Willow Master Development Plan

Supplemental Environmental Impact Statement

FINAL

Volume 7: Appendix A.6

Figures 3.19.1 to 4.3.5B

January 2023

Prepared by:

U.S. Department of the Interior
Bureau of Land Management
Anchorage, Alaska

In Cooperation with:

U.S. Army Corps of Engineers

U.S. Environmental Protection Agency

U.S. Fish and Wildlife Service

Native Village of Nuiqsut

Iñupiat Community of the Arctic Slope

City of Nuiqsut

North Slope Borough

State of Alaska

Estimated Total Costs Associated

with Developing and Producing this SEIS: \$3,350,000

Mission

To sustain the health, diversity, and productivity of the public lands for the future use and enjoyment of present and future generations.

Cover Photo Illustration: North Slope Alaska oil rig during winter drilling.

Photo by: Judy Patrick, courtesy of ConocoPhillips.

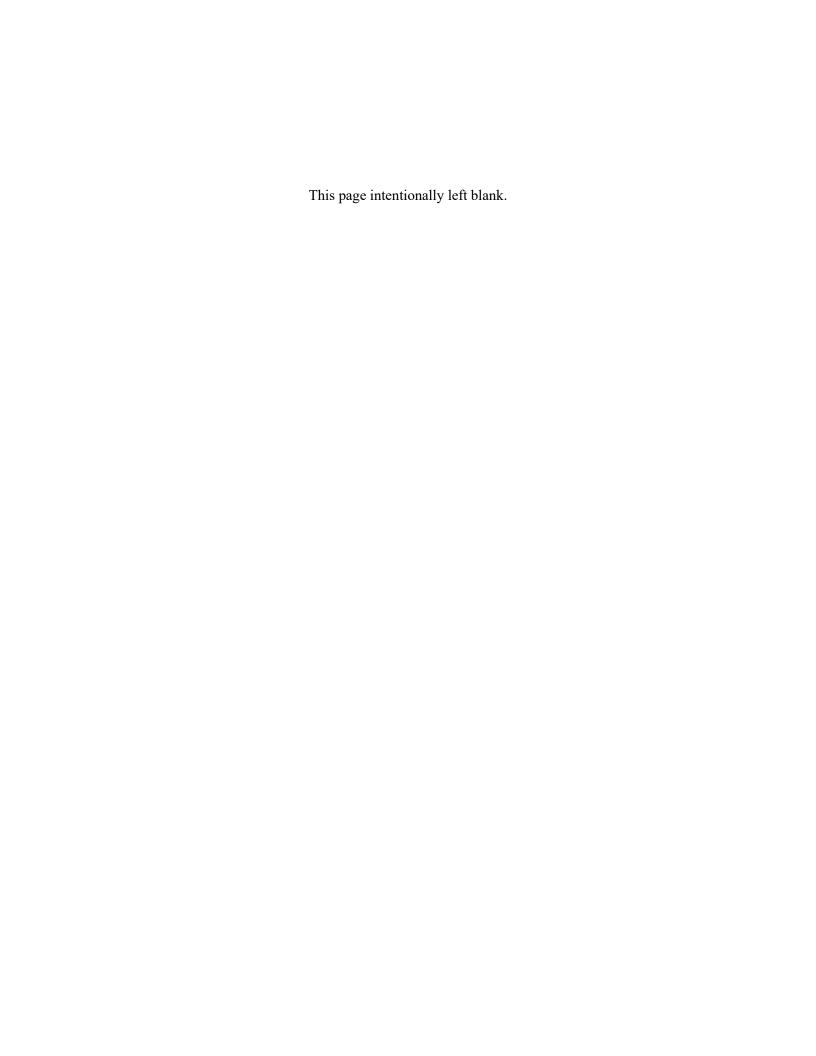
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REFERENCES

- BLM. 2004. Alpine Satellite Development Plan: Final Environmental Impact Statement. Anchorage, AK.
- -----. 2013. National Petroleum Reserve-Alaska Integrated Activity Plan/Environmental Impact Statement Record of Decision. Anchorage, AK.
- Brown, C.L., N.M. Braem, E.H. Mikow, A. Trainor, L.J. Slayton, D.M. Runfola, H. Ikuta, M.L. Kostick, C.R. McDevitt, J. Park, and J.J. Simon. 2016. *Harvests and Uses of Wild Resources in Four Interior Alaska Communities and Three Arctic Alaska Communities, 2014*. Technical Paper No. 426. Fairbanks, AK: ADF&G, Division of Subsistence.
- Brown, W.E. 1979. *Nuiqsut Paisanich: Nuiqsut Heritage, a Cultural Plan*. Anchorage, AK: Prepared for the Village of Nuiqsut and the NSB Planning Commission on History and Culture.
- CPAI. 2020. Response to RFI 91, Polar Bear Observations. March 5, 2020. Anchorage, AK: Prepared for BLM Alaska.
- Durner, G.M., A.S. Fischbach, S.C. Amstrup, and D.C. Douglas. 2010. Catalogue of Polar Bear (Ursus maritimus) Maternal Den Locations in the Beaufort Sea and Neighboring Regions, Alaska, 1910–2010. Data Series 568. Reston, VA: USGS.
- Larned, W., R.A. Stehn, and R.M. Platte. 2012. *Waterfowl Breeding Population Survey, Arctic Coastal Plain, Alaska, 2011*. Anchorage, AK: USFWS, Division of Migratory Bird Management.
- McFarland, J., B. Morris, L. Moulton, and C.R. Moulton. 2020. Fish Surveys in the Northeastern NPR-A, 2019. Anchorage, AK: Prepared for Owl Ridge Natural Resource Consultants, Inc. for ConocoPhillips Alaska, Inc.
- McFarland, J., W.A. Morris, C.R. Moulton, L. Moulton, and K.M. Ferry. 2019. *Fish Surveys in the Northeastern NPR-A, 2018.* Anchorage, AK: Prepared by Owl Ridge Natural Resource Consultants, Inc. for ConocoPhillips Alaska, Inc.
- McFarland, J., W.A. Morris, C.R. Moulton, L.L. Moulton, and K.M. Ferry. 2018. Fish Surveys in the Northeastern NPR-A, 2018. Anchorage, AK: Prepared by Owl Ridge Natural Resource Consultants, Inc. for ConocoPhillips Alaska, Inc.
- Morris, W. 2003. Seasonal Movements and Habitat Use of Arctic Grayling (Thymallus arcticus), Burbot (Lota lota), and Broad Whitefish (Coregonus nasus) within the Fish Creek Drainage of the National Petroleum Reserve-Alaska, 2001–2002. Technical Report No. 03-02. Fairbanks, AK: Prepared for NSB, Department of Wildlife Management and ADNR, Office of Habitat Management and Permitting
- Moulton, L.L., B. Seavey, and J. Pausanna. 2006. *Harvest Rates for the 2005 Colville River Fall Fishery*. Lopez Island, WA: Report by MJM Research for ConocoPhillips Alaska, Inc.
- Moulton, L.L., B. Seavey, and J. Pausanna. 2010. History of an Under-Ice Subsistence Fishery for Arctic Cisco and Least Cisco in the Colville River, Alaska. *Arctic* 63 (4):381–390.
- North Slope Science Initiative. 2011. NSSI Lakes Data: Mapping Winter Liquid Water Availability in Lakes on the North Slope Coastal Plain of Alaska Using Sythetic Aperture Radar (SAR). http://catalog.northslopescience.org/catalog/entries/4782-nssi-lakes-data-mapping-winter-l

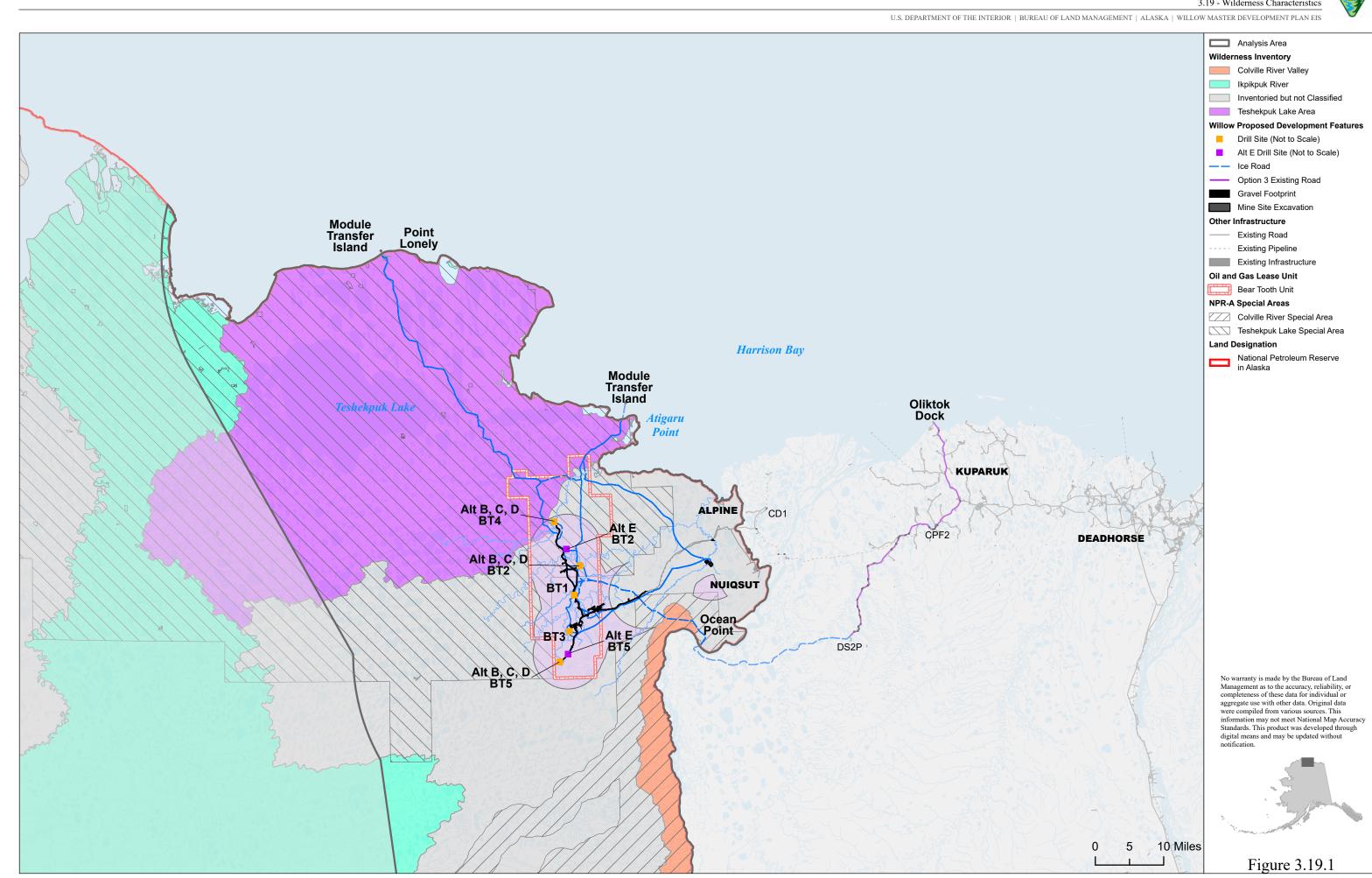
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- Pedersen, S. 1979. *Regional Subsistence Land Use, North Slope Borough, Alaska*. Occasional Paper No. 21. Fairbanks, AK: University of Alaska, Fairbanks, Cooperative Park Studies Unit.
- ----. 1986. Nuiqsut Subsistence Land Use Atlas, 1986 Update. Report 1986-01. Fairbanks, AK: ADF&G, Division of Subsistence.
- Prichard, A.K., M.J. Macander, J.H. Welch, and B.E. Lawhead. 2019. *Caribou Monitoring Study for the Bear Tooth Unit Program, Arctic Coastal Plain, 2018.* Fairbanks, AK: Prepared by ABR, Inc. for ConocoPhillips Alaska, Inc.
- SRB&A. 2010. Subsistence Mapping of Nuiqsut, Kaktovik, and Barrow. Alaska OCS Study 2009-003. Anchorage, AK: Prepared for MMS.
- -----. Unpublished. *North Slope Borough Key Informant Subsistence Mapping Project, Barrow and Wainwright*. Unpublished data depicting 1987–1989 Barrow use areas reported during 59 interviews and 1988–1989 Wainwright use areas reported during 19 interviews.
- SRB&A and ISER. 1993. *North Slope Subsistence Study: Barrow, 1987, 1988, and 1989.* Alaska OCS Study MMS 91-0086. Anchorage, AK: Prepared for MMS.
- SRB&A, B., Stephen R. & Associates). 2021. *Nuiqsut Caribou Subsistence Monitoring Project: 2019 (Year 12) Report*. Anchorage, Alaska: Prepared for ConocoPhillips Alaska, Inc. and North Slope Borough Department of Wildlife Management.
- USFWS. 2013. Yellow-Billed Loon Geodatabase, 2013 Update. Accessed December 6, 2018. http://arcticlcc.org/products/spatial-data/show/yellow-billed-loon-geodatabase.
- ----. 2016. Unpublished Data from ACP Aerial Waterbird Population Surveys 1992 to 2016. Fairbanks, AK.
- ----. 2019. Unpublished Data regarding Steller's Eider Distribution. Fairbanks, AK.
- Welch, J.H., A.K. Prichard, and M.J. Macander. 2022. *Caribou monitoring study for the Bear Tooth Unit, 2021*. Fairbanks, AK: Annual report for ConocoPhillips Alaska, Inc., Anchorage, by ABR Inc.

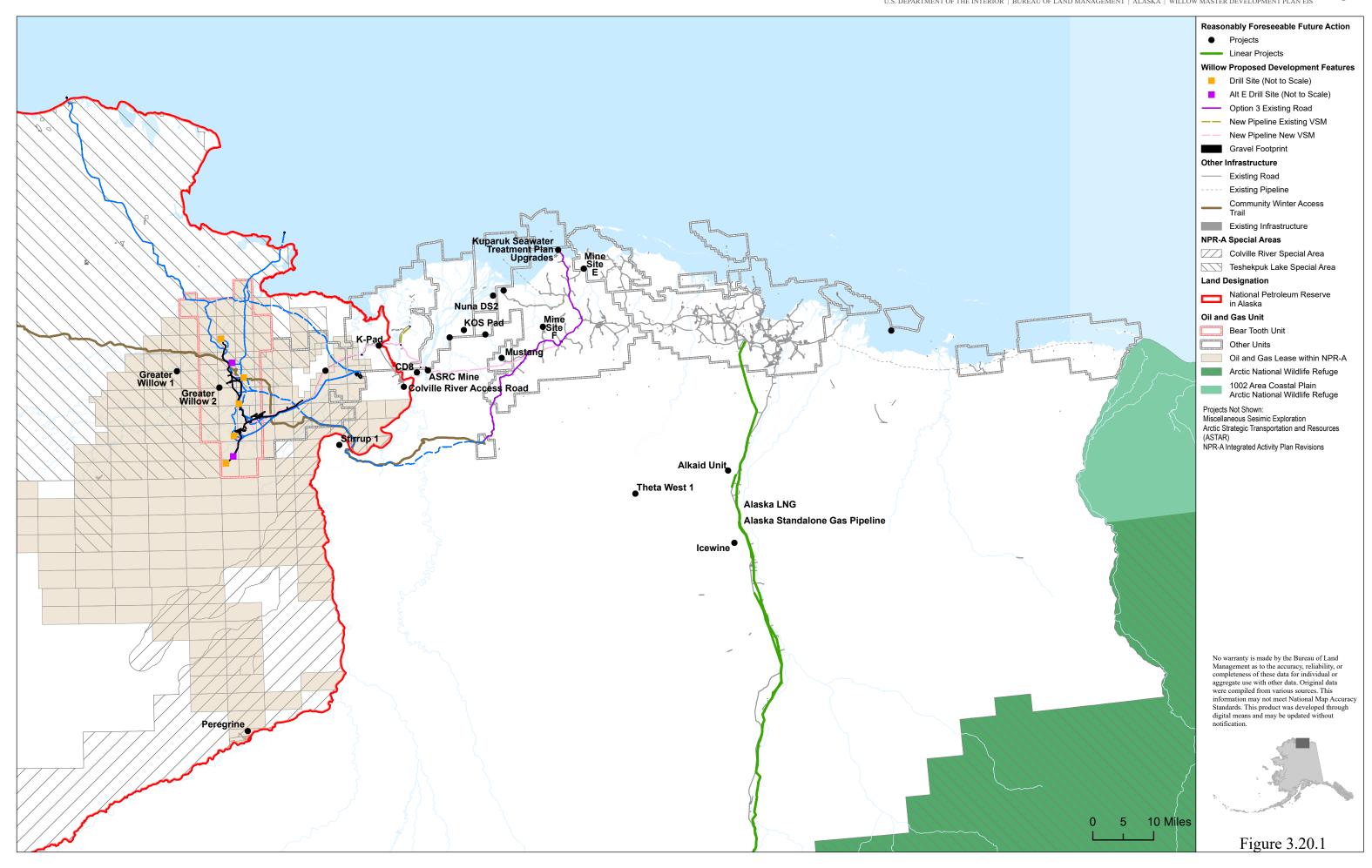
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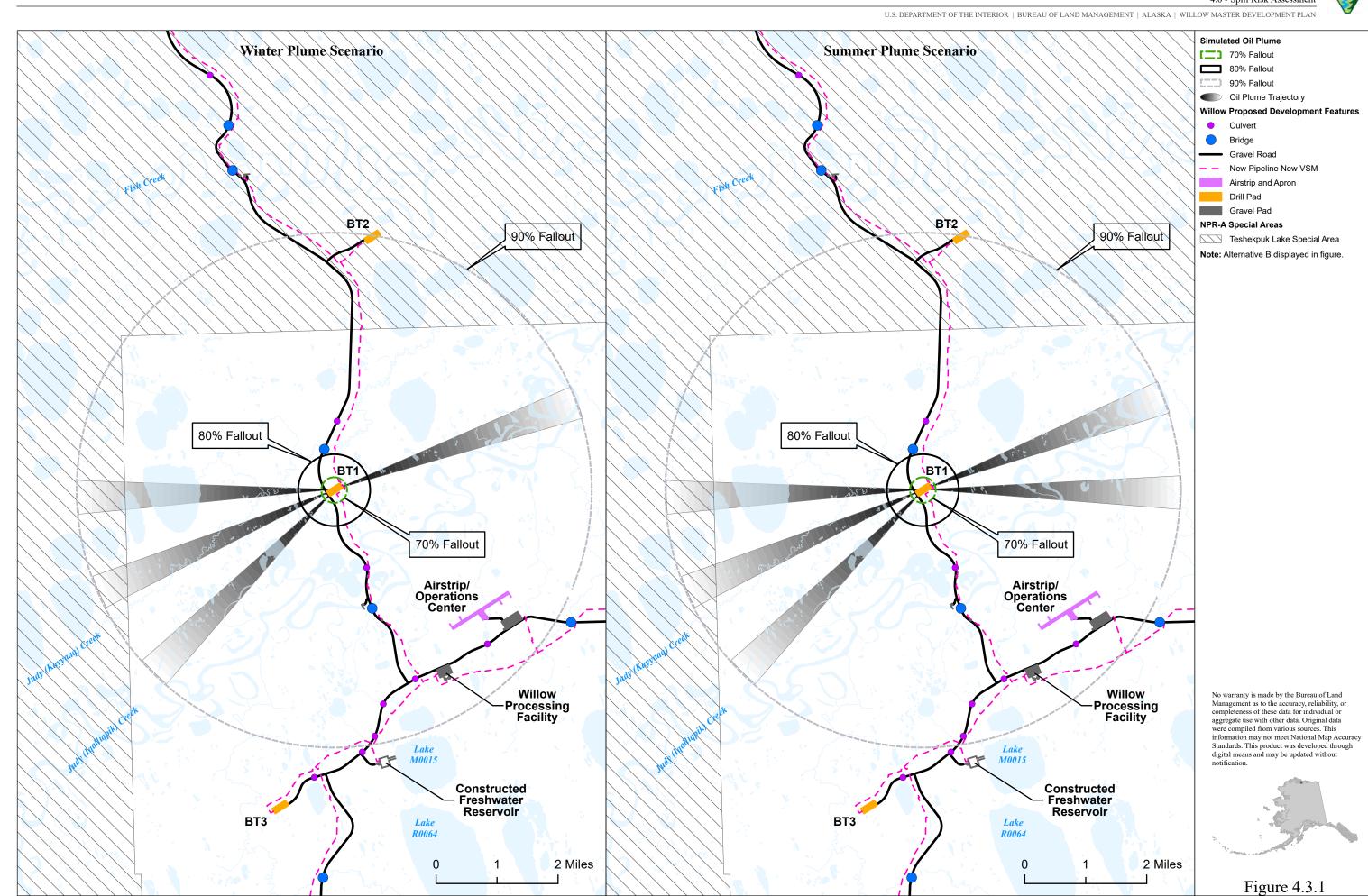
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