



# **STANDARDS OF APPRENTICESHIP**

## **DEVELOPED BY THE IDAHO RURAL WATER ASSOCIATION**

### **FOR THE OCCUPATIONS**

<b>OCCUPATIONS</b>	<b>O*NET-SOC CODE</b>	<b>RAPIDS CODE</b>
<b>Water Systems Operations Specialist</b> Water Systems Operator	<b>51-8031.00</b>	<b>0507</b>
<b>Wastewater Systems Operations Specialist</b> Wastewater Systems Operator	<b>51-8031.00</b>	<b>0507R</b>



### **U. S. DEPARTMENT OF LABOR OFFICE OF APPRENTICESHIP**

**APPROVED BY:**

*William J. Kober, Idaho State Director*

Date of Registration: 03/26/2018

Program Registration No.: 2018-ID-70967

### **REGISTERED AS PART OF THE NATIONAL APPRENTICESHIP PROGRAM IN ACCORDANCE WITH THE BASIC STANDARDS OF APPRENTICESHIP ESTABLISHED BY THE SECRETARY OF LABOR**

The legal requirements related to apprenticeship that apply to registered apprenticeship programs are contained in 29 U.S.C. 50 and Title 29, CFR parts 29 and 30. Every effort has been made to ensure that the information in these Apprenticeship Standards is accurate and up-to-date.





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## FOREWORD

These Water/Wastewater System Operations Specialist apprenticeship standards have as their objective the training of utility workers skilled in all phases of the industry. The Idaho Rural Water Association (IRWA) recognizes that in order to accomplish this, there must be well-developed on-the-job learning combined with related instruction.

This recognition has resulted in the development of these standards of apprenticeship. They were developed in accordance with the basic standards recommended by the U.S. Department of Labor, Office of Apprenticeship, as a basis from which the sponsor can work to establish an apprenticeship training program that meets the particular needs of the area.

The water industry is unique in that it involves the daily responsibilities of public health protection, technical operations, and maintenance of critical but unseen infrastructure. In order to meet industry demands in an ever-evolving technological environment, the water industry must select individuals who have the aptitude to learn and develop the knowledge, skills and abilities necessary to proficiently perform the individual job tasks associated with the work processes of the occupations. The industry must select and train individuals who will diligently work and study to stay abreast of current and future emerging technologies.

The water industry, by its very nature, places a high degree of personal responsibility on each individual. While supervision is most often provided on the job, these workers are constantly called upon to make decisions concerning health and safety requirements and operational demands to keep these vital resources flowing.

To meet increased demand on our nation's water resources infrastructure, personal and equipment have been operating at or beyond capacity to provide safe drinking water and environmentally responsible wastewater treatment for our growing population. Continuous operations and maintenance of existing facilities often prove to be extremely expensive and hazardous. The public must be assured of safety and uninterrupted service. This requires adequate skill and knowledge on the part of each person performing the work. The well-trained Systems Operations Specialist (journeyworker) takes pride in the appearance of his or her work, its technical correctness, and its structural soundness.

The Idaho Rural Water Association (IRWA) has dedicated time and resources to develop an efficient training program so apprentices can, through a systematic program of related instruction and on-the-job learning, become a well-qualified System Operations Specialist.



## SECTION I – PROGRAM ADMINISTRATION

Program Sponsors are responsible for the administration of all aspects of a Registered Apprenticeship program. Sponsor means any State Rural Water Association (SRWA) or water/wastewater system (system) operating an apprenticeship program and in whose name the program is (or is to be) registered or approved. Program sponsors, at their discretion, may establish an Apprenticeship Training Committee (ATC) to carry out the responsibilities and duties required of a program sponsor as described in these standards of apprenticeship. While the Office of Apprenticeship recommends that program sponsors utilize the services of an ATC, a sponsor may also elect to administer the program without the services of an ATC.

The Idaho Rural Water Association has elected to administer the apprenticeship program with the services of an ATC. NOTE: IF AN ATC IS ESTABLISHED BY THE PROGRAM SPONSOR, A LIST OF THE MEMBERSHIP AND THE AREAS OF EXPERTISE THEY REPRESENT SHOULD BE PROVIDED TO THE U. S. DEPARTMENT OF LABOR, OFFICE OF APPRENTICESHIP.

- **Responsibilities of the Apprenticeship Training Committee**
  - A. Members of the Apprenticeship Training Committee will be selected by the Idaho Rural Water Association Board of Directors.
  - B. The Apprenticeship Training Committee shall serve in an advisory capacity to Association members to ensure uniform and progressive on the job training and to act as a constant resource in apprenticeship and training matters.
  - C. The Apprenticeship Training Committee shall make recommendations covering the disposition of the Apprenticeship Agreement to the field management who will take final action on them.
  - D. Ensure all Apprentices are given the variety of work experience on the job and in the required related technical instruction required to develop Journeyworker skills.
  - E. Update and revise as needed, the related instruction material to meet changing technology and Association needs; with aid and input from Association members.
  - F. Designate an Apprenticeship Program Manager/Coordinator. The Program Manager shall serve as a liaison between apprentices, Sponsoring Employers, Related Instruction Providers and, the Office of Apprenticeship, and perform other duties relative to the apprenticeship program as may be assigned and delegated by the Committee.
  - G. To periodically review these Standards and keep them consistent and updated with industry and Office of Apprenticeship practices.
  - H. Respond to the needs and requests of Sponsoring Employers.
  - I. The Apprenticeship Training Committee shall schedule bi-annual meetings or meet on call of the chairperson.



- **Structure of the Apprenticeship and Training Committee**
  - A. Members of the ATC will be selected by the groups they represent.
  - B. Membership will be composed of equal numbers of representatives from System Operations Specialists and system decision makers (board members or other elected officials).
  - C. Technical Assistance - such as that from the U.S. Department of Labor, Office of Apprenticeship, State Apprenticeship Agencies, and vocational schools may be requested to advise the ATC.
  
- **Administrative Procedures**
  - A. The ATC will select a chairperson and a secretary and will determine the time and place of regular meetings. Meetings will be held as frequently as needed to effectively manage the program. Written minutes of the meetings will be kept.
  - B. The chairperson and secretary will have the power to vote on all questions affecting apprenticeship.
  - C. The offices of chairperson and secretary may rotate among members of the sponsor.
  
- **Responsibilities of the Sponsoring Employers**
  - A. Sponsoring Employers shall ensure apprentices are electronically registered in RAPIDS and a copy of each signed apprenticeship agreement is maintained and a copy furnished to the apprentice and the Apprenticeship Program Manager/Coordinator.
  - B. To carry out the provisions of these standards and maintain on-the-job learning records for each apprentice.
  - C. To see that the apprentices are rotated from job process to job process in accordance with these standards and in accordance with the schedule of work experience included herein.
  - D. To see that the apprentices are rotated from job process to job process in accordance with these standards and in accordance with the schedule of work experience included herein.
  - E. To provide for continuous employment of apprentices insofar as possible.
  - F. All Sponsoring Employers adopting these standards shall be familiar with the terms of the same and shall maintain a copy on file at their place of business.
  - G. Ensure all apprentices have an opportunity to review the Standards.
  
- **IRWA Program Management:** The IRWA will oversee quality and consistency via a designated Apprenticeship Program Manager. The IRWA will provide technical assistance to local program sponsors as needed, including but not limited to the following list:
  - A. Be the point of contact for ensuring training courses and materials utilized in local programs meet acceptable criteria outlined in the Certified IRWA Apprenticeship Program.



- B. Provide recordkeeping templates or database platforms necessary for local sponsors to uniformly administer local programs.
- C. In coordination with local sponsors, provide technical assistance on program administration and operations. This may include working with the local sponsors to establish protocols for taking applications to the program, determining acceptable selection procedures that are in accordance with Equal Employment Opportunity hiring practices, or establishing a recordkeeping system capable of validating the quality and effectiveness of the training program.
- D. Accept and respond to inquiries from affiliate members concerning registration processes.
- E. Maintain a composite record of all registered apprentices in local programs to include completion and cancelation rates, diversity utilization in the programs.
- F. Ensure related instruction and on the job learning requirements stay up to date with technology and industry practices.

## **SECTION II - EQUAL OPPORTUNITY PLEDGE – 29 CFR 29.5(b)(21) and 30.3(b)**

The recruitment, selection, employment, and training of apprentices during their apprenticeship shall be without discrimination because of race, color, religion, national origin, sex (including pregnancy and gender identity), sexual orientation, genetic information, or because they are an individual with a disability or a person 40 years or older. The IRWA and Sponsoring Employers will take affirmative action to provide equal opportunity in apprenticeship and will operate the apprenticeship program as required under 29 CFR § 30.

## **SECTION III - AFFIRMATIVE ACTION PLAN AND SELECTION PROCEDURES – 29 CFR 29.5(b)(21), 30.4, and 30.5**

Sponsoring Employers with 5 or more registered apprentices are required to adopt an affirmative action plan and selection procedures, which will become part of these standards of apprenticeship. However, the Office of Apprenticeship encourages the development of these two plans for all programs regardless of apprentice numbers. For Sponsoring Employers with fewer than 5 apprentices, these plans are not required, and the Sponsoring Employer may continue to select apprentices in conformance with its current human resources and equal employment opportunity hiring policies.

## **SECTION IV - QUALIFICATIONS FOR APPRENTICESHIP – 29 CFR 29.5(b)(10)**

Applicants will meet the following minimum qualifications. These qualification standards, and the score required on any standard for admission to the applicant pool, must be directly related to job performance, as shown by a statistical relationship between the score required for admission to the pool and performance in the apprenticeship program:

- A. **Age**  
Apprentices must not be less than 18 years of age. Proof of age is required.
- B. **Education**  
A high school diploma, General Educational Development (GED) equivalency or other high school equivalency credential is required.

Applicants must submit a DD-214 to verify military training and/or experience if they are a veteran and wish to receive consideration for such training/experience.



- C. **Physical**  
Applicants will be physically capable of performing the essential functions of the apprenticeship program, with or without a reasonable accommodation, and without posing a direct threat to the health and safety of the individual or others.
  
- D. **Drug screening**  
Apprentices will be required to take and pass a drug screening on acceptance into the program and prior to employment.
  
- E. **Background Check**  
Pursuant to federal guidance all employees of public water systems must pass a background check. Applicants will be required to pass a qualifying background investigation upon selection into the apprenticeship program and prior to employment.
  
- F. **Driver's License**  
Apprentices must possess a valid state issued vehicle operator license and be insurable at normal commercial rates on acceptance into the program and prior to employment.

**SECTION V - APPRENTICESHIP AGREEMENT – 29 CFR 29.3(d), 29.3(e), and 29.5(b)(11)**

After an applicant for apprenticeship has been selected, but before employment as an apprentice or enrollment in related instruction, the apprentice will be covered by a written apprenticeship agreement which can be submitted electronically through the Registered Apprenticeship Partners Information Data System (RAPIDS), using the Apprentice Electronic Registration process by the sponsoring employer and the apprentice and approved by and registered with the Office of Apprenticeship. Such agreement will contain a statement making the terms and conditions of these standards a part of the agreement as though expressly written therein. The sponsoring employer shall provide a copy of the apprenticeship agreement to the apprentice, Apprenticeship Program Manager/Coordinator and the Office of Apprenticeship. An additional copy will be provided to the veteran's state approving agency for those veteran apprentices desiring access to any benefits to which they are entitled.

Prior to signing the apprenticeship agreement, each selected applicant will be given an opportunity to read and review these standards, the sponsor's written rules and policies, and the apprenticeship agreement.

The Office of Apprenticeship will be advised within 45 days of the execution of each apprenticeship agreement and will be given all the information required for registering the apprentice.

**SECTION VI – SUPERVISION OF APPRENTICES AND RATIOS – 29 CFR 29.5(b)(14) and 29 CFR 29.5(b)(7)**

No apprentice shall work without proper or adequate supervision of the System Operations Specialist (journeyworker).

For the purpose of these apprenticeship standards, adequate or proper supervision of the apprentice means the apprentice is under the supervision of a fully qualified System Operations Specialist or supervisor at all times, who is responsible for making work assignments, providing on-the-job learning (OJL), and ensuring safety at the worksite.



To adequately or properly supervise an apprentice does not mean the apprentice must be within eyesight or reach of the supervisor, but that the supervisor knows what the apprentice is working on; is readily available to the apprentice; and is making sure the apprentice has the necessary instruction and guidance to perform tasks safely, correctly, and efficiently.

The sponsor shall establish a numeric ratio of apprentices to fully proficient System Operations Specialists consistent with proper supervision, training, safety, and continuity of employment throughout the apprenticeship. The ratio language must be specific and clearly described as to its application to the jobsite, workforce, department, or treatment plant. The ratio of apprentices to fully proficient System Operations Specialists will be as noted in Appendix B.

#### **SECTION VII - TERM OF APPRENTICESHIP – 29 CFR 29.5(b)(2)**

The term of the occupation and on-the-job learning (OJL) attainment supplemented by the required hours of related instruction will be as stated on the Work Process Schedule and Related Instruction Outline (Appendix B) for each occupation.

#### **SECTION VIII - PROBATIONARY PERIOD – 29 CFR 29.5(b)(8) and 29.5(b)(20)**

Every applicant selected for apprenticeship will serve a probationary period. The probationary period cannot exceed 25 percent of the length of the program or 1 year, whichever is shorter. The probationary period for this program shall be the first 1000 hours of on-the-job learning (OJL).

During the probationary period, either the apprentice or the sponsoring employer may terminate the apprenticeship agreement, without stated cause, by notifying the other party in writing. The records for each probationary apprentice will be reviewed prior to the end of the probationary period. Records may consist of periodic reports regarding progression made in both the OJL and related instruction, and any disciplinary action taken during the probationary period.

Any probationary apprentice evaluated as satisfactory after a review of the probationary period will be given full credit for the probationary period and continue in the program.

After the probationary period, the apprenticeship agreement may be cancelled at the request of the apprentice or may be suspended or cancelled by the sponsoring employer for reasonable cause after documented due notice to the apprentice and a reasonable opportunity for corrective action. In such cases, the sponsoring employer will provide written notice to the apprentice, IRWA Apprenticeship Program Manager/Coordinator and to the Office of Apprenticeship of the final action taken.

#### **SECTION IX - HOURS OF WORK**

Apprentices will generally work the same hours as fully proficient workers (journeyworker/mentor), except that no apprentice will be allowed to work overtime if it interferes with attendance in related instruction classes.

Apprentices who do not complete the required hours of OJL during a given segment will have the term of that segment extended until they have accrued the required number of hours of training.





#### **SECTION X - APPRENTICE WAGE PROGRESSION – 29 CFR 29.5(b)(5)**

Apprentices will be paid a progressively increasing schedule of wages and fringe benefits during their apprenticeship based on the acquisition of increased skill and competence on the job and in related instruction. Before an apprentice is advanced to the next segment of training or to fully proficient or journeyworker status, the Sponsoring Employer will evaluate all progress to determine whether advancement has been earned by satisfactory performance in OJL and in related instruction courses. In determining whether satisfactory progress has been made, the Sponsoring Employer will be guided by the work experience and related instruction records and reports.

The progressive wage schedule and fringe benefits will be an increasing percentage of the fully proficient or journeyworker wage rate. The percentages that will be applied to the applicable fully proficient or journeyworker rate are shown on the attached Work Process Schedule and Related Instruction Outline (Appendix B). In no case will the starting wages of apprentices be less than that required by any minimum wage law that may be applicable.

#### **SECTION XI - CREDIT FOR PREVIOUS EXPERIENCE – 29 CFR 29.5(b)(12) and 30.4(c)(8)**

Sponsoring Employers may grant credit toward the term of apprenticeship to new apprentices. Credit will be based on demonstration of previous skills or knowledge equivalent to those identified in these standards.

Apprentice applicants seeking credit for previous experience gained outside the supervision of the sponsor must submit the request at the time of application and furnish such records, affidavits, and other documentation to substantiate the claim. An applicant who is a veteran and who wishes to receive consideration for military training and/or experience must submit a DD-214. The request for credit will be evaluated and a determination made by the sponsor prior to completion of the probationary period. The amount of credit to be awarded will be determined upon review of the apprentice's previous work and training/education record and evaluation of the apprentice's performance and demonstrated skill and knowledge.

An apprentice granted credit will be advanced to the wage rate designated for the period to which such credit accrues. The Office of Apprenticeship will be advised of any credit granted and the wage rate to which the apprentice is advanced.

The granting of advanced standing will be uniformly applied to all apprentices.

#### **SECTION XII - WORK EXPERIENCE – 29 CFR 29.5(b)(3)**

During the apprenticeship, the apprentice will receive OJL and related instruction in all phases of the occupation necessary to develop the skill and proficiency of a skilled journeyworker. The OJL will be under the direction and guidance of the apprentice's supervisor.



### **SECTION XIII - RELATED INSTRUCTION – 29 CFR 29.5(b)(4)**

Every apprentice is required to participate in coursework related to the job as outlined in Appendix B. A minimum of 144 hours of related instruction is recommended for each year of the apprenticeship. Apprentices agree to take such courses as the sponsor deems advisable. The sponsor will secure the instructional aids and equipment it deems necessary to provide quality instruction. The sponsor may require apprentices to complete the related instruction requirement through electronic media or other instruction approved by the Office of Apprenticeship.

Apprentices will not be paid for hours spent attending related instruction classes.

The sponsor will inform each apprentice of the availability of college credit, if available.

In cases of failure of an apprentice to fulfill the obligations regarding related instruction without due cause, the sponsor will take appropriate disciplinary action and may terminate the apprenticeship agreement after due notice to the apprentice and opportunity for corrective action.

To the extent possible, related instruction will be closely correlated with the practical experience and training received on the job. The sponsor will monitor and document the apprentice's progress in related instruction classes.

The sponsor will secure competent instructors whose knowledge, experience, and ability to teach will be carefully examined and monitored. The sponsor may require the instructors to attend instructor training to meet the requirements of 29 CFR § 29.5(b)(4).

### **SECTION XIV - SAFETY AND HEALTH TRAINING – 29 CFR 29.5(b)(9)**

All apprentices will receive instruction in safe and healthful work practices both on the job and in related instruction that are in compliance with the Occupational Safety and Health Administration standards promulgated by the Secretary of Labor under 29 U.S.C. 651 et seq., as amended, or state standards that have been found to be at least as effective as the federal standards.

### **SECTION XV - MAINTENANCE OF RECORDS – 29 CFR 29.5(b)(6), 29.5(b)(23), and 30.8**

Sponsoring Employers are responsible for maintaining, at a minimum, the following records:

- summary of the qualifications of each applicant;
- basis for evaluation and for selection or rejection of each applicant;
- records pertaining to interview;
- the original application;
- records of each apprentice's on-the-job learning (OJL);
- related instruction reviews and evaluations;
- progress evaluations;
- record of job assignments, promotions, demotions, layoffs, or terminations, rates of pay; and
- any other actions pertaining to the apprenticeship



Sponsoring Employers will also maintain all records relating to apprenticeship applications (whether selected or not), including, but not limited to, the sponsor's outreach, recruitment, interview, and selection process. Such records will clearly identify minority and female (minority and nonminority) applicants and must include, among other things, the basis for evaluation and for selection or rejection of each applicant. For a complete list of records that each sponsor is required to maintain under 29 CFR § 30, please refer to 29 CFR § 30.12.

All such records are the property of the Sponsoring Employer and will be maintained for a period of 5 years from the date of last action. They will be made available to the Office of Apprenticeship upon request.

#### **SECTION XVI - CERTIFICATE OF COMPLETION OF APPRENTICESHIP – 29 CFR 29.5(b)(15)**

Upon an apprentice's satisfactory completion of the requirements of the apprenticeship program established within these standards, the Sponsoring Employer will so certify the completion to the Office of Apprenticeship and request that a Certificate of Completion of Apprenticeship be awarded to the completing apprentice. The Office of Apprenticeship may require that a record of completed OJL and related instruction for the apprentice accompany such requests.

#### **SECTION XVII - NOTICE TO THE OFFICE OF APPRENTICESHIP – 29 CFR 29.3(d), 29.3(e), and 29.5(b)(19)**

The Office of Apprenticeship must be notified within 45 days of any apprentice action - registered, reinstated, extended, granted credit, completed, transferred, suspended, canceled - and a statement of the reasons therefor.

#### **SECTION XVIII - REGISTRATION, CANCELLATION, AND DEREGISTRATION – 29 CFR 29.5(b)(18), 29.8(a)(2), and 29.8(b)(8)**

These standards will, upon adoption by the sponsor, be submitted to the Office of Apprenticeship for approval. Such approval will be acquired before implementation of the program.

The sponsor reserves the right to discontinue at any time the apprenticeship program set forth herein. The sponsor will notify the Office of Apprenticeship within 45 days in writing of any decision to cancel the program.

The Office of Apprenticeship may initiate deregistration of these standards for failure of the sponsor to abide by the provisions herein. Such deregistration will be in accordance with the Office of Apprenticeship's regulations and procedures.

The sponsor will notify each apprentice of the cancellation of the program and the effect of same. If the apprenticeship program is cancelled at the sponsor's request, the sponsor will notify the apprentice(s) within 15 days of the date of the Office of Apprenticeship's acknowledgment of the sponsor's request. If the Office of Apprenticeship orders deregistration of the apprenticeship program, the sponsor will notify the apprentice(s) within 15 days of the effective date of the order. This notification will conform to the requirements of 29 CFR § 29.8.



## **SECTION XIX - AMENDMENTS AND MODIFICATIONS – 29 CFR 29.5(b)(18)**

These standards may be amended or modified at any time by the sponsor provided that no amendment or modification adopted will alter any apprenticeship agreement in force at the time without the consent of all parties. Such amendment or modification will be submitted to the Office of Apprenticeship for approval and registration prior to being placed in effect. A copy of each amendment or modification adopted will be furnished to each apprentice to whom the amendment or modification applies.

## **SECTION XX - ADJUSTING DIFFERENCES; COMPLAINT PROCEDURE – 29 CFR 29.5(b)(22), 29.7(k), and 30.11**

The sponsor will have full authority to enforce these standards. Its decision will be final and binding on the employer, the sponsor, and the apprentice, unless otherwise noted below.

If an applicant or an apprentice believes an issue exists that adversely affects his/her participation in the apprenticeship program or violates the provisions of the apprenticeship agreement or standards, the applicant or apprentice may seek relief through one or more of the following avenues, based on the nature of the issue:

The sponsor will hear and resolve all complaints of violations concerning the apprenticeship agreement and the registered apprenticeship standards for which written notification is received within 15 days of the alleged violations. The sponsor will make such rulings as it deems necessary in each individual case within 30 days of receiving the written notification. Either party to the apprenticeship agreement may consult with the Registration Agency for an interpretation of any provision of these standards over which differences occur.

The name and address of the appropriate authority to receive, process, and dispose of complaints shall be identified on the employer participation agreement.

Any apprentice or applicant for apprenticeship who believes that he/she has been discriminated against on the basis of race, color, religion, national origin, or sex with regard to apprenticeship or that the equal opportunity standards with respect to his/her selection have not been followed in the operation of an apprenticeship program may, personally or through an authorized representative, file a complaint with the Registration Agency or, at the apprentice or applicant's election, with the private review body established by the program sponsor (if applicable).

The complaint shall be in writing and shall be signed by the complainant. It must include the name, address, and telephone number of the person allegedly discriminated against, the program sponsor involved, and a brief description of the circumstances of the failure to apply the equal opportunity standards provided in 29 CFR § 30.

The complaint must be filed not later than 180 days from the date of the alleged discrimination or specified failure to follow the equal opportunity standards, and in the case of complaints filed directly with the review body designated by the program sponsor to review such complaints, any referral of such complaint by the complainant to the Registration Agency must occur within the time limitation stated above or 30 days from the final decision of such review body, whichever is later. The time may be extended by the Registration Agency for good cause shown.

Complaints of discrimination and failure to follow equal opportunity standards in the apprenticeship program may be filed and processed under 29 CFR § 30 and the procedures set forth above.

The sponsor shall provide written notice of its complaint procedure to all applicants for apprenticeship and all apprentices.



## **SECTION XXI - TRANSFER OF AN APPRENTICE AND TRAINING OBLIGATION – 29 CFR 29.5(13)**

The transfer of an apprentice between apprenticeship programs and within an apprenticeship program must be based on agreement between the apprentice and the affected Sponsoring Employers and must comply with the following requirements:

- i. Transferring apprentices shall be provided a transcript of related instruction and OJL by the Sponsoring Employer;
- ii. Transfer must be to the same occupation; and
- iii. A new apprenticeship agreement must be executed when the transfer occurs between the Sponsoring Employers.

The apprentice must receive credit from the new Sponsoring Employer for the training already satisfactorily completed.

## **SECTION XXII - RESPONSIBILITIES OF THE APPRENTICE**

Apprentices, having read these standards formulated by the sponsor, agree to all the terms and conditions contained herein and agree to abide by the sponsor's rules and policies, including any amendments, and to serve such time, perform such manual training, and study such subjects as the sponsor may deem necessary to become a skilled journeyworker.

In signing the apprenticeship agreement, apprentices assume the following responsibilities and obligations under the apprenticeship program:

- A. Maintain and make available such records of work experience and training received on the job and in related instruction as may be required by the sponsor.
- B. Develop and practice safe working habits and work in such a manner as to assure his/her personal safety and that of fellow workers.
- C. Work for the employer to whom the apprentice is assigned for the duration of the apprenticeship, unless the apprentice is reassigned to another Sponsoring Employer or the apprenticeship agreement is terminated by the Sponsoring Employer.

## **SECTION XXIII - TECHNICAL ASSISTANCE**

Technical assistance, such as that from the U.S. Department of Labor's Office of Apprenticeship, and vocational schools, may be requested to advise the sponsor.

The sponsor is encouraged to invite representatives from industry, education, business, private organizations, and public agencies to provide consultation and advice for the successful operation of its training program.



**SECTION XXIV - CONFORMANCE WITH FEDERAL LAWS AND REGULATIONS**

No Section of these Standards of Apprenticeship shall be construed as permitting violation of any Federal Law or Regulation.

**SECTION XXV - OFFICIAL ADOPTION OF APPRENTICESHIP STANDARDS**

The Idaho Rural Water Association hereby adopts these standards of apprenticeship on this 20<sup>th</sup> day of March, 2018.

**Signatures**

  
\_\_\_\_\_  
Bruce Evans, President, IRWA

  
\_\_\_\_\_  
Shelley Roberts, CEO, IRWA



## Appendix -A-

### DEFINITIONS

*Some of these definitions may not apply to all registered apprenticeship programs – program sponsors may add or delete definitions depending on their needs.*

**APPRENTICE:** Any individual employed by a sponsoring employer meeting the qualifications described in the standards of apprenticeship who has signed an apprenticeship agreement with a sponsoring employer providing for training and related instruction under these standards and who registers with the Office of Apprenticeship.

**APPRENTICESHIP AGREEMENT:** The written agreement between the apprentice and the sponsoring employer setting forth the responsibilities and obligations of all parties to the apprenticeship agreement with respect to the apprentice's employment and training under these standards. Each apprenticeship agreement must be registered with the Registration Agency.

**APPRENTICESHIP AND TRAINING COMMITTEE:** Those persons designated by the Idaho Rural Water Association and each sponsoring employer to act as agents for the sponsor to assist in the administration of the program.

**CERTIFICATE OF COMPLETION OF APPRENTICESHIP:** The credential issued by the Office of Apprenticeship to those registered apprentices certified and documented as having successfully completed the apprentice training requirements outlined in these standards of apprenticeship.

**COMPETENCY-BASED OCCUPATION:** An occupation using an apprenticeship approach that requires the attainment of manual, mechanical, or technical skills and knowledge, as specified by an occupation standard and demonstrated by an appropriate written and hands-on proficiency measurement.

**HYBRID OCCUPATION:** An occupation using an apprenticeship approach that measures the individual apprentice's skill acquisition through a combination of a specified minimum number of hours of on-the-job learning and the successful demonstration of competency as described in a work process schedule.

**JOURNEYWORKER:** A worker who has attained a level of skills, abilities, and competencies recognized within an industry as mastery of the skills and competencies required for the occupation. The term may also refer to a mentor, technician, specialist, or other skilled worker who has documented sufficient skills and knowledge of an occupation, either through formal apprenticeship or through practical on-the-job experience and formal training.

**ON-THE-JOB LEARNING (OJL):** Tasks learned on-the-job in which the apprentice must become proficient before a completion certificate is awarded. The learning must be through structured, supervised work experience.

**SPONSORING EMPLOYER:** Any person or organization employing an apprentice, whether or not such person or organization is a party to an apprenticeship agreement with the apprentice. A person, business, or company signatory to this sponsor's standards that is responsible for providing hours of work, supervision, wages, and/or benefits to apprentices in its employ as registered under these standards.

**PROVISIONAL REGISTRATION:** The 1-year initial provisional approval of newly registered programs that meet the required standards for program registration, after which program approval may be made permanent, continued as provisional, or rescinded following a review by the Registration Agency, as provided for in 29 CFR §§ 29.3(g) and (h).

**REGISTERED APPRENTICESHIP PARTNERS INFORMATION DATA SYSTEM (RAPIDS):** A federal system that provides for the automated collection, retention, updating, retrieval, and summarization of information related to apprentices and apprenticeship programs.



## Appendix -A-

**REGISTRATION AGENCY:** The U.S. Department of Labor’s Office of Apprenticeship that has responsibility for registering apprenticeship programs and apprentices, providing technical assistance, conducting reviews for compliance with 29 CFR §§ 29 and 30, and conducting quality assurance assessments.

**REGISTRATION AGENCY and FIELD REPRESENTATIVE:** The U.S. Department of Labor’s Office of Apprenticeship that has responsibility for registering apprenticeship programs and apprentices, providing technical assistance, conducting reviews for compliance with 29 CFR §§ 29 and 30, and conducting quality assurance assessments. The field representative shall mean the person designated by Office of Apprenticeship to service this program. The Registration Agency and field representative identified are:

William Kober, State Director  
U. S. Department of Labor  
Office of Apprenticeship  
1387 S Vinnell Way, #110  
Boise, Idaho 83709  
kober.william@dol.gov  
208-321-2973

**RELATED INSTRUCTION:** An organized and systematic form of instruction designed to provide the apprentice with knowledge of the theoretical and technical subjects related to the apprentice’s occupation. Such instruction may be given in a classroom, through occupational or industrial courses, or by correspondence courses of equivalent value, electronic media, or other forms of self-study approved by the Registration Agency.

**SPONSOR:** The Idaho Rural Water Association.

**STANDARDS OF APPRENTICESHIP:** This entire document, including all appendices and attachments hereto, and any future modifications and additions approved by the U. S. Department of Labor, Office of Apprenticeship.

**SUPERVISOR OF APPRENTICE(S):** An individual designated by the program sponsor to supervise or have charge and direction of an apprentice.

**SYSTEM OPERATIONS SPECIALIST:** A professional water and/or wastewater utility system worker who has attained a level of skills, abilities, certifications, and competencies recognized within the industry as mastery of the skills and competencies required for the occupation.

**TIME-BASED OCCUPATION:** An occupation using an apprenticeship approach that measures skill acquisition through the individual apprentice’s completion of at least 2,000 hours of on-the-job learning as described in a work process schedule.

**TRANSFER:** A shift of apprenticeship registration from one program to another or from one employer within a program to another employer within that same program, where there is agreement between the apprentice and the affected apprenticeship committees or program sponsors.





## Appendix -B-

### WORK PROCESS SCHEDULE

**WATER SYSTEMS OPERATIONS SPECIALIST**  
**(Existing Title: Water Systems Operator)**  
**O\*NET-SOC CODE: 51-8031.00 RAPIDS CODE: 0507**

This schedule is attached to and a part of these Standards for the above identified occupation.

#### 1. TYPE OF OCCUPATION

Time-based                       Competency-based                       Hybrid

#### 2. TERM OF APPRENTICESHIP

The term of the occupation is two (2) years with an OJL attainment of approximately 3200 - 4000 hours, supplemented by a minimum recommended 288 hours of related instruction.

#### 3. RATIO OF APPRENTICES TO JOURNEYWORKERS

The apprentice to journeyworker ratio is: one (1) Apprentice to one (1) Journeyworker on the jobsite.

#### 4. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on either a percentage or a dollar amount of the current hourly journeyworker wage rate, which is: identified in the Sponsoring Employer Participation Agreement.

**Term: (Recommendation)**

Term	Period 1	Period 2	Period 3	Period 4
Months	Six Months	Six Months	Six Months	Six Months
Percent	45%	60%	75%	90%

#### 5. WORK PROCESS SCHEDULE (See attached Work Process Schedule)

The sponsor may modify the work processes to meet local needs prior to submitting these Standards to the U.S. Department of Labor, Office of Apprenticeship for approval.

#### 6. RELATED INSTRUCTION SCHEDULE (See attached Related Instruction Schedule)

The sponsor may modify the related instruction to meet local needs prior to submitting these Standards to the U.S. Department of Labor, Office of Apprenticeship for approval.



## Appendix -B-

### WORK PROCESS SCHEDULE

#### WATER SYSTEMS OPERATIONS SPECIALIST

(Existing Title: Water Systems Operator)

**O\*NET-SOC CODE: 51-8031.00 RAPIDS CODE: 0507**

Apprentices shall receive on-the-job instruction and experience as is necessary to become a qualified Water Systems Operations Specialist versed in the theory and practice of the occupation. The following is a condensed schedule of work experience, which every apprentice shall follow as closely as conditions will permit.

WORK PROCESSES	Approximate Hours
<b>A. Tools, Equipment and Work Place Safety</b> <ol style="list-style-type: none"> <li>1. Become familiar with tools, pipe and other materials used out on the job</li> <li>2. Understand and use personal protective equipment and safety procedures</li> <li>3. Demonstrate general plant safety and security operations</li> <li>4. Plan and set up work areas for safety of crew and public</li> <li>5. Confined spaces and traffic control zones</li> <li>6. Perform all work in conformance with OSHA regulations</li> </ol>	<b>200-240</b>
<b>B. Vehicles and Heavy Equipment</b> <ol style="list-style-type: none"> <li>1. Ensure that vehicles and equipment are adequately stocked &amp; serviced</li> <li>2. Become familiar working with excavation and other heavy equipment</li> </ol>	<b>320-400</b>
<b>C. System Operations &amp; Maintenance</b> <ol style="list-style-type: none"> <li>1. Develop a working knowledge of the operation, methods and procedures of a water treatment &amp; distribution system</li> <li>2. Perform installation and inspection of new water lines and services</li> <li>3. Understand and implement customer metering and billing procedures</li> <li>4. Perform leak detection and understand water loss control</li> <li>5. Reading water meters, perform testing &amp; proper sizing</li> <li>6. Demonstrate ability to read and interpret maps and drawings of the water system, to locate valves and water mains</li> <li>7. Assist with the installation, maintenance and repair of the treatment plant, storage tanks, and the distribution system</li> <li>8. Develop a working knowledge of preventive maintenance, troubleshooting &amp; repair of mechanical equipment</li> </ol>	<b>1530-1920</b>
<b>D. Quality Control</b> <ol style="list-style-type: none"> <li>1. Learn to perform all aspects of sampling, monitoring and testing required to maintain compliance with Federal State and Local regulations</li> <li>2. Identify normal/out-of-range values</li> <li>3. Maintain open communication &amp; report results to supervisors</li> <li>4. Learn emergency response procedures</li> </ol>	<b>770-960</b>
<b>E. Logistics, Reports and Supervision</b> <ol style="list-style-type: none"> <li>1. Complete work order forms &amp; document routine maintenance</li> <li>2. Order equipment and supplies as needed</li> <li>3. Visit other facilities to learn about new technology</li> </ol>	<b>380-480</b>
<b>TOTAL HOURS</b>	<b>3200-4000</b>



## Appendix -B-


### RELATED TECHNICAL INSTRUCTION

#### WATER SYSTEMS OPERATIONS SPECIALIST

(Existing Title: Water Systems Operator)

O\*NET-SOC CODE: 51-8031.00 RAPIDS CODE: 0507

A minimum of 650 hours of related instruction are required for each apprentice. Courses may be assigned from any of the following offerings.

TOPICS	APPROXIMATE HOURS
<b>Orientation</b>	<b>6</b>
<ul style="list-style-type: none"><li>• Apprenticeship Program overview<ul style="list-style-type: none"><li>○ Program Sponsor – Idaho Rural Water Association</li><li>○ State Rural Water Association Standards of Apprenticeship</li><li>○ Qualifications for Apprenticeship</li><li>○ Policy manual</li><li>○ Apprenticeship Training Committee (ATC)</li></ul></li><li>• Basic job duties &amp; work environment</li><li>• On the Job Learning (OJL)<ul style="list-style-type: none"><li>○ Work process schedule</li><li>○ Supervision</li></ul></li><li>• Circuit Rider training assistance</li><li>• NRWA Water University</li><li>• Classroom Training</li><li>• WaterPro Online Community Apprenticeship Forum</li></ul>	
 <b>Orientation Review Quiz</b>	

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<b>Safety</b>	<b>26</b>
<ul style="list-style-type: none"><li>• Safety rules &amp; practices<ul style="list-style-type: none"><li>○ Personal Protective Equipment (PPE)</li><li>○ OSHA Standards &amp; state guidelines</li><li>○ <b>Standard CPR/AED/First Aid Certification</b> (American Red Cross)</li></ul></li><li>• Safety Data Sheets (SDS)</li><li>• 811 Call Before You Dig</li><li>• Excavation, trenching &amp; shoring</li><li>• Confined space entry &amp; hazardous gases</li><li>• Fire &amp; Electrical safety</li><li>• Proper chemical handling and storage</li><li>• Recognizing unsafe work conditions/safety hazards</li><li>• Proper lifting procedures</li></ul>	



## Appendix -B-

- Emergency plans

### **WATER SYSTEMS OPERATIONS SPECIALIST**

**(Existing Title: Water Systems Operator)**

**O\*NET-SOC CODE: 51-8031.00 RAPIDS CODE: 0507**

- Selecting and operating safety equipment
- Potential causes and impact of system disasters
- Assessing likelihood of a disaster occurring
- Risk management
- Traffic control
- Chlorine safety

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#### **Professional Requirements**

**116**

- Certifications & licensure
- Responsibilities of a Water Systems Operations Specialist
- Ethics as a public health & environmental professional
- Customer service & community outreach
- Professional organizations
- Oral communication
- Written communication
- Computer skills
- Writing policies and procedures
- Conducting meetings and training programs
- Developing a public relations program
  - Public participation process
  - Public administration process
- Workforce management



**Code of Conduct**

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#### **Operations & Maintenance**

**350**

- Pumps & motors
  - Inspection
  - Interpreting pump performance curves
  - Priming pumps
  - Repacking pumps
  - Energy efficiency (VFDs/programmable logic controllers)
  - Lubrication and fluid characteristics



## Appendix -B-

**WATER SYSTEMS OPERATIONS SPECIALIST**  
**(Existing Title: Water Systems Operator)**  
**O\*NET-SOC CODE: 51-8031.00 RAPIDS CODE: 0507**

- Valves
- Groundwater & Wells
  - Well drilling principles
  - Well-head protection
  - Watershed protection
- Storage tanks
- Meters
  - Automatic Meter Reading (AMR)
  - Advanced Metering Infrastructure (AMI)
- Hydrants
  - Fire flow requirements
- Distribution systems
  - Hot tapping & service connections
  - Leak detection & repair
  - System Hydraulics
- Disinfection
  - Chemical feed pump maintenance & calibration
  - Maintaining a residual
  - Shock chlorination
  - Chlorination & alternative disinfection methods
  - Confirming chemical strength
  - Preparing chemicals
  - Chemical handling & storage
  - General biology and chemistry
  - Chemical properties & procedures
  - Normal chemical range
  - General physical science
- System Design
  - Control systems
  - Diagnosing, troubleshooting, and adjusting system units
  - Discriminating between normal and abnormal conditions
  - Monitoring electrical and mechanical equipment
  - Cathodic protection
  - Identification of various types of joints, restraints, and thrust blocks
  - Piping material, type, and size
  - Pipe fittings and joining methods
  - Pneumatics
  - Start-up and shut down procedures
  - Watershed management
  - Evaluating and maintaining system units



## Appendix -B-

- Diagnose, troubleshoot, and adjust process units

### **WATER SYSTEMS OPERATIONS SPECIALIST**

**(Existing Title: Water Systems Operator)**

**O\*NET-SOC CODE: 51-8031.00 RAPIDS CODE: 0507**

- Monitor and evaluate process units
- Maintaining process in normal operating conditions
- Instruments & Equipment
  - Measuring instruments
  - Testing instruments
  - Calibrating instruments
  - Drinking water concepts
  - Tool functions
  - General electrical and mechanical principles
  - General hydraulic and pneumatic principles
  - Equipment evaluation, monitoring, calibration and adjustment
  - Diagnosing and troubleshooting equipment
  - Differentiating between preventative and corrective maintenance
  - Performing general maintenance
  - Ordering necessary spare parts
  - Replacing equipment
  - Corrosion control processes
  - Lubricant and fluid characteristics
  - Change oil/lubricate equipment
  - Clean equipment
  - Maintain seals and bearings
  - Monitor charts, meters, and pressure gauges
  - Combustion engines
  - Industrial source & characteristics
- Water Quality Parameters and Sampling
  - Following written procedures
  - Chain of custody
  - Laboratory equipment
  - Laboratory safety
  - Sampling & preservation procedures
  - Normal characteristics of water
  - Perform & interpret laboratory analyses
  - Recognizing normal & abnormal analytical results
  - Quality control/quality assurance practices
  - Interpreting and transcribing data
- Flow measurements and principles
- Adjusting flow patterns
- General chemistry and physical science
- General hydrology
- Principles of measurement



## Appendix -B-

- Process control instrumentation

### **WATER SYSTEMS OPERATIONS SPECIALIST**

**(Existing Title: Water Systems Operator)**

**O\*NET-SOC CODE: 51-8031.00 RAPIDS CODE: 0507**

- Treatment Techniques
- SCADA
- Preventative maintenance
- Evaluating facility performance
- Prepare and evaluate proposals
- Recordkeeping & Reporting
- Work orders
- Cross Connection Control
- Backflow Prevention

***Program Sponsors may require specific examinations based on local training requirements in this section. Apprentices must pass the Operator Certification examination and obtain the necessary Operations License required by the State of Idaho prior to program completion.***

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### **Operator Mathematics**

**56**

- Problem solving strategies
  - Conversions & mathematical operations
  - Geometry problems
  - Calculating chemical dosage & detention time
  - Measuring chemical weight/volume
  - Perform physical measurements
  - Perform process control calculations
  - Calculate pump drawdown and pump efficiency
  - Flow & rate problems
  - Horsepower calculations
- 

### **Security & Emergency Response**

**24**

- Critical Infrastructure Sector designation
  - Physical security
  - Cybersecurity awareness
  - Human elements
- Vulnerability assessments
- National Incident Management System
  - ***ICS-100: Introduction to the Incident Command System Certificate (FEMA)***
- Emergency response plans & procedures
- Coordinating emergency response with other organizations



## Appendix -B-

**WATER SYSTEMS OPERATIONS SPECIALIST**  
**(Existing Title: Water Systems Operator)**  
**O\*NET-SOC CODE: 51-8031.00 RAPIDS CODE: 0507**

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### **Laws & Regulations**

**32**

- Safe Drinking Water Act basics
- Working with regulators
- State laws & regulations
- Local codes and ordinances
- Regulatory compliance
  - Sampling procedures
  - Compliance plans
  - Sanitary surveys
  - National Primary Drinking Water Regulations
  - Secondary Drinking Water Standards
- Emerging contaminants
- Public notification requirements

### **Introduction to Utility Management**

**24**

- Capacity development & sustainable utility management
- Source water protection
- Introduction to Geographic Information Systems
- Finances, rates & billing
- Water loss audits
- Water University - Utility Management Certification
- Understanding budgets
- Working with boards and elected officials
  - Board basics
  - Roles & responsibilities
  - Presenting information effectively

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### **Overview of Construction Projects**

**16**

- Needs assessment of existing facilities
- Working with engineers & consultants
- Roles & responsibilities all parties
- Preliminary design & alternatives
- Funding sources & requirements
- Construction design process
- Bid process & contract signing





## Appendix -B-

### WATER SYSTEMS OPERATIONS SPECIALIST

(Existing Title: Water Systems Operator)

O\*NET-SOC CODE: 51-8031.00 RAPIDS CODE: 0507

- Change orders & as-builts
- Inspections
  - Resident inspector
  - Substantial completion
  - Final inspection & certification
- Operations & maintenance manuals
- Ongoing grant & loan requirements

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Total RTI Hours

650

Certificates available through Water University.

Other required certificates indicated by *bold italics*.





## Appendix -B-

### WORK PROCESS SCHEDULE

**WASTEWATER SYSTEMS OPERATIONS SPECIALIST**  
(Existing Title: Wastewater Systems Operator)  
O\*NET-SOC CODE: 51-8031.00 RAPIDS CODE: 0507R

This schedule is attached to and a part of these Standards for the above identified occupation.

#### 1. TYPE OF OCCUPATION

Time-based                       Competency-based                       Hybrid

#### 2. TERM OF APPRENTICESHIP

The term of the occupation is two (2) years with an OJL attainment of approximately 3200 - 4000 hours, supplemented by a minimum recommended 288 hours of related instruction.

#### 3. RATIO OF APPRENTICES TO JOURNEYWORKERS

The apprentice to journeyworker ratio is: one (1) Apprentice to one (1) Journeyworker on the jobsite.

#### 4. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on either a percentage or a dollar amount of the current hourly journeyworker wage rate, which is: identified in the Sponsoring Employer Participation Agreement.

**Term: (Recommendation)**

Term	Period 1	Period 2	Period 3	Period 4
Months	Six Months	Six Months	Six Months	Six Months
Percent	45%	60%	75%	90%

#### 5. WORK PROCESS SCHEDULE (See attached Work Process Schedule)

The sponsor may modify the work processes to meet local needs prior to submitting these Standards to the U.S. Department of Labor, Office of Apprenticeship for approval.

#### 6. RELATED INSTRUCTION SCHEDULE (See attached Related Instruction Schedule)

The sponsor may modify the related instruction to meet local needs prior to submitting these Standards to the U.S. Department of Labor, Office of Apprenticeship for approval.



## Appendix -B-

**WORK PROCESS SCHEDULE**  
**WASTEWATER SYSTEMS OPERATIONS SPECIALIST**  
 (Existing Title: Wastewater Systems Operator)  
**O\*NET-SOC CODE: 51-8031.00 RAPIDS CODE: 0507R**

Apprentices shall receive on-the-job instruction and experience as is necessary to become a qualified Water Systems Operations Specialist versed in the theory and practice of the occupation. The following is a condensed schedule of work experience, which every apprentice shall follow as closely as conditions will permit.

WORK PROCESSES	Approximate Hours
<b>A. Tools, Equipment and Work Place Safety</b> <ol style="list-style-type: none"> <li>1. Become familiar with tools, pipe and other materials used out on the job</li> <li>2. Understand and use personal protective equipment and safety procedures</li> <li>3. Demonstrate general plant safety and security operations</li> <li>4. Plan and set up work areas for safety of crew and public</li> <li>5. Confined spaces and traffic control zones</li> <li>6. Perform all work in conformance with OSHA regulations</li> </ol>	<b>200-240</b>
<b>B. Vehicles and Heavy Equipment</b> <ol style="list-style-type: none"> <li>1. Ensure vehicles and equipment are adequately stocked &amp; serviced</li> <li>2. Become familiar working with excavation and other heavy equipment</li> </ol>	<b>320-400</b>
<b>C. System Operations &amp; Maintenance</b> <ol style="list-style-type: none"> <li>1. Develop a working knowledge of the operation, methods and procedures of a wastewater treatment &amp; collection system</li> <li>2. Perform installation and inspection of new sewer lines and services</li> <li>3. Demonstrate ability to read and interpret maps and drawings of the wastewater system</li> <li>4. Assist with the installation, maintenance and repair of the wastewater treatment plant, collection system, pump stations and lift stations</li> <li>5. Develop a working knowledge of preventive maintenance, troubleshooting &amp; repair of mechanical equipment</li> </ol>	<b>1,530-1920</b>
<b>D. Quality Control</b> <ol style="list-style-type: none"> <li>1. Learn to perform all aspects of sampling, monitoring and testing required to maintain compliance with Federal State and Local regulations</li> <li>2. Identify normal/out-of-range values</li> <li>3. Maintain open communication &amp; report results to supervisors</li> <li>4. Learn emergency response procedures</li> </ol>	<b>770-960</b>
<b>E. Logistics, Reports and Supervision</b> <ol style="list-style-type: none"> <li>1. Complete work order forms</li> <li>2. Order equipment and supplies as needed</li> <li>3. Document routine maintenance</li> <li>4. Visit other facilities to learn about new technology</li> </ol>	<b>380-480</b>
<b>TOTAL HOURS</b>	<b>3200 – 4000</b>




## Appendix -B-

### RELATED TECHNICAL INSTRUCTION

**WASTEWATER SYSTEMS OPERATIONS SPECIALIST**  
(Existing Title: Wastewater Systems Operator)  
O\*NET-SOC CODE: 51-8031.00 RAPIDS CODE: 0507R

A minimum of 650 hours of related instruction are required per apprentice. Courses may be assigned from any of the following offerings.

TOPICS	APPROXIMATE HOURS
<b>Orientation</b>	<b>6</b>
<ul style="list-style-type: none"><li>• Apprenticeship Program overview<ul style="list-style-type: none"><li>○ Program Sponsor – Idaho Rural Water Association</li><li>○ State Rural Water Association Standards of Apprenticeship</li><li>○ Qualifications for Apprenticeship</li><li>○ Policy manual</li><li>○ Apprenticeship Training Committee (ATC)</li></ul></li><li>• Basic job duties &amp; work environment</li><li>• On the Job Learning (OJL)<ul style="list-style-type: none"><li>○ Work process schedule</li><li>○ Supervision</li></ul></li><li>• Circuit Rider training assistance</li><li>• NRWA Water University</li><li>• Classroom Training</li><li>• WaterPro Online Community Apprenticeship Forum</li></ul>	
 <b>Orientation Review Quiz</b>	
<b>Safety</b>	<b>26</b>
<ul style="list-style-type: none"><li>• Safety rules &amp; practices<ul style="list-style-type: none"><li>○ Personal Protective Equipment (PPE)</li><li>○ Vaccinations</li><li>○ OSHA Standards &amp; state guidelines</li><li>○ <b>Standard CPR/AED/First Aid Certification</b>(American Red Cross)</li></ul></li><li>• Safety Data Sheets (SDS)</li><li>• 811 Call Before You Dig</li><li>• Excavation, trenching &amp; shoring</li><li>• Confined space entry &amp; hazardous gases</li><li>• Fire &amp; Electrical safety</li><li>• Proper chemical handling &amp; storage</li><li>• Recognizing unsafe work conditions &amp; safety hazards</li><li>• Proper lifting procedures</li></ul>	



## Appendix -B-

**WASTEWATER SYSTEMS OPERATIONS SPECIALIST**  
**(Existing Title: Wastewater Systems Operator)**  
**O\*NET-SOC CODE: 51-8031.00 RAPIDS CODE: 0507R**

- Emergency plans
- Selecting & operating safety equipment
- Potential causes and impact of system disasters
- Assessing the likelihood of a disaster occurring
- Risk management
- Traffic control
- Chlorine safety

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### Professional Requirements

**116**

- Certifications & licensure
- Responsibilities of a Wastewater Systems Operations Specialist
- Ethics as a public health & environmental professional
- Customer service & community outreach
- Professional organizations
- Oral communication
- Written communication
- Computer skills
- Writing policies and procedures
- Conducting meetings and training programs
- Developing a public relations program
  - Public participation process
  - Public administration process
- Workforce management



### Code of Conduct

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### Operations & Maintenance

**350**

- Pumps & motors
  - Inspection
  - Interpreting pump performance curves
  - Priming pumps
  - Repacking pumps
  - Energy efficiency (VFDs/programmable logic controllers)
  - Lubricant and fluid characteristics
- Valves & other appurtenances



## Appendix -B-

### **WASTEWATER SYSTEMS OPERATIONS SPECIALIST (Existing Title: Wastewater Systems Operator) O\*NET-SOC CODE: 51-8031.00 RAPIDS CODE: 0507R**

- Collection systems
  - Gravity & force mains
  - Lift stations & pump stations
    - Variable frequency drives and programmable logic controllers
  - Inflow & infiltration
    - Detection
    - Correction
    - Exfiltration
  - Fats, oils & grease
  - Inspection & cleaning
  - Identification and clearing of blockages
  - Hydrogen sulfide and methane generation
  - Characteristics of sanitary, storm, and combined systems
  - Wet wells and dry wells
  - Principles of building sewers, service laterals, branch sewers, main sewers, trunk sewers, interceptors, and outfalls
- Treatment Processes
  - Preliminary treatment
  - Primary treatment
  - Secondary treatment
  - Land treatment
  - Disinfection methods
  - Tertiary or advanced treatment
  - Influent characteristics
- Decentralized (onsite or cluster) systems
- Sampling & Laboratory Analyses
  - Biological science
  - Physical science
  - Normal characteristics of wastewater
  - Chain of custody
  - Approved analytical procedures
  - Recognizing abnormal analytical results
  - Quality control and assurance practices
  - Sampling and preservation procedures
  - Laboratory safety
- Facility Operation and Maintenance
  - General electrical and mechanical principles
  - General hydraulic & pneumatic principles
  - Tool functions
  - Instrumentation
  - Equipment evaluation, monitoring, calibration, and adjustment



## Appendix -B-

**WASTEWATER SYSTEMS OPERATIONS SPECIALIST**  
**(Existing Title: Wastewater Systems Operator)**  
**O\*NET-SOC CODE: 51-8031.00 RAPIDS CODE: 0507R**

- Discriminating between normal and abnormal conditions
- Following written procedures
- Ordering necessary spare parts
- Flow Measurements and principles
- Diagnosing/troubleshooting units
- Start-up and shut-down procedures
- Pipes
  - Pipe fittings and jointing methods
  - Piping material, type, and size
  - Pipeline construction principles
  - Trenchless technologies
  - Excavation techniques
    - Pipe-bursting
    - Slip lining
- Combustion engines
- Industrial source & characteristics
- Monitoring, Evaluation, and Adjustment
  - Adjusting chemical feed rates, flow patterns, and process units
  - General chemistry
    - Chemical handling
    - Chemical storage
    - Principles of measurement
  - Normal chemical range
  - Confirm chemical strength
  - Evaluate, diagnose, and troubleshoot process units
  - Maintain processes in normal operating conditions
  - Measure & prepare chemicals
- Detention structures & settling basins
- Biosolids handling
- Sludge management practices
- Reuse
- Process control instrumentation
- Trenchless technologies
- Excavation technologies
- SCADA
- Preventative maintenance
- Corrective maintenance
- Start-up and shut-down procedures
- Data interpretation, evaluation and transcription



## Appendix -B-

**WASTEWATER SYSTEMS OPERATIONS SPECIALIST**  
**(Existing Title: Wastewater Systems Operator)**  
**O\*NET-SOC CODE: 51-8031.00 RAPIDS CODE: 0507R**

- Reading plans & profiles
- Performing impact assessments
- Evaluating facility performance
- Prepare and evaluate proposals
- Recordkeeping & Reporting
- Work orders

***Program Sponsors may require specific examinations based on local training requirements in this section. Apprentices must pass the Operator Certification examination and obtain the necessary Operations License required by the State of Idaho prior to program completion.***

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### **Operator Mathematics**

**56**

- Problem solving strategies
  - Conversions & mathematical operations
  - Geometry problems
  - Calculating chemical dosage & detention time
  - Flow & rate problems
  - Horsepower calculations
  - Principles of measurement
  - Performing laboratory calculations
- 

### **Security & Emergency Response**

**24**

- Critical Infrastructure Sector designation
  - Physical security
  - Cybersecurity awareness
  - Human elements
- Vulnerability assessments
- National Incident Management System
  - ***ICS-100: Introduction to the Incident Command System Certificate (FEMA)***
- Emergency response plans & procedures
- Coordinating emergency response with other organizations





## Appendix -B-

**WASTEWATER SYSTEMS OPERATIONS SPECIALIST**  
**(Existing Title: Wastewater Systems Operator)**  
**O\*NET-SOC CODE: 51-8031.00 RAPIDS CODE: 0507R**

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### **Laws & Regulations**

**32**

- Pollutants
- Clean Water Act basic requirements
- Working with regulators
- Public notification requirements
- State laws & regulations
  - IDAPA 58.01.16 (Construction)
  - IDAPA 58.01.17 (Land Application, Sludge Management)
  - IPDES
- Regulatory compliance
  - NPDES permits/ IPDES
  - Analytical methods
  - Combined sewers and sanitary sewer overflows
  - Peak flows at treatment plans

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### **Introduction to Utility Management**

**24**

- Capacity development & sustainable utility management
- Introduction to Geographic Information Systems
- Finances, rates & billing
- Water University - Utility Management Certification
- Understanding budgets
- Working with boards and elected officials
  - Board basics
  - Roles & responsibilities
  - Presenting information effectively



## Appendix -B-

**WASTEWATER SYSTEMS OPERATIONS SPECIALIST**  
**(Existing Title: Wastewater Systems Operator)**  
**O\*NET-SOC CODE: 51-8031.00 RAPIDS CODE: 0507R**

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**Overview of Construction Projects**

**16**

- Needs assessment of existing facilities
- Working with engineers & consultants
- Roles & responsibilities all parties
- Preliminary design & alternatives
- Funding sources & requirements
- Construction design process
- Bid process & contract signing
- Change orders & as-builts
- Inspections
  - Resident inspector
  - Substantial completion
  - Final inspection & certification
- Operations & maintenance manuals
- Ongoing grant & loan requirements

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**Total RTI Hours**

**650**

**Certificates available through Water University.**

Other required certificates indicated by ***bold italics***.





## SPONSORING EMPLOYER PARTICIPATION AGREEMENT

### IDAHO RURAL WATER ASSOCIATION APPRENTICESHIP STANDARDS

<b>SPONSORING EMPLOYER</b>				
1. Name				
2. Address				
3. City		4. State		5. Zip Code
6. Name of CEO/President/Owner			7. Title	
8. Who Will The Contact Person Be			9. Title	10. Phone Number
11. Email Address		12. Employer ID# (EIN)		13. Total Employees
4. No. of Apprentices	5. Number of Journeyworkers: Number of Female Journeyworkers: Number of Minority Journeyworkers:			6. Minimum Age
<b>APPRENTICE WAGE SCHEDULE</b>				
	Period 1	Period 2	Period 3	Period 4
<b>Hours or Months</b>				
<b>Percent or Dollar Amount</b>				
<b>Journeyworker or Completion Hourly Wage Rate Apprentice Pay will be based on: \$</b>				

I have been furnished a copy of the Idaho Rural Water Association U.S. Department of Labor approved Registered Apprenticeship Standards, and have read and understand them and hereby request certification to train apprentices in the occupation classification identified under the provisions of these Standards, with all attendant rights and benefits thereof, until canceled voluntarily or revoked for good cause by the Idaho Rural Water Association or U.S. Department of Labor, Office of Apprenticeship.

The first year of program registration shall be on a provisional basis after which program approval may be made permanent, continued as provisional, or rescinded following a program performance review by the Office of Apprenticeship.

The recruitment, selection, employment, and training of apprentices during their apprenticeship shall be without discrimination because of race, color, religion, national origin, sex (including pregnancy and gender identity), sexual orientation, genetic information, or because they are an individual with a disability or a person 40 years of age or older. The IRWA and Sponsoring Employers will take affirmative action to provide equal opportunity in apprenticeship and will operate the apprenticeship program as required under 29 CFR § 30.



## SPONSORING EMPLOYER PARTICIPATION AGREEMENT

### IDAHO RURAL WATER ASSOCIATION APPRENTICESHIP STANDARDS

Sponsoring Employers with 5 or more registered apprentices are required to adopt an affirmative action plan and selection procedures, which will become part of these standards of apprenticeship. For Sponsoring Employers with fewer than 5 apprentices, these plans are not required, and the Sponsoring Employer may continue to select apprentices in conformance with its current human resources and equal employment opportunity hiring policies.

The sponsoring employer will have full authority to enforce these standards. The sponsor will hear and resolve all complaints of violations concerning the apprenticeship agreement and the registered apprenticeship standards for which written notification is received within 15 days of the alleged violations. The sponsor will make such rulings as it deems necessary in each individual case within 30 days of receiving the written notification. Either party to the apprenticeship agreement may consult with the Office of Apprenticeship for an interpretation of any provision of these standards over which differences occur. The name and address of the appropriate authority to receive, process, and dispose of complaints is:

Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Phone#: \_\_\_\_\_

I hereby agree to carry out the intent and purpose of the Idaho Rural Water Association Registered Apprenticeship Standards and to abide by the rules and decisions of the Apprenticeship and Training Committee established under the Standards.

\_\_\_\_\_  
Signature Title  
\_\_\_\_\_  
Printed Name Date

Approved by the Idaho Rural Water Association Apprenticeship and Training Advisory Committee:

\_\_\_\_\_  
Signature Title  
\_\_\_\_\_  
Printed Name Date

Registered as incorporating the basic standards recommended by the U. S. Department of Labor, Office of Apprenticeship.

BY: \_\_\_\_\_  
*William J. Kober, Idaho State Director,  
Office of Apprenticeship, U.S. Department of Labor*



DATE OF APPROVAL: \_\_\_\_\_ REFERENCE/PROGRAM NO.: \_\_\_\_\_