OKLAHOMA FUNDING AGENCY COORDINATING TEAM

GUIDELINES FOR

ENGINEERING REPORTS

FOR

WATER PROJECTS

ENDORSED BY:

OKLAHOMA WATER RESOURCES BOARD
OKLAHOMA CITY AREA INDIAN HEALTH SERVICE
USDA - RURAL DEVELOPMENT - OKLAHOMA
OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
OKLAHOMA DEPARTMENT OF COMMERCE

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ENGINEERING REPORT
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I. INTRODUCTION. Write a short statement regarding project planning. Include the proposed design period of the project.

II. PROJECT PLANNING AREA. Describe the area under consideration. The project planning area may be larger than the service area determined to be economically feasible. The description should include information on the following:

A. Location, maps, photographs, and sketches. These materials should indicate legal and natural boundaries, major obstacles, elevations, etc. It is highly recommended that a map of the system, that identifies what and where assets are located, be provided.

B. Growth areas and population trends. Specific areas of concentrated growth should be identified in regards to the proposed design period. Population projections for the project planning area and concentrated growth areas should be provided for the project design period. These projections should be based on historical records with justification from recognized sources. (See example table in Appendix A.) Include a description of population trends as indicated by available records, and the estimated population that will be served by the proposed water supply system or expanded system.

C. Current and projected water use data. For existing systems, the current water use data should be used as a basis for the proposed design. If a deviation is deemed necessary, a justification must be provided. Present water consumption, the projected maximum daily demands, and peak hourly flow, shall be used as the basis of design. (See example table in Appendix B.)

D. Environmental concerns in the service area. Discuss all the environmental concerns or effects within the service area that must be considered in project planning. See FACT Environmental Report Guidelines.

E. Community engagement. Describe the utility's approach (or proposed approach) to engaging the community in the project planning process. The project planning process should help the community develop an understanding of the need for the project, the required utility operational service levels, funding and revenue strategies to meet the requirements, and other considerations.

III. EXISTING FACILITIES AND NEED FOR PROJECT. Describe the existing facilities including, at a minimum, the following information:

A. Location and layout. Provide a site plan and schematic layout for treatment facilities.

B. Condition of existing facilities. Describe present condition, suitability for continued use, adequacy of water supply, existing water source quantity (yield or specific capacity) and quality. Describe compliance with all state and federal requirements for water supply systems; including primary and secondary drinking water standards, and National Pollutant Discharge Elimination System permits. Discuss the wastes generated by existing water treatment processes, their volume, treatment, and points of discharge or method of disposal. Provide a table showing the design capacity for each existing facility component based on DEQ Public Water Supply construction standards (OAC 252:626). (See example tables in Appendix C and D.)

C. Health and safety. Describe any concerns and include relevant regulations and correspondence from/to Federal and State regulatory agencies; such as DEQ inspection reports, Notices of Violation, and Consent or Administrative Orders. Actual copies of documents should be included in the appendices in the Engineering Report. Also, describe compliance with all state and federal requirements for water supply systems pertaining to handicap accessibility standards for public areas such as the office, and security standards for protection of all drinking water facilities. This section should also discuss any improvements necessary to provide enhanced security at source or treatment facilities and improved handicap accessibility in public areas as required by the Americans with Disabilities Act.

D. System O&M. Describe the concerns and indicate those with the greatest impact. Investigate water loss, management adequacy, inefficient designs, and problem elimination prior to adding additional capacity. Provide existing annual O&M cost.

E. Growth capacity. Describe the reasonable growth capacity that is necessary to meet needs during the planning period. Facilities proposed to be constructed to meet future growth needs should generally be supported by additional revenues. Consideration should be given to designing for phased capacity increases. Provide number of new customers committed to this project. Calculations for determining reasonable growth need to be included in the appendices of the Engineering Report.

F. Sanitary sewage system availability. Describe the existing sewage system and sewage treatment works, with special reference to their relationship to existing or proposed waterworks structures that may affect the operation of the water supply system or the quality of the supply. Water plans will not be approved before a community sewage disposal system is approved, if one is to be installed.

G. System mapping. It is recommended that the proposed project include location and mapping of existing and proposed facilities. The use of GPS and GIS mapping systems can be of great benefit to all water systems.

IV. ALTERNATIVES CONSIDERED. This section should contain descriptions of the reasonable alternatives that were considered in planning a solution to meet the identified need. These should include the do-nothing alternative where applicable. The descriptions should include the following information for each alternative:

A. Description. Describe the facilities associated with the alternative. Describe all feasible water supply sources and provide a comparison of such sources. Also, describe treatment, storage, and distribution facilities.

B. Design criteria. State the design parameters used for evaluation purposes.

C. Environmental impacts. Provide a short description of environmental impacts that may preclude any alternatives. Only projects that utilize funds with a federal identity require the completion of an Environmental Report (EvR). Those current funding sources are as follows:

1. Rural Development Loan and Grant Programs for Water and Wastewater
2. Department of Commerce Community Development Block Grants
3. OWRB-DEQ State Revolving Loan Funds
4. Oklahoma City Area Indian Health Service
5. Other Federal Agencies

D. Land requirements. Identify sites and easements required. Further specify whether these properties are currently owned, to be acquired, or leased.

E. Construction and site considerations. Discuss concerns such as subsurface rock, high water table, limited access, flood prone areas and related maps, or other conditions which may affect cost of construction or operation of facilities. Discuss availability of necessary utility/communication infrastructure.

F. Cost estimates.
1. Construction.
2. Non-construction and other related costs.
3. Annual operations and maintenance costs.
4. Cost effective present worth analysis. See a sample format in Appendix E.

G. Advantages/Disadvantages. Describe the specific alternative's ability to meet the owner's needs within its financial and operational resources, comply with regulatory requirements, compatibility with existing comprehensive area-wide development plans, and satisfy public and environmental concerns. Use of a decision matrix considering monetary and non-monetary factors should be appropriate.

V. PROPOSED PROJECT DESIGN AND COST ESTIMATE (RECOMMENDED ALTERNATIVE). This section should contain a fully developed description of the proposed project based on the preliminary description under the evaluation of alternatives. At least the following information should be included:

A. Source(s) of water supply. The applicant should describe the proposed source or sources of water supply to be developed, the reasons for their selection, and provide the following information:

1. For surface water sources, include:
   a. Hydrologic data, stream flow and weather records.
   b. Safe yield, quantity, including all factors that may affect it.
   c. Maximum flood or pool elevation.
   d. Description of the watershed, noting any existing or potential sources of contamination which may affect water quality.
   e. Summary of the quality of raw water with special reference to fluctuations in quality.

2. For groundwater sources, include:
   a. Sites considered.
   b. Advantages of the site selected.
   c. Elevations with respect to surroundings and floodplain(s).
   d. Character of formations through which the source is to be developed.
   e. Geologic conditions affecting the site.
   f. Summary of source exploration: test well depth and method of construction; placement of liners or screen; test pumping rates and their duration; water levels and specific capacity; chemical and radiological quality of the water.
   g. All sources of possible contamination within one (1) mile (1.6 kilometers) radius including but not limited to sewers and sewerage facilities, landfills, outcroppings of consolidated water bearing formations, waste disposal wells, slush pits, irrigation wells, and abandoned wells.
   h. Industrial and other private supplies. Where pertinent, use significant groundwater developments within a one mile (1.6 kilometer) radius of the proposed groundwater source; giving depths, size, protective casing depth, capacity, location, type and any available information pertaining thereto.

3. For purchase water systems, include:
   a. Quantity available from source water systems.
   b. Quality of source water system.
   c. Copy of purchase water contract, as applicable.

B. Water rights. Discuss the status of any existing water rights or proposed acquisitions. Send water rights inquiry form to appropriate agency (See Appendix F for form) or provide agency verification. Verify that the amount of water rights held is sufficient to supply water for current and possible future use.

1. Verify that the water rights held at the Oklahoma Water Resources Board are in good standing and not subject to cancellation or reduction. This verification may be obtained by contacting the Permitting Section of the Oklahoma Water

Resources Board. Verify that all wells and/or diversion points being utilized are authorized under water rights held at the Oklahoma Water Resources Board. Verification shall include the submittal of the GPS locations or land survey of all wells and/or diversion points, along with the legal location to within a 10-acre tract. Verification forms must be submitted certifying that the locations have been compared with the legal locations authorized under such water rights, and that all wells and/or diversion points being utilized are authorized under the permits held at the Oklahoma Water Resources Board. Any new wells and/or diversion points being proposed must be permitted by the Oklahoma Water Resources Board (process for permitting may take as little as three months if application is not protested and up to a year or longer if protested).

2. If the authorized raw water use is or will be from an Army Corps of Engineers reservoir, verify that the water storage contract with the Army Corps of Engineers provides adequate storage for the term of the loan of the appropriate funding agency.

3. If the authorized raw water use is or will be from a Grand River Dam Authority reservoir, verify that the raw water supply contract with the Grand River Dam Authority provides adequate storage for the term of the loan of the appropriate funding agency.

C. Treatment. Describe processes in detail, including a plan view and schematic of site layout, and identify location of plant and site of any process discharges. Provide hydraulic profile of all water treatment plant units. Also, describe foundation conditions at sites of proposed structure based on geotechnical information, and approximate elevation of groundwater in relation to subsurface structures. Provide floodplain elevations in relation to critical structures. Provide a table showing the design capacity for each existing unit, proposed unit, DEQ required capacity (OAC 252:626), and indicate if plant design meets DEQ requirement. See appendices C and D for example tables of plant design and disinfection process capacity. Show detailed calculations for the design capacities listed in the table. Provide a description of existing utilities, back up, and/or alternate power supply.

D. Storage. Identify size, type, and site location. Discuss hydraulic interactions with existing facilities. Also, describe foundation conditions at sites of proposed structure based on geotechnical information, and approximate elevation of groundwater in relation to subsurface structures. Provide floodplain elevations in relation to critical structures.

E. Pumping stations. Identify capacity, type, site location, and any special power requirements. Provide floodplain elevations in relation to critical structures. Provide a description of existing utilities, back up, and/or alternate power supply.

F. Distribution layout identification. Identify general location of line improvements:

lengths, sizes and key components, and the character of the soil through which water mains are to be installed; including NRCS soil maps and descriptions.

G. Hydraulic calculations. Describe fire flows which will be made available by the proposed or enlarged system. Include requirements of the Insurance Services Office, or other similar agency as to the fire flows required or recommended in the service area involved. Describe fire flows as provided by proposed project. Provide hydraulic calculation sufficient in detail in a tabular format to determine compliance with DEQ design requirements. Automation tools may be used by the engineer. The submittal should include a map with a list of nodes and pipes and their associated characteristics, such as elevation of node, pipe diameter, pipe segment length, reservoir elevation, domestic and industrial peak water demands, pressures, fire flow, etc.

H. Waste disposal. Discuss the various wastes including residuals from the water treatment plant, their volume, proposed treatment, points of discharge, discharge permit required, and/or method of disposal. A DEQ approved residuals management plan will be required with construction permit. Project site descriptions shall include the following:

1. Discussion of the various sites considered and advantages of the recommended ones.
2. The proximity of residences, industries, and other establishments.
3. Any potential sources of pollution that may influence the quality of the supply or interfere with effective operation of the water works system, including but not limited to: absorption systems, septic tanks, privies, cesspools, sink holes, sanitary landfills, refuse and garbage dumps.
4. Provide geotechnical results for lagoons.

I. Recommended alternative cost estimate. Provide an itemized cost estimate for the proposed project based upon anticipated period of construction. (For projects containing both water and waste disposal systems, provide a separate cost estimate for each system.)

1. Development costs (e.g. pilot studies, geotechnical, surveying etc.).
2. Construction costs (including utilities and communications).
3. Land and rights.
4. Legal fees.
5. Engineering fees.
6. Resident project representation or construction inspection fees.
7. Environmental cost.
8. Operation and maintenance manual as appropriate.
9. Interest.
10. Contingency.
11. Refinancing, if applicable.
12. Other costs associated with the proposed project.

VI. Financial status. *Provide information regarding:

A. The current and proposed or projected rate schedules.
B. Annual operation and maintenance (O&M) costs (existing and proposed).
C. Tabulation of users by monthly usage categories.
D. Revenue received for the last three fiscal years. Financial Audits, if available, should be provided.
E. Give status of existing debts and required reserve accounts.
F. Prepare a schedule of short-lived assets and a recommended annual reserve deposit to fund replacement of short-lived assets such as pumps, paint, and small equipment. Short-lived assets include those items not covered under O&M, however, this does not include long-lived assets such as water tank or treatment facility replacement that should be funded with long-term financing. See Appendix G.

*Required and reviewed only by USDA – Rural Development funded projects.

VII. Conclusions and recommendations. Provide any additional findings and recommendations that should be considered in development of the project. This may include recommendations for special studies; highlight the need for special coordination; a recommended plan of action such as project phasing to expedite project development; etc. Discuss the anticipated funding source and provide anticipated project timeline.

APPENDIX A

Population Projections

Data Sources:

For County Population Data: http://okcommerce.gov/assets/files/data-and-research/decennial-census/1890_2010_Decennial_Census_Population_by_Place_by_County.xlsx

For Incorporated Place Population data: http://okcommerce.gov/assets/files/data-and-research/decennial-census/2000_2010_Oklahoma_Incorporated_Place_Population.xlsx - Select Change 2000 to 2010

The downloads contain census data for 2000 and 2010.

Example: Town of Hanna

	2000	2010	Change	% Growth
Hanna	133	138	5	3.7 %

Using the compound amount formula $F = P(1+r)^n$

Where F: future population, P: present population, r: growth rate, n: term in years

$(F/P)^{1/n}-1 = r$ $(138/133)^{1/10}-1 = r$ $0.003697 = r$

Since the 2010 census the population has increased by 3 people.

Change the formula as follows:

$$F=P_{2010}\ (1+r)^n$$

$$F_{2025} = 138(1+0.003697)^{25\ years} = 152\ people$$

Population Growth at Design Life (Persons)			
Present Pop. Year 2010	Pop. added by this project	Total Pop. of this project	Future Pop. at design life year 2035
138	0	141	152

****Other population projections are acceptable if accompanied by appropriate rationale and documentation.**

APPENDIX B

Water Use Projections

Projected Water Usage: Average Daily Calculated from 12 months of readings taken from the master meter in the pumphouse. Using current data the average use per person is

11,985 gpd/141 = 85 gpcd

Using the same formula as population growth at 20 year design life (Appendix A) calculate daily demand at 20 years.

$F = 11{,}985 \text{ gpd } (1+0.003697)^{20\text{years}} = 12{,}900 \text{ gpd}$

Using the same formula as population growth at 20 year design life, calculate increase in homes

From Safe Drinking Water Information System (SDWIS) or actual numbers from the water provider, there are 103 meters on the system (http://sdwis.deq.state.ok.us/DWW/)

$F = 103(1+0.003697)^{20\text{years}} = 111$ metered homes

Water Usage at Design Life (gallons per day) Average Daily Demand				
Present	Added meters	Total		20 Years
11,985	0	11,985		12,900
Water Usage at Design Life (gallons per day) Maximum Daily Demand = 2 X Average Daily Demand				
Present	Added meters	Total		20 Years
23,970	0	23,970		25,800
Water Usage at Design Life (gallons per hour) Peak Hourly Demand = 1 gpm per meter x 60 min				
Meters	Added meters	Total meters	Meters at 20 years	20 years
103	0	103	111	6,660

APPENDIX C

Table of Design Capacity

The following example table shows the design capacity for each proposed facility component based on DEQ construction standards (OAC 252:626).

EXAMPLE TABLE

Unit	Design Criteria for Each Unit	Number of Units	DEQ Requirement	Capacity of Each Unit	Total Firm Capacity
Raw water pumps	520 gpm	3	rated with largest pump out of service	0.75 MGD	1.5 MGD
Rapid mix	3 ft x 3 ft x 3 ft (water depth) (or static in-line mixer)	2	maximum 30 seconds detention time	1.5 MGD	1.5 MGD
Flocculation	6.5 ft x 24 ft x 14 ft (water depth)	2	minimum 30 minutes detention time	0.75 MGD	1.5 MGD
Sedimentation	24 ft x 50 ft x 14 ft (water depth)	2	minimum 4 hours detention time	0.75 MGD	1.5 MGD
Filtration	18 ft x 20 ft dual media (anthracite, silica sand)	2	maximum 3 gpm/ft^2; rated with largest filter out of service	1.5 MGD	1.5 MGD
Disinfection	40 ft x 50 ft x 15 ft (total depth of clearwell)	1	requirements presented in Appendix D	1.5 MGD	1.5 MGD
High service pumps	520 gpm	3	rated with largest pump out of service	0.75 MGD	1.5 MGD
Lagoons	Design for periodic removal of residuals so as to maintain residuals at least two feet below the maximum operating level. If wastewater is recycled, design for at least 4 hours settling time of wastewater before recycling at a maximum rate of 10 percent of the total flow entering the plant. (OAC 252:631-3-19 and OAC 252:626-13-4)				

APPENDIX D

Calculation of Capacity of Disinfection Process

Include the following in the report:

- schematic identifying segments of the treatment system beginning at one disinfectant injection or monitoring point and ending at the next disinfectant injection or monitoring point (The final point must be located before or at the first customer which would be the water plant itself.)
- schematic of each disinfection segment showing inlet, outlet, baffling, and disinfectant injection and monitoring points
- calculations showing the design capacity of a surface water treatment plant disinfection process based on DEQ construction standards (OAC 252:626) and EPA requirements (EPA 815-R-990913 and EPA 816-R-03-004). (Example is provided below.)

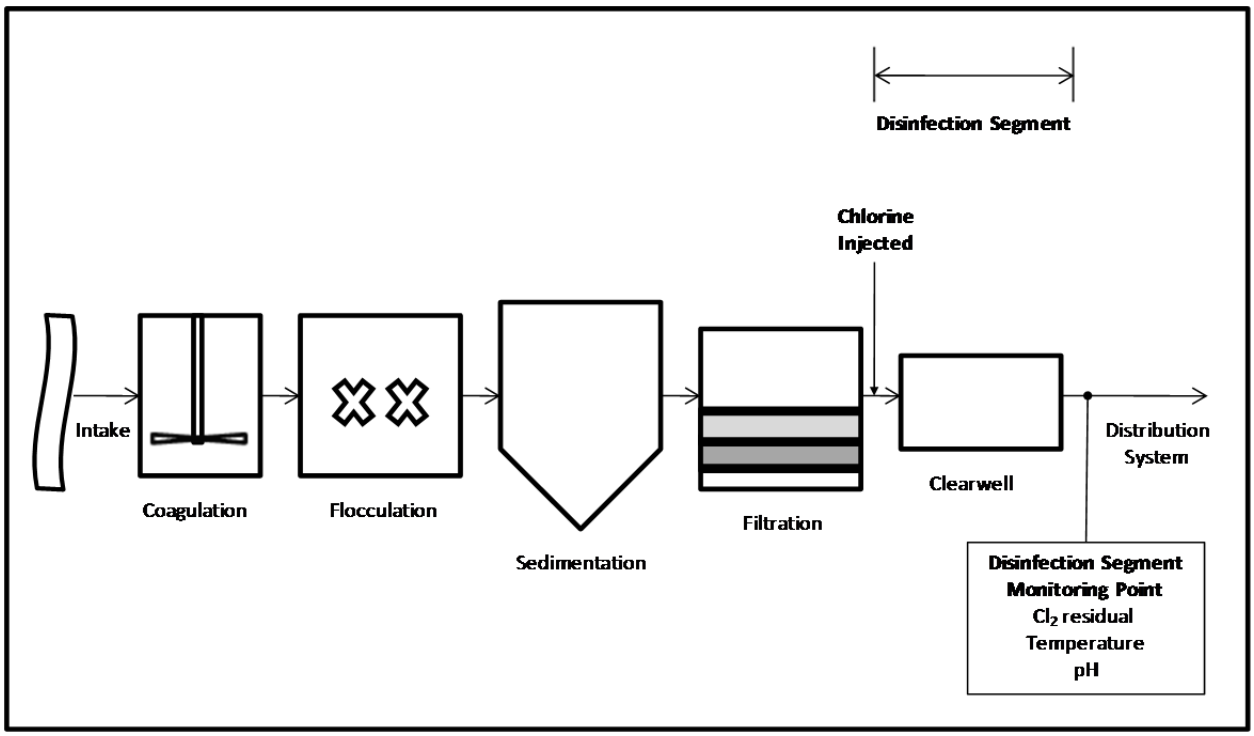

Figure: Plant Schematic Showing a Conventional Water Treatment Plant with One Disinfection Segment

The following example presents an approach for evaluating the capacity of the disinfection process based on the use of free chlorine and the inactivation of *Giardia lamblia*. This example is based on post-disinfection (after the filters) capability only, since pre-chlorination is not practiced at this plant.

APPENDIX D

Calculation of Capacity of Disinfection Process (continued)

1. *Determine minimum log inactivation required by disinfection.*

Based on raw water quality, a minimum total of 3.0 log inactivation is required for the plant. Allow 2.5 log reduction for the physical processes, because plant is conventional facility in good operating condition. (See table below.)

Type of Filter Plant	Expected Log Removals - *Giardia*
Conventional	2.5
Membrane	2.5
Package Plant	2.0
Slow Sand	2.0

Log inactivation required by disinfection = 3.0 - 2.5 = 0.5

2. *Determine CT (chlorine concentration x time) required for 0.5 log inactivation of Giardia.*

Use the following parameters based on plant records:

T = 5.0°C (minimum water temperature)
pH = 7.5 (maximum treated water pH)
free chlorine residual = 1.4 mg/L (targeted minimum residual leaving clearwell)

Using the parameters listed above, look at tables in the following publication to obtain the corresponding CT value: Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems Using Surface Water Sources (AWWA, 1991).

CT = 31 mg/L-min

3. *Determine required contact time based on minimum free chlorine residual.*

Required contact time = (31 mg/L - min) ÷ (1.4 mg/L) = 22 min

4. *Determine effective volume of the clearwell (contact basin).*

Effective volume is calculated using the minimum operating depth and by taking into account the potential for short-circuiting through use of tracer studies or use of what is called a baffling factor. For this example, use 7 ft as the minimum operating depth. Use 0.3 as a baffling factor since the basin is unbaffled. (For baffling factors, see EPA 815-R-99-013 and EPA 816-R-03-004.)

Effective volume = 70 ft x 70 ft x 7 ft x 7.48 gal/ft^3 x 0.3 = 76,969 gal

5. *Determine rated capacity.*

Rated capacity = (76,969 gal) ÷ (22 min) = (3,498 gpm) x (1,440 min/day) = 5.0 MGD

APPENDIX D

Calculation of Capacity of Disinfection Process (continued)

The "Disinfection Byproducts Profiling Tool" which contains a spreadsheet used to calculate disinfection concentration-time (CT) is available on DEQ's website at:

http://www.deq.state.ok.us/wqdnew/pws/index.html

This is not a direct link to the spreadsheet, but it is available to download from this page. It is currently on the right side of the page. Contact the DEQ Water Quality Division with any questions.

APPENDIX E

Cost Effective Present-Worth Analysis Format

Cost Effective Present-Worth Analysis is a tool that compares feasible alternatives in order to:

- Ensure modesty in cost and design.
- Compare options and ensure the best choice for both taxpayers and the borrower.

Present Worth (PW) = [Capital Cost] + [Uniform Series Present Worth]$_{O\&M}$ − [Single Payment Present Worth]$_{Salvage\ Value}$

1. Determine **Discount Rate Factor (i)**.
   - Use the "real" Federal Discount Rate
     - Appendix C of OMB Circular A-94
   - What is a real rate versus a nominal rate?
     - Nominal includes market inflation
     - Real removes expected inflation
   - The rate is based on a calendar year: www.whitehouse.gov/omb/circulars_a094_a94_appx-c/

Example: The 20 yr real rate is 1.2% for 2015.

2. Determine **Capital Cost.** Capital Cost is the estimated construction cost for the alternative shown in the Engineering Report.

Example: Total construction costs for a water treatment plant (WTP) rehabilitation are $1,000,000.00. Total non-construction costs are $156,900 (engineering report = $8500; all other engineering fees = $80,400; legal fees = $26,000; environmental information document = $10,000; land = $20,000; geotechnical testing = $12,000). Total capital costs = $1,156,900.

3. Determine **Uniform Series Present Worth $_{O\&M}$.** Uniform Series Present Worth $_{O\&M}$ is the present worth of the operation and maintenance costs for the alternative. These costs are assumed to be constant for the life of the project.
   - Determine the annual operation and maintenance cost (A).
   - Determine the present worth of the operation and maintenance for the life of the project (PW $_{O\&M}$).
   - These costs are assumed to be constant for the life of the project.

$$PW_{O\&M} = \frac{A\left[(1+i)^{N}-1\right]}{i(1+i)^{N}}$$

PW $_{O\&M}$ = present worth of O&M series
A = annual O&M value (assumed constant)
i = discount rate

N = number of years in evaluation period

Example: The WTP has an annual O&M cost of $50,000.

N = 20 years (in most cases), i = 0.012, A = $50,000
*$PW_{O\&M} = A * 17.69 = \$50,000 * 17.69 = \$884,365$*

4. Determine **Uniform Series Present Worth $_{SLA}$** for Short Lived Assets. Uniform Series Present Worth $_{SLA}$ is the present worth of the short lived assets for the alternative. Short lived assets should be included in the life cycle cost when deemed appropriate by the consulting engineer and/or the funding agency.

5. Determine **Salvage Value**. Salvage Value is only needed if the useful life is longer than the planning period, otherwise if the useful life is equal to the planning period, the salvage value is zero.

- Start with useful life of facility or infrastructure.
- Assume straight line depreciation and 20 year analysis.
  - salvage value at 20th year = capital cost * (years of service remaining at end of planning horizon / total useful life).

$PW_{salvage\ value} = F (1 + i)^{-N}$

$PW_{salvage\ value}$ = present worth of salvage value
F = future salvage value
i = discount rate
N = number of years in evaluation period

Example: N = 20 years (in most cases), i = 0.012
*If the WTP has a useful life of 30 years (at 20 years, there is 10 years remaining) and a capital cost of $1,156,900, then F = 1/3 * ($1,156,900) = $385,633.*

$PW_{salvage\ value} = \$385,633 (1 + 0.012)^{-20} = \$303,780$

6. Present Worth (PW) for each alternative = [Capital Cost] + [Uniform Series Present Worth]$_{O\&M}$ + [Uniform Series Present Worth]$_{Short\ Lived\ Asset}$ - [Single Payment Present Worth]$_{Salvage\ Value}$

Example: Therefore, Present Worth (PW) for the alternative = [Capital Cost] + [Uniform Series Present Worth]$_{O\&M}$ – [Single Payment Present Worth]$_{SV}$
= $1,156,900 + $884,365 – $303,780 = $2,345,045

APPENDIX F

Water Rights Request Form

Please See Next Page

Oklahoma Funding Agency Coordinating Team

Request for Preliminary Confirmation of Water Rights and/or Authorizations for Dam Infrastructure

Instructions: Please complete and submit this form to:

Permitting Section Head
Oklahoma Water Resources Board
3800 North Classen Blvd.
Oklahoma City, OK 73118

A. ENGINEER/CONTACT FOR APPLICANT SEEKING FUNDING

Name of Person Requesting Confirmation: _____

Firm/Entity Name: _____

Mailing Address: _____

Phone Number: Office: _____ Other: _____

Email Address: _____ Fax Number: _____

B. INFORMATION ABOUT APPLICANT SEEKING FUNDING

Name of Applicant Requesting Funding: _____

Contact Name & Title (if different from above): _____

Address: _____

Phone/Email/Fax: _____

C. INFORMATION ABOUT FUNDING AGENCY

Funding Agency Name: _____

Funding Agency Contact Person: _____

Phone/Email/Fax: _____

D. PROJECT DESCRIPTION

Brief Description of Project to be Funded:

E. WATER RIGHTS

(An electronic copy of the water rights may be obtained by contacting the Oklahoma Water Resources Board Permitting Section.)

1. Source(s) of water used by Applicant (check all that apply):

   Groundwater _____ Surface/Stream Water _____

2. Does the Applicant purchase some or all of its water from another water supplier(s)?

   Yes _____ No _____

   If "Yes", name of water supplier(s):

3. Please list all active water rights held by Applicant (or its water supplier, if water is purchased).

Water Right/ Permit #	Name of Water Right Holder	Authorized Amount (af/yr)	Legal Location of Authorized Wells/Diversion Points

(If additional space is needed, please attach additional page.)

4. Have all legal locations of wells/diversion points being used by the Applicant been field verified?

Yes _____ No _____

5. Do all legal locations match the locations authorized under the water rights listed in item # 3 above?

Yes _____ No _____

6. How were the legal locations verified?

GPS _____ Survey _____ Other _____

If GPS or land survey was conducted, please attach a list of GPS lat/long for each well/diversion point or a copy of the survey showing well locations.

7. **If Applicant leases groundwater or lands dedicated for a groundwater permit,** have all leases held by the Applicant been verified and found in good standing and on file at the OWRB?

Yes _____ No _____

8. **If Applicant's source water is groundwater,** have all well completion reports been filed with the OWRB for all wells being utilized?

Yes _____ No _____

Name of well drilling company(ies) who drilled the existing wells:

F. DAM INFRASTRUCTURE

If no dams are owned or operated by the Applicant seeking funding, please skip this section. (An electronic copy of the *State Inventory of Dams Summary* may be obtained by contacting the Oklahoma Water Resources Board Dam Safety Program staff.)

1. List All Dams Owned or Operated by Applicant:

NID #	Name of Owner	Name of Dam	Dam Hazard-Potential Classification

(If additional space is needed, please attach additional page.)

2. All dams are properly maintained and verification has been made that no trees, brush, excessive vegetation or significant erosion on dam embankments or spillways exists.

Yes _____ No _____

If no, please explain:

3. If classified as a "low-hazard" dam, has the area below each dam been reviewed for downstream development in the potential inundation area?

Yes _____ No _____

If no, please explain:

If yes, does downstream development exist?

Yes _____ No _____

If yes, please describe type of development (i.e.: houses, industrial or commercial facilities, etc.):

4. Has each dam classified as a "high-hazard" been inspected by a Professional Engineer during the past year?

Yes _____ No _____

If no, please explain:

5. Has each dam classified as a "significant-hazard" been inspected by a Professional Engineer during the past three years?

Yes _____ No _____

If no, please explain:

CERTIFICATION

I, _____, on behalf of the Applicant listed, do hereby certify that all information stated herein is true and correct to the best of my knowledge.

_____ _____

Signature Date

OWRB Use Only
____Information submitted has been reviewed and compared to the records of the OWRB, water right files, and/or dam infrastructure requirements and all requirements are in good standing. ____Information provided shows deficiencies or inconsistencies in the water rights and/or dam infrastructure requirements. Description of deficiencies:
Date:
Water Rights Permitting Section Head Signature:
Dam Safety Program Manager Signature:

The OWRB will send a copy of this completed confirmation request to the FACT funding agency, the person or firm submitting the request on behalf of the Applicant, and the Applicant seeking the funding.

APPENDIX G

Examples List of Short-Lived Asset Infrastructure

<table>
<tr><th colspan="2">Estimated Repair, Rehab, Replacement Expenses by Item within up to 20 years from Installation</th></tr>
<tr><th>Drinking Water Utilities</th><th>Wastewater Utilities</th></tr>
<tr><td><u>Source Related</u>
Pumps
Pumps Controls
Pump Motors
Telemetry
Intake/Well Screens
Water Level Sensors
Pressure Transducers</td><td rowspan="3"><u>Treatment Related</u>
Pump
Pump Controls
Pump Motors
Chemical Feed Pumps
Membrane Filters Fibers
Field & Process Instrumentation Equipment
UV Lamps
Centrifuges
Aeration Blowers
Aeration Diffusers and Nozzles
Trickling Filters, RBCs, etc.
Belt Presses & Driers
Sludge Collection and Dewatering Equipment
Level Sensors
Pressure Transducers
Pump Controls
Back-up Power Generator
Chemical Leak Detection Equipment
Flow Meters
SCADA Systems</td></tr>
<tr><td><u>Treatment Related</u>
Chemical Feed Pumps
Altitude Valves
Valve Actuators
Field & Process Instrumentation Equipment
Granular Filter Media
Air Compressors & Control Units
Pumps
Pumps Motors
Pump Controls
Water Level Sensors
Pressure Transducers
Sludge Collection & Dewatering
UV Lamps
Membranes
Back-up Power Generators
Chemical Leak Detection Equipment
Flow Meters
SCADA Systems</td></tr>
<tr><td><u>Distribution System Related</u>
Residential and Small Commercial Meters
Meter Boxes
Hydrants & Blow Offs
Pressure Reducing Valves
Cross Connection Control Devices
Altitude Valves
Alarms & Telemetry
Vaults, Lids, and Access Hatches
Security Devices and Fencing
Storage Reservoir Painting/Patching</td><td><u>Collection System Related</u>
Pump
Pump Controls
Pump Motors
Trash Racks/Bar Screens
Sewer Line Rodding Equipment
Air Compressors
Vaults, Lids, and Access Hatches
Security Devices and Fencing
Alarms and Telemetry
Chemical Leak Detection Equipment</td></tr>
</table>