ALASKA POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT FOR STORM WATER DISCHARGES FROM SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS

PRELIMINARY DRAFT – FACT SHEET

Permit Number: AKS053414

DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Wastewater Discharge Authorization Program
555 Cordova Street
Anchorage, AK 99501

Public Notice Start Date: insert date
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Proposed reissuance of the Alaska Pollutant Discharge Elimination System (APDES) Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4) within the

Fairbanks North Star Borough
(hereinafter "permittee")

The Alaska Department of Environmental Conservation (the Department or DEC) proposes to reissue an APDES MS4 Permit (permit) for discharges from a small MS4. The permit authorizes and sets conditions on the discharge of pollutants from municipal activities to waters of the United States. In order to ensure protection of water quality and human health, the permit establishes conditions, prohibitions, and management practices for discharges of storm water from the MS4 owned or operated by the permittee.

This fact sheet explains the nature of potential discharges from MS4 activities and the steps in the development of the permit, including:

- information on public comment, public hearing, and appeal procedures,
- a listing of proposed control measures and other conditions,
- technical material supporting the conditions in the permit, and
- proposed inspection, monitoring, and reporting requirements in the permit.

Public Comment

Persons wishing to comment on, or request a public hearing for the draft permit for this facility, may do so in writing by the expiration date of the public comment period.

Commenters are requested to submit a concise statement on the permit condition(s) and the relevant facts upon which the comments are based. Commenters are encouraged to cite specific permit requirements or conditions in their submittals.

A request for a public hearing must state the nature of the issues to be raised, as well as the requester's name, address, and telephone number. The Department will hold a public hearing whenever the Department finds, on the basis of requests, a significant degree of public interest in a draft permit. The Department may also hold a public hearing if a hearing might clarify one or more issues involved in a permit decision or for other good reason, in the Department's discretion. A public hearing will be held at the closest practicable location to the site of the operation. If the Department holds a public hearing, the Director will appoint a designee to preside at the hearing. The public may also submit written testimony in lieu of or in addition to providing oral testimony at the hearing. A hearing will be tape recorded. If there is sufficient public interest in a hearing, the comment period will be extended to allow time to public notice the hearing. Details about the time and location of the hearing will be provided in a separate notice.

All comments and requests for public hearings must be in writing and should be submitted to the Department at the technical contact address, fax, or email identified above (see also the public comments section of the attached public notice). Mailed comments and requests must be postmarked on or before the expiration date of the public comment period.

After the close of the public comment period and after a public hearing, if applicable, the Department will review the comments received on the draft permit. The Department will respond to the comments received in a Response to Comments document that will be made available to the public. If no substantive comments are received, the tentative conditions in the draft permit will become the proposed final permit.

The proposed final permit will be made publicly available for a five-day applicant review. The applicant may waive this review period. After the close of the proposed final permit review period, the Department will make a final decision regarding permit issuance. A final permit will become effective 30 days after the Department's decision, in accordance with the state's appeals process at 18 AAC 15.185.

The Department will transmit the final permit, fact sheet (amended as appropriate), and the Response to Comments to anyone who provided comments during the public comment period or who requested to be notified of the Department's final decision.

The Department has both an informal review process and a formal administrative appeal process for final APDES permit decisions. An informal review request must be delivered within 15 days after receiving the Department's decision to the Director of the Division of Water at the following address:

Director, Division of Water
Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, AK 99501

Interested persons can review 18 AAC 15.185 for the procedures and substantive requirements regarding a request for an informal Department review. See http://dec.alaska.gov/commish/review-guidance/informal-reviews.aspx for information regarding informal reviews of Department decisions.

An adjudicatory hearing request must be delivered to the Commissioner of the Department within 30 days of the permit decision or a decision issued under the informal review process. An adjudicatory hearing will be conducted by an administrative law judge in the Office of Administrative Hearings within the Department of Administration. A written request for an adjudicatory hearing shall be delivered to the Commissioner at the following address:

Commissioner
Alaska Department of Environmental Conservation
410 Willoughby Street, Suite 303
Juneau AK, 99811-1800

Interested persons can review 18 AAC 15.200 for the procedures and substantive requirements regarding a request for an adjudicatory hearing. See http://dec.alaska.gov/commish/review-guidance/adjudicatory-hearing-guidance.aspx for information regarding appeals of Department decisions.

Documents are Available for Review

The permit, fact sheet, and related documents can be reviewed or obtained by visiting or contacting the Department between 8:00 a.m. and 4:30 p.m., Monday through Friday at the addresses below. The permit, fact sheet, and related documents can also be located on the Departments Wastewater Discharge Authorization Program website http://dec.alaska.gov/water/wastewater.aspx.

Alaska Department of Environmental Conservation Division of Water Wastewater Discharge Authorization Program 555 Cordova Street Anchorage, AK 99501 (907) 269-6285	Alaska Department of Environmental Conservation Division of Water Wastewater Discharge Authorization Program 610 University Ave. Fairbanks, AK 99709 (907) 451-2183
Alaska Department of Environmental Conservation Division of Water Wastewater Discharge Authorization Program 410 Willoughby Ave. Juneau, AK 99811 (907) 465-5300	

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1.0 INTRODUCTION

Storm water is the surface runoff that results from rain and snow melt. Urban development alters the land's natural infiltration, and human activity generates pollutants that can accumulate on paved or impervious surfaces. Uncontrolled storm water discharges from urban areas can negatively impact water quality[1].

The federal Clean Water Act (CWA) and the Environmental Protection Agency's (EPA) National Pollutant Discharge Elimination System (NPDES) storm water regulations establish permit requirements for discharges from certain publicly-owned separate storm sewer systems located in urban areas to control pollutants to the maximum extent practicable. 33 U.S.C. § 1342(p)(3); 40 CFR § 122.26 and 40 CFR §§ 122.3037.

EPA defines "municipal separate storm sewer" and those considered to be "large", "medium", and "small" MS4s at 40 Code of Federal Regulations (CFR) §122.26(b). In general, a MS4 includes any publicly-owned conveyance or system of conveyances used for collecting and conveying storm water, which discharges to waters of the United States. An MS4 includes roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, and storm drains. EPA has designated large, medium, and small MS4s based on the population the system served; these regulated MS4s must obtain NPDES permit coverage for their discharges. Permits for MS4s require the implementation of a Storm Water Management Program (SWMP) to control pollutants in the MS4 discharge to the maximum extent practicable.

The permit and fact sheet reference various state and federal regulations. The state regulations are found in the Alaska Administrative Code (AAC), Chapter 83 "Alaska Pollutant Discharge Elimination System Program" (18 AAC 83). The federal regulations are adopted by reference into the state APDES regulations in 18 AAC 83.010(b)(3). As an aid to readers, however, the permit and fact sheet in some areas cite the federal regulations where specific regulatory language can be found.

EPA previously issued an NPDES permit for the MS4 owned and operated by the permittee on June 1, 2005. The permit expired on May 31, 2010. In October 2009, EPA transferred authority to administer the APDES program to DEC. When the permit expired in May 2010, DEC administratively extended the permit pursuance to 18 AAC 83.155(c) until it was reissued on June 10, 2013. Following the application requirements in 18 AAC 83.110(d) the permittee submitted an application for reissuance of their permit on January 30, 2018.

The permittee has continued to implement SWMP activities in compliance with the previous permit and to submit Annual Reports.

[1]See Results of the Nationwide Urban Runoff Program, Executive Summary, EPA Office of Water (1983); NPDES Regulations for Revision of the Water Pollution Control Program Addressing Stormwater Discharges, 64 Fed. Reg. 68726 (Dec. 8, 1999); and National Water Quality Inventory, 1998 Report to Congress, EPA.

The permit associated with this fact sheet implements the requirements of the Phase II storm water program for small MS4s in urbanized areas[2]. The permit requires the permittee to continue implementation of a comprehensive jurisdiction-wide municipal SWMP and outlines the actions and activities to be used by the permittee to control pollutants in urban storm water discharges to the maximum extent practicable. Monitoring of certain storm water discharges is required to determine the effectiveness of best management practices (BMPs) and to estimate pollutant loading to impaired receiving waters. Annual reporting is required to provide information on the collective status of the SWMP implementation.

2.0 BACKGROUND

2.1 Delegation of Authority

In October 2008 EPA approved Alaska's application to administer the NPDES Program. The State's program is called the Alaska Pollutant Discharge Elimination System (APDES) Program. EPA's approval of the application included transferring authority to administer the APDES Program in phases. Authority to administer the storm water program transferred to DEC on October 31, 2009; however, EPA retains oversight authority over DEC's APDES Program.

2.2 Permit Area and Applicant

In accordance with Section 402(p) of the CWA and federal regulations at 40 CFR §122.32, the permit coverage area is on a system-wide basis for the following MS4 permittee:

Fairbanks North Star Borough
Department of Public Works
P.O. Box 71267
Fairbanks, Alaska 99707-1267

The storm sewer systems owned and operated by the permittee are located within the boundaries of the Fairbanks Urbanized Area defined by the Year 2010 Decennial Census. See APPENDIX A for a map of the Fairbanks Urbanized Area. A comprehensive storm sewer system map for the Fairbanks area is available at http://gis.co.fairbanks.ak.us/website/stormwater/.

2.3 Description of the Permittee's MS4 in the Fairbanks Urbanized Area and Discharge Locations

The terms municipal separate storm sewer and small municipal separate storm sewer system are defined at 40 CFR §122.26(b)(8) and (b)(16), respectively. MS4s include any publicly-owned conveyance or system of conveyances used for collecting and conveying storm water that discharges to waters of the United States. The term municipality is defined at 40 CFR §122.2. An MS4 can be owned or operated by a federal, state, local or tribal entity, and includes systems at

[2]64 FR 68754 (December 8, 1999) http://www.gpo.gov/fdsys/pkg/FR-1999-12-08/pdf/99-29181.pdf

military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings.

The Fairbanks North Star Borough (FNSB) owns and operates storm water conveyances within the Borough, which discharge to waters of the United States. FNSB supervises the activities of more than 40 Service Areas located within the Fairbanks Urbanized Area. Under Alaska state law, service areas (SAs) are specific geographical taxing jurisdictions within which the Borough provides a governmental service not otherwise provided throughout the Borough or to parts of the Borough outside the cities. For example, all public roads within an SA which are not owned by the a city, federal or state agency are maintained by the FNSB. The Borough's various departments, including Land Management, Community Planning, Public Works, and Parks and Recreation all oversee various land uses and resources owned by the Borough. Within the Fairbanks Urbanized Area, the FNSB is responsible for a land area of approximately 28 square miles.

FNSB has worked with other MS4 permittee organizations during previous permit cycles to develop a storm water conveyance map. This comprehensive geographical information system includes jurisdictional boundaries, location of inlets and outfalls, names and locations of waters that receive discharges from the outfalls, and the location of permittee-owned and operated facilities. Many of the roadside ditches are designed to facilitate drainage from the paved areas and, because of the local geology, may function as infiltration basins, and therefore are not conveying any significant flow of water.

2.4 Storm Water Management Program Accomplishments

The permittee has managed urban storm water discharges from it's MS4 in accordance with it's SWMP since 2005. The permittee has developed a variety of specific local requirements, assessments, and guidance material which allow it to effectively manage pollutants in storm water discharges within the Fairbanks Urbanized area, including:

- Ordinances:
  - Chapter 21.30 – Illicit Discharge Detection & Elimination
  - Chapter 21.40 – Construction Site Storm Water Runoff
  - Chapter 21.50 – Post-construction Storm Water Management
- FNSB Storm Water BMP Guide
- Site Development Plan Review – Storm Water BMP Design Guide (Fairbanks North Star Borough, Dept of Public Works, March 2010)
- Fairbanks Storm Water Advisory Committee
- Comprehensive MS4 and Industrial Facilities Map
- Annual Stream Cleanup Day
- Adopt-A-Stream Program
- Volunteer Water Quality Monitor (Tanana Valley Watershed Association)
- Storm Drain Stenciling Program and Art Contest
- 10 Ways you can prevent Storm Water Runoff Pollution Brochure, Fairbanks Storm Water Advisory Committee, 2010

- Green Infrastructure Resource Guide for Fairbanks, Alaska – Cold Climate Housing Research Center, 2012
- BMP Effectiveness Report for Fairbanks, Alaska – Shannon & Wilson, 2006
- Storm Water BMP Design Supplement for Cold Climates, Center for Watershed Protection, 1997
- Alaska Storm Water Pollution Prevention Plan Guide, Alaska Department of Transportation & Public Facilities, 2005

Links to these materials and other relevant references are posted on the Fairbanks Stormwater Management Program website at *http://www.fnsb.us/pw/Pages/Storm-Water.aspx*

3.0 DESCRIPTION OF MUNICIPALITY AND RECEIVING WATERS

3.1 Municipal Summary

The City of Fairbanks serves as the regional service and supply center for Interior Alaska. The city and surrounding development offers a diverse economy, including city, borough, state and federal government services; as well as being the regional center for transportation, communication, repair services, financial services, and medical services. The University of Alaska is the largest employer. Based on the results of the 2010 census, the population of the City of Fairbanks is 31,535 people.

The City of North Pole is located 14 miles southeast of the City of Fairbanks. Flint Hills Resources oil refinery produces jet fuel, heating oil, gasoline, and diesel from North Slope crude oil. Based on the results of the censuses in 2010, the population of the City of North Pole is 2,117 people.

FNSB has 107 Road Service Areas (RSAs) and based on the results of the 2010 census the population is 97,581 people. Each area was established through an election process by specific residents to provide road powers to FNSB for area specific roads. The Fairbanks Urbanized Area includes portions of the City of Fairbanks, City of North Pole, and 41 FNSB RSAs. The City of Fairbanks, City of North Pole, Alaska Department of Transportation and Public Facilities (ADOT&PF), and University of Alaska Fairbanks MS4's are permitted under an APDES permit AKS053406.

3.2 Precipitation and Temperature

The region has a continental subarctic climate with the warmest summers in the state, as well as the lowest record winter temperatures with extremes ranging from above 90 ºF to below -60 ºF. Mean annual temperatures average slightly below freezing, with a mean summer (June through August) temperature of approximately 59 ºF and a mean winter (November through March) temperature of approximately -1 ºF. Wintertime temperatures are strongly controlled by ground-based inversions, and may vary widely over short distances and in response to human modification of the local environment. The average annual precipitation is slightly above 10 inches with July and August on average the wettest months and April the driest. Snow covers the

ground continuously from mid-October to late April with an average annual snowfall of approximately 68 inches and a mean monthly snow depth of approximately 14 inches. Figure 1 and Figure 2 show the average total monthly precipitation and the average daily temperature and precipitation for the Fairbanks International Airport.

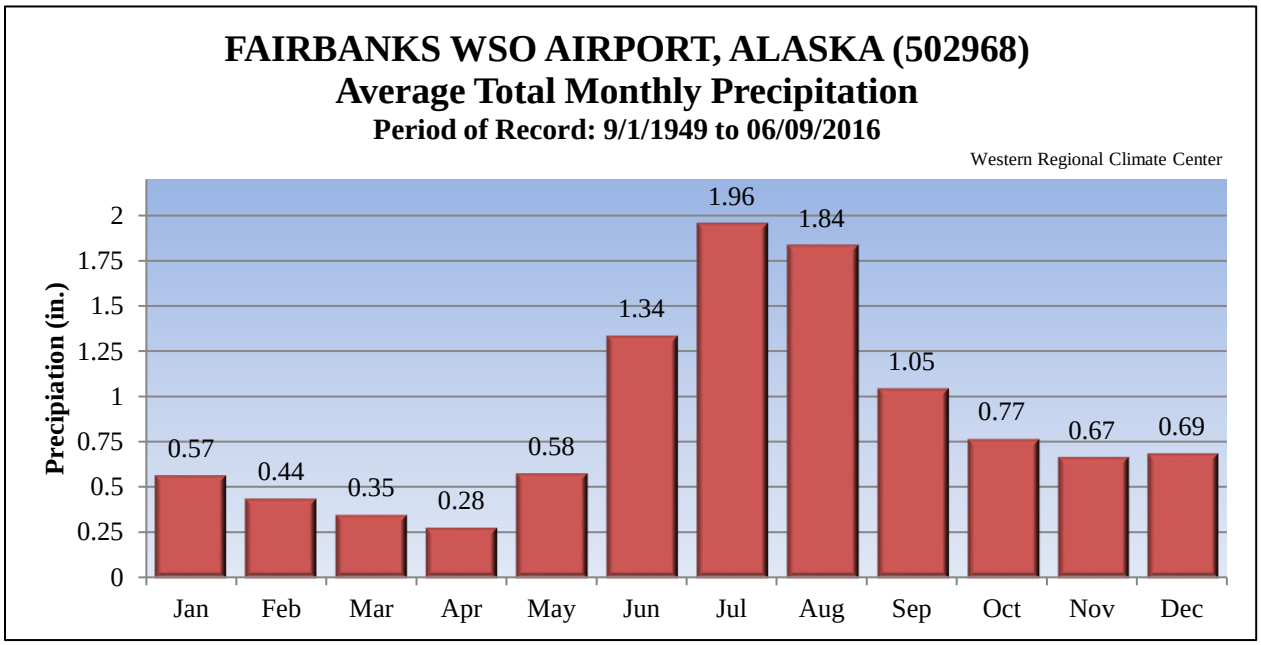


Figure 1: Average Total Monthly Precipitation

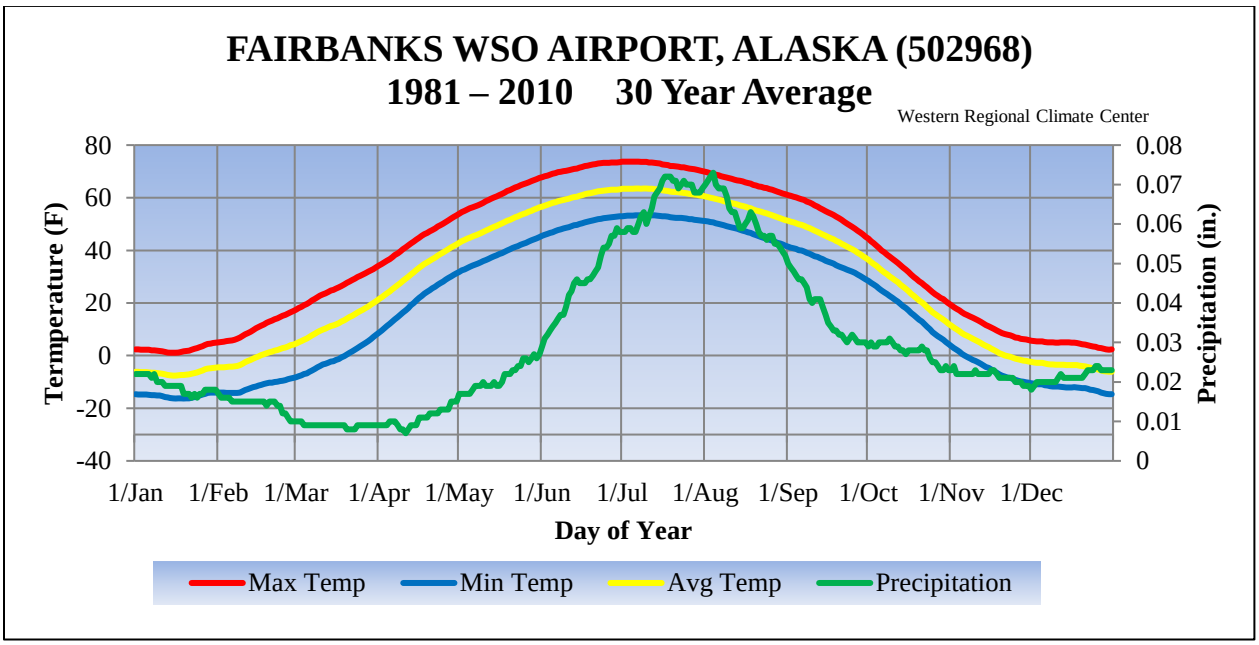


Figure 2: Average Daily Temperature and Precipitation for Fairbanks International Airport

The National Oceanic and Atmospheric Administration's Western Regional Climate Center maintains historical climate information for various weather stations throughout the western

United States. Annual average rainfall for the Fairbanks area is approximately 10.54 inches per year, with most of the precipitation occurring during the summer months. Snow is the predominant precipitation during the winter months in the Fairbanks area. Dates of spring breakup and fall/winter freezing cannot be predicted exactly. Using Figure 2, average daily temperature and precipitation, the aforementioned events are expected to occur from late April to early May and around mid-October.

3.3 Receiving Waters

3.3.1 Water Quality Standards

The protection of surface water occurs primarily through the development, adoption, and implementation of Water Quality Standards (WQS, 18 AAC 70) and the use of the WQS in APDES permits. The WQS designate specific uses for which water quality must be protected. Alaska WQS designate seven uses for fresh waters (A) water supply: (i) drinking; culinary, and food processinger; (ii) agriculture, including irrigation and stock watering; (iii) aquaculture; (iv) industrial; (B) water recreation: (i) contact recreation, (ii) secondary recreation; and (C) growth and propagation of fish, shellfish, other aquatic life, and wildlife. State waters within the Fairbanks Urbanized Area have been classified by DEC in 18 AAC 70.020 as fresh water with all seven designated uses mentioned above. Specific state water reclassified under section 18 AAC 70.0230(e) for Chena River from the confluence with Chena Slough to the confluence of Chena and Tanana Rivers is protected only for the following mentioned designated uses (A) water supply: (ii) agriculture, including irrigation and stock watering; (iii) aquaculture; (iv) industrial; (B) water recreation: (i) contact recreation, (ii) secondary recreation; and (C) growth and propagation of fish, shellfish, other aquatic life, and wildlife.

3.3.2 Potential Municipal Pollutants of the Receiving Waters

Storm water discharges can have highly variable levels of pollutants. EPA's Federal Register Notice states that turbidity levels in discharges from Construction and Development (C&D) sites may range from as low as 10–50 Nephelometric Turbidity Unit (NTU) to several thousand NTU. (Fed. Reg. Vol. 73, No. 230 p. 72572) Sediment from construction projects that discharge to the clear-water tributaries can have the greatest impact on the fisheries.

Sediment in water is generally considered in two broad categories. First, settleable solids rapidly settle out of the water and move downstream or down a ditch if rolled along the bottom or resuspended by currents. Second, suspended sediment remains in the water column due to water turbulence, particle shape, and/or low specific gravity of individual particles. EPA selected turbidity as a measure of the fine-material fraction of suspended sediment for use in the C&D Effluent Limitation Guideline (ELG) as the pollutant to sample for at C&D sites. EPA defined turbidity as "an expression of the optical property that causes light to be scattered and absorbed rather than transmitted with no change in direction of flux level through the sample … caused by suspended and colloidal matter such as clay, silt, finely divided organic and inorganic matter, and plankton and other microscopic organisms." One unit of measure of turbidity is the NTU. The NTU is based on the use of nephelometer, an instrument that measures the amount of light scattered by a water sample at 90º to the path of incident light. This measurement is calibrated

against the scattering of light in a standard suspension of formazin polymer and is reported in NTU.

Turbidity in Alaska's streams and rivers ranges from extremely low values of less than 1 NTU in clear-water drainages to intermediate levels of 50 NTU to naturally high levels of 50-4,000 NTU in several major rivers (Lloyd, 1986). Sampling at 46 sites in wadable streams in the Tanana River basin found a range in turbidity from 0.1 to 716 NTU, with a median value of 1.7 NTU. (Rinella, et.al., 2009)

3.3.3 Impaired Waters

The primary receiving waters within the urbanized area are Beaver Springs, Chena River, Chena Slough, and Noyes Slough. Although any water body impacted by storm water from a new development or redevelopment project must be considered in the design and implementation of BMPs; these primary receiving waters (with the exception of Beaver Springs) are identified as impaired on the DEC's CWA §303(d) list and require added attention. The State of Alaska's *Final 2010 Integrated Water Quality Monitoring and Assessment Report* identifies the pollutants of concern for Noyes Slough as petroleum products, sediment, and residues (debris) from urban runoff, and for the Chena River and Chena Slough as sediment from urban runoff.

Any water body which does not, or is not expected to meet applicable WQS is described as impaired or as a water quality-limited segment. Section §303(d) of the CWA requires states to develop Total Maximum Daily Load (TMDL) management plans for water bodies which are determined to be impaired. Developers must ensure the project design and construction site controls adhere to all approved TMDLs, as well as identify other potential pollutants of concern for the design so appropriate BMPs are selected to address those pollutants.

Alaska's Final 2010 Integrated Water Quality Monitoring and Assessment Report (DEC, 2010) lists Chena River, Chena Slough, and Noyes Slough as not meeting WQS for sediment. Noyes Slough is also listed for not meeting the water quality standard for petroleum hydrocarbons, oil and grease because of persistent observations of petroleum sheens. A TMDL for residue has been in place since 2008 for Noyes Slough. Since the 2010 report, DEC developed and EPA approved TMDL for the sheen component of the petroleum hydrocarbons, oil and grease standard for Noyes Slough. The TMDL documentation is available at http://dec.alaska.gov/water/water-quality/impaired-waters.aspx. In each of these waters, urban runoff is indicated as a potential source of these pollutants.

The Chena River and Chena Slough were previously listed in 1994 for non-attainment of the petroleum hydrocarbons, oils and grease WQS with the primary pollutant source identified as urban runoff. Sampling in 2005, 2007, and 2009 for hydrocarbons has shown the the Chena River and Chena Slough met WQS, and the impairment status for petroleum hydrocarbons, oils and grease was subsequently removed per the *Alaska's Final 2010 Integrated Water Quality Monitoring and Assessment Report (DEC, 2010).*

4.0 PERMIT CONDITIONS

This section is intended to help the regulated community and members of the public understand the intent and basis of the actual permit language. If any confusion or conflicts exist between this summary and the actual permit language, the permittee must comply with the permit as written. The number in parentheses following the fact sheet section headers refers to the Part of the permit.

The conditions established by the permit are based on Section 402(p)(3)(B) of the CWA, 33 U.S.C. §1342(p)(3)(B). This section requires that a permit for an MS4 must effectively prohibit non-storm water discharges from entering the MS4 and requires controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the permitting authority determines appropriate for the control of such pollutants.

The permit proposes the use of BMPs as the primary means to control the sources of pollution in storm water discharges. DEC has determined that BMPs implemented and enforced through a comprehensive local SWMP are the most effective mechanism for reducing the discharge of pollutants to the maximum extent practicable and for complying with the water quality provisions of the CWA. EPA considers maximum extent practicable to be an iterative process in which an initial SWMP is proposed and then periodically upgraded as new BMPs are developed or new information becomes available concerning the effectiveness of existing BMPs.[3] DEC agrees with EPA's iterative process approach for MS4 improvement. The NPDES regulations at 40 CFR §122.44(k) allow for use of BMPs when numeric limits are infeasible. EPA's *Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits Policy* (August 1996) addresses the use of BMPs in storm water permits to provide for attainment of WQS. This policy is available on-line at http://www.epa.gov/npdes/pubs/swpol.pdf.

The APDES application requirements for MS4 operators at 40 CFR §122.33 describe in detail the information that must be submitted to DEC to obtain permit coverage. The MS4 permittee is required to develop, implement, and enforce a SWMP designed to reduce the discharge of pollutants from their MS4 to the maximum extent practicable, to protect water quality, and to satisfy the appropriate water quality requirements of the CWA. 40 CFR §122.34 outlines six minimum control measures the SWMP must include. DEC then determines the specific permit conditions necessary to reduce the discharge of pollutants to the maximum extent practicable. DEC carefully considered the program information submitted by the permittee in its APDES application to develop the SWMP requirements in the permit, as well as information contained in Annual Reports from the previous permit term to develop the required permit conditions. The permit application and associated amendment are included in the administrative record supporting this permitting decision.

[3] 64 FR 68754 (December 8, 1999)

4.1 Applicability

4.1.1 Discharges Authorized Under this Permit

The permit authorizes all existing storm water discharges to waters of the United States from the portions of the MS4 owned or operated by the permittee within the Fairbanks Urbanized Area.

The permit limits the authorization to discharge municipal storm water in a variety of ways:

1. Storm runoff that is commingled with flows from process wastewater, non-process wastewater, and storm water associated with industrial or construction activity (as defined in 40 CFR §122.26(b)(14) and (15)) or other discharge flows are allowed provided the commingled flows are already authorized by a separate APDES individual or general permit.
2. Certain types of non-precipitation related run off (referred to as non-storm water) listed in 40 CFR §122.26(d)(2)(iv)(B)(1) are also allowed to enter the MS4s as long as the discharges are not considered to be sources of pollution to the waters of the United States in the Fairbanks area. However, the permittee is responsible for the quality of the combined discharge and therefore have an interest in locating any uncontrolled or un-permitted discharges to the storm drain system. In Part 3.3, the permit requires the permittee to prohibit, through ordinance or other enforceable means, all other types of non-storm water discharges into the MS4s.
3. Discharges from the MS4s must not cause violations of state WQS.

4.1.2 Limitations on Permit Coverage

4.1.2.1 Non-Storm Water Discharges

The permit authorizes the discharge of non-storm water if it meets one of three conditions: 1) the discharge is in compliance with a separate APDES permit, 2) the discharge is the result of a spill due to unforeseen weather event or consists of an emergency discharge, or 3) consists of uncontaminated water from a list of approved sources.

4.1.2.2 Discharges Threatening Water Quality

The permit does not authorize the discharge of storm water that the Department determines will cause, have the reasonable potential to cause, or contribute to violations of WQSs.

4.1.2.3 Snow Disposal to Receiving Waters

Disposal of snow directly into waters of the United States, or directly to the MS4s, is prohibited, due to concerns that the accumulated snow and melt water may contain elevated levels of chloride and other salts, suspended sediment, turbidity, and metals associated with sediment and turbidity. Discharges of snow melt resulting from or associated with the permittee's snow management practices (such as street plowing, and application of traction material) are conditionally authorized, provided such activities are conducted in accordance with BMPs and a manner that minimizes adverse water quality impacts. DEC recognizes the permittee's use of the snow management practice of using ditches for snow storage as an acceptable management practice. The primary function of using the ditches during the winter months is for snow storage

and as is part of the permittee's snow disposal and management practices. The ditches are maintained by the permittee and are lined with gravel, soil, and vegetation that allows melting of snow and rainwater to infiltrate into the ground to help filter pollutants from directly entering surface receiving waters. As stated in the Permit, discharges from the permittee's snow disposal and snow management practices are authorized under this permit when such practices are operated using appropriate best management practices (BMPs) required in Part 3.6 Pollution Prevention and Good Housekeeping. BMPs may include detention basins, dikes, berms, ditches, and vegetative buffers. BMPs shall be designed, operated, and maintained to prevent and reduce pollutants in the discharges to the maximum extent practicable so as to avoid excursions above WQS.

4.1.2.4 Discharges to Water Quality-Impaired Receiving Waters

The CWA mandates that states monitor and report on the quality of their waters. Section §305(b) requires that the quality of all water bodies be characterized and Section §303(d) requires that states list any water bodies that do not meet WQS. DEC develops and publishes an integrated water quality assessment report as required by the CWA. The most recent final report is the *Alaska's Final 2010 Integrated Water Quality Monitoring and Assessment Report* (ADEC, 2010).

Waters that do not meet the numeric/narrative criteria for their use designation(s) are listed as impaired, in compliance with the CWA and state rules. DEC currently lists approximately 65 waters as impaired, with about 30 listed as candidates for development of a TMDL (ADEC, 2010). TMDLs typically define both waste load allocations (WLAs) and load allocations (LAs) that specify how much of a particular pollutant can be discharged from both regulated and unregulated sources, respectively, such that the water body will again meet WQS. In a water body with an approved a TMDL, any APDES permit conditions must be consistent with the assumptions and requirements of available WLAs. See 40 CFR §122.44(d)(1)(vii)(B). Table 1 summarizes the water bodies in the Fairbanks area listed as impaired.

Table 1: Impaired Water Bodies in Fairbanks – 2010

Pollutant Source	Waterbody	Pollutant	Category
Urban Runoff	Noyes Slough	Residues (debris)	4a
Urban Runoff	Noyes Slough	Petroleum Hydrocarbons, Oil and Grease (sheens)	5*
Urban Runoff	Noyes Slough	Sediment	5
Urban Runoff	Chena Slough	Sediment	5
Urban Runoff	Chena River	Sediment	5

Source: Alaska's Final 2010 Integrated Water Quality Monitoring and Assessment Report (July 2010)
Note: Category 4a – Impaired water with a final/approved TMDL
Category 5 – Impaired water, Section 303(d) list, require TMDL
*A TMDL for the sheen component of the petroleum hydrocarbons, oil and grease WQS was developed for Noyes Slough and approved by EPA in 2011; it will be moved to category 4a in DEC's next Integrated Report.

Pollutant Allocations in the Noyes Slough TMDLs

TMDLs should define waste load allocations (WLAs) for point source discharges, and load allocations (LAs) for nonpoint source discharges. In a guidance memo issued in 2002, EPA set forth options for addressing NPDES regulated storm water discharges in TMDLs. See "Establishing Total Maximum Daily Load Wasteload Allocations for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs" (2002 TMDL Guidance Memo). The 2002 TMDL Guidance memo also explained how to establish effluent limits for APDES regulated storm water discharges from applicable WLAs.

EPA has approved the TMDLs for the Noyes Slough for Residues (Debris) and Petroleum Hydrocarbons, Oil and Grease (Sheens). DEC is currently collecting data to evaluate the sediment impairment for the Chena River, Chena Slough, and Noyes Slough.

Residues (Debris) in Noyes Slough. The TMDL for the Noyes Slough for Residues (Debris) refers only to human-caused residues, and should not be confused with naturally occurring woody debris. The major sources of debris in the watershed include urban runoff and direct dumping. The debris has typically consisted of appliances, scrap building materials, concrete, and asphalt, as well as shopping carts, tires, litter, paper products, and cans. The debris enters Noyes Slough directly from littering or indirectly from storm water runoff and snow melt. Since the WQS for debris does not allow for any unpermitted, human-caused inputs to the system, the TMDL for debris in Noyes Slough is set to zero. Similarly, the loading capacity and waste load allocation are also set to zero. Due to the nature of debris impairment, the main focus of the TMDL is centered on development of strategies for reducing the presence of debris in Noyes Slough, which includes clean-up activities and the prevention of debris entering the water body.

Debris that enters the slough from storm water runoff likely includes smaller forms of debris such as bottles, cans, and paper products; however, it is not possible to determine which portion of the debris content is delivered from the MS4 and non-MS4 areas. A number of actions by the permittee have increased public awareness of the importance of Noyes Slough as a resource, there is increased use of garbage receptacles by private land owners adkacemt to the Slough and increased enforcement of local ordinances that have reduce the amount of debris input into the water body. However, as it is not practical to expect that all debris will be controlled even with the best preventative measures, cleanup activities will likely be an integral, ongoing part of the solution to the debris in Noyes Slough. Many of the activities to reduce the debris are already ongoing through the work of the MS4 permittee, the MS4 (City of Fairbanks, City of North Pole, University of Alaska - Fairbanks, and Alaska Department of Transportation and Public Facilities), and the Tanana Valley Watershed Association (TVWA) in the Fairbanks Urbanized Area.

Petroleum Hydrocarbons, Oils and Grease in Noyes Slough. The petroleum hydrocarbons, oils and grease potentially enter Noyes Slough from urban runoff and snowmelt. Sheens can indicate the presence of petroleum hydrocarbons, which can cause a wide range of impairments to aquatic life and habitat. Since the narrative water quality criterion for petroleum hydrocarbons, oils and grease does not allow for any visible sheens on surface waters, the TMDL for sheens in Noyes Slough is set to no visible sheens. Load and wasteload allocations for petroleum hydrocarbons, oils and grease for Noyes Slough is set to no visible sheens. The goal of the

TMDL is to reduce inputs of petroleum hydrocarbons, oils, and grease to the slough so that visible sheen occurrence is no longer persistent and chronic.

Noyes Slough has been designated as a Brownfield, which is an area that typically has hazardous substances and is redeveloped and reused under the Brownfields program. In data reviewed in development of the TMDL, data indicates that Noyes Slough meets the portions of the water quality criteria related to concentrations of petroleum hydrocarbons in surface water or sediments. However, petroleum and oil related sheens have been observed on slough water and sediments. Therefore, the petroleum hydrocarbons, oils and grease TMDL was written to address the sheens observed in Noyes Slough.

Sheens may also occur naturally as well as from petroleum products. Sheens that occur naturally from bacteria or decomposing material will break apart when poked with a stick as opposed to sheens from petroleum products which will swirl back together. The sheens in Noyes Slough likely result from a source which could be natural organics, groundwater, garbage and debris, or urban runoff delivery of petroleum hydrocarbons, oils and grease. However, it may be impossible to determine whether the sheens are delivered from the MS4 or non-MS4 area. The MS4 permit only regulates the indirect inputs brought into the slough through the storm water conveyance system.

The objective of the TMDL and the control measures of the MS4 permit will be to reduce contributions of petroleum hydrocarbons, oils, and grease to the slough so that visible sheen occurrence is no longer persistent and chronic.

Permit Requirements for TMDL Implementation

As previously noted, all APDES permit conditions must be consistent with the assumptions and requirements of available WLAs. EPA's 2002 TMDL Guidance Memo further defines how APDES permit conditions for regulated storm water discharges can be consistent with the assumptions and requirements of available WLAs through the use of narrative BMPs. Where BMPs are used as permit limitations to implement WLAs, the permit must require monitoring activities as necessary to assure compliance with the WLAs.

The 2002 TMDL Guidance Memo recommends the use of BMPs in a APDES permit to implement WLAs and load reduction targets addressing storm water discharges. The MS4 permit includes the following six minimum control measures: (1) Public education and outreach; (2) Public involvement/participation; (3) Illicit discharge detection and elimination; (4) Construction site storm water runoff control; (5) Post-construction storm water management in new development and redevelopment; and (6) Pollution prevention and good housekeeping for municipal operations. The minimum measures that are most relevant to controlling residues (debris) in Noyes Slough are public education/outreach, public involvement/participation, and pollution prevention and good housekeeping from municipal operations. The minimum measures that are most relevant to controlling sheens in Noyes Slough are public education/outreach;

public involvement/participation; illicit discharge detection and elimination; and pollution prevention and good housekeeping from municipal operations.

In the permit, DEC has refined the narrative describing certain activities, or has incorporated additional SWMP actions and activities, to ensure that discharges from the permittee's MS4s are controlled to the maximum extent practicable. Certain requirements specifically address the WLAs set forth in the TMDL plans for the Noyes Slough. The permittee's SWMP also provides opportunities to collectively target actions to achieve pollutant reductions in areas for which TMDLs have not yet been approved (sediment for the Chena River, Chena Slough, and Noyes Slough).

4.2 Storm Water Management Program Requirements

4.2.1 Storm Water Management Program Document

The permit requires the permittee to implement and enforce a SWMP designed to reduce pollutants to the maximum extent practicable and to protect water quality. Regulations at 40 CFR §122.34 set forth six minimum pollution control measures to be included in a SWMP. For each measure, the regulations specify certain required elements and also provide guidance concerning what an adequate program should include. See Part 4.3 of this Fact Sheet for detailed description of the six minimum measures.

4.2.2 General Requirements

The permittee is required to continue it's SWMP activities designed to limit, to the maximum extent practicable, the discharge of pollutants from the MS4 in order to protect water quality and to satisfy the appropriate water quality requirements of the CWA. DEC has refined or incorporated additional SWMP actions and activities to ensure that storm water discharges from the permittee's MS4 is controlled to the maximum extent practicable.

Monitoring, evaluation, reporting, and recordkeeping requirements are specified in Part 4.0 of the permit. The permit requires the permittee to monitor water quality and BMP effectiveness in a variety of ways. A quality assurance plan (QAP) must be used in conjunction with all analytical sampling and monitoring activities; the Annual Report will provide narrative documentation of program implementation and accomplishments.

4.2.3 Reviewing and Updating the Storm Water Management Program

The SWMP is intended to be a functioning mechanism for the permittee's use. Therefore, minor changes and adjustments to the various SWMP elements are expected and may be necessary to more successfully adhere to the goals of the permit. DEC determined that minor changes to the SWMP shall not constitute the need for permit modifications as defined in the regulations at 40 CFR §122.6. Part 2.3 of the permit describes procedures to be used to perform additions and minor changes to the SWMP. The permit does not allow the permittee to remove elements in the SWMP that are required through permit conditions or regulatory requirements. Any changes requested by the permittee will be reviewed and approved by DEC.

4.2.4 Transfer of Ownership, Operational Authority, or Responsibility for SWMP Implementation

DEC does not intend to mandate a permit modification should the permittee annex additional lands or accept the transfer of operational authority over portions of the MS4s. Implementation of appropriate SWMP elements for these additions (annexed land or transferred authority) is required. The permittee must notify DEC of any such additions or transfers in the Annual Report. DEC may require a modification to the permit based on evaluation of the new information.

4.2.5 Storm Water Management Program Resources

Part 2.5 of the permit requires the permittee to provide adequate support to implement its activities under the SWMP. Compliance with Part 2.5 will be demonstrated by the permittee's ability to fully implement the SWMP and other permit requirements as scheduled. The permit does not require specific funding or staffing levels, thus providing the permittee the ability and incentive to adopt the most efficient and cost effective methods to comply with permit requirements. DEC encourages the permittee to establish stable funding sources to support ongoing SWMP implementation.

4.3 Minimum Control Measures

The Phase II Rule defines a SWMP for a small MS4 as a program composed of six elements that, when implemented together, are expected to reduce pollutants discharged into receiving waterbodies to the maximum extent practicable. These six program elements, or minimum control measures, are

- Public Education and Outreach on Stormwater Impacts,
- Public Involvement/Participation,
- Illicit Discharge Detection and Elimination,
- Construction Site Runoff Control,
- Post-Construction Stormwater Management in New Development and Redevelopment and,
- Pollution Prevention/Good Housekeeping.

The permit requires the permittee to comply with non-numeric technology-based standards (Part 2.2 of the permit) by implementing minimum control measures. The achievement of these non-numeric standards will result in the reduction or elimination of pollutants from the permittee's storm water discharge.

4.3.1 Public Education and Outreach

The permittee must continue to implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of storm water discharges on water bodies and steps the public can take to reduce pollutants in storm water runoff.

An informed and knowledgeable community is crucial to the success of a SWMP, since there is greater support for the program as the public gains a better understanding of the reasons why the

program is necessary and important. Public support is particularly beneficial when operators of small MS4s attempt to institute new funding initiatives for the program or seek volunteers to help implement aspects of the program. Education can lead to greater compliance with the program, as the public becomes aware of the personal responsibilities expected of them and others in the community, including individual actions they can take to protect or improve the quality of area waters.

The permittee successfully implemented the requirements of the previous permit term. The permittee has proposed to implement the following measure for this permit term:

- To continue and generally expand efforts for public education and outreach.
- Maintain and enhance storm water website, storm drain stencil program, and public service announcements.
- Continue to work with local school district for storm water presentations.
- Educational Material Distribution – expand to more targeted audiances.

During the permit term, the permittee must:

- Continue to implement a public education program to educate the community about the impacts of storm water discharges on water bodies and identify the steps that citizens and businesses can take to reduce pollutants in storm water runoff to the maximum extent practical.
- At least annually provide education to target audiences that encourages citizens to improve water quality.
- At least annually prepare and distribute appropriate information to local media outlets that encourages citizens to improve water quality.
- Document selected information in the Annual Report that describes the implementation of this control measure.

4.3.2 Public Involvement and Participation

This measure complements the public education control measure. If given the opportunity to participate, members of the public generally will become more supportive of a program. The permit requires that the public participation efforts comply with the public notice requirements of the state and local law. DEC encourages the permittee to provide more opportunities for public participation and to attempt to engage all groups serviced by the storm sewer system.

DEC believes that the public can provide valuable input and assistance to the development of a municipal SWMP. The public should be given opportunities to play an active role in both the development and implementation of the program. Broad public support is crucial to the success of a SWMP; citizens who participate in the development and decision making process are partially responsible for the program and are more likely to take an active role in its implementation. In addition, the community is a valuable, and free, intellectual resource providing a broader base of expertise and economic benefit. Citizens involved in the SWMP development process provide important cross-connections and relationships with other

community and government programs, which can be particularly valuable when trying to implement a SWMP on a watershed basis, as encouraged by the permittee.

The permittee successfully implemented the requirements of the previous permit term. During the previous permit term, the permittee implemented the following measures:

- Continue and generally expand efforts for public involvement and participation
- Maintain and enhance storm water website.
- Organizing and hosting an Annual Stream Cleanup Event.
- Convening monthly Storm Water Advisory Committee meetings.

During this permit term, the permittee must:

- Continue to implement a public involvement program to involve the community in the following ways:
    - Make Annual Reports available to the public,
    - Host an annual community Stream Clean Up Day,
    - Conduct an Adopt-A-Stream volunteer monitoring program,
    - Maintain a storm drain stenciling program, and
    - Continue the storm water advisory committee.
- Document selected information in the Annual Report that describes the implementation of this control measure.

4.3.3 Illicit Discharge Detection and Elimination

An illicit discharge, typically, is any discharge to a MS4 that is not storm water. There are some exceptions, such as fire fighting activities and otherwise permitted discharges. Part 1.5.1 of the permit lists the types of non-storm water which can be discharged, provided they are not significant contributors of pollutants to the system. This minimum measure requires the permittee to detect and eliminate illicit discharges from their system.

Discharges into MS4s often include wastes and wastewater from non-storm water sources. Illicit discharges enter the system through either direct connections (e.g., wastewater piping either mistakenly or deliberately connected to the storm drains) or indirect connections (e.g., infiltration into the MS4 from cracked sanitary systems, spills collected by drain outlets, or paint or used oil dumped directly into a drain). Examples of other sources include, but are not limited to: sanitary wastewater from septic tanks, car wash wastewaters, radiator flushing disposal, laundry wastewaters, and improper disposal of auto and household toxic waste. The result is untreated discharges that contribute high levels of pollutants, including heavy metals, toxics, oil and grease, solvents, nutrients, viruses, and bacteria to receiving water bodies. EPA studies conclude that pollutant levels from these illicit discharges can significantly degrade receiving water quality and threaten aquatic, wildlife, and human health.

The permittee successfully implemented the requirements of the previous permit term. During the previous permit term, the permittee implemented the following measures:

- Continue to implement the illicit discharge detection and elimination program.
- Improvements to the comprehensive MS4 map.

- Annual screening of the MS4 outfalls for non-storm water flows.
- Distribution of information to the public, and employee training.

During this permit term, the permittee must:

- Continue to implement an illicit discharge detection and elimination program in the following ways:
    - Review the effectiveness of the illicit discharge ordinances;
    - Review and update the inventory of industrial facilities covered by the Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity (AKR060000);
    - Continue to conduct industry education about prohibiting illicit discharges;
    - Update as necessary the comprehensive storm sewer system map; and
    - Continue dry weather screening.
- Document selected information in the Annual Report that describes the implementation of this control measure.

4.3.4 Construction Site Storm Water Runoff Control

Polluted storm water runoff from construction sites often flows to MS4s and ultimately is discharged into local rivers and streams. Sediment is usually the main pollutant of concern, as it has been demonstrated that sediment runoff rates from construction sites are typically 10 to 20 times greater than those of agricultural lands and 1,000 to 2,000 times greater than those of forest lands. During a short period of time, construction sites can contribute more sediment to streams than can be deposited naturally during several decades. The resulting siltation and the contribution of other pollutants from construction sites can cause physical, chemical, and biological harm to our nation's waters. For example, excess sediment can quickly fill rivers and lakes, requiring dredging and destroying aquatic habitats.[4]

Even though discharges from all Alaskan construction sites disturbing more than one acre are independently required to be authorized by an APDES storm water discharge permit (specifically, the APDES General Permit for Storm Water Discharges from Construction Activity, AKR100000), this minimum control measure is necessary to enable the permittee to effectively and directly control construction site discharges into their storm sewer systems. During the 2005 permit term, the permittee incorporated the following elements into it's local program:

- An ordinance or other regulatory mechanism requiring proper sediment and erosion control and proper waste management controls at construction sites;
- Procedures for site plan review of construction plans;
- Procedures for site inspection and enforcement; and
- Procedures for the receipt and consideration of public comments.

[4] 64 FR 68728 - 68731 (December 8, 1999)

The permittee can and should review what existing procedures are already in place in its jurisdiction for these activities. For example, plans are often reviewed by the local planning board, but not the public works staff. The permittee must work to optimize coordination between different municipal offices.

The permit allows the permittee to exempt from local regulation those sites which qualify for DEC's low rainfall erosivity waiver from the APDES General Permit for Storm Water Discharges from Construction Activity (AKR100000). This waiver, allowed by EPA regulation at 40 CFR §122.26(b)(15)(i)(A), is based on the R factor from the Revised Universal Soil Loss Equation (RUSLE) and applies to projects when (and where) negligible rainfall/runoff is expected.

The permittee successfully implemented the requirements of the previous permit term. During the previous permit term, the permitteec ontinued implementation of the FNSB construction site storm water runoff ordinance.

During this permit term the permittee must:

- Continue to implement a construction site storm water runoff control program to involve the regulated community in the following ways:
    - Review the implementation and enforcement of the existing program;
    - Revise the construction ordinance as needed;
    - Revise BMPs tailored to local conditions as needed;
    - Review and implement procedures for reviewing site plans; and
    - Host training sessions for the regulated public.
- Document selected information in the Annual Report that describes the implementation of this control measure.

4.3.5 Post-Construction Storm Water Management in New and Redevelopment

This control measure applies in areas undergoing new development or redevelopment. Post-construction controls are necessary because runoff from such areas has been shown to significantly affect receiving water bodies. Many studies indicate that prior planning and design for the minimization of pollutants in post-construction storm water discharges is the most cost-effective approach to storm water quality management.[5]

Post-construction runoff can cause an increase in the type and quantity of pollutants in storm water runoff. As runoff flows over areas altered by development, it can pick up harmful sediment and chemicals, such as oil and grease, pesticides, heavy metals, and nutrients (e.g., nitrogen and phosphorus). These pollutants often become suspended in runoff and are carried to receiving waters, such as lakes, ponds, and streams. Post-construction runoff also increases the quantity of water delivered to the waterbody during storms. Increased impervious surfaces interrupt the natural cycle of gradual percolation of water through vegetation and soil. Instead, water is collected from surfaces, such as asphalt and concrete, and routed to drainage systems where large

[5] 64 FR 68725-68728 and 68759 (December 8, 1999)

volumes of runoff quickly flow to the nearest receiving water. The effects of this process include stream bank scouring and downstream flooding, which often lead to a loss of aquatic life and damage to property.

This minimum measure requires the permittee to develop, implement, and enforce a program to reduce pollutants in post-construction runoff from areas of new development and redevelopment. This measure applies at minimum to projects, which are greater than or equal to one acre in size. In order to maintain compliance with this control measure, the permittee must:

- Continue to implement locally appropriate strategies, which include a combination of structural and/or nonstructural BMPs requirements. Non-structural requirements can include planning, zoning, and other local requirements, such as buffer zones. Structural controls include the use of storage, infiltration basins, or vegetative practices, such as rain gardens or artificial wetlands;
- Preserve the existing ordinance and/or other regulatory mechanism to address post-construction discharges; and
- Ensure adequate long-term operation and maintenance of BMPs.

During the previous permit cycle, the permittee implemented the following three BMPs to accomplish this control measure: created a new development/redevelopment design guide; adopted an ordinance to require post-construction storm water controls at new and re-developed sites in accordance with the design guide; and hosted at least one training session for the local construction, design, and engineering audiences on the newly adopted requirements for post-construction storm water management.

The permittee successfully implemented the requirements of the previous permit term. During this permit permit, the permittee will implement the following measures:

- Continue implementation of our postconstruction storm water management ordinance.
- Continue to implement a construction site storm water runoff control program to involve the regulated community in the following ways:
    - Review the implementation and enforcement of the existing program,
    - Revise the post-construction ordinance as needed,
    - Provide Low Impact Development/Green Infrastructure information in educational materials,
    - Revise BMPs tailored to local conditions,
    - Review and implement procedures for reviewing site plans, and
    - Host training sessions for the regulated public.
- Document selected information in the Annual Report that describes the implementation of this control measure.

4.3.5.1 Snow Disposal Sites

DEC added a new requirements for the permittee to begin evaluating snow disposal sites. The first step in evaluating snow disposal sites involves a thorough inventory with mapping of all

permittee-owned snow disposal sites that discharge directly to the MS4 or to receiving waters. The permittee is expected to complete all inventory and mapping activities during the first year of the permit cycle and update each activity on an annual basis. Secondly, the permittee must evaluate the need to regulate the operation of private snow disposal sites within the boundaries of the MS4 through an ordiance or other regulatory mechanism. Within two years of the effective date of this permit, the the permittee is expected to document the evaluation process in a report and submit the report to DEC with the corresponding Annual Report. Third, the permittee must revise all applicable requirements as necessary in accordance with the recommendations contained in the evaluation report within three years of the effective date of this permit.

4.3.6 Pollution Prevention and Good Housekeeping

This measure requires the permittee to continue implementation of an operation and maintenance program to prevent or reduce pollutant runoff from activities conducted by the municipality. The permittee must examine and subsequently alter its own actions to reduce the amount and type of pollution that: 1) collects on streets, parking lots, open spaces, storage and vehicle maintenance areas, which may be discharged into local waterways; and 2) results from actions, such as environmentally damaging land development and flood management practices or poor maintenance of storm sewer systems. Activities associated with maintenance of parks and open spaces, as well as fleet and building maintenance, must also be considered for possible water quality impacts. While this measure is meant primarily to improve or protect receiving water quality by improving municipal or facility operations, it also can result in a cost savings for the permittee, since proper and timely maintenance of storm sewer systems can help avoid repair costs from damage caused by age and neglect.

The permittee must examine its maintenance activities and schedules and inspection procedures for controls to reduce floating debris and other pollutants. By evaluating existing practices, the permittee can improve operations to reduce or eliminate discharges from roads, municipal parking lots, maintenance and storage yards, waste transfer stations, salt/sand storage locations and snow storage/disposal areas.

The permit does not specify particular BMPs, nor does it specify a frequency for any BMPs, as it is expected the permittee will determine the appropriate good housekeeping BMPs for its community as necessary to protect water quality and will train its employees on proper techniques to ensure such activities are accomplished.

The permittee successfully implemented the requirements of the previous permit term. During this permit term, will continue to implement the following measures:

- Continue implementation of storm water pollution prevention and good housekeeping measures.
- Continue to implement a pollution prevention and good housekeeping control measure to involve the regulated community in the following ways:
    - Continue to maintain and implement an operations and maintenance program intended to prevent or reduce pollutant runoff from municipal activities,

  - Conduct annual training of municipal personnel, and
  - Conduct an annual review of new flood management projects.
- Document selected information in the Annual Report that describes the implementation of this control measure.

4.4 Monitoring, Evaluation, Reporting, and Record Keeping Requirements

4.4.1 Monitoring and Evaluation of Overall Program Effectiveness

The Phase II storm water regulations at 40 CFR §122.34(g) require that MS4 operators evaluate program compliance, the appropriateness of BMPs in their SWMPs, and progress towards meeting their measurable goals. These requirements are included in Part 4.0 of the permit.

The nature of the monitoring activities to be implemented by the permittee largely depends on the measurable goals selected by the group. Measurable goals are primarily measures of the level of effort given to implementing a particular BMP (such as frequency of street sweeping), but may also encompass actual measures of water quality improvement. DEC encourages a mix of physical, chemical, biological, and programmatic indicators to evaluate the appropriateness of BMPs and progress towards achieving their measurable goals. The purpose of this evaluation is to determine whether or not the MS4 is meeting the requirements of the minimum control measures of the permit.[6]

The permittee is required to update and implement procedures to ensure that the monitoring data submitted are accurate and to explain data anomalies if they occur. The permittee is required to develop a Monitoring Program Plan and the Quality Assurance Project Plan (QAPP) within 180 days prior to the anticipated start date of any monitoring activity. The QAPP shall consist of standard operating procedures the permittee must follow for collecting, handling, storing and shipping samples; laboratory analysis; and data reporting. The Plan shall be submitted to the Department and be available upon request.

4.4.2 Annual Reports

In general, the annual report must document and summarize implementation of the SWMP during the previous year and evaluate program results and describe planned changes towards continuous improvement. The annual report serves as a snapshot of the current status of the SWMP for the general public or other stakeholders in the community. While records are to be kept and made available to the public, the annual report is an excellent summary document to provide as well.

DEC requires the permittee to use the Summary Annual Report Template in this permit to obtain summary information about the status of the MS4. In addition to the summary annual report, the permittee must also submit a more detailed annual report. Requirements for the minimum control measures in Part 3.0 of the permit detail specific information to be reported for each control

[6] 64 FR 68769, December 8, 1999

measure. The detailed annual report should clearly illustrate three key items for each SWMP area:

- **Summary of the Year's Activities**. The summary should describe and quantify program activities for each SWMP component. Responsible persons, agencies, departments should be included. Each activity should be described in relation to achievement of established goals or performance standards.
- **Description of SWMP Effectiveness**. The annual report should not only describe the previous year's activities, but should also highlight the SWMP's effectiveness (Part 4.2 of the permit) using indicators required in Part 4.1 of the permit.
- **Planned Activities and Changes**. The annual report should descrive activities planned for the next year highlighting any changes made to improve control measures or program effectiveness.

The Annual Report(s) may be submitted to DEC in electronic format (preferred) on CD-ROM(s) using universally available document formats, such as Adobe Acrobat PDF or other available means. However, while the Annual Report text can be submitted in electronic format, the required certification statement must be signed and dated in hard copy by the permittee as directed in Appendix A, Part 1.12.2 of this permit.

4.4.3 Recordkeeping

Part 4.4 of the permit requires the permittee to keep all records required by this permit for a period of at least five years. Records need to be submitted only when requested by DEC. The permittee's SWMP must be available to the public. The permittee may charge a reasonable fee for copies and may require a member of the public to provide advance notice of their request. DEC encourages the permittee to make their program materials available to the public electronically via a website or other viable means.

5.0 ANTIBACKSLIDING

18 AAC 83.480 requires that "effluent limitations, standards, or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit." 18 AAC 83.480(c) also states that a permit may not be reissued "to contain an effluent limitation that is less stringent than required by effluent guidelines in effect at the time the permit is renewed or reissued." The effluent limitations in this permit reissuance are consistent with 18 AAC 83.430. The permit effluent limitations, standards, and conditions are as stringent as in the previous permit.

6.0 ANTIDEGRADATION

Section 303(d)(4) of the CWA states that, for water bodies where the water quality meets or exceeds the level necessary to support the water body's designated uses, Water Quality-Based

Effluent Limits (WQBELs) may be revised as long as the revision is consistent with the State's antidegradation policy.

The Antidegradation Policy of the WQS (18 AAC 70.015) states that the existing water uses and the level of water quality necessary to protect existing uses must be maintained and protected. This section analyzes and provides rationale for the Department's decisions in the permit issuance with respect to the Antidegradation Policy.

The Department's approach to implementing the Antidegradation Policy, found in 18 AAC 70.015, is based on the requirements in 18 AAC 70 and the Department's *Policy and Procedure Guidance for Interim Antidegradation Implementation Methods*, dated July 14, 2010. Using these requirements and policies, the Department determines whether a water body, or portion of a water body, is classified as Tier 1, Tier 2, or Tier 3, where a higher numbered tier indicates a greater level of water quality protection. At this time, no Tier 3 waters have been designated in Alaska.

The permit authorizes discharges to water bodies that have been impaired as a result of urban runoff (see Fact Sheet Section 4.1.3.3 for a listing of the impaired water bodies); however, permit conditions (e.g., BMPs) have been developed to ensure existing uses are maintained and protected. For the purposes of this analysis, the Department classifies the impaired water bodies as Tier 1 for the parameters causing the impairment. Compliance with permit conditions will limit storm water discharges to those water bodies listed as impaired. As a result, water quality in those water bodies is expected to improve subject to compliance with permit conditions. Accordingly, DEC finds that the existing uses in those water bodies designated as Tier 1 for the parameters they are impaired for will be maintained and protected. The remainder of this antidegradation analysis conservatively assumes that all other waters are Tier 2 waters, which provides for the next highest level of protection. The Tier 2 analysis for these waters follows.

The State's Antidegradation Policy in 18 AAC 70.015(a)(2) states that if the quality of water exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water (i.e., Tier 2 waters), that quality must be maintained and protected. The Department may allow a reduction of water quality only after making five specific regulatory findings (18 AAC 70.015(a)(2)(A-E)). The Department's findings are as follows:

1. *18 AAC 70.015(a)(2)(A) Lowering water quality is necessary to accommodate important economic or social development in the area where the water is located.*

In order to conduct important ongoing civic functions, the permittee requires that infrastructure be constructed and maintained to accommodate important economic and social development in the area. Without road construction and maintenance as well as storm water collection systems with discharge points, successful operations of the permittee's important functions (and the citizens served) would be severely hampered. Storm water discharges associated with the permittee's activities will be controlled via the requirements of applicable SWMPs and SWPPPs, which implement the most effective and reasonable practices. Accordingly, in order to provide important services and employment opportunities to the resident and visiting population, the lowering of water quality is necessary.

Fairbanks North Star Borough (FNSB) contains Alaska's second largest city, Fairbanks. The City of Fairbanks is an important trading, transportation, military, regional service and supply center. Essential city, borough, state and federal government services are located in the Fairbanks Urbanized Area. The government services sector, including the military, employs more than one-third of the region's workers. The Fairbanks International Airport serves villages in the region, is a supply point for North Slope oil fields, and is a center for the transport of cargo by international carriers. In addition, FNSB encompasses the City of North Pole, which is a northern hub for important industrial activity in Alaska including important oil and gas infrastructure and business.

The Department determined that the lowering of water quality is necessary to accommodate important economic and social development in the area where the waters are located and that the finding is satisfied.

2. *18 AAC 70.015 (a)(2)(B) Reducing water quality will not violate the applicable criteria of 18 AAC 70.020 or 18 AAC 70.235 or the whole effluent toxicity limit in 18 AAC 70.030.*

The adaptive management approach (from permit cycle to permit cycle) is used because MS4 permits (unlike other types of NPDES permits) need not require strict compliance with WQSs if discharges are controlled to the maximum extent practicable and comply with such other provisions as EPA determines to be appropriate. (See *Defenders of Wildlife v. Browner*, 191 F3d 1159 (9th Cir., 1999)) The maximum extent practicable provision of the CWA allows EPA the broad discretion whether to require strict compliance with state WQS.

A key requirement in the storm water Phase II rule[7] is a report (40 CFR 122.34(g)(3)) that includes “the status of compliance with permit conditions, an assessment of the appropriateness of identified [control measures] and progress towards achieving identified measurable goals for each of the minimum control measures.” This assessment is critical to the storm water program framework which uses an adaptive management approach of implementing controls, conducting assessments, and designating refocused controls leading toward attainment of WQS. The permittee is required to conduct an annual effectiveness assessment to assess the effectiveness of significant control measures, SWMP components, and the SWMP as a whole. The permittee is to assess and modify, as necessary, any or all existing SWMP components and adopt new or revised SWMP components to optimize reductions in storm water pollutants through an iterative process. This iterative process includes routine assessment of the need to further improve water quality and protect beneficial uses, review of available technologies and practices to accomplish the needed improvement, and evaluate resources available to implement the technologies and practices. Through this type of analysis, the applicable criteria found in 18 AAC 70.020 will be maintained and protected.

[7] Stormwater Phase II Final Rule (64 FR 68722)

With respect to 18 AAC 70.235 and 18 AAC 70.030, no site-specific criteria has been designated for any of the subject water bodies and permit conditions are designed to control potentially toxic discharges.

The Department has determined that reducing water quality will not violate the applicable criteria of 18 AAC 70.020 or 18 AAC 70.235 or the whole effluent toxicity limit in 18 AAC 70.030 and that the finding is satisfied.

3. *18 AAC 70.015 (a)(2)(C)The resulting water quality will be adequate to fully protect existing uses of the water.*

As previously discussed and listed in Fact Sheet Section 4.1.2.4, the permit authorizes discharges to impaired water bodies; however, permit conditions (e.g., BMPs) have been developed to ensure existing uses are maintained and protected. Further, compliance with permit conditions will result in a reduction of pollutant loading to those water bodies listed as impaired. As a result, water quality in those water bodies as well as applicable Tier 2 water bodies should improve subject to compliance with permit conditions.

The Department has determined that the resulting water quality will be adequate to fully protect existing uses of the water and that the finding is satisfied.

4. *18 AAC 70.015 (a)(2)(D) The methods of pollution prevention, control, and treatment found by the department to be the most effective and reasonable will be applied to all wastes and other substances to be discharged.*

DEC generally implements permit conditions that specify that a municipality implement controls, measures, and other activities to reduce pollutants as identified in a SWMP. The SWMP may address control measures such as: public education and outreach, public participation/involvement, illicit discharge detection and elimination, construction site runoff control, post construction runoff control, and pollution prevention/good housekeeping. The SWMP must also include measureable goals to evaluate the effectiveness of individual control measures and the SWMP as a whole, requirements for industrial storm water discharges to the MS4, and reporting requirements.

The site-specific, activity-specific process of developing, implementing, and adjusting the pollution control practices contained in the Storm Water Pollution Prevention Plan (SWPPP) constitutes the type of alternatives analysis and use of "the most effective and reasonable" . . . "methods of pollution, prevention, control, and treatment" cited as requirements under Alaska's antidegradation policy for activities that would degrade water quality.

Control measures that prevent or minimize water quality impacts from municipal activities and construction activities are described in Part 3.0 of the proposed MS4 permit and in Chapter 4 and 5 of the *Alaska Storm Water Guide* (ADEC, 2009). The *Alaska Storm Water Guide* provides detailed information on temporary storm water controls for active construction sites. The storm water management process outlined in that chapter consists of the development of a SWMP which provides the basis for all pollutant discharge prevention/minimization activities. As noted below, development of the SWMP requires a comprehensive evaluation of the community, the proposed construction activities, and possible pollutant discharges. This information is used to

create the SWMP, which contains structural and non-structural management practices; specifications for selecting, sizing, siting, operating, and maintaining them; and procedures for inspecting the management practices and repairing or replacing them as needed.

A permittee is required to implement erosion, sediment, and other storm water management practices to avoid or minimize pollutant discharges, as detailed in Part 3.0 of the permit. Alternative control measures that may provide equal or better water quality protection are also allowable, and encouraged, especially where those alternatives would provide better water quality and environmental protection at a lesser cost.

The Department uses an integrated approach in the permit for developing and implementing "methods of pollution, prevention, control, and treatment" required by Alaska's antidegradation policy. This integrated approach includes requirements for:

- Erosion and sediment control, pollution prevention measures and prohibiting certain discharges (Part 3.4),
- Revised and expanded training requirements for the construction and post-construction (Part 3.4 and 3.5), and
- Monitoring of storm water discharges for illicit discharges (Part 3.3).

Most pollution controls at construction sites are not installed in isolation, but instead are part of a suite of control measures that are all designed to work together. Designers use the treatment train approach to design a series of practices that minimize storm water pollution and achieve compliance with APDES construction general permit requirements. For example, a designer may use as a series of control measures to prevent sediment discharges from a site – a diversion ditch at the top of a disturbed slope (to minimize storm water flowing down the slope), mulching on the slope (to minimize erosion), and silt fence at the bottom of the slope (to capture sediment). This treatment train would help protect the slope better than relying on a single control measure, such as silt fence.

The site-specific nature of the SWMP, the requirement that it be implemented in a manner that addresses storm water impacts to the maximum extent practicable, and provisions that the approach be adjusted to ensure ongoing storm water management effectiveness provide the implementation methods needed to appropriately support the antidegradation policy.

The Department determined that the methods of pollution prevention, control, treatment, in the permit to be the most effective and reasonable, which will be applied to all wastes and other substances to be discharged, and the finding is satisfied.

5. *18 AAC 70.015 (a)(2)(E) All wastes and other substances discharged will be treated and controlled to achieve*

   (i) for new and existing point sources, the highest statutory and regulatory requirements; and

   (ii) for nonpoint sources, all cost-effective and reasonable best management practices.

The *MS4 Permit Improvement Guide* (EPA, 2010), in conjunction with the six minimum control measures, constitutes the highest regulatory requirements for municipal storm water management. This permit, as part of the iterative process of improvement of MS4 permits, includes incremental changes in the permit requirements.

Green infrastructure is an approach that communities can choose to maintain healthy waters, provide multiple environmental benefits and support sustainable communities. Green infrastructure can treat storm water that is not retained.[8] Green infrastructure uses vegetation, soils, and natural processes to manage water and create healthier urban environments. At the scale of a city or county, green infrastructure refers to the patchwork of natural areas that provides habitat, flood protection, cleaner air, and cleaner water. At the scale of a neighborhood or site, green infrastructure refers to stormwater management systems that mimic nature by soaking up and storing water.

Low Impact Development (LID) is an approach to land development (or re-development) that works with nature to manage stormwater as close to its source as possible. By preserving and recreating natural landscape features, LID minimizes effective imperviousness, creating functional and appealing site drainage that treats stormwater as a resource rather than a waste product. Bioretention facilities, rain gardens, vegetated rooftops, rain barrels, and permeable pavements are some of the LID practices used to adhere to these principles. By implementing LID principles and practices, water can be managed in a way that reduces the impact of built areas and promotes the natural movement of water within an ecosystem or watershed. Applied on a broad scale, LID can maintain or restore a watershed's hydrologic and ecological functions.

The requirements contained in the Alaska Construction General Permit (ACGP, AKR100000), the SWPPP development process (Part 5 of the ACGP permit), development and implementation of the SWMP to include construction site storm water runoff control and post-construction storm water mananagement control measures and good housekeeping measures (Part 3 of this permit), and BMP's provided in the *Alaska Storm Water Guide* (Chapter 4) comprise a comprehensive, integrated approach for developing and implementing "methods of pollution, prevention, control, and treatment" required by Alaska's antidegradation policy.

The Department has determined that the permit complies with the highest statutory and regulatory requirements for the industry and types of pollutants expected from this industry. The department concludes that this finding is satisfied.

7.0 OTHER REQUIREMENTS

7.1 Endangered Species Act

The Endangered Species Act (ESA) requires federal agencies to consult with the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS) and the

[8] Center for Watershed Protection, September 2007. *National Pollutant Removal Performance Database*, Version 3 (http://www.stormwaterok.net/CWP Documents/CWP-07 Natl Pollutant Removal Perform Database.pdf)

U.S. Fish and Wildlife Service (USFWS) if their actions could beneficially or adversely affect any threatened or endangered species. As a state agency, DEC is not required to consult with these federal agencies regarding permitting actions: however, DEC voluntarily contacted the agencies to notify them of the development of the permit and to obtain listings of threatened and endangered species near the proposed discharge. There are no listed species or designated critical habitat in the Fairbanks North Star Borough. The agencies will be provided the draft permit and fact sheet during the public review period. Any comments received from the agencies regarding the listings of threatened and endangered species will be considered prior to reissuance of this permit.

7.2 Essential Fish Habitat

Essential fish habitat (EFH) includes the waters and substrate (sediments, etc.) necessary for fish from commercially-fished species to spawn , breed, feed, or grow to maturity. The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) requires federal agencies to consult with NMFS when a proposed discharge has the potential to adversely affect (reduce quality and/or quantity of) EFH. As a state agency, DEC is not required to consult with federal agencies regarding permitting actions; however, DEC contacted NMFS and USFWS to notify them of the development of the permit and to obtain listings of EFH near the proposed discharges.

DEC identified the following species present in the general area of the permitted discharges:

- Chinook salmon – Eggs and larvae, Juveniles, Adults
- Chum salmon – Eggs and larvae, Juveniles, Adults
- Coho salmon – Eggs and larvae, Juveniles, Adults

DEC determined that reissuance of the permit will have no adverse effect on EFH. As previously described, the storm water management controls required by the permit are intended to protect water quality to the maximum extent practicable, and will result in an overall improvement over current conditions. Discharges of municipal storm water from the MS4s in the greater Fairbanks area have occurred for many years prior to the promulgation of EPA regulations to permit such discharges, and as with the first issuance of this permit in 2005, this permit restricts the discharge of pollutants through source control. NMFS and USFWS will be provided with a draft permit and fact sheet during the public review period. Any comments received from NMFS or USFWS regarding EFH will be considered prior to reissuance of the permit.

7.3 Permit Expiration

The permit will expire five years from the effective date of the permit.

8.0 REFERENCES

AAC. 2009. Alaska Administrative Code, Revised 2009. State of Alaska, Juneau, AK.

ADEC. 2008. *Total Maximum Daily Load (TMDL) for Residue in the Waters of Noyes Slough in Fairbanks, Alaska*. Alaska Department of Environmental Conservation Division of Water. Fairbanks, AK.

ADEC. 2009. *Alaska Storm Water Guide*. Alaska Department of Environmental Conservation Division of Water. Anchorage, AK.

ADEC. 2010. *Alaska's Final 2010 Integrated Water Quality Monitoring and Assessment Report*, July 15, 2010. Department of Environmental Conservation, Division of Water, Juneau, AK.

ADEC. 2011. *Total Maximum Daily Load (TMDL) for Petroleum Hydrocarbons, Oils and Grease in the Waters of Noyes Slough in Fairbanks*, Alaska. Alaska Department of Environmental Conservation, Division of Water. Fairbanks, AK.

NMFS, 2005. *Appendix G: Non-fishing Impacts to Essential Fish Habitat and Recommended Conservation Measures*. Prepared by the National Marine Fisheries Service.

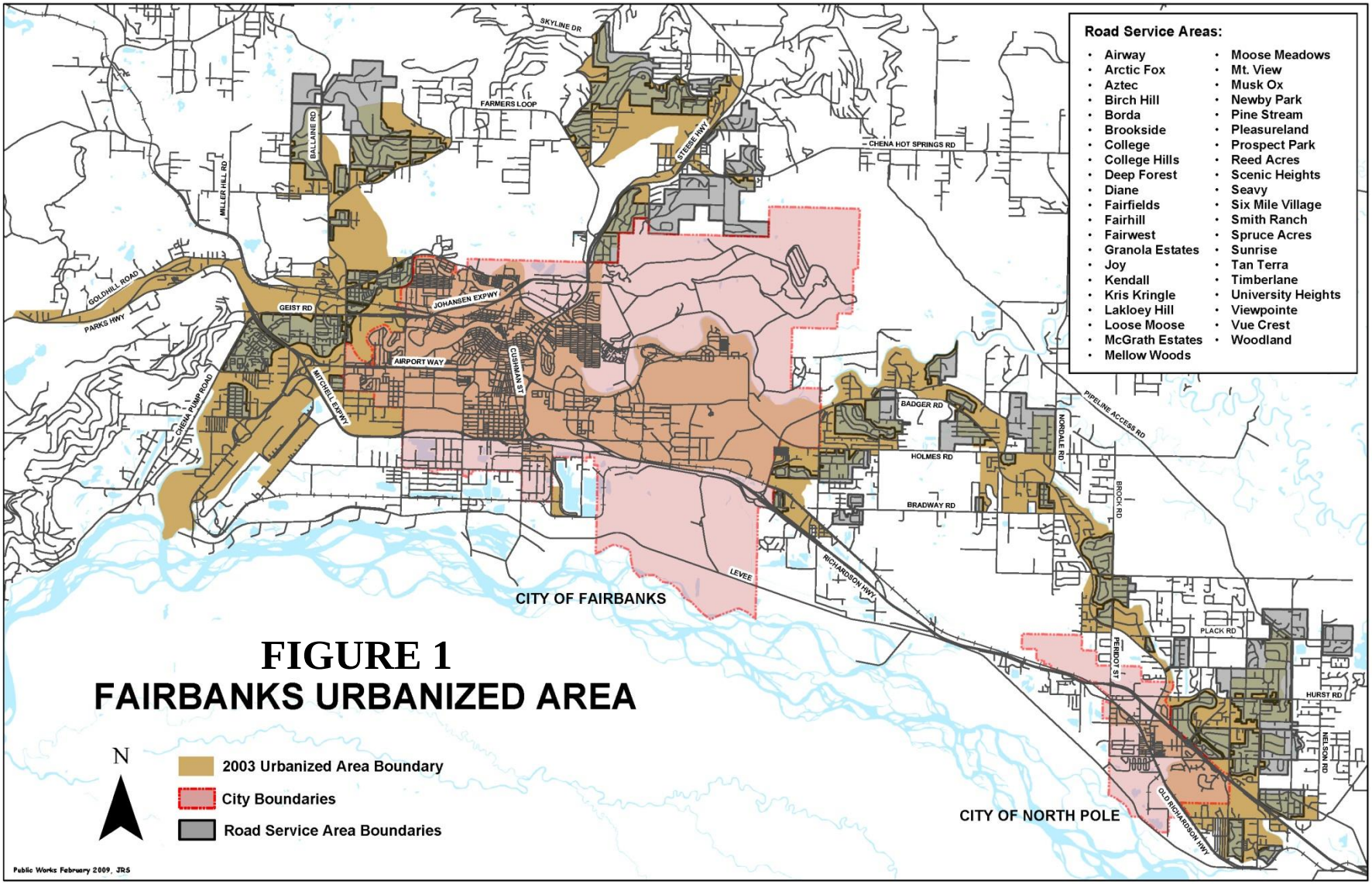
Tetra Tech. 2008. *Evaluation of Options for Antidegradation Implementation Guidance*, Prepared for the Alaska Department of Environmental Conservation. Juneau, AK.

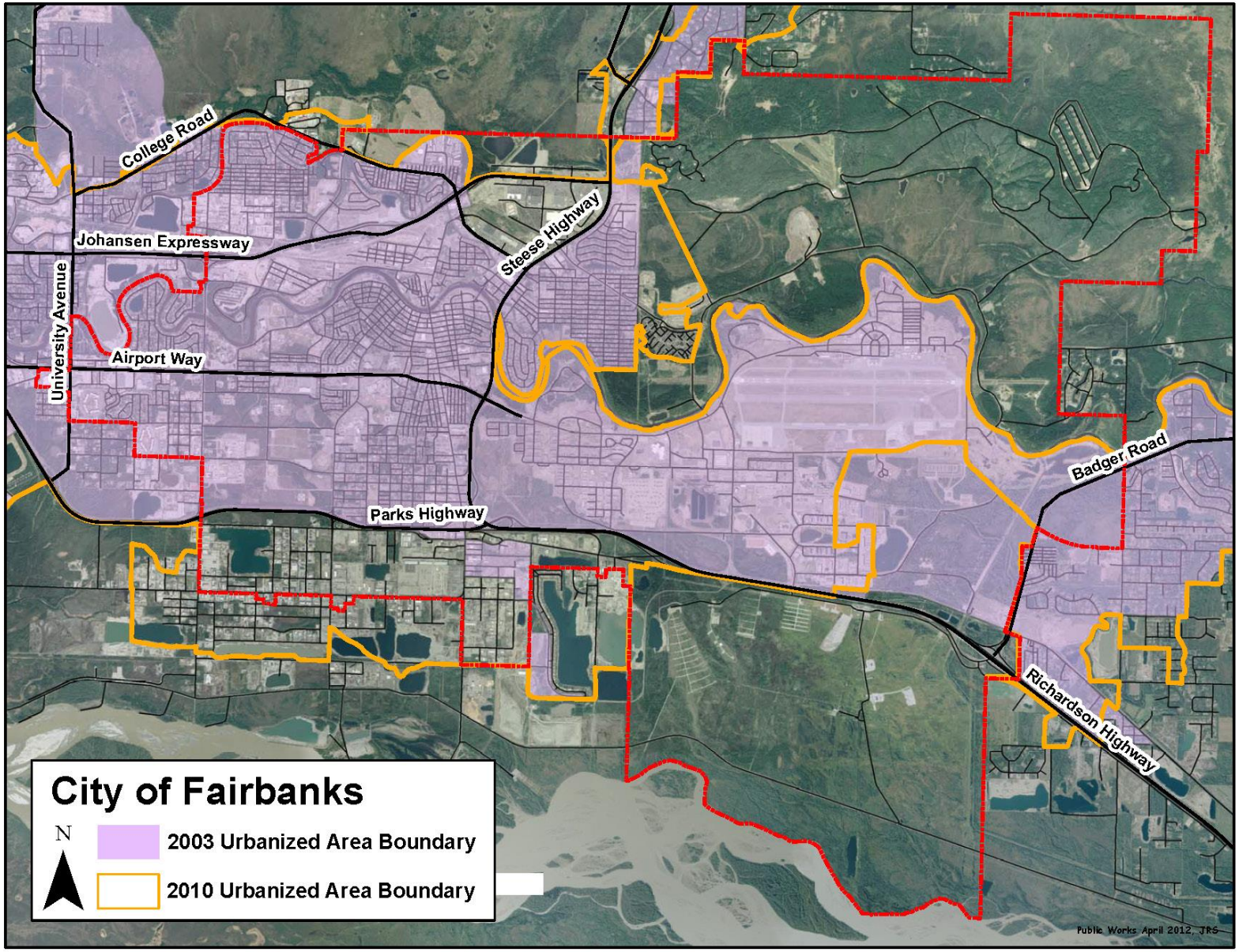
US EPA, 2010. *MS4 Permit Improvement Guide*. Report Number EPA 833-R-10-001. U.S. Environmental Protection Agency, Office of Water. Washington D.C.

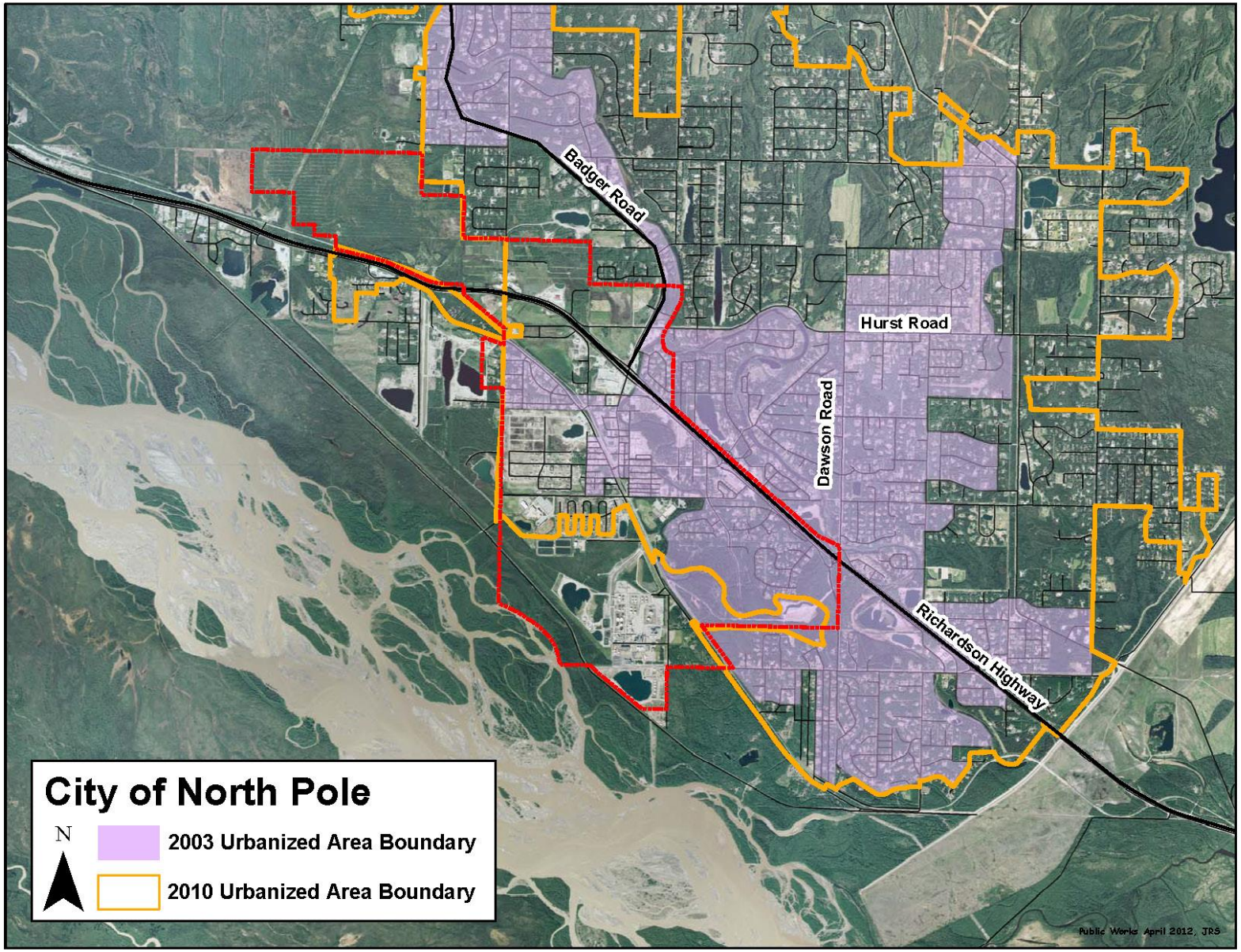
9.0 APPENDICES

Appendix A: Fairbanks Urbanized Area Maps

APPENDIX A.
Fairbanks Urbanized Area Maps


Road Service Areas:
Airway
Arctic Fox
Aztec
Birch Hill
Borda
Brookside
College
College Hills
Deep Forest
Diane
Fairfields
Fairhill
Fairwest
Granola Estates
Joy
Kendall
Kris Kringle
Lakloey Hill
Loose Moose
McGrath Estates
Mellow Woods
Moose Meadows
Mt. View
Musk Ox
Newby Park
Pine Stream
Pleasureland
Prospect Park
Reed Acres
Scenic Heights
Seavy
Six Mile Village
Smith Ranch
Spruce Acres
Sunrise
Tan Terra
Timberlane
University Heights
Viewpointe
Vue Crest
Woodland
SKYLINE DR
FARMERS LOOP
BALLAINE RD
MILLER HILL RD
STEESE HWY
CHENA HOT SPRINGS RD
GOLDHILL ROAD
PARKS HWY
GEIST RD
JOHANSEN EXPWY
AIRPORT WAY
CUSHMAN ST
MITCHELL EXPWY
CHENA PUMP ROAD
BADGER RD
HOLMES RD
BRADWAY RD
NORDALE RD
BROCK RD
PIPELINE ACCESS RD
LEVEE
RICHARDSON HWY
CITY OF FAIRBANKS
PLACK RD
PERIDOT ST
HURST RD
NELSON RD
OLD RICHARDSON HWY
CITY OF NORTH POLE
FIGURE 1
FAIRBANKS URBANIZED AREA
N
2003 Urbanized Area Boundary
City Boundaries
Road Service Area Boundaries
Public Works February 2009, JRS


College Road
Johansen Expressway
Steese Highway
University Avenue
Airport Way
Parks Highway
Badger Road
Richardson Highway
City of Fairbanks
N
2003 Urbanized Area Boundary
2010 Urbanized Area Boundary
Public Works April 2012, JRS


Badger Road
Hurst Road
Dawson Road
Richardson Highway
City of North Pole
N
2003 Urbanized Area Boundary
2010 Urbanized Area Boundary
Public Works April 2012, JRS