City of Greeley Colorado

September 2, 2015

Mr. John Urbanic
NISP EIS Project Manager
U.S. Army Corps of Engineers
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*(via email: nisp.*eis@usace.army.mil *and U.S Mail)*

RE: The City of Greeley's Comments on NISP SDEIS

Dear Mr. Urbanic:

The City of Greeley, Colorado ("Greeley" or "City") respectfully submits the following comments on the Supplemental Draft Environmental Impact Statement ("SDEIS") prepared for the U.S. Army Corps of Engineers ("Corps") to evaluate the Northern Integrated Supply Project ("NISP") proposed by the Northern Colorado Water Conservancy District ("Applicant"). Greeley's comments are based on known and unaccounted-for impacts to the City and are contained, in full, in the attached Technical Memorandum ("Technical Memo"). This letter is a summary of Greeley's most critical comments. The critical comments were selected by creating a list of the SDEIS failed attempts to accurately or completely quantify impacts and identify the means to mitigate those impacts. From that list, Greeley chose to comment only if the failed impact analysis and/or insufficient mitigation would result in irreparable injury or shift mitigation costs from the Applicant to Greeley. Because this is only a summary, the Corps should refer to the Technical Memo for a complete list and analysis of Greeley's comments.

I. BASIS FOR GREELEY'S COMMENTS AND REQUESTED REMEDIES.

Greeley is concerned by the SDEIS's failure to quantify certain impacts to the Cache la Poudre River ("Poudre River"). Geographically, the City is located along the lower reach of the Poudre River. Because of Greeley's location, the Poudre River is a major resource for the City, providing significant recreation, aesthetic, and wildlife resources. As a public water and sewer provider, Greeley obtains a large portion of its municipal water supplies from the Poudre River. After municipal use, it also discharges the treated wastewater back into the Poudre River. To meet future growth and demand, Greeley is also in the process of permitting the enlargement of its Milton Seaman Reservoir, located on the North Fork of the Poudre River just upstream of its confluence with the mainstem.

Greeley understands the need for, and is a general proponent of, water storage in Northern Colorado. Nevertheless, the SDEIS is frequently supported by incomplete or incorrect analysis. As a result, the SDEIS does not correctly quantify the extent to which (1) Poudre River flows are diminished; (2) water quality and aquatic habitat are degraded; and (3) stream temperature is increased. Without accurately quantifying the impacts and identifying the appropriate means of mitigation, Corps approval could result in irreparable injury or shift the cost of mitigating NISP's impacts from the Applicant to Greeley. This is unacceptable. By submitting these comments, Greeley is attempting to avoid irreparable injury or incurring the cost of mitigating NISP's impacts. Greeley is also confident that its comments will assist the Corps in developing a more accurate and defensible environmental impact statement ("EIS").

To prevent irreparable injury and shifting the cost of mitigation from the Applicant to Greeley, the City is asking that the Corps: (1) re-analyze various aspects of the SDEIS, including surface water diversion, water quality, aquatic habitat, and stream temperature; (2) release all reports related to the revised analysis to Greeley, in draft, giving the City an opportunity to review and comment at least sixty (60) days before such reports and the final EIS ("FEIS") are finalized and prepared for public comment; (3) include appropriate mitigation (which includes compensation or any other remedy) for all identified impacts to Greeley; and (4) impose special conditions in the permit that obligates the Applicant to: (1) monitor impacts and propose mitigation to surface water diversion, water quality, aquatic habitat, and stream temperature and (2) link the construction and operation of project components to the Applicant's demonstration (via monitoring) that the impacts have first been fully mitigated.

II. THE SDEIS FAILS TO CAREFULLY CONSIDER DETAILED INFORMATION CONCERNING SIGNIFICANT ENVIRONMENTAL IMPACTS AND MAKE INFORMATION AVAILABLE TO THE PUBLIC AND, AS A RESULT, RISKS IRREPARABLE INJURY AND SHIFTS THE COST OF ENVIRONMENTAL IMPACTS FROM THE APPLICANT TO GREELEY.

A. The purpose of an EIS is to ensure that the decision-maker will have available, and will carefully consider, detailed information concerning significant environmental impacts and to make information available to the public.

Under the National Environmental Policy Act ("NEPA")[1] an EIS is an "action-forcing device" with two primary purposes: (1) to ensure that the decision-maker will have available, and will carefully consider, detailed information concerning significant environmental impacts, and (2) to make information available to the public, which may also play a role in both the decision-making process and the implementation of that decision.[2] Thus, an EIS is deemed adequate when there is a reasonable, good faith, objective presentation of the topics, such that it fosters both informed decision-making and informed public participation.[3]

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1 42 U.S.C. §§4321-4370h.

2 *See, Superior v. U.S. Fish & Wildlife Serv.*, 913 F. Supp. 2d 1087, 1120 (D. Colo. 2012) (aff'd sub nom. *WildEarth Guardians v. U.S. Fish & Wildlife Serv.*, 784 F.3d 677 (10th Cir. 2015) (quotes removed).

3 *See, Colorado Envtl. Coal. v. Dombeck*, 185 F.3d 1162, 1172 (10th Cir. 1999).

To achieve the first purpose, an EIS must discuss the direct, indirect, and cumulative effects of the proposed action.[4] In determining whether an effect is significant, an agency must consider its context, including the scale of the proposed action, and its intensity, meaning the severity of the impact or the degree to which it is adverse.[5] Cumulative impacts are those environmental impacts resulting "from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions."[6] In considering the cumulative impacts of a proposed action, agencies must offer some "quantified" or otherwise detailed information.[7] To achieve the second purpose, an agency "must ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken." The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA."[8] The public disclosure purpose also requires that the agency provide the public with "the underlying environmental data" from which the agency develops its opinions and arrives at its decisions.[9]

Although an EIS is prepared in two phases (i.e., a draft and final phase), the draft EIS ("DEIS") must fulfill and satisfy, to the fullest extent possible, the requirements established for an FEIS.[10] If a draft statement is so inadequate as to preclude meaningful analysis, the agency must prepare and circulate a revised draft of the appropriate portion.[11]

B. This SDEIS is inadequate and prevents meaningful analysis of surface water diversion, water quality, aquatic habitat, and stream temperature impacts.

1. <u>The SDEIS selected study period in the surface water modeling underestimates river depletion</u>.

The selected study period in the SDEIS for surface water modeling does not adequately represent long-term river depletions. This precludes meaningful analysis of the impacts to the Poudre River by underestimating river depletions. As discussed in more detail in the Technical Memo[12], the SDEIS uses an inappropriate study period for river diversions and, as a result, severely underestimates NISP's long-term river depletions. River depletions during the selected study period (1980-2005) are 39,250 acre-feet per year ("AFY"), or about 5,550 AFY less than the expected long-term average diversions of 44,800 AFY, which were determined by using the full study period (1950-2005) in the Common Technical Platform ("CTP"). This discrepancy was caused by selecting a study period that presumes the reservoir starts nearly full and ends nearly empty. This misrepresentation not only underestimates the long-term average depletions

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4 *See, Superior*, at 1120; 40 C.F.R. §§ 1508.8, 1508.25.
5 40 C.F.R. § 1508.27; *Envtl. Protection Info. Ctr. v. U.S. Forest Serv.*, 451 F.3d 1005, 1012 (9th Cir. 2006).
6 40 C.F.R. §1508.7.
7 *See, Superior*, at 1120.
8 40 C.F.R. § 1500.1(b).
9 *See, WildEarth Guardians v. Montana Snowmobile Ass'n*, 790 F.3d 920, 925 (9th Cir. 2015).
10 40 C.F.R. § 1502.9(a).
11 *Id.*
12 Technical Memo, Surface Water #1, at pg. 1.

but is also inconsistent with the obligation to ensure "the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements."[13]

Greeley has two reasons for objecting to the use of the unrepresentative study period. First, underestimated project diversions may lead to underestimated flow-related impacts, including water quality related impacts to Greeley's Bellvue Water Treatment Plant and its wastewater treatment plant. Second, any unaccounted-for impacts in the NISP EIS may be shifted and attributed to future permit applicants for infrastructure projects on the Poudre River.

To correct this flaw and accurately assess flow-related impacts, the Corps must select a CTP study period that better reflects NISP's expected long-term operations and depletions to the Poudre River. To comply with NEPA's public disclosure requirements, the new study period, and all reports that are revised to reflect the new study period, must be released to Greeley, in draft, giving the City an opportunity to review and comment at least sixty (60) days before such reports and the FEIS are finalized and prepared for public comment. If the study period is not revised, the Corps must impose special permit conditions to monitor impacts and link the construction and operation of project components to the Applicant's demonstration (via monitoring) that flow-related impacts have first been fully mitigated. Such special conditions must include restricting the Applicant's average annual diversions to the levels identified in the shortened period of analysis (i.e., 1980-2005).

2. The SDEIS water quality analysis does not disclose all impacts, identify those impacts that are significant, or identify mitigation for those adverse impacts and thus precludes any meaningful analysis of water quality impacts.

The Corps has only completed the first phase of a two-phase water quality analysis. As discussed more fully in the Technical Memo[14] and section 3, below, the *Phase I Water Quality Assessment Report* ("*Phase I Report*") does not comply with 40 C.F.R. §1502.16. It does not disclose all direct and indirect impacts, the significance of those impacts, and the means to mitigate those impacts.[15] Instead, the SDEIS indicated that it would reserve such analysis for the *Phase II Water Quality Assessment Report* ("*Phase II Report*"), without justifying why the analysis could not be completed and included in the SDEIS.[16] A complete analysis of water quality impacts is necessary to determine their significance. Since the impacts were not fully disclosed and their significance were left undetermined, mitigation of those impacts is likely inadequate. Until the impacts are fully disclosed in the *Phase II Report*, the *Phase I Report* alone is inadequate to provide any meaningful analysis on water quality impacts.[17]

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13 40 C.F.R. §1502.24.

14 Technical Memo, Water Quality #1-2, at pgs. 5-6.

15 *See*, 40 C.F.R. §1502.16 (Discussion must include direct and indirect effects, their significance, and means to mitigate adverse environmental impacts (if not fully covered under §1502.14(f))).

16 March 2015 Draft Water Quality Effects Technical Report, p. 1 ("The second phase of analysis will be completed for the final EIS and will include modeling and analysis sufficient to satisfy both NEPA requirements and Section 401 water quality certification.").

17 *See*, 40 C.F.R. § 1502.9(a) (The DEIS must fulfill and satisfy, to the fullest extent possible, the requirements established for an FEIS and be adequate to provide meaningful analysis of impacts.).

To remedy the failure to comply with 40 C.F.R. §1502.16, the *Phase I Report* and *Phase II Report* must disclose all water quality impacts, identify which are significant, and provide mitigation for all significant impacts to Greeley's facilities. To comply with NEPA's public disclosure requirements, the *Phase I Report* and *Phase II Report*, and all reports related to the revised analysis, must be released to Greeley, in draft, giving the City an opportunity to review and comment at least sixty (60) days before such reports and the FEIS are finalized and prepared for public comment.

3. The SDEIS *Phase I Report* is inadequate and precludes any meaningful analysis of water quality impacts.

As discussed in detail in the Technical Memo[18], the *Phase I Report* is wholly inadequate and precludes any meaningful analysis of water quality impacts. The *Phase I Report* screened out parameters that did not exceed or come close to exceeding (within 20 percent) water quality standards or parameters that impacted only one site along the stream. It disregarded acute impacts to water quality and incorrectly analyzed potential impacts to wastewater treatment plants by using a concept called "regulatory low flows."

Using a methodology to screen out parameters that do not exceed or come close to exceeding (within 20 percent) water quality standards ignores other important changes to water quality that could constitute a significant impact. Diminished water quality, even if the diminishment is not large enough to cause the stream to violate (or almost violate) the standard, can cause significant impacts to water and wastewater treatment facilities. A similar flaw exists with screening out parameters that only impact one site along the stream. This methodology overlooks impacts to the stream as a whole and excludes segments of the stream where water quality may become an issue. Increased pollutants and contaminates in a screened-out segment could constitute significant adverse water quality impacts to a water treatment facility (by necessitating additional treatment) or a wastewater treatment facility (by using up existing assimilative capacity, resulting in more stringent effluent limits).

In addition to the parameters that were prematurely screened out, the *Phase I Report* disregarded acute impacts to water quality and incorrectly analyzed potential impacts to wastewater treatment plants by using a "regulatory low flows" concept. Short-term impacts (and associated required mitigation) cannot be identified without an analysis of acute water quality impacts. The "regulatory low flow" analysis incorrectly compares predicted project flows with "regulatory low flows" to assess impacts to wastewater treatment plants, rather than using the correct method, which would be to calculate how the project flows would actually impact a wastewater treatment plant's effluent limits.

Screening out important parameters, disregarding acute impacts, and using a faulty "regulatory low flows" method of analysis excludes the information necessary to accurately assess impacts and the significance of those impacts. Since the impacts were not fully disclosed and the significance left undetermined, mitigation of those impacts cannot be accurately assessed. To provide meaningful analysis, the *Phase I Report* must be corrected to: (1) include

[18] Technical Memo, Water Quality #2-5, at pgs. 6-9.

all increased or changed parameters that are important to water and wastewater treatment facilities and to carry those parameters forward into the Phase II; (2) modify the screening analysis so that potential problems at individual sites, especially those sites immediately above drinking water intakes and wastewater treatment plant discharges, are not excluded but are carried forward into Phase II; (3) include both acute and chronic parameters in the *Phase II Report*; and (4) the Phase II mass balance modeling must include a water quality-based effluent limits ("WQBEL") mass balance to estimate future WQBELs for Greeley's Bellvue Water Treatment Plant, for both chronic and acute conditions.

To comply with NEPA's public disclosure requirements, the revised *Phase I Report* and the completed *Phase II Report*, and all reports related to the revised analysis, must be released to Greeley, in draft, giving the City an opportunity to review and comment at least sixty (60) days before such reports and the FEIS are finalized and prepared for public comment. Appropriate mitigation must be identified and imposed for any identified impacts, including compensation or any other remedy capable of mitigating any increased raw water or wastewater treatment costs to Greeley necessary to meet water quality standards or its revised effluent limits. In addition, the Corps must impose special permit conditions to monitor impacts and link the construction and operation of project components to the Applicant's demonstration (via monitoring) that water quality impacts have first been fully mitigated.

4. <u>The SDEIS Reservoir Comparative Analysis reveals significant water quality impacts from Glade Reservoir that are not adequately analyzed and mitigated and thus precludes any meaningful analysis of water quality impacts</u>.

As discussed in more detail in the Technical Memo[19], the Reservoir Comparative Analysis reflects several water quality impacts resulting from the operation of Glade Reservoir. Those impacts and corresponding mitigation measures are not adequately analyzed and identified. As a result, the Reservoir Comparative Analysis is inadequate to provide any meaningful analysis on water quality impacts.[20]

For example, as compared to Carter and Horsetooth Reservoirs, the Comparative Analysis concludes that, due to elevated inflow concentrations of organic matter into Glade Reservoir, stored water is expected to have reduced dissolved oxygen ("DO") levels and higher total organic carbon ("TOC") levels in water releases. The high level of TOC expected in its releases is a significant adverse water quality impact to water treatment facilities that receive Glade Reservoir water as a direct or indirect raw water supply. The Reservoir Comparative Analysis further acknowledges that nutrient (phosphorus and nitrogen) levels in Glade Reservoir will be considerably higher than in Carter or Horsetooth Reservoirs, but concludes that such levels will be within anticipated future nutrient standards. As discussed in the Technical Memo[21], this conclusion is not supported and must be supplemented by using high nutrient inflow years

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19 Technical Memo, Water Quality #7-8, at pgs. 13-14.
20 40 C.F.R. § 1502.9(a) (The DEIS must be adequate to provide meaningful analysis of impacts.).
21 Technical Memo, Water Quality #7, at pg. 13.

for Carter and Horsetooth Reservoirs to more accurately predict average nutrient concentrations for Glade Reservoir.

Although Greeley is not a NISP Participant, the SDEIS identifies several operational scenarios where water stored in Glade Reservoir will be delivered, either directly or indirectly, to Greeley's Bellvue Water Treatment Plant. Therefore, the Reservoir Comparative Analysis, and the FEIS as a whole, must thoroughly analyze all of the Glade-related impacts.[22] To comply with NEPA's public disclosure requirements, the revised Reservoir Comparative Analysis, and all reports related to the revised analysis, must be released to Greeley, in draft, giving the City an opportunity to review and comment at least sixty (60) days before such reports and the FEIS are finalized and prepared for public comment. Appropriate mitigation must be identified and imposed for any identified impacts, including compensation or any other remedy capable of mitigating any increased raw water treatment costs to Greeley necessary to meet water quality standards. In addition, the Corps must impose special permit conditions to monitor impacts and link the construction and operation of project components to the Applicant's demonstration (via monitoring) that water quality impacts have first been fully mitigated.

5. The SDEIS aquatic habitat analysis is overly simplistic and does not disclose underlying hydrology in the supporting aquatic resource document.

As discussed in more detail in the Technical Memo[23], the SDEIS concludes that there are no impacts to aquatic habitat. These conclusions are based on an overly simplistic approach to the calculation of changes to aquatic habitat and cannot be supported. The analysis improperly takes an artificial construct of habitat, removes all outliers, and then compares it to a synthetic alternative to reach a conclusion of no impacts. Specifically, the change of fish habitat is based on synthetic graphs of 20 percent median and 80 percent habitat constructed from a 25-year daily habitat time series. The annual graphs are then summarized into minimum, maximum, and average habitat values. The percent change between the single average value derived from the 25-year daily simulation is then used to determine the level of impact.

This over-simplification of what should be a very detailed analysis does not allow the evaluation of inter- or intra-annual changes in habitat, which affect the fish species. As a result, there is no means to directly compare a habitat value with a specific discharge. The SDEIS, on page 4-314, discusses changes in habitat with changes in flow but there is no means to verify any of the statements made because any underlying hydrology is missing from the supporting aquatic resource document. The over-simplified analysis, without the means to verify any of the statements made, is inconsistent with the obligation to ensure "the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements."[24] Furthermore, it does not satisfy the obligation to provide the public with "the underlying environmental data" from which the Corps developed its opinions and arrived at its decisions.[25]

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22 *Id.*
23 Technical Memo, Aquatics #1, at pg. 14.
24 40 C.F.R. §1502.24.
25 *WildEarth Guardians*, at 925.

To remedy this flawed analysis, the Corps must either provide the data tables used in the habitat synthesis or revise the SDEIS to include the analysis of habitat over time without synthesizing the daily habitat data into percentiles. To comply with NEPA's public disclosure requirements, the data tables or the revised aquatic habitat analysis, and all reports related to the revised analysis, must be released to Greeley, in draft, giving the City an opportunity to review and comment at least sixty (60) days before such reports and the FEIS are finalized and prepared for public comment.

6. The SDEIS stream temperature analysis remains inadequate and continues to preclude any meaningful analysis of impacts to stream temperature.

The 2008 DEIS was criticized for lack of adequate water temperature analysis. However, the 2014 Hydros report prepared for the SDEIS to fill that gap includes only a qualitative review of water temperature data, with a subjective discussion of potential changes resulting from NISP. As discussed in more detail in the Technical Memo[26], the projected water temperature changes are not quantified in any alternative. As a result, the conclusion in the SDEIS of "minor to moderate" temperature changes is not supported and is inconsistent with the obligation to ensure "the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements."[27]

Stream temperature is an important issue for Greeley. Any increases to the stream could adversely affect its past and ongoing aquatic habitat enhancement efforts and directly increase its wastewater treatment costs.

To address the above shortcomings, additional analysis and modeling of water temperature impacts and appropriate mitigation must be performed before the FEIS. The additional water temperature analysis, and all reports related to the revised analysis, must be released to Greeley, in draft, with an opportunity to review and comment at least sixty (60) days before such reports and the FEIS are finalized and prepared for public comment. Appropriate mitigation must be identified and imposed for any identified impact, including compensation or any other remedy capable of mitigating any increased wastewater treatment costs to Greeley necessarily incurred to meet water quality standards. In addition, the Corps must impose special permit conditions to monitor impacts and link the construction and operation of project components to the Applicant's demonstration (via monitoring) that impacts to water temperature have first been fully mitigated.

7. The SDEIS does not identify appropriate mitigation for reduced peak flows necessary for channel maintenance and sediment transport.

As discussed in more detail in the Technical Memo[28], flows in the Poudre River will be reduced if NISP is implemented as described in the SDEIS. Changes in the flow regime are

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26 Technical Memo, Aquatics #2-3, at pgs. 15-16.
27 40 C.F.R. §1502.24.
28 Technical Memo, Geomorphology #1, at pg. 18.

expected to occur mainly during the high flow periods of late spring to early summer. Geomorphologic processes depend on peak flows to initiate bed movement and generate sediment transport. If high flows are reduced, these processes may not occur at the frequency or magnitude required to maintain the channel. Decreases in the magnitude and frequency of events that transport sediment could have multiple impacts on Greeley. Reduction in peak flows associated with NISP may constrain Greeley as it pursues future water supply projects if the cumulative effects on channel morphology are deemed to be excessive. Flow reductions and associated sediment aggradation may require additional maintenance in the form of removal or management of sediment, which if left unmitigated could increase flooding risks through Greeley

To fully mitigate this change, flows must be increased back to their current condition levels, especially during the periods of high flow described above. The Corps must revise the SDEIS to identify the means of accomplishing this mitigation.[29] The identified means of mitigation, and all reports related thereto, must be released to Greeley, in draft, with an opportunity to review and comment at least sixty (60) days before such reports and the FEIS are finalized and prepared for public comment. In addition, the Corps must impose special permit conditions to monitor impacts and link the construction and operation of project components, which may include utilizing exchanges or regulating when flows are diverted upstream of Greeley, to the Applicant's demonstration (via monitoring) that impacts caused by reduced flows in the Poudre River have first been fully mitigated.

8. The SDEIS does not identify appropriate mitigation for Greeley's Mitigation and Greenspace Projects on the Poudre River.

As discussed in more detail in the Technical Memo[30], the SDEIS data indicates that NISP will lower river stage and/or lower groundwater elevations during the growing season for riparian and wetland vegetation within the lower reach of the Poudre River. Areas that would be affected include Greeley's 59th Avenue Mitigation Site and other targeted mitigation and greenspace projects located along the lower Poudre River. These adverse impacts will affect the design and construction costs of the mitigation and greenspace projects. Further analysis is required to determine the full extent of variation from existing conditions to develop the design basis necessary to support construction adjustments (e.g., greater extent and depth of excavation/grading and/or installation of instream check structures required to raise and maintain adjacent water table to support wetland vegetation). If the adverse effects of NISP are not addressed during the design and construction phases, they will affect the potential long-term viability/sustainability of wetland and riparian habitat in the lower reach of the Poudre River.

The Corps must revise the SDEIS to identify appropriate mitigation.[31] Appropriate mitigation includes compensation or any other remedy capable of mitigating any increased construction or maintenance costs necessary to establish Greeley's mitigation and greenspace

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29 *See*, 40 C.F.R. §1502.16 (Discussion must include means to mitigate adverse environmental impacts (if not fully covered under §1502.14(f))).

30 Technical Memo, Wetlands & Riparian Areas #1, at pg. 19.

31 *See*, 40 C.F.R. §1502.16 (Discussion must include means to mitigate adverse environmental impacts (if not fully covered under §1502.14(f))).

projects located along the Poudre River. The appropriate mitigation, and all reports related thereto, must be released to Greeley, in draft, with an opportunity to review and comment at least sixty (60) days before such reports and the FEIS are finalized and prepared for public comment. In addition, the Corps must impose special permit conditions to monitor impacts and link the construction and operation of project components to the Applicant's demonstration (via monitoring) that impacts caused by reduced flows in the Poudre River have first been fully mitigated.

III. CONCLUSION: THE CORPS MUST RE-ANALYZE VARIOUS ASPECTS OF THE SDEIS; PROVIDE OPPORTUNITY TO REVIEW AND COMMENT BEFORE THE ANALYSIS AND FEIS IS FINALIZED AND PREPARED FOR PUBLIC COMMENT; PROPOSE ADEQUATE MITIGATION; AND IMPOSE SPECIAL PERMIT CONDITIONS TO MONITOR AND LINK THE CONSTRUCTION AND OPERATION OF PROJECT COMPONENTS TO THE APPLICANT'S DEMONSTRATION THAT IMPACTS HAVE FIRST BEEN FULLY MITIGATED.

As stated above, and more fully addressed in the attached Technical Memo, the SDEIS is inadequate and precludes meaningful analysis with regard to surface water diversion, water quality, aquatic habitat, and stream temperature. Accordingly, the Corps must: (1) re-analyze various aspects of the SDEIS, including surface water diversion, water quality, aquatic habitat, and stream temperature; (2) release all reports related to the revised analysis to Greeley, in draft, giving the City an opportunity to review and comment at least sixty (60) days before such reports and the FEIS are finalized and prepared for public comment; (3) include appropriate mitigation (which includes compensation or any other remedy) for all identified impacts to Greeley; and (4) impose special conditions in the permit that obligate the Applicant to: (1) monitor impacts and proposed mitigation to surface water diversion, water quality, aquatic habitat, and stream temperature and (2) link the construction and operation of project components to the Applicant's demonstration (via monitoring) that the impacts have first been fully mitigated.

Greeley appreciates this opportunity to comment on the NISP SDEIS. Please contact me if you need any additional information or clarification of the points made in this letter or the attached Technical Memo.

Sincerely,

Burt Knight,
Water and Sewer Director
BK/jcs

Encl.

Cc: Roy H. Otto, City Manager
Greeley City Council
Greeley Water and Sewer Board

TECHNICAL MEMORANDUM

Date: August 31, 2015

To: Eric Reckentine, Deputy Director Water Resources, Water and Sewer Department, City of Greeley.

From: URS, a legacy corporation of AECOM

Subject: Comments on the Northern Integrated Supply Project (NISP) Supplemental Draft Environmental Impact Statement (SDEIS)

The City of Greeley (the City or Greeley) has contracted with URS to conduct a review of certain aspects of the NISP SDEIS. The City of Greeley supports water storage projects in Northern Colorado. As a result, the scope of this review was limited to issues identified in the SDEIS that could increase or transfer costs to Greeley with regard to the City's future infrastructure projects, operations at the City's Water and Wastewater Treatment Plants, or the Cache la Poudre River (Poudre River) Corridor in and adjacent to the City. This review intentionally does not reference non-impactful mistakes, debate viewpoints, or create unnecessary delays in the Applicant's NEPA process.

Several subcontractors supported this review including: Miller Ecological Consultants (aquatics and water temperature analysis), Leonard Rice Engineers (water quality, Purpose and Need, and alternatives), Ecos (wetlands/riparian areas, wildlife, vegetation, and species of concerns), ERC (stream morphology), and Williams and Weiss Consulting (surface water and modeling).

The following comments are the results of this effort.

SURFACE WATER/MODELING

Resource Topic and Comment Number: Surface Water #1
Document Reviewed: *Water Resources Final Technical Report* (CDM 2014a)
Issue: The NISP SDEIS selected a period of record that is not representative of the expected long-term operations of the Project.

The U.S. Army Corps of Engineers (Corps) evaluated impacts using median values (as depicted in tables contained in SDEIS Volume I, Chapter 4, Section 4.2). A comparison of median project diversions for the full 56-year period of record (41,750 acre-feet per year [AFY]) against the median project diversions for the selected impacts analysis (36,502 AFY) shows that the project diversions during the selected years for the impacts analysis, (1980-2005), are not representative of long-term river depletions and are underestimated by more than 5,000 AFY.

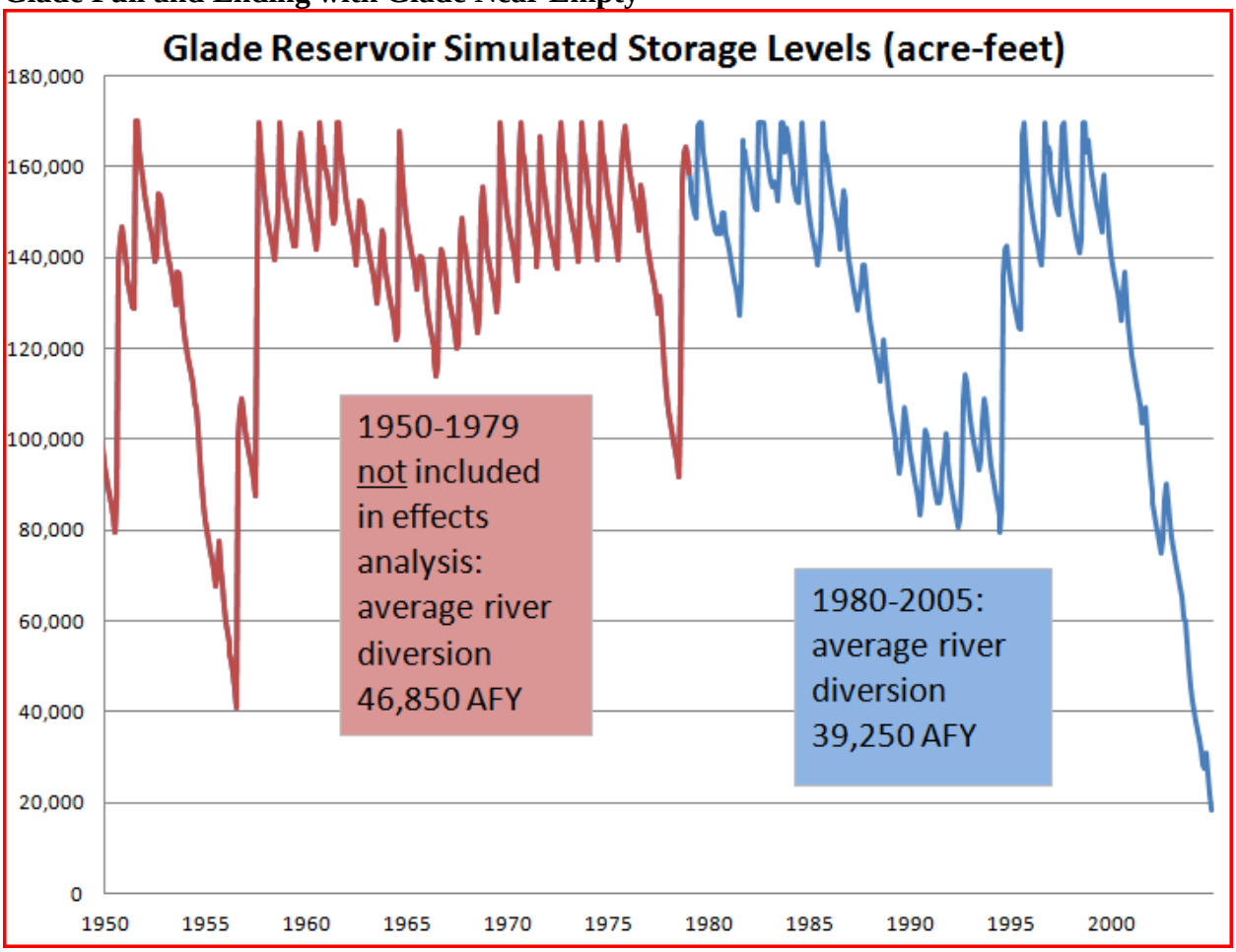
The Common Technical Platform (CTP) developed data sets for simulating Poudre River operations, at a monthly time-step, for a 56-year period representative of hydrologic conditions that occurred from 1950 through 2005. For purposes of creating a daily flow regime, the

simulation outputs were converted to a daily time-step for a 26-year period, corresponding to the years 1980 through 2005.

The rationale for using this shortened period of record for the daily time-step is described in Section 3.1.2.3 of the *Water Resources Final Technical Report* (CDM 2014a). These daily flows are used by other resource specialists for subsequent evaluation of flow-related impacts, as described in the SDEIS Volume I, Section 4.2.

For the period of record selected for impacts analysis (1980-2005), the annual average project diversions at the Poudre Valley Canal (PVC) are 39,250 AFY, or about 5,550 AFY less than the expected long-term average of 44,800 AFY. The reason for this reduction is that approximately 140,250 AF of the project yield (i.e., water delivered to applicants) during this 26-year period is supplied by water previously stored in Glade Reservoir for which no impacts were evaluated. (For example, in Run3a the Glade Reservoir storage level at the beginning of 1980 is 158,590 AF and by the end of 2005, the storage has dropped to 18,340 AF.)

CTP Period of Record Compared to NISP SDEIS Period of Record: Effects of Starting Glade Full and Ending with Glade Near Empty



This becomes a concern for Greeley for two reasons. First, the underestimation of project diversions could lead to an underestimation of other flow-related impacts that could create water quality issues at the City's Bellvue Water Treatment Plant (WTP) and its wastewater treatment plant (WWTP). Second, unaccounted-for impacts could potentially get shifted to other Corps' applicants, including Greeley.

To accurately assess flow-related impacts, the Corps should select a suitable period of record for which the project diversions better reflect the expected long-term operations. This would alleviate concerns that the current analyses contain skewed results due to the use of a shortened, and misrepresentative data set, particularly for diversions at the PVC. Alternatively, the Corps could limit the Applicant's operations' average annual diversions to the levels identified in the shortened period of analysis (1980-2005).

Resource Topic and Comment Number: Surface Water #2
Document Reviewed: *Final Draft Operations Plan Technical Report* (CDM 2014b)
Issue: The listed annual gain in river flows is unexplainable for the proposed flow augmentation operation.

As part of the NISP Preferred Alternative, the Applicant has proposed a flow augmentation program as discussed in Section 8 of the *Final Draft Operations Plan Technical Report* (CDM 2014b*).* The summary (page S-12) states that a planned activity after SDEIS issuance is to "determine the method to return water to Glade Reservoir that was released from Glade Reservoir for streamflow augmentation."

Final river flow data sets provided by the Corps were reviewed to better understand the effects of the Flow Augmentation Operation. Comparison of flows indicated that the Flow Augmentation Operation actually increases annual average flows by over 2,000 AFY (2,469 AFY in current conditions and 2,182 AFY in future conditions).

The annual gain in river flows is unexplainable. While reservoirs (in this case, Glade Reservoir) are capable of re-timing flows, they cannot create new water supplies. In other words, the reservoir could be used to capture additional flows during spring runoff to make flow augmentation releases in the winter months. This would result in increased winter flows at the expense of reduced summer flows. <u>The net effect on annual flow volume will be zero</u>.

There are only two practical ways that the river flows could potentially increase 64,200 AF from 1980-2005 (26 years multiplied by 2,469 AFY):

1. The NISP participants would have to forego 64,200 AF in project deliveries from Glade (evaporation included), or

2. Additional transbasin supplies (64,200 AF) would have to be delivered into the Poudre River via the Hansen Canal (i.e., Colorado-Big Thompson [C-BT] water releases from Horsetooth Reservoir).

Since neither of these operations are part of the flow augmentation operation plan as described for the Preferred Alternative, it remains unclear how the flow augmentation operation plan would add water in the winter without reducing flow in the summer.

This is an issue for Greeley because incorrect representation of the resultant flows from the NISP flow augmentation operation plan will skew the other related data and could result in misquantified environmental impacts.

It is recommended that the Corps revise the post-processing analysis for the flow augmentation operation plan. Most likely this will require modifications to include the additional PVC diversions during summer runoff that would be required to fill the flow augmentation pool used to make winter releases. If the Applicant intends to pump the water back to Glade from the downstream Timnath Inlet diversion point, the SDEIS should identify the 15+-mile corridor that the pipeline would follow, as this would be a significant structural component of the NISP and may impact existing wetlands.

Resource Topic and Comment Number: Surface Water #3
Document Reviewed: *Final Draft Operations Plan Technical Report* (CDM 2014b)
Issue: The Operations Plan does not describe how historical return flows would be maintained.

To a large extent, the river flows in the lower Poudre River are the result of historical return flows occurring from ditch losses and farm runoff from upstream agricultural systems. On page S-25, the SDEIS states that as part of the No Action Alternative "*historical return flows associated with transferred rights would remain at the headgates for maintenance of ditch losses and return flows."* Such requirements would also pertain to the Preferred Alternative's South Platte Water Conservation Project (SPWCP).

As represented in the CTP modeling, the SPWCP would maintain the 20 percent ditch shrink that has historically occurred in the Larimer Weld and New Cache canals (maintenance of farm runoff would still occur implicitly as long as the farms stay in production). While this maintenance of ditch losses estimated at 5,000 AFY (Galeton's annual average SPWCP delivery of around 25,000 AF multiplied by 20 percent) is represented explicitly in the CTP, the SDEIS Operations Plan does not describe how this would physically occur. Since a considerable amount of the SPWCP delivery system would be piped, thus bypassing the historical earth-lined channels that enabled ditch losses, augmentation stations of some type would be required to measure and release a portion of the SPWCP deliveries to maintain historical levels of ditch losses.

Maintaining the historical return flows to the lower Poudre River is important for Greeley as the return flows sustain river flows, particularly during the fall and winter. Greeley has decreed river exchanges from the WWTP to upstream ditch headgates, which require sufficient lower Poudre River flow. The returns also help provide adequate river flows to achieve desirable dilution levels near the WWTP outfall. Should the lower Poudre River flows become diminished as a result of NISP, Greeley's exchanges could be injured and Greeley could incur additional water treatment costs at its WWTP to meet water quality standards.

To maintain historical return flow patterns in the future, the Corps should develop and require operational accounting methods to accurately quantify the volume and timing of historical return flows associated with the ditch deliveries that will be redirected from the original ditch river headgates to the Galeton/pipeline complex. In addition, the Corps should identify the augmentation structures that will be used to deliver such flows back to the Poudre River to maintain historical return flow patterns and impose special permit conditions that monitor augmentation deliveries to prevent unmitigated impacts.

WATER QUALITY

Resource Topic and Comment Number: Water Quality #1
Documents Reviewed: *NISP SDEIS Volume I*, pp. 3-38 to 3-70 and pp. 4-84 to 4-153; *Water Quality Assessment Report, Phase I* (GEI 2015).
Issue: The water quality sections of the SDEIS do not comply with National Environmental Policy Act (NEPA) requirements.

The NEPA Regulations state that an EIS "shall include discussions of direct [and indirect] effects and their significance" (Council on Environmental Quality [CEQ] NEPA Regulations 40 CFR 1500 *et seq.*, §1508.16 (a) and (b)). In making the significance determination, the federal agency is to consider "whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment" (CEQ NEPA Regulations §1508.27(b)(10)). The EIS is also required to identify "means to mitigate adverse environmental impacts" if not already included in the proposed action or alternatives (CEQ NEPA Regulations §1502.16(h)). Further, the Draft EIS is to satisfy these requirements to the "fullest extent possible;" it is not intended that these disclosures be left for the Final EIS (CEQ NEPA Regulations §1502.9(a)).

NISP SDEIS has only completed Phase I of a two-phase water quality analysis. The 2015 SDEIS did not: (1) disclose all impacts, (2) identify those that are significant, and (3) identify mitigation for adverse impacts. A complete analysis of impacts to water is needed to be able to determine potential impacts. This should have been included in the Draft or Supplemental Draft EIS. Because the SDEIS only contains Phase I of the Water Quality Assessment, it is impossible to review and comment on water quality impacts that could be significant to Greeley. Since the impacts are not fully disclosed in the SDEIS, then the identified mitigation may be incomplete at this point. Full disclosure in the Draft EIS of all impacts and potential mitigation is needed.

Greeley cannot analyze impacts and evaluate the sufficiency of the proposed mitigation to protect Greeley's drinking water and wastewater treatment facilities until the Phase II assessment is available.

To remedy this fundamental flaw in timing for completing this two-phase water quality analysis, Greeley requests that the *Phase II Water Quality Assessment Report* and any related water quality reports and materials prepared for the Final EIS (FEIS) be circulated to Greeley for review and comment at least sixty (60) days prior to compiling this data into the FEIS. The Phase II analysis should identify all water quality impacts, identify which are significant, and identify mitigation for all significant impacts to Greeley's facilities.

Resource Topic and Comment Number: Water Quality #2
Documents Reviewed: *Water Quality Assessment Report, Phase I*, pp. 1-1 to 1-2 and 4-2; *SDEIS Volume I*, pp. 4-146 to 4-153; *SDEIS Volume I* Section 3.3.1.3, Table 3-15, p. 3-48; *SDEIS Volume II* Appendix D (Preliminary Section 404(b)(1) Analysis), pp. D-16 through D-32 and D-58 through 62; *Draft Water Quality Effects Technical Report* (ERO and TetraTech 2015); *Water Quality Assessment Report, Phase I* (GEI 2015), p. 4-2
Issue: The Phase I water quality assessment prematurely screens out parameters that did not show future violations (or near violations) of water quality standards.

The Phase I report screened out parameters that did not exceed or come close to exceeding (within 20 percent) water quality standards. (*Water Quality Assessment Report, Phase I*, p. 1-1). However, declines in water quality, even if they are not large enough to cause the stream to violate (or almost violate) the standard, can cause significant impacts to water and wastewater treatment facilities. The methodology also ignores other important changes to water quality that could constitute a significant impact. A significant impact would be: (1) if the assimilative capacity is used up, it could affect effluent limits in permits or (2) if a constituent such as total organic carbons (TOC), for which there is not a water quality standard, increases significantly, it could increase treatment costs at water treatment plants.

There is a significant possibility that the methodology overlooked a significant impact. For example, Site PR-5.4, pH was shown to be within 20 percent of the acute water quality standards (WQS), which was the screening criteria (maximum observed = 9.00 vs. acute maximum of 9.0) (Table A-38, p. A-52). However, pH was not included with the parameters that will be further analyzed in Phase II (see Table 4-1, Inclusions/Exclusions table), although it is very important with respect to the toxicity of other parameters, such as ammonia and aluminum.

Adverse changes in these pH and other screened-out parameters could affect the effluent limits in Greeley's wastewater discharge permit and increase Greeley's wastewater treatment costs. Other parameters were excluded because there were no predicted increases above 80 percent of the water quality standard, but for which Greeley has an effluent limit in its permit. These include chromium VI, lead, mercury, and zinc. Increases in any of these parameters upstream of Greeley's discharge could use up current assimilative capacity in the river that Greeley currently uses, and cause more stringent effluent limits, resulting in increased treatment costs.

The screening analysis should be redone so that no parameters for which there are increases or changes that are important to water and wastewater treatment facilities are excluded but are carried forward to Phase II. Mitigation should be proposed for any significant impacts identified for these parameters.

Resource Topic and Comment Number: Water Quality #3
Documents Reviewed: *Water Quality Assessment Report, Phase I*, pp. 1-1 to 1-2 and 4-2; *SDEIS Volume I*, pp. 4-146 to 4-153; *SDEIS Volume I* Section 3.3.1.3, Table 3-15, p. 3-48; *SDEIS Volume II* Appendix D (Preliminary Section 404(b)(1) Analysis), pp. D-16 through D-32

and D-58 through 62; *Draft Water Quality Effects Technical Report* (ERO and TetraTech 2015); *Water Quality Assessment Report, Phase I* (GEI 2015), p. 4-2

Issue: The Phase I water quality assessment prematurely screens out parameters that only affected one site, but not the whole stream segment.

Water quality standards apply at all locations on a stream. Site-specific comparisons should be made to identify specific locations that may have an issue, especially if the site is immediately upstream of either a drinking water intake or a wastewater treatment facility discharge. The screening analysis used in the SDEIS dismissed key individual sites from further analysis; sites should not be excluded because there were only one or two sites in a segment that did not pass the screening test (e.g., silver and arsenic) (Table 4-1, GEI 2015. Any increases alone could constitute significant adverse water quality impacts to a water treatment facility (by necessitating additional treatment) or a wastewater treatment facility (by using up existing assimilative capacity, resulting in more stringent effluent limits). Alternately, improvements in water quality could provide cleaner source water or more assimilative capacity, and may constitute a beneficial impact.

At Site PR-5.2 above Greeley's WWTP, total phosphorus (TP) currently exceeds the interim value of 170 ug/L TP. Temperature was also screened out for the lower Poudre River segment, based on a broad examination of the entire lower Poudre River, although some increases were shown just above Greeley's discharge.

Increases in total phosphorus at this site, due to NISP operations, could increase Greeley's costs to remove phosphorus at its wastewater treatment facility. Increases in temperature above Greeley's wastewater discharge could cause its effluent limits to be made more stringent, which could result in high costs to meet temperature limits.

As another example, arsenic was "excluded even though two sites PR-60.1 and PR-55.8 (PR-55.8 is near Greeley's drinking water intake) showed a potential to exceed the AS (ch) hybrid threshold of 3 ug/L. . . ." (Table 4-1, GEI 2015) The maximum reported value for arsenic (Trec) at Site PR-55.8 is 3.0 ug/L. The underlying chronic arsenic standard at this site is 0.02 ug/L[1], measured as total recoverable arsenic.

Arsenic can be costly to remove. Greeley's Bellvue WTP can treat 21 million gallons per day (MGD). Based on EPA cost curves, for example, if enhanced coagulation/filtration were used to treat 21 MGD, the capital cost would be just under $1,000,000 and the operations and maintenance (O&M) costs would be about $300,000 (both in 1998 dollars). (EPA Office of Water, Technologies and Costs for Removal of Arsenic from Drinking Water, December 2000, EPA 815-R-00-028)

The screening analysis should be redone so that potential problems at individual sites, especially those sites immediately above drinking water intakes and wastewater treatment plant

[1] The chronic (30-day average) domestic water supply criterion can range from 0.02 ug/L to 10 ug/L; the first number is a strictly health-based value, based on the Water Quality Control Commission's established methodology for human health-based standards; the second number is a maximum contaminant level (maximum level allowed to be present in treated drinking water delivered to the customer), established under the federal Safe Drinking Water Act. The water + fish ingestion standard is 0.02 ug/L. (Regulation 31, pp. 57 and 59)

discharges, are not excluded but are carried forward to Phase II. Mitigation should be proposed for any significant impacts identified for these parameters.

Resource Topic and Comment Number: Water Quality #4
Documents Reviewed: *Water Quality Assessment Report, Phase I*, pp. 1-1 to 1-2 and 4-2; *SDEIS Volume I*, pp. 4-146 to 4-153; *SDEIS Volume I* Section 3.3.1.3, Table 3-15, p. 3-48; *SDEIS Volume II* Appendix D (Preliminary Section 404(b)(1) Analysis), pp. D-16 through D-32 and D-58 through 62; *Draft Water Quality Effects Technical Report* (ERO and TetraTech 2015); *Water Quality Assessment Report, Phase I* (GEI 2015), p. 4-2
Issue: The Phase I water quality assessment disregards acute impacts to water quality.

Short-term impacts (and associated required mitigation) cannot be identified without an analysis of compliance with acute water quality standards. The Colorado Water Quality Control Commission has set standards to protect against both acute (e.g., lethality) and chronic (e.g., decreases in growth and reproduction) occurrences.

Acute standards are in place that impact both drinking water suppliers and wastewater dischargers (i.e., Regulation 31: The Basic Standards and Methodologies for Surface Water, 5 CCR 1002-31). Compliance with acute water quality standards is evaluated by comparison of single sample values to the assigned standard. (Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Division (WQCD) Section 303(d) Listing Methodology 2102 Listing Cycle (2012 Listing Methodology), March 2011, p. 15). Acute drinking water standards are applied as 1-day standards.

Worsening water quality, whether or not it exceeds or approaches the acute water quality standard, may be a significant impact to Greeley. Greeley's WWTP must comply with both daily maximum (acute) and 30-day average (chronic) limits (Colorado Discharge Permit System [CDPS] Permit No. COR-0040258).

There are also instream water quality standards that are applicable for domestic water supplies, which include several acute standards (*Water Quality Assessment Report, Phase I*, Tables 3-1 and 3-2, pp. 3-4 and 3-5, respectively). Note that the CEQ regulations define significance in terms of context as well as intensity. With respect to context, the regulations state: "the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality." (CEQ NEPA regulations, §1508.27(a))

For example, for Segment 12 sites above Greeley's wastewater treatment plant, Site PR-5.2 showed acute exceedances for ammonia (maximum observed = 25.8 mg/L NH_3 as N vs. acute WQS = 1.32 mg/L NH_3 as N) and nitrite (maximum observed = 8.26 mg/L NO_2 as N vs. acute WQS = 2.70 mg/L NO_2 as N) (Table A-39, GEI 2015. However, nitrite was excluded from further Phase I and II analyses **because only chronic effects were considered**; see Table 4-1, GEI 2105]. Nitrite is regulated as an acute standard (1-day) because it can cause methemoglobinemia (blue baby syndrome) in infants. Greeley is required in its wastewater discharge permit to monitor and report on nitrite levels in its discharge.

Both acute and chronic screens should be used, and Phase II modeling should include both acute and chronic parameters. Mitigation should be proposed for any identified significant acute impacts.

Resource Topic and Comment Number: Water Quality #5
Documents Reviewed: *Water Quality Assessment Report, Phase I* (GEI 2015), Section 11.1.3, pp. 11 - 17
Issue: The Phase I water quality assessment incorrectly analyzed potential impacts to wastewater treatment plants by using a concept based on what was called "regulatory low flows."

Project-caused changes in flow should be used to calculate new effluent limits, which should then be compared to the existing limits to see if there is an impact. "Regulatory low flows" are not actually a regulatory limit on flows. They are not an endpoint that needs to be "met" by the projects.

Instead, "regulatory low flows" are the low flows used by the State to calculate numeric effluent limits for discharge permits. There are two sets of low flows used, the 30-day, 3-year low flows (30E3) and the 1-day, 3-year low flows (1E3), which are used to calculate chronic and acute effluent limits, respectively. It is more than simply comparing future flows with the misnamed "regulatory low flows."

The analysis incorrectly compares predicted project flows with "regulatory low flows" to assess impacts to wastewater treatment plants, instead of calculating how the project flows would actually impact the plants' effluent limits. The SDEIS compared predicted minimum monthly flows with what were called "regulatory low flows" to determine differences and therefore determine whether there would be any predicted adverse impacts to the wastewater treatment plants in the affected area. Based on this faulty analysis, the SDEIS concluded that "NISP operations would not affect the CDPS regulatory 30-day (30E3) low flow conditions for any of the WWTPs in the area." (p. 15-11) and "The NISP alternatives do not substantively change the Current Conditions and therefore are not expected to affect the CDPS permitted low flow conditions." (p. 15-10)

It is also important to point out in the EIS that the State uses the lowest monthly flow to calculate most effluent limits, regardless of the month in which it occurs. It is inadequate to just consider changes to the months when the largest diversions would be made from the river, as was done in the analysis. Project-related changes in flow during other months may end up being the governing low flow for permit purposes. Therefore, flow impacts for all months need to be analyzed, on both a daily and monthly basis. Also, certain parameters, such as ammonia, also can receive monthly effluent limits, necessitating low flow calculations for each month. For example, a significant difference in low flows in February and April could impact a facility's ammonia limits during those months.

No 1E3 low flows, which can be determined using daily flows as inputs to the State's DFLOW model, were calculated for the Phase I analysis. It is anticipated that the changes in daily low flows will be substantially more variable than the changes in average monthly low

flows, and the impacts to acute water quality-based effluent limits (WQBELs) may be larger. After 1E3 low flows are calculated, both chronic and acute impacts to the wastewater treatment plants can be analyzed. Currently, the SDEIS uses only minimum monthly flows to approximate the 30E3 low flows.

The correct method to determine impacts to wastewater treatment plants would be to do a water quality mass balance at the point of discharge to determine the WQBEL that would result from any changes in either upstream flows or upstream water quality. A mass-balance equation is used by the State to calculate WQBELs, and accounts for the upstream concentration of a pollutant, critical low flow, effluent flow, and the water quality standard:

$M_2 = ((M_3Q_3) - (M_1Q_1))/Q_2$

Where, Q_1 = Upstream low flow (1E3 for acute, 30E3 for chronic)
Q_2 = Average daily effluent flow (design capacity)
Q_3 = Downstream flow ($Q_1 + Q_2$)
M_1 = In-stream background pollutant concentration
M_2 = Calculated WQBEL
M_3 = Water Quality Standard

Greeley's current wastewater discharge permit has effluent limits that were based on WQBELs for ammonia, and hexavalent chromium, and a WQBEL-based monitoring requirement for nitrite, impacts to which cannot be assessed using the current analysis

The Phase II mass balance modeling should include a WQBEL mass balance to estimate future WQBELs for Greeley's WWTP, for both chronic and acute conditions. If this results in more stringent effluent limits for Greeley, requirements for appropriate, funded mitigation should be provided.

Resource Topic and Comment Number: Water Quality #6
Documents Reviewed: *Reservoir Comparative Analysis for the NISP SDEIS Technical Memorandum* (Hydros 2014)
Issue: Many of the following conclusions of the Reservoir Comparative Analysis may be overly optimistic or even incorrect.

The reservoir comparative analysis currently states that water quality in Glade Reservoir: (1) will be similar to the water quality in Carter Lake and Horsetooth Reservoir in many ways, and will be mesotrophic to oligotrophic[2] with nutrient and chlorophyll a concentrations well within anticipated future standards; (2) will have elevated total organic carbon TOC concentrations; (3) will stratify in the summer and experience periods of hypolimnetic hypoxia[3]

[2] An oligotrophic lake has low nutrient concentrations and low plant and algae growth. A eutrophic lake has high nutrients and plant and algal growth. A mesotrophic lake falls between these two classifications.
[3] Hypolimnetic hypoxia is when the layer of a lake near the bottom sediments has no remaining oxygen because plant and algae decomposition in the bottom have used up all the oxygen. If the lake is stratified, it cannot mix oxygen from the air back down into the bottom to replenish the oxygen levels.

in the summer; and (4) will meet metals standards." Contrary to the SDEIS conclusions, the water used to fill Glade Reservoir will have high concentrations of both nutrients and TOC; higher than received by either Carter Lake or Horsetooth Reservoir.

Figure 21 of the reservoir comparative analysis (p. 26 of 34) shows that total phosphorus and total Kjeldahl nitrogen (TKN) inflow concentrations both peak at the same time when Glade is receiving the bulk of its water supply (May and June). The total peak phosphorus inflow concentration for Glade inflows is about 20 percent or more higher than the peak inflow concentrations for Horsetooth Reservoir and Carter Lake. Likewise, the TKN peak inflow concentration for Glade is about 15 to 50 percent higher than the Horsetooth and Carter peak concentrations, respectively.

The reservoir comparative analysis recognizes these higher nutrient concentrations in the inflows to Glade. "During the runoff season, however, total phosphorus and total Kjeldahl nitrogen in the inflow to Glade Reservoir would be higher than for Horsetooth Reservoir or Carter Lake" (p. 24 of 34) and "Water deliveries from the PVC to [Glade] Reservoir would occur predominantly in May and June" (p. 18 of 34). Therefore, to make a more realistic comparison of expected water quality in Glade to that in Horsetooth and Carter, years with <u>high</u> nutrient inflows for Horsetooth and Carter should be used instead to predict <u>average</u> nutrient concentrations for Glade.

Higher phosphorus and nitrogen levels in Glade Reservoir could lead to a higher risk of increasing algal growth in Glade Reservoir. This could exacerbate the potential for low or absent dissolved oxygen levels in the hypolimnion, as the algae decompose in the bottom of the reservoir. Glade Reservoir may not meet the Direct Use Water Supply chlorophyll a interim value of 5 ug/L, contrary to what is predicted in the reservoir comparative analysis, "chlorophyll a concentrations [will be] well within anticipated future standards" (p. 28 of 34). This could also lead to potential future taste and odor problems because some algal species are associated with taste and odor issues, as well as higher TOC levels in the reservoir.

As stated above, most of the water that will fill Glade Reservoir will be diverted in May and June. Figure 22 of the Reservoir Comparative Analysis (p. 26 of 34) shows that this period is when the peak TOC concentrations are in the Glade Reservoir inflow. Also, Figure 22 shows that these peak TOC concentrations (which will occur when Glade Reservoir is filling) are about 40 percent higher than the peak TOC concentrations that occur in the inflows to Horsetooth Reservoir and Carter Lake. It is also possible that TOC concentrations may increase further in Glade Reservoir itself, due to algal growth in the reservoir ("Total Organic Carbon Issues", 12/23/2008, Black & Veatch Corporation NISP EIS Support, memorandum to Carl Brouwer, Northern Colorado Water Conservancy District from Howard Andrews & Chris Tadanier, Black & Veatch Corporation.) TOC is important because if it is in a drinking water supply at high enough levels, it can react with disinfectants (e.g., chlorine) used in the treatment process to form trihalomethanes and haloacetic acids (HAA5s), which are suspected cancer-causing agents. Thus, if the TOC level is too high, it must be removed during the drinking water treatment process, before the disinfectants are added. This increases treatment costs.

The reservoir comparative analysis also states that hypoxic conditions are likely to occur at the bottom of Glade Reservoir in the summer (pp. 21 and 27 of 34). Hypoxic conditions can cause the release of manganese and iron from the bottom sediments. Both can cause taste and odor issues in the finished water supply unless adequately treated at the water treatment facility.

Currently, the SDEIS proposes several mechanisms through which Glade Reservoir water may be delivered to Greeley's Bellvue WTP, which would result in increased treatment costs caused by increased TOC, manganese, and iron levels and associated taste and odor issues. Higher TOC levels in Glade could cost $10 million plus to treat and remove at Greeley's Bellvue WTP.

Under Alternative 2 - Reclamation Action Option, Evans will receive its water "by direct release to the Bellvue Filter Plant" (SDEIS, p. 2-42). One option under consideration is through "a direct pipeline connection from the outlet works of Glade Reservoir to the treatment plant headworks" (SDEIS, p. 2-42). The reservoir comparative analysis also notes: "In addition, there is the possibility (for both the Reclamation contract and the Reclamation no contract sub-alternatives) that there would be a direct pipeline from Glade Reservoir to a water treatment facility" (p. 17 of 34).

As part of the Reclamation Action Option, up to 29,500 AFY of Glade water could also be introduced to Horsetooth Reservoir for delivery to C-BT participants, including Greeley. This possibility makes it even more critical to be accurate in predictions regarding future Glade Reservoir water quality, as it will likely be used as a direct raw water source and conveyed directly to water treatment plants.

The proposed delivery point for the "winter" flow augmentation operation plan is assumed by the SDEIS to be from a pipeline "across the river from Greeley's Bellvue pipeline intake" (SDEIS, p. 2-43). These augmentation releases would occur from November 1 through April 30, and September 1 through September 30 (SDEIS, p. 2-42).

Note that reservoir stratification and bottom hypoxic conditions could likely continue through September. Therefore, increased treatment needs due to increased TOC, manganese, and iron levels and associated taste and odor issues from this release across from Greeley's intake (as well as from the direct release of Evans' water to the Bellvue plant) could be expected.

It is important to require that TOC, as well as taste and odor-causing constituents in Glade Reservoir be adequately evaluated and mitigation appropriately funded for any adverse impacts to Greeley due to increased water treatment costs. In addition, the Corps must impose special permit conditions that monitor and restrict NISP construction and operations sufficient to prevent unmitigated water quality impacts. Monitoring should be conducted in Glade Reservoir (at a point that would be representative of water releases for direct or indirect water supply) for TOC, dissolved manganese, dissolved iron, and other taste-impacting and odor-causing constituents, including geosmin (trans-2, 10-dimethyl-trans-9-decalol) and MIB (2-methylisoborneol).

Resource Topic and Comment Number: Water Quality #7
Documents Reviewed: *Reservoir Comparative Analysis for the NISP SDEIS Technical Memorandum* (Hydros 2014)
Issue: The Reservoir Comparative Analysis ignores short-term water quality impacts from a newly-filled Glade Reservoir.

The CEQ NEPA regulations require the evaluation of both short and long-term impacts. Included in the regulatory definition of significance is the statement that "Both short and long-term effects are relevant." (CEQ NEPA regulations, §1508.27(a)) The trophic upsurge period (characterized by high productivity in the newly-filled reservoir due to nutrient leaching from inundated soils and organic materials), that could last 10 years, could certainly have an adverse impact on water quality that will be used as a raw water source for drinking water supplies.

There will be significant water quality impacts during the first years of Glade Reservoir's Operations that need to be analyzed and mitigated. The current analysis focused on long-term water quality (Reservoir Comparative Analysis, p. 4 of 34). However, the following is also stated: "Note that water quality dynamics in new reservoirs can be different during the first few transitional years versus the long term. This transitional "trophic upsurge" period can last 6 – 10 years and is a function of geographic location, site preparation, and filling schedule (USACE, 1987)" (p. 4 of 34).

As noted above, Greeley may receive a significant amount of Glade water for treatment at its Bellvue WTP. These short-term water quality impacts need to be analyzed in the EIS, with mitigation proposed for any significant adverse impacts. In addition, the Corps must impose special permit conditions that monitor and restrict NISP construction and operations sufficient to prevent unmitigated water quality impacts. The monitoring must be designed to address short-term water quality impacts during the initial transitional years (6 to 10 years or longer) for the new reservoir.

Resource Topic and Comment Number: Water Quality #8
Documents Reviewed: *NISP SDEIS Volume I*, Section 4.3, pp. 4-84 to 4-153; *SDEIS Volume II* Appendix D (Preliminary Section 404(b)(1) Analysis), pp. D-16 through D-32 and D-58 through D-62; *Draft Water Quality Effects Technical Report* (ERO and Tetra Tech 2015)
Issue: There are several locations in the SDEIS documents where conclusions about the project impacts on water quality are made prematurely.

As explained in the previous water quality comments, until the Phase II Water Quality Assessment is completed and all of the relevant parameters are evaluated, including those that should not have been screened out, and both chronic and acute mass balance modeling is completed, it is premature to draw conclusions that there will be no impact to Greeley's facilities.

There are several locations in the SDEIS documents where conclusions about the project impacts on water quality, and more specifically on Greeley's water treatment and wastewater treatment facilities, are made prematurely. The following current conclusion is almost certainly premature and incorrect:

> "The Preliminary 404(b)(1) Analysis states that "Under all of the alternatives, no adverse impact to water quality in the Poudre River is anticipated that would affect treatment requirements at the City of Greeley's Bellvue WTP." (Preliminary 404(b)(1) Analysis, 11.1.1, p. D-58) (See also similar statement in SDEIS, p. 4-117.)

The Preliminary Section 404(b)(1) Analysis (*SDEIS Volume II* Appendix D) should be modified to account for the Phase II Water Quality Assessment and updated to clearly quantify impacts to Greeley's water treatment and wastewater treatment facilities.

AQUATIC RESOURCES

Resource Topic and Comment Number: Aquatics #1
Documents Reviewed: *NISP SDEIS Volume I*, Section 4.5.3.1.1.1; *SDEIS Volume II*, Appendix F Proposed Conceptual Mitigation Plan
Issue: The conclusions for impacts of the NISP alternatives on aquatic habitat are based on an overly simplistic approach to calculation of changes to aquatic habitat.

The divergence from the standard approach is in the calculation of habitat over time. The use of a synthesized habitat values based on recurrence, and then a single average value derived from the synthesized data, masks the relationship of habitat over time. This approach does not allow a full analysis of impacts to the aquatic resources.

The change in fish habitat is based on synthetic graphs of 20 percent, median, and 80 percent habitat constructed from a 25-year daily habitat time series. The annual graphs are then summarized into minimum, maximum, and average habitat values. The percent change between the single average value derived from a 25-year daily simulation is used to determine the level of impact.

This oversimplification of a very detailed analysis does not allow the evaluation of inter- and intra-annual changes in habitat, which affect the fish species (Annear et al. 2004). There is no means to directly compare a habitat value with a specific discharge.

The narrative on page 4-314, SDEIS Volume I discusses changes in habitat with changes in flow; however, there is no means to verify any of the statements, since computational data for habitat-flow time series is not presented in the supporting aquatic resource technical documents.

For example, the recent EIS for the Windy Gap Firming Project included the basic habitat time series data by water-year type as part of the technical supporting documentation (USBR 2011). The display of habitat by water-year type or actual year allows the reader to make a direct comparison of habitat change between alternatives. The aquatic habitat analysis up through the development of habitat versus flow determinations follows the standard approach used in instream flow studies (Bovee et al. 1998; USGS 2001).

The non-standard approach does not allow Greeley to compare change in habitat with its projects on the Poudre River to the NISP analysis. The synthesized percentile data is not directly comparable to Greeley's project evaluations.

The Corps should either provide the data tables used in the habitat synthesis, or revise the SDEIS to include the analysis of habitat over time without synthesizing the daily habitat data into percentiles.

Resource Topic and Comment Number: Aquatics #2
Documents Reviewed: *NISP SDEIS Volume I*, Section 4.12; *SDEIS Volume II*, Appendix F Proposed Conceptual Mitigation Plan; *Stream Temperature and Dissolved Oxygen Analysis for NISP SDEIS Technical Report* (Hydros Consulting 2014)
Issue: The Hydros 2014 report is qualitative only with no quantification of change in temperature with the proposed alternatives.

GEI cites the Hydros report for water temperature impacts to fish and macro invertebrates. The qualitative Hydros report presents a perceived change in water temperature; however, the CDPHE will likely require a much more detailed model of dynamic water temperature for the Clean Water Act 401 Water Quality certification.

The SDEIS does not quantify change in water temperature. Several segments of the Poudre River currently exceed the state water temperature standards for both the cold water and warm water segments. The lack of a quantitative analysis of change in water temperature does not allow an evaluation of impacts to the aquatic species.

Greeley has invested in aquatic habitat enhancements in the river. The increase in water temperature could reduce the benefit of the enhancements. The NISP mitigation plan should complete a quantitative analysis of potential changes to water temperature using a predictive dynamic water temperature model. The draft model report should be circulated to Greeley for review and comment at least sixty (60) days prior to compiling the quantitative model data into the FEIS, with a firm commitment to offset any water temperature increase.

In addition, the Corps must impose special permit conditions that monitor and restrict NISP construction and operations sufficient to prevent unmitigated water temperature impacts. The Corps should require a monitoring program for water temperature at key locations in the Poudre River before, during, and after construction of NISP. Water temperature monitoring locations should include the river upstream of the diversion to Glade, in the release from the reservoir, and at several locations downstream of the inflow from Glade into the Poudre River. Specific locations for monitoring should be determined during the development of the Final Mitigation Plan prior to project construction and operation.

Resource Topic and Comment Number: Aquatics #3
Documents Reviewed: *NISP SDEIS Volume I*, Section 4.12; *SDEIS Volume II*, Appendix F Proposed Conceptual Mitigation Plan; *Stream Temperature and Dissolved Oxygen Analysis for NISP SDEIS Technical Report* (Hydros Consulting 2014)
Issue: The SDEIS includes only a qualitative review of water temperature data with a subjective discussion of potential changes with NISP.

The conclusions of "minor or moderate" are not supported at this time without quantification of the amount of change. The Corps has stated in emails (John Urbanic to Christie Coleman and Eric Reckentine, Friday, June 26, 2015) that water temperature modeling would be completed for the NISP FEIS. Water temperature evaluation in the SDEIS relies on a qualitative evaluation from the Hydros 2014 report. There is no quantification of water temperature change with any alternative.

Adequate review of the modeling approach and data sets should be allowed. A "minor" change may result in the exceedance of a water temperature threshold, which is a violation of the water quality standard. The number and timing of any new exceedances should be calculated to support the conclusions.

Further, the anti-degradation analysis should also use the results of the water temperature modeling to determine changes due to NISP, and the Applicant should firmly commit to mitigation to offset water temperature impacts.

Several segments currently exceed the state water temperature standards for both the cold water and warm water segments. The anti-degradation evaluation has smaller allowable changes to water temperature than the water temperature standard. Uncorrected, this could result in NISP's required mitigation being shifted to future applicants for Poudre River infrastructure projects.

Adequate review of the modeling approach and data sets should be allowed at least sixty (60) days prior to compiling the NISP FEIS. In addition, the Corps must impose special permit conditions that monitor and restrict NISP construction and operations sufficient to prevent unmitigated water temperature impacts, in particular the anti-degradation criteria. The mitigation should include a monitoring component for water temperature that includes threshold values to trigger release of additional water to offset project impacts during operation. The volume and timing of releases to mitigate impacts should be determined during the development of the Final Mitigation Plan prior to project construction and operation.

Resource Topic and Comment Number: Aquatics #4
Document Reviewed: *SDEIS Volume II*, Appendix F Proposed Conceptual Mitigation Plan
Issue: The proposed mitigation, as designed, does not offset all of the current impacts and the success of the mitigation plan relies on participation of entities beyond the control of Northern for implementation.

Some of the proposed mitigation does not appear to offset the impact. The flow augmentation is stated as part of the Preferred Alternative and the effects of the Preferred Alternative are determined with flow augmentation in place. The proposed mitigation states that flows will be augmented to minimize impacts. It appears that the flow releases are counted twice: once as part of the alternative, and again to offset impacts.

The effectiveness of the proposed mitigation must rely on the ability to implement the proposed mitigation. The ability to avoid, minimize, or offset an impact could only be claimed if the proposed activity is a firm commitment. The proposed mitigation should be a direct benefit to the impacted resource.

For example, page 24 of Appendix F states that,

> "*NISP could increase the magnitude and frequency of current temperature excursions (values above standards) in July and August, particularly upstream of Hansen Supply Canal inflows. Release of augmentation flows (see section 3.2.4) would benefit current temperature excursions in September and March downstream of the release point if releases are made from the hypolimnion in Glade Reservoir.*"

The augmented flows released in fall and winter would do nothing to offset or minimize the impact in July and August. The water temperature impacts would remain without appropriate mitigation and could not only degrade the aquatic life, but require wastewater treatment plant operators such as Greeley to make changes to comply with the water quality standards.

The mitigation plan should include firm mitigation commitments, which directly offset impacts. In addition, the Corps must impose special permit conditions that monitor and restrict NISP construction and operations sufficient to prevent unmitigated aquatic resource impacts. Monitoring plans should be developed for all aquatic resources including but not limited to, aquatic habitat, fish populations and benthic macroinvertebrates. The monitoring should be sufficient to detect changes due to project operation and determine the success of the mitigation implemented for the project. The results of the monitoring should be reviewed by the Corps to determine if the mitigation, as implemented, is successful. The monitoring plan should also include the ability to revise the monitoring or mitigation to achieve the intended results.

GEOMORPHOLOGY

Resource Topic and Comment Number: Geomorphology #1
Documents reviewed: *SDEIS Volume 1*, Sections 3.4. 4.4, and 5.4; *Stream Morphology Effects Technical Report* (ACE 2014)
Issue: **NISP will reduce peak flows, which are important for channel maintenance and sediment transport.**

Flows in the Poudre River will be reduced if NISP is implemented. Changes in the flow regime are expected to occur mainly during high flow periods of late spring to early summer. The 5 percent exceedance flow value in the Greeley reaches could be reduced by as much as 25-31 percent compared to current conditions, while the 2-year, 10-year, and 25-year flood events in these reaches are each anticipated to decrease in magnitude by approximately 16 to 21 percent.

Geomorphologic processes depend on peak flows to initiate bed movement and generate sediment transport. If high flows are reduced, these processes may not be able to take place to the magnitude or at the frequency required to maintain current channel conditions. Reduction in high flows can lead to increased sediment deposition and vegetative encroachment or may accelerate the rate at which these phenomena are already occurring. In addition to altering channel morphology, additional aggradation and vegetative encroachment have the potential to increase flooding risk by reducing channel conveyance.

Decreases in the magnitude and frequency of events that transport sediment could have multiple impacts on Greeley. Flow reductions and associated sediment aggradation may require additional maintenance in the form of removal or management of sediment, which if left unmitigated could increase flooding risks through Greeley.

To fully mitigate this change, flows would have to be increased back to their current levels, especially during the periods of high flow described above. This may be possible by utilizing exchanges or regulating when flows are diverted upstream of Greeley.

The proposed Conceptual Mitigation Plan suggests an adaptive management approach for dealing with overall impacts but does not establish any specific actions to address channel morphology. Specific actions should be taken to mitigate the change in flow regime including anticipated channel contraction and fining of surface material/loss of complexity with appropriate dedicated funding.

More detail is needed in the mitigation plan for the items listed below, with specific attention to how each of these will be tailored to maintain the riverine and associated resources within the Greeley area:

- Goals of any ultimate monitoring and mitigation
- Methods of establishing current “baseline” conditions
- Means of monitoring the Poudre River’s future response to flow changes and comparing these to “baseline” conditions
- Frequency of future monitoring

- Thresholds that would dictate mitigation action
- Sources of water that would be available for flow mitigation that may be required
- Flow augmentation needed to offset anticipated project impacts
- Responsible parties for implementing actions

The mitigation plan should quantify how the resource will be monitored to detect and assess future impacts. Conditions of the permit should obtain the overall goal of monitoring the project area and restricting construction and operations sufficient to prevent unmitigated geomorphologic impacts.

WETLANDS AND RIPARIAN AREAS

Resource Topic and Comment Number: Wetlands and Riparian Areas #1
Documents Reviewed: *2014 Wetlands and Riparian Resources Effects Report* (2014 Report), Volume 2, Table 9 (pg. 10), Table 12 (pp. 14 - 17), Table 19 (pgs. 28 and 29) and Table 22 (pp. 32–34); *SDEIS Volume I*, Section 4.9.5, pp. 4-222 to 4-260; *SDEIS Volume I*, Section 5.9.4, pp. 5-126 to 5-136
Issue: Potential adverse effects of NISP on the Poudre River Corridor in Greeley, including future mitigation sites.

The NISP SDEIS data indicate that the effects on riparian and wetland vegetation within the City's Poudre River Corridor, including the 59th Avenue Mitigation Site, would lower river stage and/or lower groundwater elevations during the growing season. These adverse impacts would affect the design and construction costs of any future mitigation sites.

Analyses should be required to determine the full extent of variations from existing conditions and to develop the design basis needed to support construction adjustments (e.g., greater extent and depth of excavation/grading and/or installation of instream check structures required to raise and maintain the adjacent water table to support wetland vegetation). If the adverse effects of NISP are not addressed, they would affect the potential long-term viability/sustainability of wetland and riparian habitat developed along the river corridor and at the 59th Avenue Mitigation Site (e.g., lower frequency of inundation could affect natural recruitment; and lower river stage and groundwater depth could reduce the extent of saturated soil and capillary fringe, thereby impacting the ability of the site to support vegetation).

The City's Poudre River Corridor including the 59th Avenue Mitigation Site contain mitigation opportunities that Greeley or another applicant may wish to use on another Poudre River Project.

The Corps' should require dedicated and funded mitigation associated with NISP to off-set anticipated mitigation site design modifications and construction cost increases to Greeley associated with the adverse effects of NISP.

MITIGATION

Resource Topic and Comment Number: Mitigation #1
Documents Reviewed: *SDEIS Volume I*, Section 4.3.5 Poudre River Adaptive Management Program (AG-03), pages 83 – 86; *SDEIS Volume II*, Appendix F Proposed Conceptual Mitigation Plan (Northern 2015)
Issue: NISP's proposal for providing mitigation is incomplete because it does not account for or provide commitments to address identifiable impacts to the City of Greeley.

The concept of adaptive management is being used incorrectly as a substitute for evaluating, quantifying, and mitigating the identifiable impacts of the project. Its role should be limited to providing a safety net to address impacts that may occur in the future, which cannot currently be identified.

The SDEIS states that the Applicant would commit to provide funding for the Poudre River Adaptive Management Plan to identify mitigation actions required and implement the necessary actions. Mitigation would be conducted in phases, allowing designs to be adjusted based on the performance of earlier actions. Funding for the plan is listed as $5 million plus $50,000/year for 20 years; $1 million of the $5 million would be designated for use by the City of Fort Collins. Affected parties would have to compete for the remaining available funding, and no portion of the funding is specifically earmarked for Greeley.

Funding to mitigate the adverse impacts to Greeley identified in this Technical Appendix should be quantified and dedicated solely to mitigating those impacts. Initial estimates of the financial cost of these unmitigated impacts to Greeley are listed below. These estimates, based on input by the City of Greeley staff and various members of the consulting team, were developed from a limited assessment of sometimes incomplete available information. Nonetheless, these estimates represent the magnitude of costs that could be associated with mitigation for impacts to Greeley.

Area of Impact to Greeley	Estimated Cost of Mitigation
Costs of treating raw water at Bellvue Water Treatment Plant	$10 Million or more
Costs of meeting new effluent limits at the Wastewater Treatment Plant	Unknown: $10 to $20 Million
Costs for maintaining river flows	Unknown: $5 Million or more
Estimated Total Needed Mitigation	$35 Million plus

Commitments for mitigating identifiable impacts to Greeley need to be provided and funded, independent of the Adaptive Management Program. Without those commitments, costs associated with NISP may be incorrectly transferred to the City of Greeley. The Adaptive

Management Program, as it is presented in the proposed Conceptual Mitigation Plan, should be used as a safety assurance to address impacts that may occur in the future, which currently cannot be identified.

The Corps needs to adequately quantify impacts to Greeley in the NISP EIS and require funded mitigation commitments dedicated solely to addressing those impacts. These commitments should be defined in the NISP Mitigation Plan, 404 Permit conditions and/or Intergovernmental Agreements (IGAs) between Greeley and the Applicant. After mitigation for identifiable impacts is appropriately addressed, Greeley would also like to participate in the Adaptive Management Program.

PURPOSE AND NEED

Resource Topic and Comment Number: Purpose and Need #1
Document Reviewed: *SDEIS Volume 1*, Section 1.2.8.2
Issue: Greeley's safety factor is inaccurately defined in the NISP SDEIS.

Page 1-16 of the SDEIS states that "*The City of Greeley established a 7,300 AF safety factor in 2003, equivalent to about 18% of its obligated demands at that time*." In 2009, Greeley adopted the 7 percent demand safety factor to be in line with other Front Range municipal water providers. In 2009, the Common Technical Platform process began applying the 7 percent demand safety factor.

Greeley's safety factor appears overly inflated and is not representative of Greeley's operations; this inaccuracy conflicts with information contained in the Seaman Water Supply Project EIS and the CTP.

The reference to Greeley's safety factor in Section 1.2.8.2 should be revised to read: *"Greeley uses a 7% demand safety factor, as reflected in the modeling developed by the U.S. Army Corps of Engineers' Common Technical Platform."*

COST ANALYSIS

Resource Topic and Comment Number: Engineering #1
Documents Reviewed: *NISP SDEIS Volume I*, Section 2.9.1; *Updated Cost Estimate NISP SDEIS Alternatives Technical Report* (ERO 2014)
Issue: NISP cost estimates in the SDEIS may include undersized project features and understated costs.

After review of the Glade Reservoir conceptual design, it appears that some project features, including the following components, may be undersized relative to the proposed operation of the reservoir, leading to understated cost estimates:

- The Poudre Valley Canal and associated infrastructure
- Glade forebay pump station
- Reservoir inlet works

The Glade Reservoir concept design also contains several references to estimated costs of various aspects of the NISP that appear to be inaccurate, understated and/or premature. To develop an accurate construction cost estimate for this complex project to an acceptable level of accuracy would require a thorough review of the design, quantities, and unit pricing for NISP, as well as a review of the anticipated permitting, mitigation, labor, administrative, and other costs. Neither the Applicant nor the Corps or their consultants have yet performed that detailed analysis, so any broad cost estimates stated in the SDEIS at this point are not well grounded and are unreliable.

Due to the preliminary and potentially inaccurate nature of the NISP construction cost estimates in the SDEIS, those costs should either be removed or substantially qualified in the FEIS, so such estimates are not considered accurate or correlatable regarding the cost and feasibility of similar actions or facilities.

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