, also, s. GHSS 3.03 (2) (c), which does not utilize semicolons, in contrast to the other paragraphs of that subsection.

n. In s. GHSS 2.05 (1), first sentence, "An applicant" should replace "All applicants." In the second sentence, should "are" be substituted for "shall include"?

o. In s. GHSS 2.05 (2) (a), it is suggested that "at least a" replace "of not less than." Consequently, "standing" should also be deleted.

p. Section GHSS 2.05 (3) (a) (intro.) should indicate whether "all of" or "any of" the requirements must be met. See, also, par. (b) (intro.) in this regard.

q. Consideration should be given to combining s. GHSS 2.05 (7) (a) and (c).

r. In s. GHSS 2.05 (8), it is suggested that "in taking the examination" be added to the end of the sentence.

s. Should the provisions of s. GHSS 2.06 (7) be in a separate section? Presumably, many of the application content requirements for licensure generally will not apply to licensure based on reciprocity.

t. The "slash" in s. GHSS 3.04 (3) (c) should be eliminated.

u. In ss. GHSS 3.06 (10) and 4.06 (10), "After December 31, 1998," should be deleted since the date has already passed. This phrase was not used in s. GHSS 2.06 (10).

v. The last two paragraphs of s. GHSS 4.03 (2) are incorrectly designated pars. (e) and (f); they should be pars. (g) and (h).

w. In ss. GHSS 5.02 and 5.03, a tighter link needs to be made among the two sections and to s. 470.08, Stats. The apparent intent is that "unprofessional conduct" is a standard relating to the practice of professional geology, hydrology or soil science for purposes of s. 470.08 (2) (g), Stats.; a person who is found guilty of unprofessional conduct is subject to discipline under s. 470.08, Stats. The rule should be modified to state the intent more expressly.

x. The title to s. GHSS 5.03 should be revised to "Unprofessional conduct." The introductory clause of that section should read: "'Unprofessional conduct" includes any of the following or aiding another person in violating any of the following:". Consideration should be given to substituting "means" for "includes"; it is not clear how a credential holder could be disciplined for violating a standard that is not listed in s. GHSS 5.03 (unless the violation is covered elsewhere, e.g., another rule or another statute, in which case it would be covered under that other rule or statute).

y. Section GHSS 5.03 (3) makes reference to the "board." The term should be defined.

z. Some of the conduct defined under "unprofessional conduct" is already covered under s. 470.08 (2), Stats. It is not clear why those provisions are being repeated in the rule.

aa. Should s. GHSS 5.03 (12) (b) be modified by adding "to one not qualified or capable of exercising that judgment" to the end of that paragraph? Also, all of the paragraphs in sub. (12) should end with a period.

4. Adequacy of References to Related Statutes, Rules and Forms

a. The last sentence of s. GHSS 1.02 (7) should specifically reference any other statutory standards; if none exist, the sentence should be deleted.

b. In s. GHSS 1.05 (1), a more specific statutory cross-reference should be provided.

c. In s. GHSS 2.03 (1), first sentence, the statutory cross-reference is incorrect.

d. In s. GHSS 2.05 (2) (c), could the cross-reference to the rule be more specific?

e. In s. GHSS 2.05 (3) (b) (intro.), the statutory cross-reference is incomplete.

f. In s. GHSS 2.05 (5), both the statutory and administrative rule cross-reference should be more specific.

g. In s. GHSS 2.06 (3), the statutory cross-reference is inaccurate.

h. In s. GHSS 3.03 (1), second sentence, there is an incomplete internal cross-reference.

i. In light of the preceding comments, the statutory cross-references in chs. GHSS 3 and 4 should be reviewed for accuracy.

5. Clarity, Grammar, Punctuation and Use of Plain Language

- a. In s. GHSS 1.02 (5), should the second reference to "other sheets" be modified by "in the bound volume"?
- b. The definition of "firm" in s. GHSS 1.03 (1) (a) should be compared with the use of the term "firms, partnerships or corporations" in s. 470.045, Stats. It does not appear that the terminology in the statute and rule is consistent. In neither case does the terminology appear to cover all possible business organizations (including sole proprietorships).
- c. Section GHSS 2.01 refers to "registration" as a professional geologist. The statutes provide for licensure of a professional geologist. The rule should be reviewed in its entirety for inappropriate use of "registration" and related terms.
- d. The last sentence of s. GHSS 2.03 (1) raises the question in which or in how many areas experience is required. Can the requirement be made more specific?
- e. In s. GHSS 2.05 (2), why are both pars. (a) and (b) included? If one meets the second component of par. (b), one has then already met the requirement of par. (a).
- f. In s. GHSS 2.05 (3) (a) 2., is "in addition to" the intended phrase? It appears that "substantially" should modify "equivalent." See, also, in this regard, par. (b) 2.
- g. Subdivision paragraphs a., b. and c. of s. GHSS 2.05 (3) (a) 3., are similar to, but somewhat different than, statutory requirements for licensure. Are the differences intended to be substantive? Perhaps a cross-reference to the pertinent statutory provisions is preferable.
- h. In general, the eligibility requirements for the principles and practice examination are cumbersome and appear unnecessarily complicated.
- i. Section GHSS 2.05 (7) (b) appears to refer to three examinations. Elsewhere in the rule, it appears that two examinations are required. Should this be clarified?
- j. In s. GHSS 2.06, it appears that subs. (2) and (3) should be combined and, in particular, that sub. (2) should only refer to applicants applying under the pertinent statutory section.
- k. Section GHSS 5.03 (4) refers to "gross negligence." The concept of gross negligence is not currently recognized in Wisconsin common law. Consequently, should that term be defined?
 - l. Is s. GHSS 5.03 (9) already covered by subs. (4) and (5)?
 - m. In s. GHSS 5.03 (13), should "estimated" modify "costs and completion times"?
 - n. In s. GHSS 5.03 (14), the comma should be deleted.

o. The terminology utilized in s. GHSS 5.03 (16) should be compared with s. 470.045, Stats.

p. In s. GHSS 5.03 (18), should "conflict of interest" be defined? Subsections (18) and (19) are similar and consideration should be given to combining the subsections.

q. In s. GHSS 5.03 (24), should "unauthorized" modify "unlicensed"?

AIDE MEMOIRE

SUBMISSION TO THE PUBLIC HEARING ON CLEARINGHOUSE RULE 99-088 TO BE HELD ON
TUESDAY, AUGUST 17, 1999 AT 2:00 P.M.

To: Senator Robert Wirch, Chair
Committee on Economic Development, Housing and Government Operations

From: Jeffrey A. Thornton, PhD MBA CLM
321 Barney Street, Waukesha, WI 53186-2402
tel/fax: (414) 574-1225

Subj: DEFINITION OF HYDROLOGY AND DETERMINATION OF HYDROLOGICAL
PRACTICE

1. The following comments refer specifically to Chapter GHSS 3, Professional Hydrologist License, as published in the draft Wisconsin Administrative Code dated July 27, 1999, being pages 10 through 17 of the draft Administrative Code.
2. A primary failing of this draft Administrative Code is the absence of a definition of the term "hydrology", which, according to R.S. Gupta in the text Hydrology & Hydraulic Systems, published by Waveland Press, Inc. in 1995, is the "science related to the occurrence and distribution of natural water on the earth." Such a definition would clearly limit the scope of the proposed licensing requirements to those professions and professionals engaged in the practice of hydrology.
3. The Administrative Code, as currently constructed, clearly exceeds the scope of the science as defined by Gupta, encompassing in its extremely broad scope the related, but separate, water resources professions, including, *inter alia*, wetland science, limnology (and oceanography), fisheries science, water quality management, and lake and reservoir management, etc.
4. While it is admittedly difficult to separate out the hydrological elements from these water resources professions—given that water resources professions, by definition, require the presence of water as a factor in their performance, the key determinant should be that hydrology is simply one [minor] element of the practice of these related professions, and, as a consequence, recognition of this relationship must be established in the Administrative Code to avoid any adverse (and unintended) effects on these related professions.
5. The work tasks identified in Section 3.03 (2) likewise extend well beyond the scope of hydrology as would be inferred from Gupta's definition of the nature of the profession, including many elements in subsection (b) that clearly fall within the professional ambit of the profession of limnology as defined by Wetzel (see the text box). Such confusion appears to extend also to the educational requirements set forth in Section 3.04, which likewise mixes hydrology with other water resources professions. While it is laudable that the Examining Board would require professional hydrologists to have some exposure to related fields such as aquatic biology, it is unreasonable to consider aquatic biologists, for example, to be hydrologists (and

Example: Limnology is "the study of the functional relationships and productivity of biotic communities as they are affected by the dynamics of physical, chemical, and biotic environmental parameters" [R.G. Wetzel, Limnology, Saunders, 1975], and for this reason is associated with the "occurrence and distribution of natural water." This relationship extends not only to the necessity of having an aquatic environment (whether it be a lake or stream) in which the functional relationships can occur, but also to the role of rainfall, runoff, and surface water flows as media for the transport of nutrients and contaminants that modify the responses of the biotic communities. In the practice of limnology, therefore, hydrology is an important element but not the primary focus of this profession. For this reason, some limitations must be placed on the "practice of hydrology" to recognize these realities, and avoid disenfranchising those professionals in the water resources field that are not truly "hydrologists".

- similarly with respect to the other water resources professions listed in Section 3.04 (4). As an aside, I am not aware of any limnologist, for example, that would consider themselves to be an hydrologist insofar as that term is generally understood within the profession of limnology.
6. A further deficiency of this proposed Administrative Code is its emphasis on undergraduate course work, and the lack of provision for dealing fairly and equitably with water resources professionals who have been encompassed within the extremely broad definition of hydrology as discussed above, but whose degrees and/or experience have been in fields other than those traditionally considered to be within the profession of hydrology. It is certainly possible that these individuals may not have had access to the specified coursework at the time they completed their degree studies, or that they acquired specific skills through post-graduate studies or practical work experience. It appears from the draft Administrative Code that such continuing education and on-the-job training is discounted or ignored.
 7. Finally, Section 3.05 (?—the photocopy of the proposed Administrative Code provided to me is poorly produced and missing text on the left margins of pages 13, 15 and 16) appears to lack provisions that take into account the procedures for supervised hydrological experience that would seem to be needed during the period of implementation of this Administrative Code, given that, until this Administrative Code is adopted, there are no state licensed professional hydrologists.
 8. Based upon a consideration of the foregoing, I would submit that the proposed rules being considered for adoption are ill considered and that they should be referred back to committee for re-drafting. Specifically, the following actions are recommended:
 - (a) the licensing requirement be restricted to hydrologists, such water professionals being those practitioners whose professional responsibilities related to the “the occurrence and distribution of natural water on the earth,” and that other water resources professionals be explicitly exempted from the requirements of this licensing program, OR
 - (b) the licensing program be reformulated to require the licensing of “water resources professionals” [rather than “hydrologists”] with licenses being granted within specific categories of practice (for example, within the profession of water resources management, there may be sections for hydrologists, limnologists, and aquatic biologists, etc.), AND
 - (c) provisions be made to acknowledge that many practitioners, at this point in the history of the profession, have acquired their knowledge and job skills through means other than completing a Bachelors Degree in the named field—or in other words that provisions be made to accept past-graduate and on-the-job training as equivalent to an undergraduate degree in a named field of study, AND
 - (d) specific provision be made for the award of licenses during the period from the date of adoption of the Administrative Code through to a date six-years hence, at which time persons can meet the requirements that they have at least 6 years of professional experience under the supervision of a licensed professional hydrologist.

Respectfully submitted,



Jeffrey A. Thornton

JUL 28 1999

Thompson & Associates Wetland Services

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July 22, 1999

Senator Rich Grobschmidt
Wisconsin State Senate
State Capitol
Madison, WI 53702

Dear Senator Rich Grobschmidt:

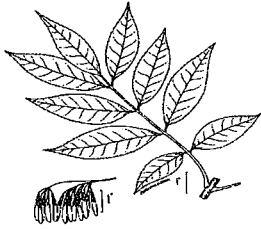
I wanted to share with you my increasing frustration with the way Chapter 470, the licensing of soil scientists and hydrologists in being enacted. In December, 1998, when I first heard that the law could be applied to affect my work as a wetland scientist, performing wetland delineation's in the state; I was told to apply for grandfathering. At that time, officials at the State Licensing Board told me that the Board that would be appointed would grandfather in those who were currently practicing in the field.

I applied for a Professional Hydrologist license and was assured by Regulation and Licensing Attorney Wayne Austin that while I awaited word on my status, I could continue to practice without fear of violating the law and incurring fines.

I have been following the success and failure of colleagues in obtaining the license and have become increasingly alarmed as persons at the beginning of the alphabet with similar education and work experience or even more experience as myself are being rejected as Licensed Professional Hydrologists. This appears counter to early assurances that people now practicing in the field would be grandfathered in.

I spoke with Wayne Austin, at licensing a few weeks ago, he told me that the Board is not interested in wetland delineation and doesn't consider it a part of the protected professions. When I asked for this in writing he refused. He also said the Board is very wary of granting any exemptions.

Mr. Austin stated that the Board didn't want to put anyone out of business and again said that fines would be levied after notice to cease activity. He said it was up to the legislature to exempt activities.

**Natural Resources Consulting, Inc.**

Specializing in wetland, biological and environmental permitting services

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August 20, 1999

Senator Robert Wirch
Wisconsin State Senate
P.O. Box 7882
Madison, Wisconsin 53707-7882

Re: Chapter 470 Wisconsin State Statutes
Registration of Professional Soils Scientists and Hydrologists

Dear Senator Wirch:

I am writing to express my concerns with the Chapter 470 rule that requires licensing for professional soil scientists and hydrologists. My thoughts are diverse, covering several facets of the rule, so please bear with me as you review this document. In summary, however, I believe that this legislation was developed too quickly with only a few special interests in mind and that the rulemaking process has overlooked potential significant economic and environmental affects of the legislation.

I first became aware of the legislation in November 1998. At that time I was quite surprised that this rule had been enacted and that the vast majority of knowledgeable environmental professionals that I deal with on a day-to-day basis had never been made aware and had no input into the rulemaking process. In December 1998, I met with Andy Wiesner of Representative Tom Hebl's office, and several representatives from Registration and Licensing. At the meeting, I was encouraged and agreed to complete the grandfathering application materials for both soil science and hydrology. I was also told that I could take specific actions to appeal should my application be denied. However, I am now compelled to write as I recently learned that a colleague was denied grandfathering as a professional hydrologist. This colleague has a wealth of experience (about 16 years) and academic credentials related to water resources (B.S. and M.S.). She is also highly respected in the field of wetland science. I believe that this denial was either a significant oversight or an indication of a flawed system. I certainly believe this decision does not bode well for the future of wetland science and scientists in Wisconsin.

Background

For the record, I hold both Bachelors and Masters Degrees in environmental-related sciences (wildlife biology and natural resource management). These degree programs included both course and fieldwork in the areas of hydrology and soil science (as they are defined by the new rule). I have an additional 13 years of experience that has included employment with the Wisconsin Department of Natural Resources, contract work with U.S. Forest Service and U.S. Environmental Protection Agency, and employment with several well-known environmental and engineering consulting firms. I have been involved in over 200 environmental projects from coast to coast that have required me to sample, measure, map, and describe soils, groundwater, and surface water resources. These projects have also included assessing

Senator Robert Wirch
August 20, 1999

development and contamination impacts to soil and water resources. My responsibilities on these projects easily meets the definitions of practicing soil scientist and hydrologist as set forth in the Chapter.

I have also developed and taught several courses on wetland delineation techniques as well as contributed as a lecturer on wetland and environmental issues at the UW – Stevens Point, Marquette University, and several Wisconsin high schools. As I will describe below, the study and science of wetlands includes, to a large extent, knowledge of soil and hydrology. I hold certification as a Wetland Scientist In-Training from the Society of Wetland Scientists and will receive my certification as a Professional Wetland Scientist upon completion of four additional continuing education credits. I am confident that if you asked local environmental regulators, such as Bob Hansis or Chris DeRemer with WDNR or Jim Knowles with the U.S. Army Corps of Engineers, they would indicate that I am recognized in Wisconsin as a wetland expert. I would be happy to provide you with the names of individuals, ranging from university professors of engineering to practicing engineers and certified professional soil scientists, who would testify to my technical expertise and professionalism.

In May 1998, I established my own environmental consulting firm that specializes in wetland and waterway consulting and environmental permitting services. My firm, Natural Resources Consulting, Inc. (NRC), assists clients with early identification of environmental issues; development of alternatives to minimize environmental impact; coordination with regulatory agency personnel; preparation and submittal of permit applications; and development of environmental mitigation measures. My clients have included developers, engineering firms, law firms, municipalities, utilities, and state government agencies. Recent clients and projects of interest on which I have worked include:

1. City of Madison and STS Consultants, LTD for the Northeast Madison Planning Area wetland delineation.
2. City of Fond du Lac on the new Fond du Lac High School site wetland delineation.
3. City of Middleton on the restoration and water quality improvement plan for Pheasant Branch Creek.
4. City of Beaver Dam on the Edgewater Park wetland delineation for the new wetland educational trail.
5. Paloma Development Group on the Gary Player Golf Course expansion project at Geneva National Golf Club.

My goal in providing these services is to educate my clients on environmental issues, such as the importance of wetlands in the landscape, while assisting in the development of projects that avoid adverse environmental impacts. A significant number, approximately 80 percent, of my projects involve wetland delineation/mapping. I would assume that 100 percent of my services meet the definitions of practicing soil science and hydrology as set forth in the Chapter.

I currently employ two individuals (one part-time, one full-time). Both individuals hold bachelor's degrees in natural resources management with minors in soil science. Unfortunately, neither one will meet the education requirements for licensing as a soil scientist. One of these employees has 14 years of experience and is a certified Professional Wetland Scientist through the Society of Wetland Scientists. This same employee recently moved his family to Madison from Illinois to begin working for my firm. I

pay these employees above average wages and provide a full range of benefits, including health insurance.

How Wetland Science has “Fallen Through the Cracks” of this Rule

Generally speaking, wetlands are where the land surface (soil) meets the groundwater table or surface waters (hydrology: lakes and rivers). As you may know, wetlands are significant environmental features that have numerous functions and values including wildlife habitat, floral diversity, groundwater recharge and discharge, flood and stormwater attenuation, shoreline protection, fisheries habitat, water quality protection, and recreation/education/and aesthetic importance. Because of this importance, wetlands are protected under the section 404 of the Clean Water Act, NR 103 of the Wisconsin Administrative Code, and local shoreland / wetland zoning ordinances.

The U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency define wetlands as:

“Areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions.”

Based on this definition, the practice of wetland delineation, or wetland mapping, requires the practitioner to be proficient in describing and interpreting shallow soils, hydrology, and vegetation to determine the extent and spatial arrangement of wetlands at a given project site. Therefore, those practicing wetland science must be licensed as soils scientists and hydrologists under the new rule. The methods for wetland delineation are well documented and include the following:

1. 1987 U.S. Army Corps of Engineers (USACE) *Wetland Delineation Manual* (“the 1987 Manual”) (USACE, 1987),
2. USACE guidance documents (USACE 1991, 1992)
3. Guidelines for Submitting Wetland Delineations in Wisconsin to the St. Paul District Corps of Engineers (USACE 1996), and
4. Basic Guide to Wisconsin’s Wetlands and their Boundaries (Wisconsin Department of Administration Coastal Management Program 1995).

Wetland determinations and related projects require knowledge of three wetland parameters – soils, hydrology, and vegetation. Unfortunately, no university that I am aware of offers a degree program in wetland science as each of the wetland parameters are sciences within themselves – soil science, hydrology or water resources, biology or botany. Therefore, wetland scientists have degrees related to one or more of the wetland parameters – soil science, hydrology, watershed management, water resources, botany, biology, ecology, natural resources, and environmental science to name a few. Each of the wetland scientists that I know has taken it upon themselves to supplement their formal education in the area(s) of wetland science in which they are deficient. For example there are numerous opportunities for continuing education courses, working with mentors that have differing areas of expertise, and involvement with professional societies.

In the past, wetland professionals have attempted to maintain the quality of the profession through discussions of various types of certification. The U.S. Army Corps of Engineers, one of the regulatory agencies tasked with wetland protection, has proposed a wetland delineator certification program. This program has yet to be implemented. The Society of Wetland Scientists has instituted a certification program that demands a strict combination of education, experience, and continuing education requirements. The Society understands the diverse backgrounds of wetland scientists and requires an undergraduate degree or advanced degree in one of the areas of wetland science plus additional coursework and knowledge gained through experience in the other two areas.

Problems with the Rule

The goal of the rule, as I understand it, is to provide a level of professionalism and environmental protection in the areas of soil science and hydrology. I am not opposed to either of these goals. However, I must admit that this also seems to be an attempt by certain individuals or groups to elevate the importance their professions, whether it be soil science or hydrology. The way I've been describing it to others is that geologists have put a fence around their backyard and now soil scientists and hydrologists want fences themselves. I do not believe this is necessary. The environmental consulting field maintains quality very well through hiring practices, competition between firms, existing professional certification programs, and existing environmental regulations.

The following are specific problems with the rule as currently written.

Overly broad definitions. The definitions of practicing soil science and hydrology are too broad in the rule. For example, according to Webster's Dictionary 'hydrology' is the science dealing with the properties, distribution, and circulation of water on and below the earth's surface and in the atmosphere. However the definition included in Chapter 470.01(1r) is far broader and encompasses tasks not usually completed solely by a hydrologist. I believe the same inconsistency exists with the soil science definition.

Further, Chapter 470 defines the practice of professional hydrology as the performance of or offer to perform any hydrologic service or work in which the public welfare or the safeguarding of life, health, environment or property is concerned or involved. The practice of professional hydrology includes the collection of hydrological data, consultation, investigation, evaluation, interpretation, planning or inspection relating to a service or work that applies hydrology.

According to these definitions, I will be unable to complete wetland delineations (although I've done them for the past 13 years) or very few other services without possessing a license in both soil science and hydrology.

General Inconsistencies. Although anecdotal, I've heard of individuals receiving certification under the grandfathering program who have less experience and lesser educational credentials than others that have been denied certification. In addition, if the goals of the rule include environmental protection and professional standards, then why are governmental employees exempt? In that situation, a government employee with little or no experience or education can make important environmental decisions while more-qualified individuals who work outside the government will, under the threat of law, be unable to advise clients on the same issue without certification. Further, if that same governmental employee leaves government service they may not meet the requirements of the rule and will not be able to make the same decisions or provide the same advice that they had just days before. I fail to see the sense in that.

The rule exempts those that hold related licenses from the licensing requirements. Using that logic, a professional engineer (PE) who designs roads and bridges could complete a wetland delineation although they have no formal training or expertise in wetland science.

The Department of Administration Coastal Zone Management Program currently offers a two-day wetland delineation course that includes one-half day sections on soils, hydrology, and vegetation. Upon completion of the course, participants are added to the Coastal Zone Management Program list of qualified wetland delineators. This runs contrary to this rule since the course does not require specific education or experience to complete wetland delineations.

Economic impacts. It is my understanding that it was determined that the rule would not have adverse economic impacts or create an undue burden on small business. This is simply not true. This rule favors large businesses over small business, period. Larger businesses are more likely to have a person or persons that are licensed in each of the areas. Small businesses shouldn't be expected to hire additional staff to meet the requirements. I would have to double my staff, which my workload will not bear.

My business and my client's businesses will most certainly impacted by this rule. Additional secondary impacts can also be anticipated. For example, I will no longer need an accountant and bookkeeper, business attorney, lawn service at the office, office supplies, postage, telephone lines, and the list goes on.

If I do not receive grandfathering, I have a few alternatives:

1. I can close my business. Three environmental professionals will lose their jobs and their benefits, including my newest employee who moved here from Illinois with his family and just purchased a home in Sun Prairie. I will be stuck with a small business loan and a one-year lease on office space. I am aware of several other wetland scientists that will be similarly impacted. My current clients will have their projects put on hold while they search for a qualified, and licensed, environmental professional. Existing site investigations, permit applications, regulatory agency negotiations, and construction oversight will end forcing a number of projects to be delayed by days, months, or longer. I would be happy to give you a list of my clients so that you can discuss this issue with them.
2. I can layoff my two existing employees and attempt to hire new employees that meet the requirements of the rule. Unfortunately, there are not many qualified wetland scientists in the state. Those that I could hire would not likely meet the experience level of the rule.
3. I can stop providing services that require licensing. However, since all of my workload is related to wetlands, soils, and hydrology, this would be the end of my business.
4. I could team with professional engineers (who meet the hydrology requirements) and certified professional soil scientists (who meet the soil science criteria) on my wetland and waterway projects. This would increase the cost of my services substantially, in turn increasing the costs for my clients. In short, I would price myself out of the market resulting in the end of my business.

This is not a rosy picture for me. Anyday now I could receive notice that I was denied licensing and have to close a business that I've prepared 13 years to operate and have worked up to 100 hours per week to keep going for the last 15 months. That would constitute a significant adverse economic impact if you

Senator Robert Wirch
August 20, 1999

ask me. I would like the person who made the decision that this rule does not have small business impacts to look me in the eye and tell me how that decision was made.

Environmental impacts. As mentioned above, it took me years to develop my expertise in wetland science. Now with this rule, anyone with the registration will technically be able to complete wetland delineations. Unfortunately, they're results will not necessarily be correct just because the State of Wisconsin says they are a certified hydrologist or soil scientist. It takes years to develop the skills to complete wetland delineations. Incorrect delineations could produce significant adverse impacts to wildlife habitat, floral diversity, water quality, and flood control.

Ideally, I will meet the grandfathering requirements. If not, I am hopeful that some compromise can be reached very soon. I have spent a number of sleepless nights over this issue and would like to put it to rest so that I can continue on with the business of providing quality environmental services in Wisconsin. At your request, I would be happy to assist you with refining the rule so qualified individuals can continue practicing environmental consulting.

Thank you for taking the time to read this letter. Please call me at (608) 839-1998 if you have any questions.

Sincerely,

Natural Resources Consulting, Inc.

A handwritten signature in black ink, appearing to read "S. A. Storlid". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Scott A. Storlid, WPIT
Principal Scientist / Environmental Planner

Cc: State Senator Chuck Chvala
State Representative Tom Hebl (2 copies)

I spoke with John Wagnitz in Rep. Bock's office. They are amending the law to exempt wetland scientists in governmental office. Since I am in private practice I am not covered by this proposed exemption.

I am in a bind as soon as I am rejected for a Professional Hydrologist license, which I expect based on other colleagues outcomes. My competitors can claim that I am acting unlicensed. Any insurance that I take out will require me to state whether I am licensed. I see this law as a very real threat to my business and livelihood.

After much discussion with other colleagues I think there are three legislative options to take to fix this problem:

- have the legislature exempt all wetland scientists regardless of who they work for
- redefine and narrow the original scope of the hydrology and soil scientist classifications to exclude wetland science
- revoke the original law

I am very wary after speaking with Mr. Austin, of waiting for the Dept. of Licensing to exempt wetland science.

I wanted to let you know where this issue is headed. Thank you for your continued interest and staff support in this problem.

Sincerely,

Alice

Alice Thompson

In very appreciable of your stuffs!



Tommy G. Thompson
Governor

Marlene A. Cummings
Secretary

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**TESTIMONY ON
SENATE CLEARINGHOUSE RULE 99-088
BEFORE THE
SENATE COMMITTEE ON ECONOMIC DEVELOPMENT,
HOUSING AND GOVERNMENT OPERATIONS
300 SOUTHEAST, STATE CAPITOL
TUESDAY, AUGUST 17, 1999, 2:00 P M.**

Good afternoon, Chairperson Wirch and members of the committee. My name is Alfred Hall. I am the Bureau Director for the Bureau of Business and Design Professions in the Department of Regulation and Licensing. Thank you for the opportunity to present testimony in support of Senate Clearinghouse Rule 99-088 on behalf of the Examining Board of Professional Geologists, Hydrologists and Soil Scientists and the Department of Regulation and Licensing.

The proposed rule-making order of the Examining Board of Professional Geologists, Hydrologists and Soil Scientists creates Chapters GHSS 1 – 5, Wisconsin Administrative 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 licensees to report their change of address and the conditions for failure to renew a license.

Chapters GHSS 2, 3, and 4 specify the licensure requirements for professional geologists, hydrologists and soil scientists, respectively, including areas of experience, educational requirements, required examinations, examination procedures, and requirements for application content. Chapter 5 defines unprofessional conduct.

The Examining Board of Professional Geologists, Hydrologists and Soil Scientists believes that defining the minimum competency standards are necessary for professional geologists, hydrologists and soil scientists to protect the health, safety and welfare of the Wisconsin citizenry.

The examining board and the department are in full support of the proposed administrative rules as they create chapters GHSS 1 to 5 relating to the licensure and regulation of professional geologists, hydrologists and soil scientists.

Thank you, again, for your time and consideration of these rules.