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**Fact Sheet**

**Engineering Report/Environmental Information ER/EID for Drinking Water Projects**

**March 2023**

The Division of Water infrastructure prepared this factsheet to explain the guidance to prepare an Engineering Report / Environmental Information Document (ER/EID) for a Drinking Water Project funded by the Division. The applicant must submit the ER/EID, including applicable elements of [15A NCAC 18C .0307(b)](http://reports.oah.state.nc.us/ncac/title%2015a%20-%20environmental%20quality/chapter%2018%20-%20environmental%20health/subchapter%20c/subchapter%20c%20rules.pdf), by the deadline indicated in the Letter of Intent to Fund.

### Required Elements of the ER/EID

The elements of the ER/EID are described below:

1. Engineer Information: The cover sheet of the ER/EID must provide the following information concerning:
   1. The engineer’s contact information, including name, phone number and mailing address
   2. The seal and signature of the design engineer in accordance with [21 NCAC 56 .1103](http://ncrules.state.nc.us/ncac/title%2021%20-%20occupational%20licensing%20boards%20and%20commissions/chapter%2056%20-%20engineers%20and%20surveyors/21%20ncac%2056%20.1103.html)

(The design engineer must be a Professional Engineer (PE) licensed to practice in North Carolina).

1. Applicant Information: The ER/EID must provide the applicant’s contact information, including name, phone number, mailing address and Public Water System Identification Number (PWSID).
2. Project Information: The ER/EID must provide the following:
   1. Name of the project
   2. Funding number of the project
   3. Project Description: The project description must describe both the project and its context within the affected water system(s) and service area. To this end, this section must accomplish the following:
      1. Describe the proposed project. This description must indicate if the proposed project represents a phase of a multi-phase project
      2. Describe the location of the proposed project
      3. Describe “any existing water system(s) related to this project,”[[1]](#footnote-1) including the PWSID No(s)
      4. Identify “the municipality, community, area, or facility to be served by the proposed water system.”[[2]](#footnote-2) The service area must be located on a map and the description must include the following:
         1. Population and number of connections to be served by proposed project
         2. “A description of the nature of the establishments and of the area to be served by the proposed water system,”[[3]](#footnote-3)
         3. “A description of the future service areas of the public water system [and the potential for the area served by the proposed project to experience an increase or decrease in demand] for [the next] 5, 10, 15 and 20 years”[[4]](#footnote-4)
      5. Provide the water demand for the proposed project and any additional phases that may be associated with the project
      6. As applicable, describe each of the following for both the proposed project and the existing water system:
         1. treatment processes
         2. fire protection
         3. cross-connection hazard.
      7. If the proposed project description in Section 3.C (i) is no longer the same as the project scope approved in the application for funding, describe the proposed changes in scope and why they are necessary. Provide justification of why scope changes would or would not result in change to the projects’ awarded priority points. Changes in scope that would decrease the projects’ priority point score, may impact the projects’ eligibility for funding. However, if an alternate solution is identified to be better suited to meet the project need, please contact the Division project manager to determine if the scope change would impact funding eligibility.
3. Consideration of Alternatives: The ER/EID must address alternative solutions to meet the project need as follows:
   1. “Alternative plans for meeting the water supply requirements of the area”[[5]](#footnote-5) must be submitted for consideration. These plans **must** always include the “do-nothing” or “no-build” alternative as well as the preferred alternative
   2. They must also include “any technical alternatives.”[[6]](#footnote-6) *Table 1: Common Technical Alternatives* lists some examples of typical technical alternatives
   3. Classify Alternatives: The ER/EID must classify each alternative as either feasible or infeasible. The ER/EID must *clearly* explain why an alternative is infeasible
   4. Compare Alternatives: The ER/EID must include a table that lists each alternative and describes why it was or wasn’t chosen. Table 2 shows the preferred presentation
   5. The presentation in Table 2 depends on the cost of each feasible alternative. So the ER/EID must also present the following for each alternative:
      1. Cost Estimate: The cost estimate must include “costs of [all] integral units”[[7]](#footnote-7)

If the application received infrastructure age priority points under Line Item 1.C.1 or 1.D.1, then the cost estimate in the ER/EID must also support those same priority points. The cost of old infrastructure and the cost of other infrastructure must appear as separate line items in the cost estimate provided in the ER/EID

* + 1. Net Present Value (NPV): Based on the cost estimate, and considering operation and maintenance cost to determine the “total costs”[[8]](#footnote-8) over the plan's lifetime, calculate the net present worth for each feasible alternative. Present the NPV for all feasible alternatives as in *Table 2: Presentation of Alternatives*

1. Design Basis of the proposed alternative: The ER/EID must document the public health need that the project will address and also document why the proposed alternative is sufficient to address this need. The ER/EID must show that the proposed alternative will solve a problem. The ER/EID must discuss **critical design parameters and show calculations that use to size and select components of the design**

Existing systems must provide the following:

* 1. For projects intending to alter or expand a distribution system, include “a statement of maximum daily treated water supply and maximum daily demand”[[9]](#footnote-9)
  2. The useful life of the project
  3. A detailed project budget. This budget must be at least as detailed as the budget in the application, and must include both the costs of project and the revenue available to fund the project

1. Environmental Information Document:
   1. Per the State Environmental Policy Act, projects funded by the State Reserve (SRP) do not automatically trigger an environmental review. [NCGS 113A-12(2)h].

|  |
| --- |
| **State law does not require an environmental review for projects funded solely by the State Project Reserve, including that funded by American Recovery Plan Act of 2021.** Environmental review may still be required if that is necessary to obtain a permit. |

* 1. For a project receiving funding from DWSRF see the Factsheet for Categorical Exclusion at

<https://deq.nc.gov/about/divisions/water-infrastructure/i-have-funding/engineering-reportenvironmental-information>

1. Rate Impact of the Project (Loan only, Not Required for 100% grant-funded projects): Calculate the rate impact of the project as follows:
   1. Calculate the system’s annual repayment based on the loan terms in the Letter of Intent to Fund. Amortize the cost of the project over twenty years or the expected useful life of the project, whichever is shorter
   2. Calculate the rate impact of the amortized payments:
      1. By default, assume the full cost of repaying the loan is equally shared by each residential customer. The rate impact is the system’s annual repayment divided by the number of residential customers and divided by 12 months in a year
      2. As an alternative, you can document your assumption of the share of the loan repayment borne by residential customers
      3. Report the following:

|  |  |
| --- | --- |
| Current residential rate for average consumption (gallons) | \_\_\_\_ $/month |
| + rate impact of the project | \_\_\_\_ $/month |
| = Projected Rate | \_\_\_\_ $/month |

1. Drought Bill Requirements: NCGS § NCGS 143-355.4(b) requires that a local government or large community water system applying for funding from the Drinking Water State Revolving Fund or the Drinking Water State Reserve for the purpose of extending waterlines or expanding water treatment capacity demonstrate that it has taken water efficiency steps, and should sign the following certification:

[Drought\_Bill\_Cert\_170216.docx (live.com)](https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Ffiles.nc.gov%2Fncdeq%2FWI%2FPlanning%2FDrought_Bill_Cert_170216.docx&wdOrigin=BROWSELINK))

1. Financial Analysis for Distressed systems only: If the recipient of grant or loan funding from the Division of Water Infrastructure is designated as distressed, include the following:
   1. List all ongoing projects with dollar amount, sources of funding, type (grant or loan) of funding and anticipated project completion dates
   2. Describe how the proposed project will move the system towards financial, technical, and operational viability
   3. Provide short term and long term operational and maintenance (O&M) cost of the system and describe how the proposed project will affect the overall financial and operational burden of the system

(Please refer to “Supplemental Engineering Report Guidance for Distressed Local Government Units” for further guidance)

**Table 1: Common Technical Alternatives**

|  |  |
| --- | --- |
| **Type of Project** | **Common Technical Alternatives** |
| New or expanded drinking water supply | * New groundwater supply source * New surface water supply source * “For new systems, obtaining water service from an existing system”[[10]](#footnote-10) |
| Additional finished water storage | * Elevated storage tank * Ground storage tank with booster pump * Alternative location(s) of ground storage tank at a site with greater ground elevation (i.e., on a hill) |
| Waterline Rehabilitation or Replacement without upsizing past six inches | * No technical alternatives required |
| Waterline upsizing past six inches | * Waterline replacement without upsizing: explain why upsizing is needed |

**Table 2: Presentation of Alternatives**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | **Description** | **Feasible?** | **Cost Estimate** | **NPV** | **Notes** |
| Do-nothing alternative | Do nothing to address the need | Yes | $ - 0 - | $ - 0 - | Does not address need |
| Most Direct Route | 10,000 feet from A to B along Smith Street | Yes | $1M | $1.1M | Least cost feasible alternative; but would require two years for environmental permits and ±four years to construct |
| Northern Route | 12,000 feet from A to B along Jones Street | Yes | $1.2M | $1.3M | Preferred despite cost because it can be constructed within two years |

Also tabulate any other factors (e.g., construction timeline) that affect the choice of alternative.

1. 15A NCAC 18C .0307(b)(1) [↑](#footnote-ref-1)
2. 15A NCAC 18C .0307(b)(2) [↑](#footnote-ref-2)
3. 15A NCAC 18C .0307(b)(4) [↑](#footnote-ref-3)
4. 15A NCAC 18C .0307(b)(5) [↑](#footnote-ref-4)
5. 15A NCAC 18C .0307(b)(6) [↑](#footnote-ref-5)
6. 5A NCAC 18C .0307(b)(7)(A) [↑](#footnote-ref-6)
7. 5A NCAC 18C .0307(b)(7)(B) [↑](#footnote-ref-7)
8. 5A NCAC 18C .0307(b)(7)(C) [↑](#footnote-ref-8)
9. 15A NCAC 18C .0307(b)(13) [↑](#footnote-ref-9)
10. 15A NCAC 18C .0307(b)(6) [↑](#footnote-ref-10)