SavethePoudre.org
Poudre Waterkeeper

P.O. Box 20, Fort Collins CO 80522
info@savethepoudre.org
www.savethepoudre.org

To: Catherine Blackwell, U.S. Army Corps of Engineers
From: Save the Poudre: Poudre Waterkeeper
Regarding: Greenhouse Gas Impact Analysis of the Northern Integrated Supply Project

Dear Ms. Blackwell, 16 May 2014

The Climate Crisis presents a critical challenge to Colorado and our planet. Save the Poudre: Poudre Waterkeeper is deeply concerned about the coming effects of climate change, and is committed to finding solutions to environmental problems that do not create new environmental problems or worsen existing problems.

The National Environmental Policy Act requires that the U.S. Army Corps of Engineers analyze all environmental impacts associated with the proposed Northern Integrated Supply Project. Further, because the project has triggered the Clean Water Act, the SDEIS must address the EPA's 404(b)(1) guidelines (see 40 C.F.R. § 230), and the Corp's "public interest" factors (see 33 C.F.R. §§ 320 et seq.) including:

- Rejecting a permit if there is a practical alternative that would cause less adverse impact
- Ensuring that the permitting project not cause significant degradation to waters of the U.S., including "jurisdictional wetlands"
- Mitigating any impacts

We evaluated the potential greenhouse gas emissions that would be produced by NISP to consider whether the NISP project, as proposed, would contribute to climate change. Climate change emissions from NISP would come from four sources: 1) the construction of the project, 2) the pumping of water out of the Poudre River and other ditches, and up into Glade and Galeton Reservoirs, 3) the draining of 1,700 acres of wetlands due to depleted flows in the Poudre, and 4) the methane emissions from the fluctuating water levels and operations of Glade and Galeton Reservoirs.

In terms of (1) above, we have calculated that the total climate change emissions produced during the construction of the project – also called "embodied" emissions – would be at least 218,000 metric tons CO_2-equivalents. These emissions from construction alone would be equivalent to the emissions from almost 46,000 automobiles on the road for one year.

In terms of (2) and (3) above, we have calculated that the total yearly climate change emissions for NISP as proposed in the Draft Environmental Impact Statement would range from at least 43,751 to 84,236 metric tons CO_2-equivalent per year, depending on the action alternative chosen. These emissions would be equivalent to the emissions from almost 13,500 automobiles on the road every year.

In terms of (4) above, the scientific literature has not yet reached consensus on methane and carbon dioxide emissions from reservoirs in Western semi-arid environments, however emissions in this category are likely to be at least several thousand metric tons of CO_2-equivalent each year. As this science progresses over the coming months, we will offer input to the SDEIS as available.

These estimated results are major greenhouse gas emissions at a time when we should be doing absolutely everything we can to reduce greenhouse gas emissions in every aspect of our lives.

Our calculations are based on the following methodology:

1. Embodied emissions from construction of the project – including fuel burned on site, concrete manufacturing and use, rock fill, and excavation in the construction of the project – would total at least 218,000 metric tons CO_2-equivalent[1] [2], which is more than 5 metric tons CO_2-equivalent per acre-foot of water proposed to be yielded from the project. We calculated these emissions by matching the projected materials and excavation amounts in the financial cost estimates for the project with the embodied emissions calculated in the Inventory of Carbon and Energy (ICE) database.

2. Direct emissions from pumping water for the project's proposed actions would range from at least 19,822 to 45,125 metric tons CO_2-equivalent per year, depending on the action selected and the operation of the project [3] [4] [5]. These emissions were calculated be multiplying the projected electrical energy use by the current Xcel Energy portfolio emissions. Indirect emissions from pumping water would range from at least 11,893 to 27,075 metric tons CO_2-equivalent per year.[6] These emissions were calculated based on the measured leakage rates for natural gas, oil and coal production and delivery, and applying those rates to the current Xcel energy portfolio.

3. The project's proposed action and action alternatives would affect 1,700 acres of riparian-associated wetlands in the Cache la Poudre Basin.[7] [8] Carbon in soils and wetland vegetation are a major sink for ecosystem carbon, and the loss of those wetlands would result in a major source of emissions to the atmosphere of at least 7,036 metric tons CO_2-equivalent per year. We evaluated the Natural Resource Conservation Service (NRCS) SSURGO soils database for wetlands soils in the affected region[9], and then modeled the soils under

---

[1] Technical Memorandum, Northern Integrated Supply Project, Glade Complex, Facilities Update and Cost Estimate
[2] ICE database (http://www.circularecology.com/ice-database.html#.U1Z4B_ldVgg)
[3] Xcel Energy Corporation
[4] U.S. Environmental Protection Agency eGRID Data for Year 2009 (updated 2012), WECC Rockies
[5] NISP Pumping Requirements, provided by the Northern Colorado Water Conservancy District.
[6] Miller, S.M. *et al.* 2013. *Anthropogenic emissions of methane in the United States.* Proceedings of the National Academy of Sciences of the United States of America 110(50): 20018-20022.
[7] Carlson, Erick and Joanna Lemly. 2011. National Wetland Inventory (NWI) Mapping of the Cache la Poudre and South Platte Rivers. Colorado Natural Heritage Program. http://poudreriver.home.comcast.net/~poudreriver/CNHP_FINAL_Poudre_Wetland_Mapping_Report-2011_03_23.pdf
[8] Save The Poudre. 2012. NISP's impacts on riparian areas including wetlands along the Cache la Poudre River. Report provided to the U.S. Army Corps of Engineers. http://savethepoudre.org/stp-correspondence/2012-12-17-combined-wetlands-letter-and-reports.pdf.
[9] Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/. Accessed 2/15/2014.

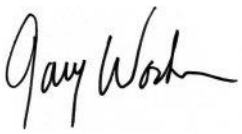
drained and undrained conditions using the CENTURY model[10] [11]. This analysis conservatively predicts emissions of at least 3.7 metric tons per year of CO_2-equivalents per acre of affected wetlands per year over 30 years. Additionally, emissions from decomposing wetland vegetation from dead and dying trees and shrubs are expected to equal at least 1.5 metric tons CO_2-equivalents per acre per year over 30 years.

4. Reservoirs in the American West are significant sources of greenhouse gases, and the combination of reservoirs constructed for the project, if built, are likely to emit thousands of metric tons CO_2-equivalent per year[12] [13]. No current model exists that we are aware of to predict the greenhouse gas emissions from temperate reservoirs, however the research we are aware of indicates that no reservoirs have been found to be a net year-round sink for carbon. Nearly all reservoirs studied to date appear to be net sources of greenhouse gas emissions, and there is no reason to indicate the reservoirs proposed under NISP would be any different. Recent measurements indicate emissions are particularly high from reservoirs that fluctuate significantly over the course of the year, as do most reservoirs in Colorado.

The results predicted above must be used and analyzed as a part of the Supplemental Draft Environmental Impact Statement (SDEIS) for NISP when that SDEIS is released – without this analysis, the SDEIS would not satisfy the requirements of the National Environmental Policy Act. If the Corps has not already done so, we recommend that the Corps do the same analysis for this project, as the analysis has direct bearing on how the Corps would select the Least Environmentally Damaging Practicable Alternative in examining the project alternatives.

Thank you for the opportunity to provide input and make requests of your offices regarding the environmental impacts of NISP. Your organization and ours mandate objective, scientifically valid information to thoroughly comply with the letter and spirit of existing national and state laws. Please acknowledge receipt of this letter.

Respectfully,



Gary Wockner
Executive Director
Save The Poudre: Poudre Waterkeeper

Mark Easter
Board Chair
Save The Poudre: Poudre Waterkeeper

---

[10] Parton, W.J., D.W. Anderson, C.V. Cole, J.W.B. Stewart. 1983. Simulation of soil organic matter formation and mineralization in semiarid agroecosystems. In: Nutrient cycling in agricultural ecosystems, R.R. Lowrance, R.L. Todd, L.E. Asmussen and R.A. Leonard (eds.). The Univ. of Georgia, College of Agriculture Experiment Stations, Special Publ. No. 23. Athens, Georgia.

[11] Century Model Home Page. http://www.nrel.colostate.edu/projects/century/, viewed on 2/15/2014.

[12] Soumis, N. *et al.* 2004. Greenhouse gas emissions from reservoirs of the Western United States. Global Biogeochemical Cycles 18(3): GB3022.

[13] Deemer, B.R., J.A. Harrison, and M.T. Glavin. 2012. Water level drawdown boosts greenhouse gas production in a small eutrophic reservoir. Poster at the Ecological Society of America Annual Meeting, Portland, OR.