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Memorandum

To: Nicki Neal
Director

Thru: Keith Murry
Class Studies Supervisor

From: Rob Weber
Class Studies Analyst

Date: December 23, 2013

Subject: Hydrologist Job Class Study

Introduction:
On June 7, 2011, the Department of Natural Resources (DNR) requested the Division of Personnel & Labor Relations' (DOPLR) Classification section examine the work assigned positions allocated to the Hydrologist job classes. The department's primary goal for this review was class specifications that reflect advances and trends in hydrology, particularly in the field of hydrogeology and aquifer modeling.

Study Scope:
On February 24, 2012 a study planning meeting was conducted with management and staff of DNR, Department of Environmental Conservation (DEC), to discuss the Hydrologist job class study. The initial concerns expressed by the departments focused: on class specifications that do not reflect the current technological developments in the field; lack of entry level and senior management job classes; difficulty in recruiting for vacant positions; and discrepancy in the salary alignment among comparable classes of jobs classes in the physical sciences.

This study includes three job classes – Hydrologist I, II, & III in two departments. DNR has five positions in two sections: Alaska Hydrologic Survey has one Hydrologist III and three Hydrologists II and the Abandoned Mine Lands program has one Hydrologist I. DEC has one Hydrologist III assigned to the Water Unit.

Study Contacts:

- DNR: Wyn Menefee – Division Operations Manager and Fabienne Peter-Contesse – Division Operations Manager I.
- DEC: Chris Miller – Environmental Program Specialist IV.

History of Job Classes:
The hydrologist series was established on February 1, 1982, as a five level series: Hydrologist I – entry level (14), Hydrologist II – journey level (16), Hydrologist III – advanced level (18), Hydrologist IV – lead level (20), and Hydrologist V – section manager (22). The series was designed to reflect the hydrologic functions and practices, and organizational structure of the time. Each level was distinguished by its scope of responsible project management, professional/technical expertise the hydrologic sciences, responsibility for subordinate staff, and/or section management responsibilities. While the classes were typically used by DNR and DEC, the entry and journey levels of the class were often used by the Department of Transportation and Public Facilities and Department of Fish and Game to gather hydrologic data.

The next study of the classes came in February 1, 1996. This study recognized a slight shift away from project work assignments as well as ongoing vacancies of positions allocated to the hydrology classes, specifically the Hydrologist V (section manager) and the Hydrologist I (entry level). The series was redesigned to reflect the work structure for the Alaska Hydrologic Survey at that time. The classes were renumbered and the definition, distinguishing characteristics, example of duties, knowledge and entrance requirements were revised. The new series was established as a three level series: Hydrologist I – journey level (16), Hydrologist II – advanced level (18), and Hydrologist III – lead level (20). Much of the feedback and comments on these specifications is similar to some of the feedback this analyst has received from study contacts including establishing and maintaining an entry level class for flexible staffing and establishing and maintaining a section manager.

Class Analysis:
The State's classification plan provides for the grouping of positions into job classes when they are sufficiently similar with respect to duties and responsibilities, degree of supervision exercised and received, and entrance requirements so that: 1) the same title can be used to clearly identify each position; 2) the same minimum qualifications for initial appointment can be established for all positions; 3) the same rate of basic pay can be fairly applied to all positions; and 4) employees in a particular class are considered an appropriate group for purposes of layoff and recall. Job classes should be constructed as broadly as is feasible as long as the tests of similarity are met.

This study examined the work of six positions that perform and/or supervise the scientific study, collection, interpretation, and reporting of groundwater and surface water quality, quantity, and availability. The positions, locations, and department/section are listed in the table below a summary of their primary functions follows.

PCN	Location	Department/Section
102145	Juneau	DNR/AK Hydrologic Survey
102037	Fairbanks	
102143	Anchorage	
102078		
187695		DEC/ Drinking Water Program
102097		DNR/Abandoned Mines Lands Program

PCN 102145 is primary hydrologist assigned to the Southeast region. This position is primarily responsible for surface water assignments to address water appropriations and navigability

determinations including data collection, interpretation, analysis, and reporting. This position leads the work of college intern positions.

PCN 102037 is the advanced hydrologist assigned to the Northern region. The position is the Large Mine Project Team representative for DNR. The work is primarily focused on the hydrology assignments connected to large mine projects including groundwater, surface water, and water quality data collection, interpretation, analysis, and reporting.

PCN 102143 is advanced hydrologist assigned to the Central region. This position is primarily responsible for stream, lake, and wetland hydrology assignments, although the work is focused on groundwater and well analysis relating to water rights and appropriations, including data collection, interpretation, analysis, and reporting.

PCN 102078 is the Alaska Hydrologic Survey Unit supervisor for all professional hydrologists in the survey. This position coordinates work and reviews the completed projects; manages budgets and spending; weighs in on program policy and procedure; and recruits for, supervises, and manages personnel. The position typically performs the more complicated and politically charged assignments; develops groundwater profiles using complex computing systems; and participates in field work connected to groundwater, surface, and large mining projects.

PCN 187695 is the lead for the Drinking Water program. This position performs complex hydrology assignments connected to groundwater and drinking water safety. This position uses computer software to develop, analyze, and report on groundwater flow characteristics and to delineate safe drinking water profiles. This position also assists in program's development by weighing in on or drafting program policy and procedure, presenting the program at public forums, and coordinating with State and federal personnel and stakeholders to implement and ensure program consistency among industry practices. This position leads the work of Environmental Program Specialists (Flex I – III).

PCN 102097 is assigned a variety of engineering duties that are required for the design and administration of construction projects that mitigate the physical and environmental hazards present on historic abandoned mine sites that have been identified for possible federal land reclamation funding. This position is the outlier in this study is not included in position grouping. This position is being allocated to the Engineering Assistant II job class.

~~The initial job analysis recognized two levels of hydrologic work. These included an advanced level~~ hydrologist (PCNs: 102145, 102037, 102143 & 187695) and a hydrology unit supervisor (PCN 102078). After the distribution of the draft class concepts, there were two overriding concerns raised by both DNR and DEC. One being that the proposal excluded an entry level class and did not allow recruiting applicants with a bachelor's degree and little or no work experience to the series; the other being that a specialized body of work which specifically focuses on mapping groundwater profiles using the most modern computerized software should be placed in a separate class/level. Draft specifications describing the concepts were submitted by DNR; these concepts included an entry, journey, advanced, hydromodeler, and unit supervisory levels.

In order to address these concerns, this analyst reexamined the initial class structure, which included developing and distributing questionnaires to subject matter experts to capture the type and level of assignments typical of advanced hydromodeling and aquifer mapping. The additional job analysis

determined that a separate level should be created to describe the hydromodeling and advanced groundwater mapping work.

The types and levels of assignments of the positions completing hydrological assignments continue to meet the requirements for grouping as a four level class series. The series includes Hydrologist I – journey, Hydrologist II – advanced, Hydrologist III – hydromodeler, and Hydrologist IV – unit supervisory levels have been developed. An entry level was not developed as part of the Hydrologist series. The agencies may use the Geologist I job class as an entry level to the Hydrologist series as this class covers the work that would be assigned an entry level position in the hydrology field.

Class Title:
A class title should be the best descriptive title for the work. It is intended to concisely and accurately convey the kind and level of work performed and should be brief, easily recognized, gender neutral, and understood by potential applicants.

Hydrologist is the best descriptive title for the work. While there are titles for particular subdisciplines, such as the hydromodeler, Hydrologist I – IV concisely and accurately conveys the kind, variety, and level of work performed.

Minimum Qualifications:
The minimum qualifications established for a job class must relate to the knowledge, skills, and abilities needed to perform the work and must not create an artificial barrier to employment of individuals in protected classes. Required training should be limited to the basic formal training that customarily prepares individuals for work in the field. Experience requirements are intended to ensure new employees can successfully perform the work after a period of orientation or familiarization. Required experience should be directly related to the actual duties of positions in the class and should not be equivalent to the work to be performed.

The minimum qualifications for the hydrologist series were developed to facilitate recruitment of applicants with a bachelor's degree in either a natural or physical science which includes course work in the specialty fields of geology, hydrology, hydrogeology, or geohydrology. When applying for the journey level of this series, applicants may use their appropriate experience gained as a Geologist I with the State of Alaska or another employer. An experience progression of two years is established to ensure that candidates possess the required knowledge, skills, and abilities needed to perform the work at each level. A master's degree will substitute for up to one year entry level experience at the Hydrologist I level and up to one year of journey experience at either the Hydrologist II or Hydrologist III levels.

Class Code:
The job classes in the hydrologist series have historically been placed in PK01 – Physical Sciences Specialist. This job family includes classes of positions that advise on, administer, supervise, or perform professional or paraprofessional work related to geology, chemistry, physics, oceanography, or other physical science. PK01 is within PK – Physical Sciences and Engineering occupational group. The analysis of the duties and responsibilities continues to support placing the hydrologist classes in PK01. The job class levels and their corresponding codes are in the following table.

Job Class	Class Code	AKPAY Code
Hydrologist I	PK0111	P8326
Hydrologist II	PK0112	P8327
Hydrologist III	PK0114	K0122
Hydrologist IV	PK0113	P8328

Fair Labor Standards Act:
The positions in this study are covered by the minimum wage and maximum hour provisions of the Fair Labor Standards Act of 1938, as Amended (FLSA). While exemption from the provisions of the Act are determined based on the specific circumstances of an individual employee on a work-week basis, there are general aspects of the classes and their influence on the exemptions for employees in bona fide executive, professional, or administrative positions that can be addressed in general.

The characteristics of the Hydrologist I, II, III, & IV meet Subpart D – Professional Employees exemption of the FLSA. This is because at these levels the assignments typically require an incumbent to perform work that requires advanced knowledge in the field of hydrology and/or hydromodeling.

In addition to meeting the Professional Employees exemption, the Hydrologist IV will meet Subpart B – Executive Employees of the FLSA as the characteristics of this class requires a significant level authority and responsibility for managing a recognized subdivision of the department; regularly directing the work of two or more other employees; and to hire other employees or whose suggestions and recommendations as to the hiring, advancement, promotion or any other change of status of other employees are given particular weight.

Internal Alignment:
The salary range of a job class is determined based on internal consistency within the State's pay plans, in accordance with merit principles, with the goal of providing fair and reasonable compensation for services rendered and maintaining the principle of like pay for like work (AS 39.25.010(b)(2)).

In evaluating internal consistency, the difficulty, responsibility, knowledge, skills, and other characteristics of a job are compared with job classes of a similar nature, kind, and level in the same job family or related job families. Following these guidelines, the analyst selected classes in PK01 that display the most comparable characteristics when examining the nature of work and level of authority and responsibility.

The scope of the alignment was broadened to include selected classes from PK02 – Environmental Sciences Specialist job family to address the fact that the comparisons within PK01 are few and because the study class displays similarities in analysis, project planning, supervision, and personnel and administrative management that justify comparisons with select classes from PK02. The following table organizes and displays the salary range; the comparable job class and class code; a description of the work; and range characteristics.

Range	Job Class	Description	Range Characteristics
Range 16	Chemist II (PK0122)	The first working level professional chemist that performs a variety of chemical tests and analyses where assignments are typically standard, routine, and repetitive and/or are conducted under general supervision and in accordance with established procedures and methods.	Professional classes aligned to this range perform either entry or first working-level work ranging from more generalized environmental compliance and administration to more specialized chemistry or geological engineering. The work of this range is characterized by continued availability of direction and ongoing progressively complex assignments defined by standard practices, precedents, and well-established procedures. Preparation for these job classes is typically through a combination of advanced education and/or entry level experience.
	Engineering Geologist I (PK0141)	Under close supervision, incumbents perform entry professional level engineering geologist, progressively learning to apply scientific knowledge, principles, and methods of engineering geology to engineering design and construction of roads, bridges, facilities, and airports.	
	Environmental Program Specialist II (PK0212)	The first working level professional that plans and performs a variety of routine analytical and evaluative project or program duties to ensure compliance with environmental laws and regulations or improve the administration of environmental programs and make recommendations to resolve recurring problems and situations covered by established precedents and procedures.	
Range 17	Geologist II (PK0132)	Performs journey level professional geology work, typically as a project team member or an assistant to a higher level Geologist, requiring the application of a working knowledge of all aspects of geologic work.	The classes aligned to this range perform a spectrum of journey level work related to general geology and routine assessment of the environmental impacts related to various project proposals. The work of this range is characterized by assignments typical to the profession and performed with significant independence, initiative, and judgment. Preparation for these job classes is typically through a combination of advanced education and entry level experience.
	Environmental Impact Analyst II (PK0242)	Performs journey level professional duties in preparing environmental documents and permit acquisition for state construction projects. Incumbents conduct routine environmental research and documentation and, as a member of a team, conduct specific studies and prepare portions of Environmental Impact Statements (EIS).	
Range 18	Chemist III (PK0123)	Independently performs a broad variety of analytical methods, tests, and procedures and routinely exercises prudent judgment in providing analysis and interpretation of results as authoritative findings. Incumbents assess the advantages, limitations, and applications of a laboratory's existing methodologies,	The classes aligned to this range perform a spectrum of journey to moderately advanced level work related to specialized geological and general environmental improvement and mitigation projects.

		instrumentation, and procedures and regularly validate standard tests, practices, and procedures and identify the need for and develop, test, and validate appropriate adaptations.	The work of this range is characterized by specialized subject matter and a variety of assignments typical of the profession performed with significant independence, initiative, and judgment. Preparation for these job classes is typically through a combination of advanced education, specialized degrees and additional entry level experience.
	Engineering Geologist II (PK0142)	Independently prepare for and perform a range of journey level geotechnical fieldwork; compile, analyze, and interpret geotechnical data and related information; and develop site recommendations and mitigation measures addressing geologic hazards and other geo-materials-related features for the design of engineering work.	
	Environmental Program Specialist III (PK0213)	The full working professional level that plans and performs a variety of project or program activities involving establishing criteria; formulating projects; assessing program effectiveness; investigating or analyzing a variety of unusual conditions or questions; or providing advisory services to state and local government officials, industry representatives and others on specific functions or programs.	
Range 19	Geologist III (PK0133)	Performs advanced professional geology work, as a field geologist assigned specific project management tasks, regulatory functions and/or in a geologic specialty, focused on geologic subdisciplines such as structural geology, tectonics, petrography, igneous petrology, ore deposits, neotectonics, sedimentology, volcanology or others.	The classes aligned to this range perform a spectrum of advanced level professional work in geology and environmental assessments. The work of this range is characterized by assignments that are unusual or exceptional to those typically found in the main body of work; require additional specialization as a technical expert; complex, multi-staged projects; and intense public scrutiny. Preparation for these job classes is typically through a combination of advanced education and journey level experience.
	Environmental Impact Analyst III (PK0243)	Performs advanced professional duties in preparing Environmental Assessments and EISs characterized by large, multi-stage construction projects with Environmental Assessments or EISs that require coordinating the work of multiple analysts or managing the work of consultants. At this level projects typically include potential environmental impacts which are controversial and frequently have high media visibility and concern.	
Range 20	Chemist IV (PK0124)	The advanced level chemist that serves as a recognized technical expert responsible for either QA/QC and certification programs or performing difficult analyses that regularly require the development and assessment of new methodologies, procedures, and standards.	The classes aligned to this range perform advanced level work in a recognized specialty area. The work is characterized by recognition as a technical expert and the expectation of addressing and resolving the most complex problems pertaining to these
	Engineering Geologist III	Performs nonsupervisory, advanced level engineering geology work in a recognized	

	(PK0143)	geotechnical specialty impacting statewide application (e.g. rockfall hazard mitigation, rock slope design, rock mechanics, slope stability, or soils and foundation engineering). Recognized as experts in their specialty and are expected to address and resolve the most complex problems pertaining to their specialties as part of engineering geology projects.	problems. The classes of this range typically play a significant role in program development and represent at stake holder forums and other public venues. Preparation for these job classes is typically through a combination of advanced education and additional journey level experience.
	Environmental Program Specialist IV (PK0214)	Under general direction, incumbents plan and perform the work of major environmental projects or programs, including determining the soundness of agency programs and plans; developing and recommending new approaches and methods for agency use; resolving problems that are critical to accomplishment of agency objectives; providing authoritative advice and technical assistance to federal, state, and local officials; and may lead the development of standards that affect a large segment of the regulated community.	
Range 21	Geologist IV (PK0134)	Functions as project managers of multiple projects, overseeing and coordinating the work of professional geological teams, or as senior geology researcher, or a combination of both, in the exploration, development, production and regulation of surface and subsurface resources, or identification and evaluation of geologically related hazards.	The classes aligned to this range perform a spectrum of advanced/lead to full supervisory level work and are primarily responsible for the direction or formal supervision of other staff and management of offices, regions, and/or complex projects. This work of this range is characterized by significant emphasis on formal supervisory authority and planning, organizing, directing and controlling the resources necessary for project or program delivery. Preparation for these job classes is typically through a combination of advanced education and journey or advanced level experience.
	Environmental Program Manager I (PK0221)	Manages an office or unit with responsibility for the ongoing work of an environmental program or function in a defined geographic area and supervise multiple professional program staff (for example Environmental Program Specialists or Environmental Health Officers).	
	Environmental Impact Analysis Manager I (PK0251)	Under general direction, a supervisory class responsible for either: 1) regional managers of the Environmental Impact Analysis function; or 2) the principal program policy and procedure assistant to the Environmental Impact Analysis Manager II; or 3) responsible for exercising the State's assumed authority under SAFETEA-LU Section 6004 and Section 6005.	
Range 22	Chemist V (PK0125)	The supervisory level chemist responsible for planning, organizing, implementing and	Professional classes aligned to this range perform a spectrum of

		administering chemical analysis activities as a member of the senior management team of a major laboratory with statewide responsibility. The Chemist V is typically the agency's authority responsible for performing the most complex most difficult tests and analyses and conducting extensive research into and facilitating development of new methods, procedures and applications of analytical instruments. The Chemist V also represents the agency regarding the coordination and sharing of research efforts and information.	work from advanced scientific (i.e., heavy research for which little prior information is available) to significant programmatic management. The work of this range is characterized by substantial scientific research, requiring graduate-level advanced education and significant prior experience, or significant emphasis on formal supervisory authority and planning, organizing, directing and controlling the resources necessary for project or program delivery. Preparation for these job classes is typically through a combination of advanced education and journey, advanced, or program management level experience.
	Geologist V (PK0135)	Function as program managers, responsible for supervising, coordinating, managing and providing long-term planning, scientific leadership and oversight for major program areas, such as Energy Resource Evaluation, Mineral Resource Evaluation, Engineering Geology/Geohazards, Large Mine Management, Mineral Property Management, or major geologic program areas of similar scope, complexity, impact and controversy.	
	Geological Scientist I (PK0137)	Performs scientific research directed toward discovering, disseminating and applying new or expanded knowledge and expertise in a specific geological subdivision/sub-discipline to a wide variety of natural resource professionals across all division lines in the Department of Natural Resources.	
	Regional Engineering Geologist (PK0145)	Coordinates and provides regional engineering geology and drilling services including, supervision of geology staff in field exploration, data analysis and delivery and incorporation of geotechnical data into project designs for highways, airports, and public facilities.	
	Environmental Program Manager II (PK0222)	Manages multiple offices in different geographic locations with regional responsibility for all of a program's services or statewide responsibility for a specific program and supervises professional staff, typically in both program and scientific fields, for example Environmental Program Specialists and Engineers or Chemists.	
	Environmental Impact Analysis Manager II (PK0252)	Single-position job class responsible for ensuring pre-construction, construction and maintenance activities within the state are in compliance with state and federal	

		environmental laws and regulations; ensuring new laws and regulations are incorporated into project development and maintenance operations; providing technical advice to Environmental Impact Analysis Managers I; and managing environmental research projects covering all regions in the state.	

The following analyses compare and contrast the dominant characteristics of the study classes with the range characteristics from the table above.

Hydrologist I is the journey level hydrologist. An incumbent working at this level performs project tasks such as conducting field surveys of water conditions, making basic calculations of hydrologic data, collecting samples and analyzing water characteristics, mapping data, or interpreting data and generating reports. Incumbents work independently on short term projects of limited scope and effect and/or conduct a variety of project related tasks on statewide or regional scope projects. The work characteristics of Hydrologist I do not align with the type and level of characteristics displayed at range 16. The work at this range is characterized by entry level or first working level assignments intended to prepare an incumbent for journey level. The Hydrologist I characteristics do align well with those present at range 17. For example, both have similar preparation requirements and perform a spectrum of routine and recurring journey level assignments with significant independence, initiative, and judgment.

Hydrologist II is the advanced level hydrologist. An incumbent working at this level manages statewide or regional level surface water or groundwater projects. This may include designing field studies; performing advanced calculations; mapping and interpreting data; drafting technical reports; managing hydrologic projects; directing and training lower level staff; and collaborating and coordinating with state, federal, and/or tribal representatives, private contractors, and/or other entities. The work characteristic of the Hydrologist II does not align with the characteristics displayed at range 20 as these typify a spectrum of advanced level work in a recognized specialty area. Hydrologist II class characteristics do align to those present at range 19 specifically the advanced level work in project management field activities as well as similar class entrance/ preparation requirements.

Hydrologist III is the advanced professional level hydro-modeler and advanced technical program support. The work at this level includes significant responsibility for developing and maintaining numerical models that represent the geologic composition and hydrogeologic processes of a groundwater system (aquifer), coupled groundwater/surface water systems, or surface water systems. Incumbents develop hydrogeologic framework models, well package files, recharge files, and other files important to the parameters of the modeling project. Incumbents also provide advanced technical program support specific to each department by assisting in matters such as program development or facilitating/representing the program at a variety of forums. The work characteristics present at range 20 align to those of the Hydrologist III specifically the advanced level work in a recognized specialty area, the technical expertise, and the level of responsibility to assist in the development of the program.

Hydrologist IV is a supervisory job class with substantial responsibility for exercising independent judgment in employing, disciplining, or adjudicating grievances of professional level hydrologists. Incumbents supervise a group or unit comprised of multiple levels of professional hydrologists performing the scientific study and reporting on groundwater and surface water quality, quantity, and availability. This level is further distinguished by the responsibility for managing the budget and expenditures, overseeing and advising subordinate staff, reviewing and approving program work, and performing other related duties necessary for the development and efficient operation of the group or unit. The class characteristics of Hydrologist IV do not align to those present at range 22 as these characteristics typify significant program management responsibilities or advanced scientific research where little prior information is available. The class characteristics of Hydrologist IV typify a first level supervisory class with oversight for a homogenous unit of project level professional staff and minimal administrative authorities regarding budget and personnel. Hydrologist IV does align with the characteristics at range 21 as Hydrologist IV is the senior research position for the unit/group and recognized experts in their specialty field, assigned formal supervisory authority, and oversee and coordinate the work of professional teams of hydrologists.

Conclusions:
This study examined hydrological work in the DEC and DNR. The key points include examining and revising the Hydrologist I, II, & III class specifications; adding a class level to capture the specialized body of work which specifically focuses on mapping groundwater profiles using the most modern computerized software; and examining the internal alignment of these classes with other similar classes from job families: PK01 and PK02. This series does not include an entry level class. However, to abate this, departments may use the Geologist I job class as an entry to the hydrologist series. The final results of this study are included in the following table.

Job Class	Action	Coding	Salary Range	FLSA
Hydrologist I	Update	PK0111/P8326	Change from 16 to 17	Y
Hydrologist II	Update	PK0112/P8327	Change from 18 to 19	Y
Hydrologist III	Establish New Class	PK0114/K0122	Establish at 20	Y
Hydrologist IV	Title Change	PK0113/P8328	Change from 20 to 21	Y

The effective date for these changes is January 1, 2014. Correspondence on the allocation of study positions is being distributed through the OPD system.

Attachments:

Final class specifications
Allocation Spreadsheet

Cc: Brent Goodrum
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