ALASKA POLLUTANT DISCHARGE ELIMINATION SYSTEM

Permit Fact Sheet - FINAL

Permit Number: AKG003000

GENERAL PERMIT FOR
HYDROSTATIC AND AQUIFER PUMP TESTING

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

Public Comment Period Start Date: **May 2, 2014**
Public Comment Period Expiration Date: **June 2, 2014**
Alaska Online Public Notice System: http://aws.state.ak.us/OnlinePublicNotices/

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Proposed issuance of an Alaska Pollutant Discharge Elimination System (APDES) general permit for:

HYDROSTATIC TEST WATERS AND AQUIFER PUMP TESTING

The Alaska Department of Environmental Conservation (the Department or DEC) proposes to issue an APDES general permit (permit) for hydrostatic test water including flushing and aquifer pump testing. The permit authorizes and sets conditions on the discharge of pollutants from authorized hydrostatic testing of tanks, pipelines, and similar containers including water line flushing as well as aquifer pump testing discharges to waters of the United States (U.S.) or land. In order to ensure protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged from the authorized hydrostatic and aquifer pump testing and outlines Best Management Practices (BMPs) to which they must adhere.

This fact sheet explains the nature of potential discharges from hydrostatic test waters and the development of the permit including:

- information on appeal procedures
- a description of the industry
- a listing of effluent limitations, monitoring, and other conditions
- technical material supporting the conditions in the permit

Public Comment

A final permit will become effective 30 days after the Department's decision, in accordance with the state's appeals process at 18 Alaska Administrative Code (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
410 Willoughby Street, Suite 303
Juneau, AK 99801-1800

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/InformalReviews.htm 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, 99801-1800

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/ReviewGuidance.htm for information regarding appeals of Department decisions.

Documents are Available

The permit, fact sheet, and related documents can be obtained by visiting or contacting DEC between 8:00 a.m. and 4:30 p.m. Monday through Friday at the addresses below. The permit, fact sheet, and other information are located on the Department's Wastewater Discharge Authorization Program website: http://dec.alaska.gov/water/wwdp/index.htm.

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 Avenue Fairbanks, AK 99709 (907) 451-2136

Alaska Department of Environmental Conservation
Division of Water
Wastewater Discharge Authorization Program
410 Willoughby Avenue, Suite 310
Juneau, AK 99801
(907) 465-5180

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1.0 INTRODUCTION

1.1 Basis for Permit

1.1.1 Section 301(a) of the Clean Water Act (CWA) and Alaska Administrative Code (AAC) 18 AAC 83.015 provide that the discharge of pollutants to waters of the U.S. is unlawful except in accordance with an Alaska Pollutant Discharge Elimination System (APDES) permit. 18 AAC 72.500 requires the issuance of a permit to discharge nondomestic wastewater to land. Although such permits are usually issued to individual dischargers, Alaska Department of Environmental Conservation (DEC or the Department) regulations at 18 AAC 83.205, 18 AAC 72.900, and Alaska Statute (AS) 46.03.100(b)(2) also authorize the issuance of "general permits" to categories or subcategories of discharges when a number of point sources are:

- Located within the same geographic area and warrant similar pollution control measures;
- Involve the same or substantially similar types of operations;
- Discharge the same types of wastes;
- Require the same effluent limitations or operating conditions;
- Require the same or similar monitoring requirements; and
- In the opinion of the Department, are more appropriately controlled under a general permit than under individual permits.

1.1.2 A violation of a condition applicable to discharges to waters of the U.S. contained in a general permit constitutes a violation of the CWA and the permittee is accordingly subject to the penalties specified in Section 309 of the CWA.

1.2 Permit Issuance History of Hydrostatic Testing

This is a first time issuance of a hydrostatic APDES permit. Hydrostatic testing discharges in Alaska have been regulated since 2003 by the Department with the issuance of the first Contained Water general permit (Permit # 2003DB0089). The Department developed the first contained water general permit as a way to regulate certain discharges prior to assuming primacy of the National Pollutant Discharge Elimination System (NPDES) program in October 31, 2009. The 2003 Contained Water Permit and the 2009 reissuance of the permit authorized discharges from contained water isolated from the environment including hydrostatic testing. A condition of the permit required surface water discharges to meet permit effluent limits equal to state water quality standards (WQS) in 18 AAC 70 at the end of pipe. The APDES Program (18 AAC 83) regulates point source discharges to waters of the U.S., whereas discharges to land are regulated under the authority of 18 AAC 72.500. The Department's statutory authority for issuing permits under 18 AAC 83 and 18 AAC 72 comes from AS 46.03.100. In order to meet the requirements of 18 AAC 83 to appropriately regulate surface water discharges as well as 18 AAC 72 to appropriately regulate land discharges, both discharges to waters of the U.S. and land are covered under this new general permit.

As of July 1, 2013, 65 hydrostatic related discharges have been authorized under the Contained Water Permit, of which 47 were to land and 18 to surface water. Hydrostatic discharges were predominately related to the testing of new or used pipelines and tanks, as well as a few public

water storage tank flushes. All discharges directly to surface waters of the U.S. were required to meet Alaska WQS at the point of discharge. Effluent monitoring was required for total residual chlorine, settleable solids, turbidity, pH, total aromatic hydrocarbons (TAH), and total aqueous hydrocarbons (TAqH). In addition to the hydrocarbon analysis, all surface water discharges were prohibited from discharging any water with a visible sheen.

Land discharges were to areas that were suitable for infiltration with no off-site discharges and monitoring consisted of visual sheen, turbidity, and presence of erosion. Permittees with land discharges were required to implement basic erosion and sediment control best management practices (BMP) to prevent erosion and sediment deposition. All prior discharges were authorized by site-specific authorization letters that often specified specific BMPs.

Due to the large presence of oil and natural gas exploration on the North Slope a specific NPDES general permit was developed by the Environmental Protection Agency (EPA). The NPDES permit became an APDES permit at program transfer on October 31, 2012 to cover the various discharges associated with oil and gas facilities located on the North Slope Borough. The current version of the permit (Permit #AKG 331000) authorizes a hydrostatic testing discharge authorization due to the continual need to hydrostatically test multiple pipelines and tanks. Permit AKG331000 requires effluent monitoring to meet all the same water quality criteria proposed in the 2014 Hydrostatic permit. The 2014 Hydrostatic general permit is necessary to cover those same types of operations elsewhere in Alaska and applicants who have coverage with AKG331000 do not need to seek dual permit coverage.

In addition to the North Slope Oil and Gas Exploration general permit, the state is developing a statewide hydrocarbon transport pipeline general permit (AKG 332000) which will cover hydrostatic testing discharges from pipelines carrying hydrocarbon products. AKG332000 will only cover hydrostatic discharges from hydrocarbon pipelines and not tanks or similar vessels. The 2014 Hydrostatic permit will cover those hydrostatic discharges which don't meet the eligibility criteria of either the North Slope Oil and Gas Exploration permit or the statewide hydrocarbon transport general permit (pending) and applicants will not need to seek dual permit coverage.

1.3 Permit Issuance History of Aquifer Pump Testing

Aquifer pump testing discharges that are not incidental to the drilling of a well and eligible for the state permitting waiver in AS 46.03.100 have routinely been authorized through a non-domestic plan approval in accordance to 18 AAC 72.600. Extensive aquifer pump testing is frequently conducted during mining exploration to conduct hydrogeological investigations. In the past five years DEC has issued less than a half dozen aquifer pump test related discharge authorizations. However, there are existing mines that continue to expand and conduct groundwater studies, and the reissued permit will provide a permitting mechanism to cover the pump test discharges.

2.0 DESCRIPTION OF INDUSTRY AND RECEIVING WATERS

2.1 Industry and Process Summary

Hydrostatic testing is critical for the proper construction, installation, and operation of natural gas and oil pipelines as well as miscellaneous public utilities including water lines. In order to receive other permitting approvals to operate various petroleum transmission and distribution

systems as well as public water systems, a successful leak detection test is required. Typical leak detection procedures normally consist of filling a pipeline or tank with water, and either pressurizing or observing for leaks under normal atmospheric pressure, and then discharging the water. In addition to using hydrostatic testing to detect leaks, new water lines are often chlorinated during the testing to provide disinfection. The pipeline is then flushed to remove the chlorinated water. The hydrostatic discharge permit regulates the chlorine discharge when chlorinated potable water is used.

Hydrostatic testing is generally performed by sealing the piping to be tested and providing a water fill location. After the piping is full, pressure is applied to the desired level and held for several hours. Following the test, the pressure is released and the piping is drained by gravity, pump, or air pressure. Hydrostatic testing is therefore a short-term batch discharge, but more than one discharge may occur if different sections of piping are tested. Hydrostatic testing can also involve filling tanks with water and testing under atmospheric pressure to check for leaks.

Aquifer pump testing discharges consist primarily of groundwater pumped from wells to determine aquifer well yields and other hydrogeological properties. The aquifer pump tests eligible for coverage under the permit are in support of mineral mining development and exploration. In order to develop dewatering plans for mines in areas with shallow water tables, aquifer pump tests are conducted to determine groundwater recharge rates and hydraulic conductivity within the geology. The aquifer pump tests involve pumping water from new or existing wells at a specified flow rate for an extended period of time to evaluate the impact on the water table. The pump tests are used to determine groundwater recharge rates, cone of depression, and the radii of influence contributable to different pumping rates.

2.2 Potential Industry Impacts on Water Quality

Hydrostatic testing of existing pipelines may contain residues from natural gas, hydrocarbon condensates, or petroleum products, which prior to discharge must meet limits equal to applicable water quality criteria. Common treatment and control measures used for hydrostatic testing waters include one or more of the following methods: granular activated carbon filtration; velocity reduction on splash pads; erosion control; settling ponds; and pumping to upland areas for infiltration; however, more advanced treatment may be required if other parameters (e.g., total aqueous hydrocarbons) are identified as pollutants of concern in the application process. Reasonable potential for oil and grease, suspended solids, total residual chlorine, and pH affecting substances can occur in hydrostatic testing discharges and therefore there is a need to have effluent limits set to meet state water quality criteria to maintain and protect water body uses.

Discharges of aquifer pump testing will consist of groundwater and the primary pollutant of concern would be sediment; however, elevated naturally occurring metals or hydrocarbons maybe of a concern in certain situations as well (See Sections 3.3.3 and 3.3.4). Common treatment and control methods for aquifer pump testing discharges would consist of control measures such as velocity dissipators, settling ponds, weir tanks, or other similar devices to remove sediment; however, more advanced treatment may be required if other parameters (e.g., metals) are identified as pollutants of concern in the application process.

2.3 Receiving Waters

2.3.1 Water Quality Standards

Regulations in 18 AAC 70 require that the conditions in permits ensure compliance with the Alaska WQS. The state's WQS are composed of use classifications, numeric and/or narrative water quality criteria, and an Antidegradation Policy. The use classification system describes the designated and existing uses that each water body is expected to achieve. The numeric and/or narrative water quality criteria are the criteria deemed necessary by the State to support the beneficial use classification of each water body. The Antidegradation Policy ensures that the beneficial uses and existing water quality are maintained.

The protection of surface water occurs primarily through the development, adoption, and implementation of WQS and the use of WQS in APDES permits. The WQS designate specific uses that water quality must be maintained and protected. Alaska WQS designate seven uses for fresh waters (drinking water; agriculture; aquaculture; industrial; contact recreation; non-contact recreation; and growth and propagation of fish, shellfish, other aquatic life, and wildlife) and seven uses for marine waters (aquaculture; seafood processing; industrial; contact recreation; non-contact recreation; growth and propagation of fish, shellfish, other aquatic life, and wildlife; and harvesting raw mullusks or other raw aquatic life for human consumption).

Existing uses are "those uses actually attained in a water body on or after November 28, 1975, whether or not they are included in the WQS [40 CFR § 131.3(e)]." Designated uses are "those uses specified in water quality standards for each water body or segment whether or not they are being attained [40 CFR § 131.3(f)]." Water bodies in Alaska are designated for all uses unless the water has been reclassified under 18 AAC 70.230 as listed under 18 AAC 70.230(e). Some water bodies in Alaska can also have site–specific water quality criterion per 18 AAC 70.235, such as those listed under 18 AAC 70.236(b).

2.3.2 Impaired Surface 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 every two years as required by the CWA. The most recent report is the *Alaska's Final 2010 Integrated Water Quality Monitoring and Assessment Report* (ADEC, 2010).

A permittee can access DEC's Integrated Water Quality Monitoring and Assessment Report at http://dec.alaska.gov/water/wqsar/waterbody/integratedreport.htm and the Alaska's Section 303(d) List of Impaired Waterbodies at http://dec.alaska.gov/water/wqsar/waterbody/2010integratedreport.htm.

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 Total Maximum Daily Load (TMDL) (DEC, 2010). TMDLs are a calculation of the maximum amount of a pollutant that a water body can receive, which is referred to as a pollutant allocation and still meet WQS. Section 303(d) of the federal CWA requires states to identify waters that do not meet applicable WQS applying technology-based controls alone. The Department identifies

and prioritizes the water quality-limited waters and then develops TMDLs at a level necessary to achieve the applicable WQS.

3.0 PERMIT CONDITIONS

3.1 Coverage under this permit

3.1.1 Authorized Discharges

Permit Part 1.3 outlines operations that are authorized under the permit. The included authorized consist of potable or non-potable water discharges from hydrostatic tests conducted on used and unused tanks, pipelines, and similar containers. The flushing of water pipelines and water storage tanks necessary to conduct maintenance or inspections is also authorized under the permit. Discharges associated with normal operation of a public water system defined as "Potable Water Distribution Systems Releases" are not required to obtain permit coverage under this general permit. These discharges are all critical to the proper operation of a public water system and often are unexpected and of very short duration. All hydrostatic testing and flushing discharges proposed for coverage are considered low risk as the discharges consist of relatively clean water associated with a temporary discharge.

The permit also authorizes the discharge of groundwater from aquifer pump testing to the land or surface waters of the U.S. The discharges listed in Part 1.2 consist of aquifer pump testing water produced to conduct water quality or quantity tests, or hydrogeological investigations relating to mineral exploration or development. The authorized discharges shall meet Permit Parts 3-5.

3.1.2 Exclusions

Permit Part 1.4 outlines discharges that are not authorized under the permit. Discharges that are not authorized must seek coverage under another applicable general permit or apply for and obtain an individual permit. The permit is to be used for hydrostatic testing including flushing and aquifer pump testing which consists of water free of any additives or chemicals with exception to chlorine in potable water supplies. Permit Part 1.5 describes conditions which would justify the requirement to issue an individual permit.

Hydrostatic testing associated with oil and gas facilities located on the North Slope Borough are eligible for coverage under permit AKG331000. The statewide hydrocarbon transport general permit AKG332000 (pending) will cover hydrostatic testing discharges associated with the operation of hydrocarbon transport pipelines. The Hydrostatic and Aquifer Pump Testing permit was developed to cover all those other miscellaneous hydrostatic testing discharges throughout the state which discharge either to the land or waters of the U.S. As previously mentioned in Part 1.2, dual permit coverage for these type of discharges is not needed.

3.1.3 Individual Permits

APDES regulations outline three situations where facilities that are eligible for coverage under a general permit or obtained coverage under a general permit will be required to seek coverage under an individual permit (18 AAC 83.215). First, the Department may require any person authorized by a permit to apply for and obtain an individual permit, or any interested person may petition the Department to take this action. Second, an applicant may

request to be excluded from the coverage of the permit by applying for an individual permit. Third, a permittee who is already authorized by an individual permit may request permit coverage.

Permit Part 1.5 also outlines situations when the Department may require an individual permit, based upon the agency's request, and describes potential additional individual permit stipulations. Due to the temporary nature of hydrostatic testing and aquifer pump testing discharges and the risk posed to the environment from the discharge, the most logical permitting approach is coverage under a general permit. Discharges that are long-term or continuous and not associated with hydrostatic testing including flushing and aquifer pump testing may require coverage under an individual permit.

3.2 Authorization under this Permit

3.2.1 How to Obtain Authorization

An NOI to be covered under the permit is required for entities that are conducting hydrostatic testing of tanks, pipelines, or similar containers, and aquifer pump testing that result in discharges authorized in accordance with Permit Part 1.3 for discharges to either land or surface waters of the U.S. In accordance with Permit Part 2.2.1, the only land discharges that require NOI submittal are those aquifer pump test discharges of 30,000 gallons per day or greater; or pump testing discharges located conducted within 1,500 feet of an "DEC-identified contaminated site or groundwater plume[1]". The notification requirements are outlined in Permit Part 2.2.1 as required per 18 AAC 83.210 (b).

Land discharges of hydrostatic testing including the flushing of water systems are automatically authorized without the submittal of an NOI in accordance with Permit Part 2.1.3. Hydrostatic testing including flushing discharges to land are required to be managed through BMPs as specified in Permit Parts 4.0 and 5.1 and records kept in accordance with Permit Part 6.0 of the permit. Land discharges of aquifer pump testing less than 30,000 gallons per day and located greater than a 1,500 feet from a "DEC-identified contaminated site or groundwater plume" are automatically authorized without the submittal of an NOI in accordance with Permit Part 2.1.3. These aquifer pump testing discharges are required to be managed through BMPs as specified in Parts 4.0 and 5.3 of the permit and records kept in accordance with Permit Part 6.0. A summary of the NOI submittal requirements for both hydrostatic and aquifer pump testing is including in an NOI submission flow chart attached in Appendix A.

3.2.2 How to Submit NOI

Permit Part 2.2 requires permittees to either use DEC's electronic NOI system (accessible at http://dec.alaska.gov/water/wnpspc/stormwater/Index.htm) or use a paper form (included at this website) and then submit that paper form to the appropriate address (See Permit Appendix A Part 1.1).

DEC encourages operators to submit an NOI via the electronic filing system and emphasizes that filing via the electronic filing system will be a quicker way to obtain permit coverage

[1] A contaminated site or groundwater plume with an "Active" or "Cleanup Complete-Institutional Controls" status identified by DEC Contaminated Sites Program. For assistance in locating mapped contaminated sites and listing of groundwater plumes, see http://dec.alaska.gov/Water/wnpspc/stormwater/edhsgp.html.

because the system will automatically process the information, disallow incomplete submissions, and flag certain entries as possibly incorrect.

3.2.3 Submission Timeframes

Timeframes for submitting discharge authorizations are contained in Table 2 of the permit, which identifies the category of discharger, NOI submission deadline, and NOI submittal requirements.

3.2.4 Date of Authorization to Begin Discharge

A permittee is authorized to discharge hydrostatic or aquifer pump testing under the terms and conditions of the permit upon the date specified in the issuance of the DEC authorization letter, which is posted on DEC's website http://dec.alaska.gov/Applications/Water/WaterPermitSearch/Search.aspx. The authorization will remain in effect until midnight of the date on the Notice of Termination (NOT).

During the NOI review period, DEC may notify the permittee that additional action must be taken before discharge authorization is obtained, based on concerns regarding eligibility as described in Part 1.2. For non-eNOI submissions, DEC cannot guarantee the paper NOI will be processed as quickly as the eNOI. DEC strongly encourages applicants to use the eNOI system to expedite processing. DEC will attempt to contact the NOI submitter directly with information about delays as soon as possible (by telephone, fax, or email), but it is the applicant's responsibility to ensure that authorization has been granted.

3.2.5 Continuation of Expired General Permit

If the permit is not reissued prior to the expiration date, it will be administratively extended in accordance with 18 AAC 83.155(c) and remain in force and effect. A permittee remains covered under the administratively continued permit, so long as prior to the expiration date, the permittee complies with the requirements of 18 AAC 83.155(c)(1). A permittee granted permit coverage prior to the expiration date will automatically be covered under the administratively continued permit until the earliest of the following:

3.2.5.1 Reissuance or replacement of the permit, at which time the permittee must comply with the conditions of the new permit, as it applies to ongoing projects, to maintain authorization to discharge;

3.2.5.2 Submittal of a NOT;

3.2.5.3 Issuance of an individual permit for the project's discharges; or

3.2.5.4 A formal permit decision by DEC to not reissue the general permit, at which time the permittee must seek coverage under an alternative general permit or an individual permit.

3.3 Compliance with Standards and Limits

3.3.1 Basis for Permit Effluent Limits

The CWA requires that the limits for a particular pollutant discharged to waters of the U.S. be the more stringent of either technology-based effluent limits (TBELs) or water quality-based effluent limits (WQBELs). TBELs are established by EPA and are adopted by reference in regulation by DEC. TBELs are set according to the level of treatment that is

achievable using available technology to protect water quality. A WQBEL is designed to ensure that the WQS for a water body is met. WQBELs may be more stringent than TBELs. EPA has not promulgated TBELs for hydrostatic discharges and aquifer pump testing surface water discharges.

WQBELs included in APDES permits are derived from WQS. APDES regulation 18 AAC 83.435(a)(1) requires that permits include WQBELs that can "achieve water quality standard established under CWA §303, including state narrative criteria for water quality."

No TBELs exist for these specific types of discharges; therefore, the WQBELs set equal to applicable water quality criteria for those pollutants that are believed to be present will apply to all surface water discharges. Land discharges will be managed through BMPs, which are the best available demonstrated control technology to minimize pollutant discharges.

3.3.2 Land Discharging Operations

The permit authorizes land discharges of hydrostatic and aquifer pump testing through the use of BMPs described in Permit Parts 4.0, 5.1, and 5.3. The Department has applied the narrative oil and grease criterion that all discharges shall be free of an oil sheen. Through the prohibition of an oil sheen discharge and the implementation of basic erosion and sediment BMPs at the point of discharge, all land discharges will be protective of the environment.

The BMPs include discharging into an area with permeable soils that allow complete infiltration to prevent a surface water discharge as well as erosion controls at the point of discharge. Through the use of appropriate erosion and sediment controls in addition to BMPs (i.e., settling basins, filter bags, or other similar filtering mechanisms), the land discharges will minimize environmental impact.

3.3.3 Surface Water Discharging Operations for Hydrostatic Testing

For the purpose of the permit, hydrostatic testing and public water system flushing discharges primarily consist of water from new or used pipelines, tanks, and similar containers that are relatively free of pollutants, with exception to total residual chlorine in chlorinated water supplies. Hydrostatic testing of used pipelines, tanks, and similar containers may contain residual petroleum hydrocarbons, residues, and total residual chlorine if a chlorinated water supply is used. The presence of residual pollutants remaining in the pipelines, tanks, and similar containers potentially present a reasonable potential to exceed WQS so effluent limits and monitoring is implemented. Some discharges may require treatment to achieve the water quality criteria or implementation of BMPs described in Permit Parts 4.0 and 5.1.

3.3.3.1 Water Quality-Based Effluent Limits

DEC concluded, based on application of the WQS and review of available sampling data, that pH, settleable solids, TAqH, TAH, total residual chlorine, and turbidity must be limited in order to meet the State's WQS for surface water discharges.

3.3.3.1.1 pH

Alaska WQS at 18 AAC 70.020(b)(6)(A)(iii) and 18 AAC 70.020(b)(18)(C) states that the pH water quality criteria for the growth and propagation of fish, shellfish, other aquatic life, and wildlife for both fresh and marine water may not be less than 6.5 or greater than 8.5 standard units.

3.3.3.1.2 **Settleable Solids**

Alaska WQS at 18 AAC 70.020(b)(9)(A)(i) and 18 AAC 70.020(b)(21)(B) states that the sediment water quality criteria for the fresh water drinking water supply and marine water contact recreation shall have no measureable increase in concentration of settleable solids above natural conditions, as measured by the volumetric Imhoff cone method. The no measurable increase in settleable solids translates to a WQBEL of 0.2 milliliters per Liter (ml/L) above natural conditions.

3.3.3.1.3 **TAqH**

Alaska WQS at 18 AAC 70.020(b)(5)(A)(ii) and 18 AAC 70.020(b)(17)(A)(ii) states that the petroleum hydrocarbons water quality criterion for the fresh water agriculture, including irrigation and stock watering supply use and marine water seafood processing water supply use may not cause a visible sheen upon the surface of the water.

Alaska WQS at 18 AAC 70.020(b)(5)(A)(iii) and 18 AAC 70.020(b)(17)(A)(i) states that the petroleum hydrocarbon water quality criteria for the fresh and marine water aquaculture water supply use shall not have a TAqH concentration in the water column to exceed 15 µg/L. The permit does not authorize a mixing zone; therefore, the WQBEL for TAqH will be assigned the WQC of 15 µg/L to be met at the point of discharge. The analytical measurement for TAqH consists of the sum of the monoaromatic hydrocarbons (TAH) plus the sum of the polynuclear aromatic hydrocarbons listed in EPA method 610 or 625. Monitoring for TAqH if a visual sheen is observed will provide assurance that the hydrostatic testing will not discharge any TAqH above the WQC into the receiving waterbody.

3.3.3.1.4 **TAH**

Alaska WQS at 18 AAC 70.020(b)(5)(A)(ii) and 18 AAC 70.020(b)(17)(A)(ii) states that the petroleum hydrocarbon WQC for the fresh water agriculture, including irrigation and stock watering supply use and marine water seafood processing water supply use may not cause a visible sheen upon the surface of the water.

Alaska WQS at 18 AAC 70.020(b)(5)(A)(iii) and 18 AAC 70.020(b)(17)(A)(i) states that the petroleum hydrocarbon water quality criteria for the fresh and marine water aquaculture water supply use shall not have a TAH concentration in the water column to exceed 10 µg/L. The permit does not authorize a mixing zone; therefore, the WQBEL for TAH will be assigned the WQC of 10 µg/L to be met at the point of discharge. The analytical measurement for TAH consists of summing the concentration of the monoaromatic hydrocarbons which include benzene, chlorobenzene, toluene, ethylbenzene, 1-3, 1-4, and 1-2 di-chlorobenzenes and total xylenes (sum of m, p, and o xylene). Monitoring for TAH if a visual sheen is observed will provide assurance that the hydrostatic testing will not discharge any TAH above the WQC into the receiving water body

3.3.3.1.5 **Total Residual Chlorine (TRC)**

The WQS for toxic and other deleterious organic and inorganic substances for fresh water uses are codified in 18 AAC 70.020(b)(11) and for marine water uses in 18 AAC 70.020(b)(23). The most stringent WQC for TRC is the acute water quality

criteria for the protection of aquatic life in both fresh water and marine water. The acute criteria of 19 µg/L for fresh water and 13 µg/L for marine water were set as the WQBEL in this permit. The acute criteria are based on the average concentration of a chemical pollutant during a one-hour period which would be most representative of a short duration hydrostatic discharge. Since the effluent limit is below the EPA Quantification level for residual chlorine, a minimum level of quantification, 0.1 mg/l will be used in the permit as a compliance level as the maximum effluent concentration of TRC that can be discharged to waters of the U.S.

3.3.3.1.6 **Turbidity**

Alaska WQS at 18 AAC 70.020(b)(12)(B)(i) states that the turbidity WQC for the fresh water contact recreation use may not exceed 5 NTUs above natural conditions when the natural turbidity is 50 NTU or less, and may not have more than a 10% increase in turbidity when the natural turbidity is more than 50 NTU, not to exceed a maximum increase of 15 NTU. Turbidity may not exceed 5 NTU above natural turbidity for all lake waters. Alaska WQS at 18 AAC 70.020(b)(24)(A)(i) states that the turbidity WQC for the marine water aquaculture water supply shall not exceed 25 NTUs.

3.3.4 **Surface Water Discharging Operations for Aquifer Pump Testing**

For the purposes of the permit, discharges of aquifer pump testing will primarily consist of groundwater pumped from an existing or new well to conduct groundwater studies. Aquifer pump tests may contain suspended solids, total dissolved solids, and naturally occurring metals all of which may have reasonable potential to exceed state WQS. Accordingly, effluent limits and monitoring will be required to assess pollutant concentrations. The larger scale aquifer pump tests that may not have the option for land disposal are typically associated with mineral mining in geologic formations that may have naturally occurring metals present in groundwater.

Discharges to waters of the U.S. must meet the effluent limits listed in Table 5 of the general permit for pH, settleable solids, TAqH, TAH, total antimony, total arsenic, total cadmium, total chromium, total copper, total lead, total mercury, total molybdenum, total nickel, total selenium, total zinc, total dissolved solids, and turbidity. Monitoring for these pollutants and achieving WQBELs will provide protection for all existing uses of fresh or marine waters. Sampling for total metals will be required with the NOI submittal, so the Department can evaluate if additional monitoring for treatment is required. If concentrations of metals naturally occurring in the groundwater exceed WQS, treatment would be necessary and may also require engineering plan approval per 18 AAC 72.600.

3.3.4.1 **Water Quality-Based Effluent Limits**

3.3.4.1.1 **pH**

Alaska WQS at 18 AAC 70.020(b)(6)(A)(iii) and 18 AAC 70.020(b)(18)(C) states that the pH water quality criteria for the growth and propagation of fish, shellfish, other aquatic life, and wildlife for both fresh and marine water may not be less than 6.5 or greater than 8.5 standard units.

3.3.4.1.2 **Settleable Solids**

Alaska WQS at 18 AAC 70.020(b)(9)(A)(i) and 18 AAC 70.020(b)(21)(B) states that the sediment WQC for the fresh water drinking water supply and marine water contact recreation shall have no measureable increase in concentration of settleable solids above natural conditions, as measured by the volumetric Imhoff cone method. The no measurable increase in settleable solids translates to a WQBEL of 0.2 milliliters per Liter (ml/L) above natural conditions.

3.3.4.1.3 **TAqH**

Alaska WQS at 18 AAC 70.020(b)(5)(A)(ii) and 18 AAC 70.020(b)(17)(A)(ii) states that the petroleum hydrocarbons WQC for the fresh water agriculture, including irrigation and stock watering supply use and marine water seafood processing water supply use may not cause a visible sheen upon the surface of the water.

Alaska WQS at 18 AAC 70.020(b)(5)(A)(iii) and 18 AAC 70.020(b)(17)(A)(i) states that the petroleum hydrocarbon WQC for the fresh and marine water aquaculture water supply use shall not have a TAqH concentration in the water column to exceed 15 µg/L. Since this permit does not authorize a mixing zone; therefore, the WQBEL for TAqH will be assigned the WQS of 15 µg/L to be met at the point of discharge. The analytical measurement for TAqH consists of the sum of the monoaromatic hydrocarbons (TAH) plus the sum of the polynuclear aromatic hydrocarbons listed in EPA method 610 or 625. Monitoring for TAqH if a visual sheen is observed will provide assurance that the aquifer pump testing will not discharge any TAqH above the water quality criteria into the receiving water body.

3.3.4.1.4 **TAH**

Alaska WQS at 18 AAC 70.020(b)(5)(A)(ii) and 18 AAC 70.020(b)(17)(A)(ii) states that the petroleum hydrocarbon WQC for the fresh water agriculture, including irrigation and stock watering supply use and marine water seafood processing water supply use may not cause a visible sheen upon the surface of the water.

Alaska WQS at 18 AAC 70.020(b)(5)(A)(iii) and 18 AAC 70.020(b)(17)(A)(i) states that the petroleum hydrocarbon WQC for the fresh and marine water aquaculture water supply use shall not have a TAH concentration in the water column to exceed 10 µg/L. Since this permit does not authorize a mixing zone; therefore, the WQBEL for TAH will be assigned the WQS of 10 µg/L to be met at the point of discharge. The analytical measurement for TAH consists of summing the concentration of the monoaromatic hydrocarbons which include benzene, chlorobenzene, toluene, ethylbenzene, 1-3, 1-4, and 1-2 di-chlorobenzenes and total xylenes (sum of m, p, and o xylene). Monitoring for TAH if a visual sheen is observed will provide assurance that the aquifer pump testing will not discharge TAH above the water quality criteria into the receiving water body

3.3.4.1.5 **Total Antimony**

The WQS for toxic and other deleterious organic and inorganic substances for fresh water uses are codified in 18 AAC 70.020(b)(11) and for marine water uses in 18 AAC 70.020(b)(23). The *Alaska Water Quality Criteria Manual for Toxic and other Deleterious Organic and Inorganic Substances* states the total antimony water

quality criterion for fresh and marine water drinking water supply use shall not exceed 6 µg/L. Note, additional aquatic life criteria may apply in the final authorization to discharge.

3.3.4.1.6 **Total Arsenic**

The WQS for toxic and other deleterious organic and inorganic substances for fresh water uses are codified in 18 AAC 70.020(b)(11) and for marine water uses in 18 AAC 70.020(b)(23). The *Alaska Water Quality Criteria Manual for Toxic and other Deleterious Organic and Inorganic Substances* states the total arsenic water quality criterion for fresh and marine water drinking water supply use shall not exceed 10 µg/L.

3.3.4.1.7 **Total Cadmium**

The WQS for toxic and other deleterious organic and inorganic substances for fresh water uses are codified in 18 AAC 70.020(b)(11) and for marine water uses in 18 AAC 70.020(b)(23). The *Alaska Water Quality Criteria Manual for Toxic and other Deleterious Organic and Inorganic Substances* states the total cadmium water quality criterion for fresh and marine water drinking water supply use shall not exceed 5 µg/L. Note, additional aquatic life criteria may apply in the final authorization to discharge.

3.3.4.1.8 **Total Chromium**

The WQS for toxic and other deleterious organic and inorganic substances for fresh water uses are codified in 18 AAC 70.020(b)(11) and for marine water uses in 18 AAC 70.020(b)(23). The *Alaska Water Quality Criteria Manual for Toxic and other Deleterious Organic and Inorganic Substances* states the total chromium water quality criterion for fresh and marine water drinking water supply use shall not exceed 100 µg/L. Note, additional aquatic life criteria may apply in the final authorization to discharge.

3.3.4.1.9 **Total Copper**

The WQS for toxic and other deleterious organic and inorganic substances for fresh water uses are codified in 18 AAC 70.020(b)(11) and for marine water uses in 18 AAC 70.020(b)(23). The *Alaska Water Quality Criteria Manual for Toxic and other Deleterious Organic and Inorganic Substances* states the total copper water quality criterion for fresh and marine water irrigation water supply use shall not exceed 200 µg/L. Note, additional aquatic life criteria may apply in the final authorization to discharge.

3.3.4.1.10 **Total Lead**

The WQS for toxic and other deleterious organic and inorganic substances for fresh water uses are codified in 18 AAC 70.020(b)(11) and for marine water uses in 18 AAC 70.020(b)(23). The *Alaska Water Quality Criteria Manual for Toxic and other Deleterious Organic and Inorganic Substances* states the total lead water quality criterion for fresh and marine water stock water supply use shall not exceed 50 µg/L. Note, additional aquatic life criteria may apply in the final authorization to discharge.

3.3.4.1.11 **Total Mercury**

The WQS for toxic and other deleterious organic and inorganic substances for fresh water uses are codified in 18 AAC 70.020(b)(11) and for marine water uses in 18 AAC 70.020(b)(23). The *Alaska Water Quality Criteria Manual for Toxic and other Deleterious Organic and Inorganic Substances* states the total mercury water quality criterion for fresh and marine water drinking water supply use shall not exceed 2 µg/L. Note, additional aquatic or human health life criteria may apply in the final authorization to discharge.

3.3.4.1.12 **Total Molybdenum**

The WQS for toxic and other deleterious organic and inorganic substances for fresh water uses are codified in 18 AAC 70.020(b)(11) and for marine water uses in 18 AAC 70.020(b)(23). The *Alaska Water Quality Criteria Manual for Toxic and other Deleterious Organic and Inorganic Substances* states the total molybdenum water quality criterion for fresh and marine water irrigation water supply use shall not exceed 10 µg/L. Note, additional aquatic life criteria may apply in the final authorization to discharge.

3.3.4.1.13 **Total Nickel**

The WQS for toxic and other deleterious organic and inorganic substances for fresh water uses are codified in 18 AAC 70.020(b)(11) and for marine water uses in 18 AAC 70.020(b)(23). The *Alaska Water Quality Criteria Manual for Toxic and other Deleterious Organic and Inorganic Substances* states the total nickel water quality criterion for fresh and marine water irrigation water supply use shall not exceed 200 µg/L. Note, additional aquatic life criteria may apply in the final authorization to discharge.

3.3.4.1.14 **Total Selenium**

The WQS for toxic and other deleterious organic and inorganic substances for fresh water uses are codified in 18 AAC 70.020(b)(11) and for marine water uses in 18 AAC 70.020(b)(23). The *Alaska Water Quality Criteria Manual for Toxic and other Deleterious Organic and Inorganic Substances* states the total selenium water quality criterion for fresh and marine water stock water supply use shall not exceed 10 µg/L.

3.3.4.1.15 **Total Zinc**

The WQS for toxic and other deleterious organic and inorganic substances for fresh water uses are codified in 18 AAC 70.020(b)(11) and for marine water uses in 18 AAC 70.020(b)(23). The *Alaska Water Quality Criteria Manual for Toxic and other Deleterious Organic and Inorganic Substances* states the total nickel water quality criterion for fresh and marine water irrigation water supply use shall not exceed 2,000 µg/L. Note, additional aquatic life criteria may apply in the final authorization to discharge.

3.3.4.1.16 **Total Dissolved Solids (TDS)**

Alaska WQS at 18 AAC 70.020(b)(5)(A)(i) states that the TDS water quality criteria for the drinking, culinary, and food processing water supply use for fresh water may

not exceed 500 mg/l with the maximum concentrations of neither chloride nor sulfates to exceed 250 mg/L. The *Alaska Water Quality Criteria Manual for Toxic and other Deleterious Organic and Inorganic Substances* states chloride shall not exceed 230 mg/L for protection of aquatic life for fresh water. The permit only sets WQBELs for TDS for fresh water discharges as marine discharges would be to a marine environment with a high natural salinity and natural groundwater would not have a reasonable potential to exceed the marine water WQS.

3.3.4.1.17 **Turbidity**

Alaska WQS at 18 AAC 70.020(b)(12)(B)(i) states that the turbidity water quality criteria for the fresh water contact recreation use may not exceed 5 NTUs above natural conditions when the natural turbidity is 50 NTU or less, and may not have more than a 10% increase in turbidity when the natural turbidity is more than 50 NTU, not to exceed a maximum increase of 15 NTU. Turbidity may not exceed 5 NTU above natural turbidity for all lake waters.

Alaska WQS at 18 AAC 70.020(b)(24)(A)(i) states that the turbidity water quality criteria for the marine water aquaculture water supply shall not exceed 25 NTUs.

3.3.5 **Discharge to Impaired Water Body**

For the purposes of the general permit, the CWA §303(d) impaired water bodies are those cited in the *Final DEC 2010 Integrated Report* or most current version. If the permittee is discharging into a water body with an EPA-established or approved Total Maximum Daily Load (TMDL), the permittee must implement measures to ensure that the discharge of pollutants from the site is consistent with the assumptions and requirements of the EPA-established or approved TMDL, including ensuring that the discharge does not exceed specific wasteload or load allocation that has been established that would apply to the discharge. The permittee must also evaluate the recommendations in the Implementation Section of the TMDL and incorporate applicable measures into the operations.

3.4 **Control Measures**

3.4.1 **Best Management Practices (BMPs)**

BMPs are measures that are intended to prevent or minimize the generation and the potential for the release of pollutants to either land or waters of the U.S. All discharges of either hydrostatic or aquifer pump testing are to be managed with appropriate BMPs to minimize environmental impact. The BMPs for land discharges would consist of basic erosion and sediment controls within the land disposal areas. Examples of BMPs for erosion control at the point of discharge would be velocity dissipation devices such as rock lined channels to reduce the erosive velocity of the water. Sediment controls such as rock check dams and other similar temporary constructed settling basins could be implemented to provide settling areas for sediment.

Specific BMPs such as temporary lined settling basins, filter bags, or other similar filtering and retention mechanisms are to be used to reduce sediment discharges to the land. The general permit allows permittees the flexibility to use these BMPs or similar devices as a means to control erosion at the discharge point and reduce sediment deposition within the land disposal area. Discharges for aquifer pump testing within 1,500 feet of an "DEC-identified contaminated site or groundwater plume" will require additional information to be

submitted about the contaminated site in accordance to Permit Part 2.2.7. The BMP plan must also provide a more detailed description of the land disposal area including soils and geology information to provide assurance that either discharges to the land or water will be managed appropriately to minimize the discharge of pollutants. Applicants will be required to submit their signed BMP plan with a completed NOI for all discharges that require NOI submittal in accordance with Permit Part 2.2.

3.5 Limitations, Inspections, and Monitoring Requirements

APDES regulations require that permits include monitoring to determine compliance with permit requirements (18 AAC 83.455). Monitoring may also be required to gather data for future effluent limitations or to monitor effluent impacts on receiving water quality. The permittee is responsible for conducting the monitoring and for reporting results to DEC.

3.5.1 Land Discharge Operations

The permit automatically authorizes land discharges of hydrostatic testing in accordance with Permit Part 2.1.3. All land discharges either automatically authorized or land discharges of aquifer pump testing authorized through an NOI in accordance with Permit Part 2.2 are required to implement BMPs in accordance to Parts 4.0, 5.1 or 5.3 of the permit. The permit allows for the flexibility of BMPs to control erosion and sedimentation at the disposal area and also promote greater infiltration. The only monitoring required for all land discharges is a visual assessment for sheen and erosion at the point of discharge, which are listed in the following table. Visual monitoring will ensure that BMPs are effective to reduce the sediment deposition in the infiltration area and no petroleum products are discharged to land the surface. The visual monitoring is required on a daily basis along with documenting the estimated daily flow rate, all of which are to be recorded and kept on file in accordance to Permit Part 6.1.

Table 1: Effluent Monitoring Requirements for Land Disposal Discharges

Effluent Characteristic	Monitoring Location	Monitoring Frequency	Sample Type
Erosion	Point of Discharge	Daily	Visual
Sheen*	Effluent	Daily	Visual
Flow Rate	Effluent	Daily	24-hour Estimate or Measured
* Discharge shall be free of any visible sheen.			

3.5.2 Surface Water Discharge Operations for Hydrostatic Testing

The permit requires effluent monitoring for all hydrostatic testing including flushing discharges to waters of the U.S. Effluent limits were established for pH, settleable solids, TAqH, TAH, turbidity, and total residual chlorine. Effluent monitoring requirements listed in Table 4 of the permit consist of collecting all effluent samples prior to discharge to assure all WQS are met. As a precautionary measure, all discharges shall be monitored for a daily visual sheen and a daily flow rate estimate. The monitoring for TAqH and TAH is only required for used tanks, pipelines, similar containers and residual chlorine for testing conducted with chlorinated water. The required monitoring will provide assurance that the permittees will install BMPs or treatment that will provide protection of water quality.

Table 2: Effluent Limits and Monitoring Requirements for Hydrostatic Testing Discharges to Waters of the U.S.

Effluent Characteristic	Maximum Value	Monitoring Location	Monitoring Frequency	Sample Type	Sample Method
pH	6.5- 8.5 SU [a]	Effluent Upstream	Before discharge and once per week	Grab	Field
Settleable Solids	0.2 ml/L above natural conditions	Effluent Upstream	Once a month	Grab	Field (see note 11 to 18 AAC 70.020(b))
Sheen	No presence	Effluent	Daily	Grab	Visual
Total Aqueous Hydrocarbons [b] (TAqH)	15 µg/L	Effluent	Before discharge	Grab	Lab (See note 7 to 18 AAC 70.020(b))
Total Aromatic Hydrocarbons [b] (TAH)	10 µg/L	Effluent	Before discharge	Grab	Lab Method 602 (plus Xylenes) or EPA Method 624 (see note 7 to 18 AAC 70.020(b))
Total Flow	No limit	Effluent	Daily	24- Hour Estimate or Measured	Field
Total Residual Chlorine [c]	19 µg/L fresh water or 13 µg/L marine	Effluent	Before discharge and once per week	Grab	Field
Turbidity (marine)	25 NTUs	Effluent	Before discharge and once per week	Grab	Field
Turbidity (freshwater)	5 NTUs above natural conditions [d]	Effluent Upstream	Before discharge and once per week	Grab	Field

Notes:

a. The effluent limit for pH shall be between 6.5 and 8.5 pH units and within 0.2 units (marine water), and 0.5 units (fresh water) of the receiving water pH at all times.

b. TAH and TAqH monitoring is waived for all new/unused tanks, pipelines or similar vessels in addition to testing or flushing of public water supply systems. TAqH and TAH shall be monitored if a visual sheen is detected in the discharge. If a sheen is detected, the permittee shall notify DEC in accordance with Permit Part 3.1.6, and a sample for TAqH and TAH shall be collected and corrective actions or treatment devices implemented to prevent an oily sheen discharge.

c. Total Residual Chlorine (TRC) monitoring is waived for all discharges which do not contain chlorinated water. The TRC limits are not quantifiable using EPA-approved analytical methods so the minimum level (ML) of 0.1 mg/L (100 µg/L) will be used as the compliance evaluation level for this parameter.

d. Turbidity shall not have more than a 10% increase when the natural condition is more than 50 NTU, not to exceed a maximum increase of 15 NTU. Shall not exceed 5 NTU over natural conditions for all lake waters.

3.5.3 Surface Water Discharge Operations for Aquifer Pump Testing

The permit requires effluent monitoring for all aquifer pump testing discharges to waters of the U.S. Effluent limits were established for pH, settleable solids, TAqH, TAH, total antimony, total arsenic, total cadmium, total chromium, total copper, total lead, total mercury, total molybdenum, total nickel, total selenium, total zinc, total dissolved solids, and turbidity. The total metals analysis will be required to be submitted with the NOI so the Department can determine if additional treatment may be needed prior to issuing the discharge authorization. Effluent monitoring requirements listed in Table 6 of the permit consist of collecting all other effluent samples prior to discharge to assure all WQS are met. As a precautionary measure, all discharges shall be monitored for a daily visual sheen and a daily flow rate estimate. The required monitoring will provide assurance that the permittees will install BMPs or treatment that will provide protection of water quality.

(Table 3: Effluent Limits and Monitoring Requirements for Aquifer Pump Testing Discharges to Waters of the U.S. is located on the following page.)

Table 3: Effluent Limits and Monitoring Requirements for Aquifer Pump Testing Discharges to Waters of the U.S.

Effluent Characteristic	Maximum Value	Monitoring Location	Monitoring Frequency	Sample Type	Sample Method
pH	6.5- 8.5 [a] SU	Effluent Upstream	Daily	Grab	Field
Settleable Solids	0.2 ml/L above natural conditions	Effluent Upstream	Once a month	Grab	Field (see note 11 to 18 AAC 70.020(b))
Sheen	No presence	Effluent	Daily	Grab	Visual
Total Aqueous Hydrocarbons (TAqH)	15 µg/L	Effluent	Before discharge	Grab	Lab(See note 7 to 18 AAC 70.020(b))
Total Aromatic Hydrocarbons (TAH)	10 µg/L	Effluent	Before discharge	Grab	Lab Method 602 (plus Xylenes) or EPA Method 624 (see note 7 to 18 AAC 70.020(b))
Total Antimony	6 µg/L	Effluent	With NOI	Grab	Lab
Total Arsenic [b]	10 µg/L	Effluent	With NOI	Grab	Lab
Total Cadmium [b]	5 µg/L	Effluent	With NOI	Grab	Lab
Total Chromium	100 µg/L	Effluent	With NOI	Grab	Lab
Total Copper [b]	200 µg/L	Effluent	With NOI	Grab	Lab
Total Lead [b]	50 µg/L	Effluent	With NOI	Grab	Lab
Total Mercury [b, c]	2 µg/L	Effluent	With NOI	Grab	Lab
Total Molybdenum	10 µg/L	Effluent	With NOI	Grab	Lab
Total Nickel [b]	200 µg/L	Effluent	With NOI	Grab	Lab
Total Selenium [b]	10 µg/L	Effluent	With NOI	Grab	Lab
Total Zinc [b]	2,000 µg/L	Effluent	With NOI	Grab	Lab
Total Dissolved Solids [d] (freshwater)	500 mg/L	Effluent	Before discharge and once per week	Grab	Lab
Total Flow	No limit	Effluent	Daily	24- hr. est. or measured	Field
Turbidity (marine)	25 NTUs	Effluent	Before discharge and once per week	Grab	Field
Turbidity (freshwater)	5 NTUs above natural conditions [e]	Effluent Upstream	Before discharge and once per week	Grab	Field

Notes:

a. The effluent limit for pH shall be between 6.5 and 8.5 pH units and within 0.2 units (marine water), and 0.5 units (fresh water) of the receiving water pH at all times.

b. Effluent Limits for protection of aquatic life or human health criteria for fresh water and marine water may be added per permit authorization.

c. Mercury shall be analyzed using either Method 1631E or 245.7 to ensure meaningful analytical results in light of the very low applicable water quality standards for this metal.

d. The concentration of chlorides and sulfates which make up the total dissolved solids shall not exceed 250 mg/L for sulfates, and 230 mg/L for chlorides.

e. Turbidity shall not have more than a 10% increase in turbidity when the natural condition is more than 50 NTU, not to exceed a maximum increase of 15 NTU. Shall not exceed 5 NTU over natural conditions for all lake waters.

3.5.4 Quality Assurance Project Plan

The permittee must develop and implement a quality assurance project plan (QAPP) for all monitoring required by this permit for discharges to waters of the U.S. The QAPP must be developed and implemented in accordance with Permit Part 5.5. Any existing QAPP may be modified under this section.

3.6 Reporting and Record Keeping

Permit Part 6.0 contains recording and reporting requirements that are either based on standard regulatory language found in Appendix A or are specific to the general permit. The permit requires the permittee to maintain daily records which must be kept for a period of three years after the termination of the discharge, and made available upon request. Permit Part 6.2 requires permittees with a discharge to waters of the U.S. to submit monthly Discharge Monitoring Reports (DMRs) by the 15th day of the month following the month that each sampling occurs. Specific report requirements are outlined under Permit Part 6.2. Additionally, Permit Appendix A, Part 3.4 (Twenty-four Hour Reporting), requires reports of any noncompliance event that may endanger health or the environment to be submitted orally within 24 hours after the permittee becomes aware of the circumstances and in writing within five days after the permittee becomes aware of the circumstances.

3.7 Terminating Coverage

3.7.1 Submitting a Notice of Termination

Permit Part 7.1 indicates that permittees should use either the electronic NOI system or the paper form to file Notices of Termination (NOT) within thirty days upon completion of the hydrostatic or aquifer pump testing that received coverage through the submittal of an NOI in accordance with Permit Part 2.2. Coverage under the permit shall automatically terminate at midnight on the signature date of the NOT.

3.8 Standard Conditions

Appendix A of the permit contains standard regulatory language that must be included in all APDES permits. These requirements are based on the regulations and cannot be challenged in the context of an individual APDES permit action. The standard regulatory language covers requirements such as monitoring, recording, reporting requirements, compliance responsibilities, and other general requirements.

3.9 Permit Expiration

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

4.0 ANTIBACKSLIDING

Per 18 AAC 83.480(a), except as provided in (b) of the section, "when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit, unless the circumstances on which the previous permit was based have materially and substantially changes since the permit was issued, and the change in circumstances would constitute cause for permit modification or revocation and reissuance under 18 AAC 83.135." The permit does not propose any interim effluent limitations nor is this

reissuance based on cause established in 18 AAC 83.135. Accordingly, the provisions of 18 AAC 83.480(a) do not apply to this permitting action.

18 AAC 83.480(b) only applies to effluent limitations established on the basis of CWA Section 402(a)(1)(B), and modification of such limitations based on effluent guidelines that were issued under CWA Section 304(b). Accordingly, 18 AAC 83.480(b) applies to the relaxation previously established case-by-case TBELs developed using Best Professional Judgment (BPJ). To determine if the provisions of 18 AAC 83.480(b) can be applied, the regulation provides five regulatory criteria (18 AAC 83.480[b][1-5]) DEC must evaluate. This permitting action does not propose the relaxation of any case-by-case TBELs developed by BPJ; therefore, there is not a need to conduct an analysis under this regulation.

Finally, the first sentence of 18 AAC 83.480(c) establishes that for a permit to which 18 AAC 83.480(b) applies, a permit "may not be renewed, reissued, or modified to contain an effluent limitation that is less stringent than required by effluent guidelines in effect at the time the permit is renewed, reissued, or modified. As established in the preceding paragraph, 18 AAC 83.480(b) does not apply; therefore, no further analysis is required. The second sentence of 18 AAC 83.480(c) indicates that case-by-case TBELs developed by BPJ may not be renewed, issued, or modified to contain a less stringent effluent limitation if implementation of the less stringent limitation would result in a violation of WQS. This permitting action does not propose the relaxation of any case-by-case TBELs developed by BPJ; therefore, there is no need to conduct an analysis under this regulation

5.0 **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 Alaska 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, 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 procedures and policy, the Department determines whether a water body, or a portion of a water body is classified 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.

For the purpose 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 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 finding that five specific requirements of the antidegradation policy at 18 AAC 70.015(a)(2)(A-E) are met. The Department's findings are as follows.

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

The Alaskan economy in general, and the construction industry in particular, provide economic and social benefits from construction activities that might affect water quality. Alaska's economy has experienced steady growth over the past 20 years. In 2012, Alaska's Gross Domestic Product totaled $51.9 billion. The state's population grew by 0.62 percent in 2013, placing the total number of Alaska residents at 736,399. In 2014, construction activity is estimated to increase by 18% from 2013 to a total of $9.2 billion. Wage and salary employment in the construction industry which was stable last year at about 16,300 workers, is expected to remain stable. Growth has focused in natural resource related industries, with the oil and gas sector accounting for most totaling $4.9 billion, up from $3.2 billion in 2013. Alaska construction spending, excluding oil and gas sector, is expected to be $4.9 billion, up from $4.6 billion in 2013.

This general permit authorizes the discharge of hydrostatic testing, which is often associated with construction activity and expansion of infrastructure. As areas undergo commercial and residential development, new utilities such as water, sewer, and natural gas lines are installed that often require hydrostatic testing to facilitate construction. The authorization of various hydrostatic testing discharges associated with construction activity is critical to the continued economic development of the state through the creation of jobs, generation of tax revenue, transmission and delivery of goods.

The value of Alaska's mineral industry is approximately $4 billion, with $3.37 billion in production, $329 million in exploration, and $319 million in development. With a total value of approximately $4 billion, the mineral mining industry makes up a large portion of the state economy and without aquifer pump testing and hydrogeological investigations most mining exploration would not be possible. The abundance of mineral resources in Alaska makes the state very attractive for new mineral mining, and exploration of these areas normally involves aquifer pump testing to study groundwater. Of the total value of mineral mining, $329 million is spent in exploration which normally involves some form of aquifer pump testing.

The Department has determined that the lowering of water quality is necessary to accommodate important economic and social development in the area where the waters are located; therefore, 18 AAC 70.015(a)(2)(A) 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 general permit requires that discharges must be controlled as necessary to meet applicable WQS (Part 3.2.1.1), thereby prohibiting a violation of the water quality criteria in 18 AAC 70.020.

Discharges authorized under this permit will not violate applicable water quality criteria, as allowed under 18 AAC 70.235. Under this regulation, the Department may establish a site-specific water quality criteria that modifies a water quality criterion set for a water body. There are no site-specific criteria established for any receiving waters applicable to this permit, no further evaluation is required.

Discharges authorized under this permit will not violate applicable water quality criteria, as allowed under 18 AAC 70.030. This permit does not require the use of the whole effluent toxicity testing, but

rather implements measures found to adequately control discharges from causing excursions of WQS, which includes a chronic whole effluent toxicity limit, so no further evaluation is required.

The Department finds that the selected WQBELs for surface water discharges from hydrostatic or aquifer pump testing discharges will not violate the criteria of 18 AAC 70.020, 18 AAC 70.235, or 18 AAC 70.030; therefore, 18 AAC 70.015(a)(2)(B) 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 the Fact Sheet, the permit authorizes discharges to impaired water bodies; however, permit conditions (e.g., control measures) have been developed to maintain and protect WQS, which include the preservation of existing uses are preserved. 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 finds that the resulting water quality will be adequate to fully protect existing and designated uses; therefore, 18 AAC 70.015(a)(2)(C) is satisfied.

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

The general permit implements water quality-based effluent limits (WQBELs) for all pollutants believed present in hydrostatic or aquifer pump testing discharges to protect existing water quality. Since technology-based effluent limits (TBELs) are not developed for hydrostatic testing or aquifer pump testing related discharges, the most stringent water quality criteria were selected as effluent limits. If pollutant concentrations have the potential to exceed an effluent limit, treatment may be necessary such as temporary settling basins, sediment filters, weir tanks, or similar filtering mechanisms.

The permit specifies that basic best management practices (BMPs) be implemented (temporary settling basins, filter bags, and similar filtering and retention mechanisms) for land discharges. Land discharges will be required to use various BMPs to insure the discharges do not create erosion and a surface water discharge. BMPs commonly used in the construction industry to control erosion and sedimentation can be implemented to manage surface discharges from hydrostatic testing and aquifer pump testing discharges. The permit gives permittees the flexibility to use BMPs as necessary to control erosion, reduce sedimentation, and promote infiltration as a means to minimize the environmental impact from surface disposal. The requirement to implement BMPs to manage surface discharges and the establishment of WQBELs for all surface water discharges will insure that all best available demonstrated control technology will be utilized to meet the permit requirements.

The Department has determined the methods of prevention, control, and treatment in the permit to be most effective and reasonable, which will be applied to all wastes and other substances to be discharged; therefore, 18 AAC 70.015(a)(2)(D) 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.*

Applicable "highest statutory and regulatory requirements" are defined in 18 AAC 70.990(30) (June 26, 2003 version of the WQS). Accordingly, there are three parts to the definition. The first part of the

definition includes all federal technology-based effluent limit guidelines (ELGs). Upon review of the federal technology-based ELGs, no ELGs exist for the temporary discharges created by hydrostatic testing and aquifer pump testing discharges. The second part of the definition considers domestic wastewater and is not applicable. The third part includes any more stringent treatment required by state law, including 18 AAC 70 and 18 AAC 72. The state does not have any more stringent treatment requirements for the types of discharges authorized under this general permit. Through the establishment of WQBELs based on the most stringent water quality criteria for all pollutants believed present, all discharges will be required to implement any and all best available demonstrated control technologies to meet the terms and conditions of the general permit.

The Department has determined that the permit complies with the highest statutory and regulatory requirements; therefore, 18 AAC 70.015(a)(2)(E) is satisfied.

6.0 OTHER LEGAL REQUIREMENTS

6.1 Endangered Species Act

The National Marine Fisheries Service (NMFS) is responsible for administration of the Endangered Species Act (ESA) for listed cetaceans, seals, sea lions, sea turtles, anadromous fish, marine fish, marine plants, and corals. All other species (including polar bears, walrus, and sea otters) are administered by the U.S. Fish and Wildlife Service (USFWS). The ESA requires federal agencies to consult with NMFS and USFWS (collectively referred to as the Services) if their actions could beneficially or adversely affect any threatened or endangered species. As a state agency, DEC is not required to consult with the Services regarding permitting actions. However, the Department values input from the Services and solicited comments from them on reissuance of this permit. The Services provided no input during the issuance of this permit.

6.2 Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) designates Essential Fish Habitat (EFH) in waters used by anadromous salmon and various life stages of marine fish under NMFS jurisdiction. EFH refers to those waters and associated river bottom substrates necessary for fish spawning, breeding, feeding, or growth to maturity—including aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish. Spawning, breeding, feeding, or growth to maturity covers a species' full life cycle necessary for fish from commercially-fished species to spawn, breed, feed, or grow to maturity.

The EFH regulations define an adverse effect as any impact which reduces quality and/or quantity of EFH and may include direct (e.g. contamination or physical disruption), indirect (e.g. loss of prey, reduction in species' fecundity), site-specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

Section 305(b) of the Magnuson-Stevens Act 916 USC 1855(b)) requires federal agencies to consult the NMFS when any activity proposed to be permitted, funded, or undertaken by a federal agency may have an adverse effect on designated EFH as defined by the Act. As a state agency, DEC is not required to consult with NMFS regarding permitting actions, but interacts voluntarily with NMFS to identify EFH.

To protect EFH the permit Part 2.2.9.1 requires the permittee to contact ADF&G Office of Habitat for all discharges to fish bearing water bodies.

7.0 REFERENCES

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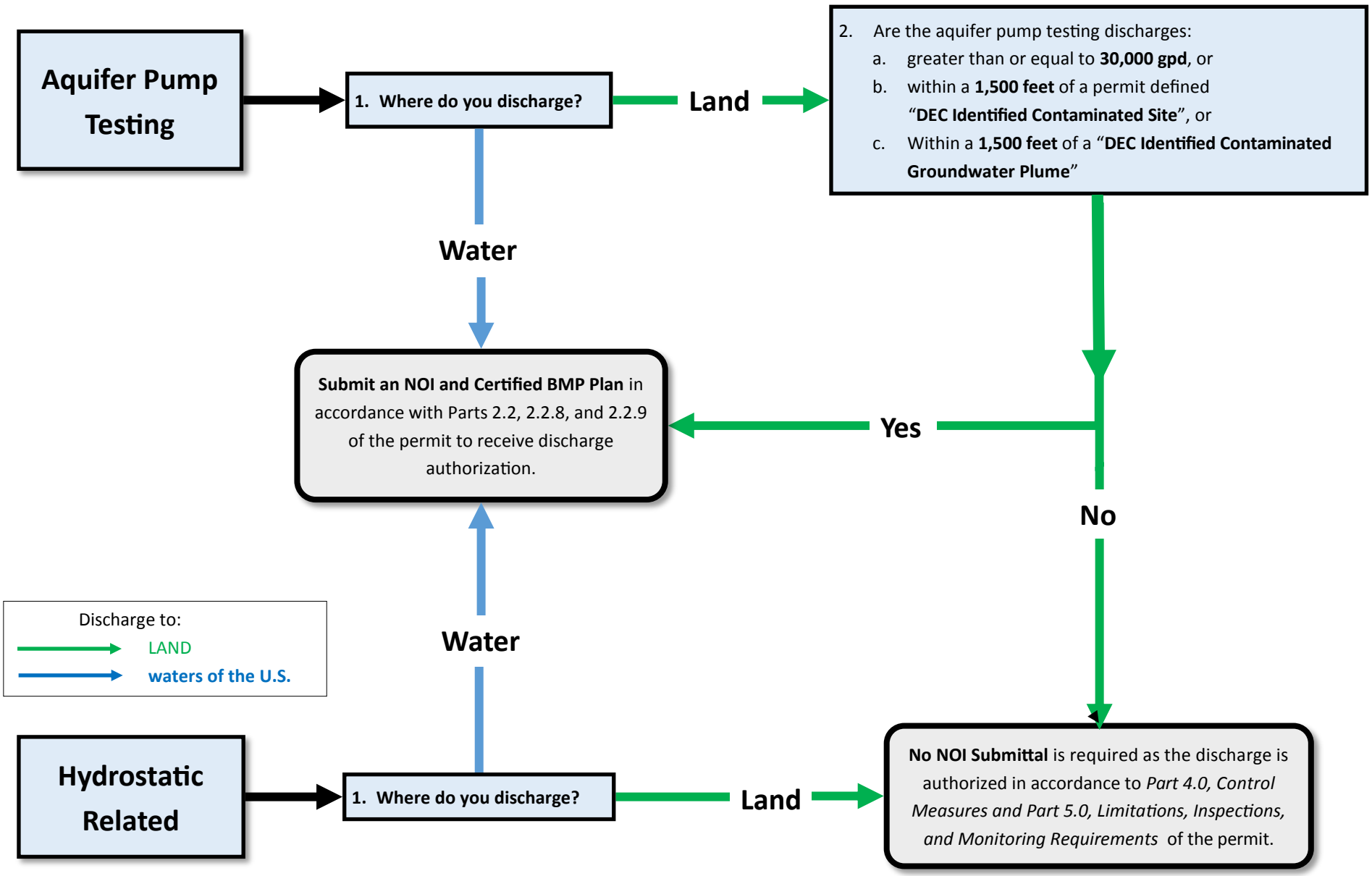
APPENDIX A. NOI SUBMITTAL REQUIREMENT FLOW CHART



APPENDIX B. BASIS FOR EFFLUENT LIMITATIONS

B.1 Land discharges:

B.1.1 Best Management Practices

The Alaska Department of Environmental Conservation (DEC) determined that the implementation of BMPs that control erosion, sediment, and promote greater infiltration are the most effective and reasonable pollution control practices for land discharges.

B.2 Discharges to Surface Water:

B.2.1 Technology Based Effluent Limits (TBELs)

The Clean Water Act (CWA) requires permittees in industrial sectors to comply with effluent limitation guidelines (ELG) based on available wastewater treatment technology for those sectors EPA has promulgated ELGs. EPA has not promulgated technology-based ELGs for hydrostatic or aquifer pump testing discharges, so no TBELs have been incorporated into the permit.

B.2.2 Water Quality Based Effluent Limits (WQBELs) for Hydrostatic Testing

The Clean Water Act (CWA) requires the imposition of ". . . any more stringent limitation, including those necessary to meet water quality standards, . . . or required to implement any applicable water quality standard established pursuant to this Act" by July 1, 1977 [Section 301(b)(1)(c)]. All discharges to state waters must comply with State water quality standards (WQS), including the State's antidegradation policy.

Alaska Pollutant Discharge Elimination System (APDES) regulations require that permits include conditions necessary to "achieve water quality standards established under 33 U.S.C. 1313, including state narrative criteria for water quality" [18 AAC 83.435(a)(1)].

DEC has concluded, based on application of the WQS and review of available sampling data, that the following pollutants that are commonly found in hydrostatic testing including flushing must be limited in order to meet the State WQS.

B.2.2.1 *pH*

The most stringent pH water quality criterion for freshwater is 6.5 to 8.5 S.U. and within 0.5 S.U. from natural conditions which is protective of the aquaculture water supply designated use. The most stringent pH criterion for marine discharges is the same but within 0.2 S.U. from natural conditions and is also protective of the aquaculture water supply designated use.

B.2.2.2 *Settleable Solids*

The concentration of settleable solids in wastewater discharged from hydrostatic testing must not exceed 0.2 ml/L above natural conditions. (Permit Part 2.2.1.3). The concentration of 0.2 ml/L was taken from the fresh water sediment water quality criterion for the drinking water supply designated use which states there should be no measurable increase in the concentration of settleable solids above natural conditions. Using best professional judgment an increase of 0.2 ml/L is the smallest incremental rise that can accurately be measured. The marine water sediment water quality criterion for the contact recreation designated use also

states there should be no measurable increase in the concentration of settleable solids above natural conditions.

B.2.2.3 *TAqH*

The most stringent water quality criteria for petroleum hydrocarbons for both fresh water and marine water is the narrative criteria which states the discharge shall not cause a sheen. The numeric water quality criterion for TAqH is 15 µg/l, which is protective of the aquaculture water supply use in both fresh and marine water.

B.2.2.4 *TAH*

The most stringent water quality criteria for petroleum hydrocarbons for both fresh water and marine water is the narrative criteria which states the discharge shall not cause a sheen. The numeric water quality criterion for TAH is 10 µg/l, which is protective of the aquaculture water supply use in both fresh water and marine water.

B.2.2.5 *Total Residual Chlorine*

The most stringent state water quality criterion for total residual chlorine discharged to fresh water is 19 µg/L and 13 µg/L for marine discharges. These values are the acute continuous maximum concentrations taken from the Alaska Water Quality Criteria Manual for Toxics that are protective of the aquatic life designated use. The acute criteria are based on the average concentration of a chemical pollutant during a one-hour period which would be most representative of a short duration hydrostatic discharge. Since the effluent limit is below the EPA Quantification level for residual chlorine a minimum level of quantification of 0.1 mg/l will be used in the permit as a compliance level.

B.2.2.6 *Turbidity*

The most restrictive turbidity criterion applies to fresh water sources classified for water contact recreation uses. This criterion [18 AAC 70.020(b)(12)(B)(i)] states that turbidity "May not exceed 5 NTU above natural conditions when the natural turbidity is 50 NTU or less, and may not have more than 10% increase in turbidity when the natural turbidity is more than 50 NTU, not to exceed a maximum increase of 15 NTU." The criterion for Water Supply, Drinking, Culinary and Food Processing [18 AAC 70.020(1)(A)(i)] is identical except that the maximum increase is 25 NTU.

The adoption of the aquaculture water supply water quality criterion of 25 NTUs is the most stringent marine WQS for turbidity. Through the establishment of a water quality-based effluent limit of 25 NTUs for any marine water discharge all marine water designated uses will be protected. This effluent limit for marine water discharges is also consistent with the turbidity limit set for both hydrostatic and excavation dewatering discharges in the North Slope Oil and Gas Exploration general permit.

B.2.3 **Water Quality Based Effluent Limits (WQBELs) for Aquifer Pump Testing**

The CWA requires the imposition of ". . . any more stringent limitation, including those necessary to meet water quality standards, . . . or required to implement any applicable water quality standard established pursuant to this Act" by July 1, 1977 [Section 301(b)(1)(c)]. All discharges to state

waters must comply with State water quality standards (WQS), including the State's antidegradation policy.

APDES regulations require that permits include conditions necessary to "achieve water quality standards established under 33 U.S.C. 1313, including state narrative criteria for water quality" [18 AAC 83.435(a)(1)].

DEC has concluded, based on application of the WQS and review of available sampling data, that the following pollutants which are commonly found in aquifer pump testing must be limited in order to meet the State WQS.

B.2.3.1 *pH*

The most stringent pH water quality criterion for freshwater is 6.5 to 8.5 S.U. and within 0.5 S.U. from natural conditions which is protective of the aquaculture water supply designated use. The most stringent pH criterion for marine discharges is the same but within 0.2 S.U. from natural conditions and is also protective of the aquaculture water supply designated use.

B.2.3.2 *Settleable Solids*

The concentration of settleable solids in wastewater discharged from aquifer pump testing must not exceed 0.2 ml/L above natural conditions. (Permit Part 2.2.1.3). The concentration of 0.2 ml/L was taken from the fresh water sediment water quality criterion for the drinking water supply designated use which states there should be no measurable increase in the concentration of settleable solids above natural conditions. Using best professional judgment an increase of 0.2 ml/L is the smallest incremental rise that can accurately be measured. The marine water sediment water quality criterion for the contact recreation designated use also states there should be no measurable increase in the concentration of settleable solids above natural conditions.

B.2.3.3 *TAqH*

The most stringent water quality criteria for petroleum hydrocarbons for both fresh water and marine water is the narrative criteria which states the discharge shall not cause a sheen. The numeric water quality criterion for TAqH is 15 µg/l, which is protective of the aquaculture water supply use in both fresh and marine water.

B.2.3.4 *TAH*

The most stringent water quality criteria for petroleum hydrocarbons for both fresh water and marine water is the narrative criteria which states the discharge shall not cause a sheen. The numeric water quality criterion for TAH is 10 µg/l, which is protective of the aquaculture water supply use in both fresh water and marine water.

B.2.3.5 *Total Antimony*

A metal which may be naturally present in aquifer pump test water is antimony. In order to assure protection of all fresh and marine water designated uses the most stringent water quality criterion for total antimony was selected as a water quality-based effluent limit. The water quality criterion of 6 µg/l for the drinking water designated use is the most stringent criterion for both fresh and marine waters. Through inclusion of this water quality criterion as an effluent limit in the permit all discharges will be protective of all designated uses.

B.2.3.6 *Total Arsenic*

A metal which may be naturally present in aquifer pump test water is arsenic. In order to assure protection of all fresh and marine water designated uses the most stringent water quality criterion for total arsenic was selected as a water quality-based effluent limit. The water quality criterion of 10 µg/l for the drinking water designated use is the most stringent criterion for both fresh and marine waters. Through inclusion of this water quality criterion as an effluent limit in the permit all discharges will be protective of all designated uses.

B.2.3.7 *Total Cadmium*

A metal which may be naturally present in aquifer pump test water is cadmium. In order to assure protection of all fresh and marine water designated uses the most stringent water quality criterion for total cadmium was selected as a water-quality based effluent limit. The water quality criterion of 5 µg/l for the drinking water designated use is the most stringent criterion for both fresh and marine waters. Through inclusion of this water quality criterion as an effluent limit in the permit all discharges will be protective of all designated uses.

B.2.3.8 *Total Chromium*

A metal which may be naturally present in aquifer pump test water is chromium. In order to assure protection of all fresh and marine water designated uses the most stringent water quality criterion for total chromium was selected as a water quality-based effluent limit. The water quality criterion of 100 µg/l for the drinking water designated use is the most stringent criterion for both fresh and marine waters. Through inclusion of this water quality criterion as an effluent limit in the permit all discharges will be protective of all designated uses.

B.2.3.9 *Total Copper*

A metal which may be naturally present in aquifer pump test water is copper. In order to assure protection of all fresh and marine water designated uses the most stringent water quality criterion for total copper was selected as a water quality-based effluent limit. The water quality criterion of 200 µg/l for the irrigation water supply designated use is the most stringent criterion for both fresh and marine waters. Through inclusion of this water quality criterion as an effluent limit in the permit all discharges will be protective of all designated uses.

B.2.3.10 *Total Lead*

A metal which may be naturally present in aquifer pump test water is lead. In order to assure protection of all fresh and marine water designated uses the most stringent water quality criterion for total lead was selected as a water quality-based effluent limit. The water quality criterion of 50 µg/l for the stock water designated use is the most stringent criterion for both fresh and marine waters. Through inclusion of this water quality criterion as an effluent limit in the permit all discharges will be protective of all designated uses.

B.2.3.11 *Total Mercury*

A metal which may be naturally present in aquifer pump test water is mercury. In order to assure protection of all fresh and marine water designated uses the most stringent water quality criterion for total mercury was selected as a water quality-based effluent limit. The

water quality criterion of 2 µg/l for the drinking water designated use is the most stringent criterion for both fresh and marine waters. Through inclusion of this water quality criterion as an effluent limit in the permit all discharges will be protective of all designated uses.

B.2.3.12 ***Total Molybdenum***

A metal which may be naturally present in aquifer pump test water is molybdenum. In order to assure protection of all fresh and marine water designated uses the most stringent water quality criterion for total molybdenum was selected as a water quality-based effluent limit. The water quality criterion of 10 µg/l for the irrigation water designated use is the most stringent criterion for both fresh and marine waters. Through inclusion of this water quality criterion as an effluent limit in the permit all discharges will be protective of all designated uses.

B.2.3.13 ***Total Nickel***

A metal which may be naturally present in aquifer pump test water is nickel. In order to assure protection of all fresh and marine water designated uses the most stringent water quality criterion for total nickel was selected as a water quality-based effluent limit. The water quality criterion of 200 µg/l for the irrigation water designated use is the most stringent criterion for both fresh and marine waters. Through inclusion of this water quality criterion as an effluent limit in the permit all discharges will be protective of all designated uses.

B.2.3.14 ***Total Selenium***

A metal which may be naturally present in aquifer pump test water is selenium. In order to assure protection of all fresh and marine water designated uses the most stringent water quality criterion for total selenium was selected as a water quality-based effluent limit. The water quality criterion of 10 µg/l for the stock water designated use is the most stringent criterion for both fresh and marine waters. Through inclusion of this water quality criterion as an effluent limit in the permit all discharges will be protective of all designated uses.

B.2.3.15 ***Total Zinc***

A metal which may be naturally present in aquifer pump test water is zinc. In order to assure protection of all fresh and marine water designated uses the most stringent water quality criterion for total zinc was selected as a water quality-based effluent limit. The water quality criterion of 2,000 µg/l for the irrigation water designated use is the most stringent criterion for both fresh and marine waters. Through inclusion of this water quality criterion as an effluent limit in the permit all discharges will be protective of all designated uses.

B.2.3.16 ***Total Dissolved Solids (TDS)***

The most stringent TDS criterion is 500 mg/l for the drinking water designated use. This criterion has a maximum individual concentration of 250 mg/l for sulfates and 230 mg/l for chlorides (aquatic life) which make up the TDS concentration. Through inclusion of this water quality criterion as an effluent limit in the permit all discharges will be protective of all designated uses.

B.2.3.17 ***Turbidity***

The most restrictive turbidity criterion applies to fresh water sources classified for water contact recreation uses. This criterion [18 AAC 70.020(b)(12)(B)(i)] states that turbidity "May not exceed 5 NTU above natural conditions when the natural turbidity is 50 NTU or less, and may not have more than 10% increase in turbidity when the natural turbidity is more than 50 NTU, not to exceed a maximum increase of 15 NTU." The criterion for Water Supply, Drinking, Culinary and Food Processing [18 AAC 70.020(1)(A)(i)] is identical except that the maximum increase is 25 NTU.

The adoption of the aquaculture water supply water quality criterion of 25 NTUs is the most stringent marine WQS for turbidity. Through the establishment of a water quality-based effluent limit of 25 NTUs for any marine water discharge all marine water designated uses will be protected. This effluent limit for marine water discharges is also consistent with the turbidity limit set for both hydrostatic and excavation dewatering discharges in the North Slope Oil and Gas Exploration general permit. The North Slope Oil and Gas Exploration general permit which was issued by the EPA and was issued a 401 Water Quality Certification which provided assurance that the effluent limits met all state WQSs.