



## NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT EVALUATION REPORT

Oregon Department of Environmental Quality  
811 SW Sixth Avenue  
Portland, OR 97204

**PROPOSED ACTION:** 700PM NPDES general permit renewal

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**PERMIT CATEGORY:** General Permit

This general permit provides coverage under the National Pollutant Discharge Elimination System for three kinds of discharges:

- 1. Discharges from suction dredges not exceeding 30 horsepower and suction hoses with inside diameters no larger than six inches in diameter that do not operate in areas designated as essential salmon habitat.** Operators seeking coverage for this type of discharge must apply for registration under the permit and registration must be approved by DEQ.
- 2. Discharges from suction dredges not exceeding 16 horsepower and suction nozzles with inside diameters no larger than four inches in diameter that operate in areas designated as essential salmon habitat.** Operators seeking coverage for this type of discharge must apply for registration under the permit and registration must be approved by DEQ.
- 3. Discharges from in-water, non-motorized mining equipment or devices.** Operators seeking coverage for this type of discharge are not required to apply for registration but are required to comply with all applicable permit terms.

All other mining activities that discharge from a point source to surface waters of the state are required to apply for an individual permit. NOTE: Hand panning is not considered to be a point source and is exempt from permitting requirements.

**SOURCE LOCATION:** Statewide

**Issue Date:** March 20, 2015

**Effective Date:** May 15, 2015

## Contents

INTRODUCTION.....	Error! Bookmark not defined.
Permit History.....	5
Protecting Quality of Receiving Waters .....	7
Permit.....	11
COVER PAGE .....	11
REGISTRATION REQUIREMENTS.....	12
SCHEDULE A - WASTE DISCHARGE LIMITATIONS.....	13
Effluent Limits .....	14
SCHEDULE B - MONITORING REQUIREMENTS.....	17
SCHEDULE C - BEST MANAGEMENT PRACTICES .....	18
SCHEDULE D: NPDES GENERAL CONDITIONS – INDUSTRIAL FACILITIES .....	22
REFERENCES .....	22

## Introduction

The Oregon Department of Environmental Quality (DEQ) is renewing the 700PM NPDES General Permit, which expired on December 31, 2014. Suction dredge mining and in-water non-motorized mining equipment are commonly used for in-water placer mining operations. A person may not discharge from a suction dredge or in-water non-motorized mining equipment without a permit under the federal Clean Water Act National Pollutant Discharge Elimination System (NPDES). DEQ has been delegated the authority by the U.S. Environmental Protection Agency (EPA) to issue NPDES permits in Oregon. This is a general permit issued by order under Oregon Administrative Rule 340-045-0033. General permits cover activities with similar operations, similar wastes and similar monitoring conditions.

This 700PM NPDES General Permit (Permit) allows and regulates the discharge of pollutants, including turbid water. Turbid water is a cloudy or muddy looking discharge consisting of stream water and bed material. It is discharged back into the receiving water from equipment used in state waters for recovering precious metals or minerals from stream deposits. Suction dredge and in-water non-motorized mining equipment are defined in the permit.

Persons operating suction dredges in Oregon waters must register for coverage under the Permit or seek coverage under an individual permit. Suction dredges registered under this permit may not exceed 16 horsepower or use suction nozzles with inside diameters larger than four inches when discharging to waters designated as essential salmon habitat. Essential salmon habitat means those areas defined and designated essential salmon habitat by the Department of State Lands (DSL) pursuant to Oregon Revised Statute 196.810. Suction dredges registered under this permit in waters outside essential salmon habitat may not exceed 30 horsepower or use suction hoses with inside diameters larger than six inches. Persons operating in-water non-motorized mining equipment to recover precious metals or minerals from stream deposits are automatically authorized to discharge under this Permit and are not required to register for coverage, but they must comply with applicable terms and conditions of the Permit.

The Permit retains coverage of the non-motorized small scale mining equipment. DEQ has determined that it is appropriate for in-water sluicing equipment and other in-water non-motorized small scale mining equipment commonly used in Oregon to be covered by this Permit. Hand panning is exempt from permitting requirements and the need to obtain coverage under a water quality permit.

Operators of in-water non-motorized small scale mining equipment are required to obtain a copy of the Permit and follow the applicable requirements; however, registration under the Permit is not required. Under 40 CFR 122.28(b)(2)(v) and OAR 340-045-0033(3)(a), DEQ can determine that the submittal of a registration application is not necessary after evaluating the type of discharge, the volume, availability of other means to identify the dischargers and estimated number of discharges to be covered under the permit. While the number of these types of operations is not exactly known, current estimates from the DSL annual reports indicate there were 150 in 2012 operating in streams designated as essential salmon habitat. The total number of these operations including streams outside of essential salmon habitat is greater. Suction dredge and the other in-water non-motorized small-scale mining equipment operations have the same gravity separation and metal/mineral extraction process and same discharge of pollutants. In considering whether to include in-water non-motorized equipment in the registration process, DEQ has determined that the in-water non-motorized means of mining moves less material over time than the suction dredges and that there are alternative means other than permit registration to identify hand sluice operators through reported information required by state law, such as requirements already contained in DSL regulations.

Placer mining is the recovery of precious metal or minerals from stream deposits. Miners normally target gold-bearing placer or deposits of streambed material and former fluvial deposits of a meandering stream. The in-water placer mining covered by this Permit, typically occurs for a period ranging from 2 to 8 hours a day and is limited to seasonal in-water work periods authorized by the Department of Fish and Wildlife. In general, the activity moves a small amount of material, and it is common for multiple mining activities to occur along the same stream. The table below provides information on product specifications. The amount of material moved is also dependent on the type of streambed material encountered and the number of operators working the site. Less streambed material is moved in areas with rocky substrate compared to a gravel substrate. (California Department of Fish and Game, 2011). An operation that includes more people can increase the amount of material moved. (Milch, Ceasar J., 5 Inch Dredge Model 5109H, Product Report, No Date)

Equipment		Amount of material moved	
Non-motorized hand sluice		Typical amount of material processed is 5 cubic yards per year.	
		Proline dredge specifications <a href="http://www.prospectinggear.com/products">www.prospectinggear.com/products</a>	Keene manufacturers specifications (maximum reported) <sup>1</sup>
Suction dredge 2-inch		Up to 2 cubic yards per hour	1.4 cubic yards per hour
Suction dredge 3-inch		Up to 8 cubic yards per hour	3 cubic yards per hour
Suction dredge 4-inch		Up to 12 cubic yards per hour	5.2 cubic yards per hour
Suction dredge 6 -inch		Up to 20 cubic yards per hour	17 cubic yards per hour

<sup>1</sup>(California Department of Fish and Game Draft Subsequent Environmental Impact Report, 2011)  
<http://www.dfg.ca.gov/suctiondredge>

Dredge operators will move cobble rocks by hand and/or use the suction dredge to remove streambed material (waste material or overburden above a targeted mineral bearing zone) to reach gold deposits in areas near the top of bedrock. Miners also target material collected behind boulders and streambed deposits immediately above barriers that act as a barrier to downward migration of gold. Bedrock acts as a barrier to downward migration of gold. Miners often dig and suction the irregular surface and crevices of the bedrock for gold. In general, placer material is conveyed from the stream bottom through the suction hose to the sluice box on a floating platform where the power source and pump is also mounted. Dredgers often use breathing air supplied by a compressor powered by the dredge engine in addition to the suction pump. The sluice box processes the placer material where the heavier gold and minerals like magnetite (black sand) or hematite are caught and separated by means of metal riffles, metal screens and textured synthetic mat material. Waste rock and sediment passes through the sluice box. Waste material is deposited off the back end of the sluice box on the stream bottom and pollutants, including turbidity, sediments and, in some cases toxics, are introduced to the water column.

Suction dredge discharge often appears as a turbid plume of varying lengths and cloudiness depending on the characteristics of placer material processed. Elemental mercury may be captured in sluice boxes. (DEQ has guidance for proper disposal of such mercury, [Water Quality Permits for Metal Mining Activities](http://www.deq.state.or.us/wq/wqpermit/mining.htm), <http://www.deq.state.or.us/wq/wqpermit/mining.htm>) Miners often capture lead fishing sinkers and other metal items. (DEQ encourages the recycling of these materials.)

Persons using in-water non-motorized equipment like a hand sluice box will move overburden to gather material from gold bearing zones with shovels and other tools and then bring targeted placer material back to the sluice box positioned in shallow water with optimum angle and stream flowing through it to catch the gold and minerals in the riffles of the sluice box. Gold and minerals are captured by the sluice box and waste material and pollutants are discharged.

DEQ's authority to regulate discharges from mining arises from both the federal Clean Water Act (33 USC Section 1251 et. seq.) and Oregon Revised Statutes (ORS) Chapter 468B. DEQ is authorized to require a water quality permit with limitations for point sources (such as suction dredges and sluice boxes) that discharge to waters of the state and that may cause water quality problems such as elevated turbidity. Best management practices and other conditions in this Permit protect and maintain the quality of the waters of the state for public water supplies, the propagation of wildlife, fish and aquatic life, and domestic, agricultural, industrial, municipal, recreational and other beneficial uses as authorized by ORS 468B.020 and consistent with the policies in ORS 468B.015.

## **Permit History**

This Permit renews the permit that was reissued in July 2010 with an expiration date of December 31, 2014. DEQ held a large group meeting in Medford in March 2013 and small group meetings of mining and environmental stakeholders in October and December 2013 and February 2014 prior to putting this draft Permit out for general public review and comment. In addition, DEQ met with Tribal representatives at a separate meeting in Roseburg in October 2013.

The meeting in March 2013 was an initial meeting to share concepts and begin thinking about topics, conditions, strategies associated with Permit renewal. Discussions in small group meetings served to capture thoughts on Permit conditions. DEQ sought feedback on challenges of following the Permit requirements. DEQ sought input to clarify permit requirements and to achieve understanding on types of operations covered and fuel handling. DEQ also discussed the need for an annual report submitted to DEQ which would include both DSL and DEQ information and a visible identification number on a suction dredge. DEQ sought input on how to establish which operations are "existing dischargers" to a waterbody listed as impaired on a 303(d) list.

## **Summary of Changes**

Conditions relating to permit operations that were located in various parts of the 2010 Permit have been placed together at the front of the Permit. The cover page of the permit was reworded to provide clarity on sources authorized to discharge under this permit. Definitions have been revised for clarity. This Permit does not authorize discharge to waters that are listed as water quality limited water for sedimentation, turbidity or toxics (other than chlorine) in categories 4 and 5 on Oregon's 303(d) list. Chlorine is not included because it does not have properties that sequester the pollutant to the sediment. Best management practices addressing movement of habitat structure and management of petroleum have been revised and an effluent limit for narrative criteria related to petroleum has been added. Changes to Schedule C, Condition 9, clarify that non-motorized tools can be used to move habitat structure but key habitat elements such as large wood and boulders must be put back in place to prevent degradation of existing beneficial habitat and stream channel structure. DEQ added new best management practices for placer mining where fish eggs, mussels and lamprey ammocoetes are present. Schedule C, Condition 2 was revised to disallow modification of the timing guidelines in the *Timing of In-Water Work to Protect Fish and Wildlife Resources*.

Best management practices associated with fuel handling and refueling suggest that there are various methods to achieve compliance to prevent spills and an oily petroleum sheen in water. Schedule A, Condition 5 was added to ensure a visible oily sheen will not be created by equipment operation and petroleum handling. DEQ recognizes that refueling may take place over water. Revisions to Schedule C, Condition 12 provide practical and common practices for equipment operation and storage to prevent, contain and manage oily sheens and spills of petroleum.

Equipment covered by this Permit can be mobile, operating in areas where gold may be present. The assigned permit number displayed on the dredge will assist in identifying miners that are registered for coverage under the Permit.

Waters that are listed as water quality limited for turbidity, sedimentation or toxics other than chlorine, require a more site specific mixing zone, assigned permit conditions and monitoring to regulate pollutants that can cause or contribute to an increase above a water quality standard. This Permit is not for water quality limited water listed in categories 4 and 5 on Oregon's EPA approved or established 303(d) list for turbidity, sedimentation or toxics other than chlorine, that is in effect as of January 1 of each year except when a total maximum daily load has been established for that water that provides for placer mining under a Permit. A TMDL takes into account the pollution from all sources and may provide a wasteload allocation to a point source or group of point sources. NPDES permits covering point sources with an allocation under the TMDL may allow discharges of the pollutant under effluent limits developed to implement the allocation. A site-specific individual permit may be available for recovery of precious metals and minerals in water quality limited water.

### **Land Use Issues**

When the Permit was reissued in 2005, DEQ and the EQC determined that registration under the Permit is not a program affecting land use and that determination is carried forward in this Permit.

### **Other Federal and State Laws**

There are other federal laws such as the Federal Endangered Species Act and state laws that apply to placer mining activities. U.S. Army Corps of Engineers under Section 404 of the Federal Clean Water Act regulates the discharge of dredged material, and Oregon DSL under Oregon Revised Statute (ORS) 196.795 regulates the fill or removal of materials from waters of the state.

A Removal Fill permit is required by DSL for any placer mining operation that alters, removes or fills more than fifty (50) cubic yards of material per year in any waterway. In some cases a permit or general authorization may be required for operations involving less than fifty cubic yards per year. DEQ's water quality regulations and permit requirements apply in addition to any other requirements imposed by the U.S. Army Corps of Engineers or Oregon DSL. A permit from DSL does not eliminate the requirement for a DEQ permit.

Use of a six-inch or larger suction dredge in essential salmon habitat requires an individual removal-fill permit from DSL as well as an individual permit from DEQ.

Out-of-stream mining with no wastewater discharge to surface waters requires a DEQ 600 WPCF General permit if there are disposal systems that may discharge to groundwater. Off-stream mining and ore processing with a wastewater discharge to surface waters of the state requires an individual NPDES permit. Suction dredges larger than those covered by this Permit also require an individual NPDES permit.

**Protecting Quality of Receiving Waters**

This is a statewide general permit. General permit conditions are established to be protective of water quality standards statewide so that DEQ can administer permit coverage efficiently.

Placer mining is focused in areas where gold or other precious metals may be present. In western Oregon, suction dredging and non-motorized mining typically occur in Applegate, Chetco, Illinois, Sixes, Rogue, Umpqua and Upper Willamette and Santiam (Quartzville Creek) River basins. In eastern Oregon, suction dredging activity is prevalent in the Burnt and Powder River basins, and John Day River basin.

The Permit ensures that placer mining activities do not cause or contribute to exceedances of water quality standards. The Environmental Quality Commission adopts water quality standards to protect beneficial uses in waters of the state. Some of these standards include numeric criteria and some include narrative criteria. Beneficial uses protected by water quality standards are:

Public Domestic Water Supply	Salmonid Fish Rearing	Boating
Industrial Water Supply	Salmonid Fish Spawning	Water Contact Recreation
Irrigation	Resident Fish and Aquatic life	Aesthetic Quality
Livestock Water	Wildlife and Hunting	Hydro Power
Anadromous Fish Passage	Fishing	Commercial Navigation and Transportation

To the extent data is available, DEQ regularly assesses whether water bodies are meeting the water quality standards applicable to each water body. DEQ lists water bodies not meeting applicable standards as being impaired on the "303(d) list." As data and resources allow, DEQ develops a TMDL or other strategy to address the impairment.

DEQ's current 2010 303(d) list of water quality limited waters (approved or established by EPA in 2012) can be found on DEQ's web site <http://www.deq.state.or.us/WQ/assessment/assessment.htm>. DEQ's 2012 assessment of water quality limited water has not yet been reviewed or acted upon by EPA; as a result, it is not yet effective. This Permit does not authorize permit coverage for discharges to water bodies that are water quality limited for sedimentation, turbidity or toxics other than chlorine.

This Permit includes special conditions applicable to federal wilderness areas established prior to 1972 as required by OAR 340-013-0020(1)(A). These wilderness areas are Diamond Peak, Kalmiopsis, Eagle Cap, Gearhart Mountain, Mount Hood, Mount Jefferson, Mount Washington, Mountain Lakes, Oregon Islands, Strawberry Mountain, Three Arch Rocks and Three Sisters wilderness areas.

This Permit does not authorize suction dredge mining in State Scenic Water Ways (ORS 390.805 to 390.925) or in waters that are on or constitute boundaries to tribal lands.

The Oregon Plan for Salmon and Watersheds for the Protection of Salmon recognizes the need to coordinate state water pollution programs to make sure they are consistent with watershed restoration efforts (Oregon Department of Environmental Quality, October 2000). To protect salmon, this statewide Permit does not authorize discharges from suction dredges exceeding 16 horsepower and suction nozzles with inside diameters larger than four inches in essential salmon habitat (ORS 196.795 to 196.990). Suction dredges exceeding 16 horsepower and suction nozzles with inside diameters larger than four inches may operate outside of essential salmon habitat under this permit.

Practices associated with operation of suction dredges and in-water non-motorized mining can impact beneficial habitat and stream channel structure that are interrelated with water quality parameters. Best management practices associated with operation of suction dredge and in-water non-motorized mining protect stream function associated with water quality.

### **Antidegradation Analysis**

Since the Permit was issued in 2010, there have been a significant number of new registrations. When gold prices increased, applications increased starting in 2009.

The number of permits issued each year is shown below.

Year	Number of Registrants	Percent increase since 2009
2009	934	NA
2010	1,205	29%
2011	1,385	48%
2012	1,941	108%
2013	1,831	96%
2014	536	-43%

Over the years, DEQ has worked with state and federal agencies to identify suction dredging operations throughout Oregon. Estimates of placer mining operations are based on claims, DSL records and registration to this general Permit. There were approximately 1750 suction dredges regulated under a permit or Mutual Agreement and Order between 1999 and 2004. In 2010, DEQ collected information on primary mining locations. Mining takes place in eastern and southwestern Oregon. Approximately 70% of the registrations to this Permit are in southwestern Oregon, which is similar to previous years.

By reviewing information from registrations to DEQ's 2010 Permit, DEQ has a record of the number and residence of registrants, primary mining locations using township, range section and size of dredge. With general permits prior to 2015, DEQ did not require monitoring logs be



submitted each year. To date, the highest number of registrations for suction dredges was 1,941, recorded in 2012. In 2014, the number of registrants decreased to 536. This decrease is possibly due to the cost of obtaining a permit. In 2014, a \$150 surcharge was added to the \$25 annual fee for permit registration as required by Senate Bill 838.

This Permit will require annual reporting to confirm number of operations, dates and location of operations. Annual reporting can be used to look at the number of registrants versus reports received to determine that mining did occur but more importantly annual reports will be used to quantify total number of suction dredge operations in a waterbody.

Permit limits and best management practices were developed to be protective of water quality standards in waters of the state. The Permit does not result in the lowering of water quality in waters that are considered “high quality” or “water quality limited” for purposes of the state’s antidegradation policy. The state has not designated any water bodies as outstanding resource water as defined in the state’s antidegradation policy.

DEQ’s antidegradation rules and policies are in place to protect existing water quality when existing water quality meets or exceeds standards and to restore water quality limited water. Antidegradation requires the protection and maintenance of existing uses and the level of water quality necessary to protect those uses and limits when new or increased pollutants may be allowed. The conditions in this permit are consistent with EPA’s August 2013 comments on DEQ’s antidegradation approach for general permits. This general permit excludes water bodies from areas of coverage in part to ensure antidegradation requirements are met without additional review. Permit conditions ensure compliance with narrative and numeric criteria for pollutants of concern and protection of designated and existing beneficial uses of water.

This Permit does not authorize discharges to water quality limited water from suction dredges operating on any stream segment that is listed as water quality limited in categories 4 and 5 on Oregon’s EPA approved or established 303(d) list. The 303(d) list as approved or established by EPA that is in effect as of January 1 of each year will be used to determine if coverage is available for specific waters. Suction dredges will be required to operate 500 feet upstream of impaired water listed as water quality limited in categories 4 and 5 for sedimentation, turbidity or toxics other than chlorine on Oregon’s EPA approved or established 303(d) list to protect water quality. A distance of 500 feet includes operation of a dredge, the 300 feet mixing zone and additional space for protection of water quality limited water.

DEQ evaluated pollutants associated with suction dredging activities in a March 15, 1999, memorandum, which is an addendum to the July 25, 1996 fact sheet and part of the record for renewal of this Permit. Turbidity and sediments, toxic pollutants, dissolved oxygen, temperature and pH were evaluated. Findings were that turbidity, sediments and toxic pollutants are pollutants of concern. Permit conditions were developed to address pollutants associated with the recovery of precious metals and minerals from stream deposits.

As part of those findings, visible turbidity was limited to 300 feet to minimize and localize turbidity from suction dredging. A prohibition for suction dredging in waters listed for turbidity protects water quality limited streams. A condition prohibiting suction dredging in streams listed

as water quality limited for toxics prevented the release of toxics pollutants associated with sediments into the water column. To ensure dissolved oxygen is not a problem for vulnerable life stages of anadromous fish, a condition aligned suction dredging to Oregon Department of Fish and Wildlife's in stream work schedule. Suction dredging was found not to adversely affect stream temperature and included a condition to prevent activities from creating obstructions that could cause ponding and a localized temperature increase. DEQ has not found any new studies that relate in-stream turbidity from suction dredging to an increase in temperature. The protection of the habitat structure in the best management practices will protect the riparian areas that provide shade. Best management practices also provide protection from erosion that can contribute to stream channel profile changes that may increase temperature.

This Permit renewal keeps the above mentioned conditions that are protective of water quality for turbidity, sediments, toxic pollutants, dissolved oxygen and temperature and includes requirements to manage natural and restoration placement of habitat structure in areas where mining occurs. This Permit includes time and location protections identified through partnering with other natural resource agencies to restore threatened and endangered fish and salmon runs in coastal streams.

In the addendum to the July 25, 1996 suction dredge mining Permit, DEQ noted the importance of work performed as part of Oregon's Salmon and Stream Restoration Plan (now titled The Oregon Plan for Salmon and Watersheds). At that time, DEQ stated Permit conditions for protections in coastal streams would be revisited. In this Permit, DEQ revised the best management practices for habitat structure to include restoration of boulders and habitat structure to their original location to prevent erosion from misplaced structures and to continue to protect stream function and complexity.

The size of equipment for which discharges are eligible for permit coverage has not changed. Effluent limits for turbidity no greater than 10% above background have not changed. The water quality standard for turbidity does not allow more than a 10% percent cumulative increase in natural stream turbidities. The size of the mixing zone for turbidity has not changed nor has the prohibition on overlapping mixing zones or bank to bank (entire wetted perimeter) turbidity changed. No lowering of water quality is allowed outside the 300-foot mixing zone and mixing zones cannot overlap to prevent cumulative degradation. A narrative criterion for no visible oily sheen was added as an effluent limit. These best management practices are protective of water quality standards.

Operation of suction dredges in essential salmon habitat is restricted to smaller equipment: not to exceed 16 horsepower and suction nozzles with inside diameter no larger than four inches. DEQ is restricting the size of the dredge inside of essential salmon habitat because DEQ's 2004 field study on the 4-inch dredge showed that it is more likely to meet a 300 feet mixing zone for turbidity. This also aligns with DSL requirements for operation of a suction dredge in essential salmon habitat. Keeping a mixing zone at 300 feet allows for flexibility in streams where the type of sediment, not the size of the dredge, may influence the length of a plume since the length of a plume can be influenced not only by size of nozzle but also by the type of sediment being discharged. Where the sediment is fine, the plume may be longer with the same size of nozzle.

Operation of a suction dredge not to exceed 30 horsepower and a suction hose with inside diameter no larger than six inches in waters not designated as essential salmon habitat will require both a DEQ Permit and DSL authorization under a DSL individual permit to disturb 50 cubic yards or more of bed material. To date, DSL has not issued an individual permit for a six-inch suction dredge. Discharges from suction dredges and in-water non-motorized mining equipment operated in accordance with the Permit conditions will not result in a new or increased load of pollutants to waters of the state. Antidegradation requirements to protect sensitive salmon spawning designated uses under this Permit are met by retaining limits on the size of a suction dredge in essential salmon habitat and by adhering to in-water work periods established to protect important species and life stages including migration, spawning and rearing. These activities are considered as part of this Permit without a need for separate review.

The in-water non-motorized mining processes are not expected to create pollutants that are different than those evaluated under suction dredging. Therefore, the Permit requirements are generally the same for all dredging activities with the exception that suction dredge mining is prohibited in certain areas of the Clackamas River, McKenzie River, and North Santiam River (OAR 340-041-0350). In-water non-motorized mining is not prohibited in these areas.

Suction dredging is prohibited during periods when native migratory fish are rearing and spawning through fry emergence, as identified by ODFW. Both suction dredges and in-water non-motorized mining equipment may not be used or operated where fish eggs, mussels and lamprey ammocoetes are present. The condition to not allow non-motorized mining equipment to operate where fish eggs are present aligns with DSL requirement for non-motorized mining equipment.

This Permit renewal retains the antidegradation requirements from previous Permits necessary to protect water quality limited streams for turbidity, sedimentation and toxics other than chlorine, and protections were added to ensure operations upstream of waters identified as water quality limited water do not further impair water quality in those impaired streams.

Water quality limited waters often will not have assimilative capacity for additional input of the pollutant causing the impairment. This Permit is not for Oregon streams that are water quality limited for sediments, turbidity, or toxics other than chlorine. DEQ will provide a list of water quality limited streams on the 303(d) list for those registering under the Permit and on DEQ's web site. As of January 1, 2015, the current list of water quality limited water is found in Oregon's 2010 integrated report- assessment database and 303(d) list located at this web address <http://www.deq.state.or.us/wq/assessment/2010Report.htm>. Oregon's 2010 Integrated Report – Assessment database and 303(d) list includes EPA's final comments.

## **Permit**

### **COVER PAGE**

The cover page describes the scope of permitted activities and type of operation covered by this Permit. Equipment authorized to discharge under this is the same as the previous Permit and includes:

- Discharges from suction dredges not exceeding 30 horsepower and suction hoses with inside diameters no larger than six inches in diameter that do not operate in areas designated as essential salmon habitat.
- Discharges from suction dredges not exceeding 16 horsepower and suction nozzles with inside diameters no larger than four inches in diameter that operate in areas designated as essential salmon habitat.
- Discharges from in-water non-motorized mining equipment or devices.

The assigned permit number is provided on the cover page. The assigned permit number must be displayed on the dredge.

The Permit defines suction dredge and in-water non-motorized mining equipment to include specific types of equipment.

### **REGISTRATION REQUIREMENTS**

Registration is required for Permit coverage of suction dredges. A registrant under the Permit can obtain coverage each year or under a five-year term of the Permit. This Permit will be effective May 15, 2015, and will expire January 1, 2020. For each registrant, the cover page of the Permit will indicate whether the Permit has been assigned on an annual basis or the full term of the Permit based on fee payment.

The Permit registration fees are determined by statute in ORS 468B.052, as follows:

- \$25 annual fee for each year the person registers under the Permit, OR
- \$100 for a five-year registration under the Permit.

In 2013, the Oregon legislature required each person who registers under the Permit to pay a nonrefundable surcharge payment of \$150. The effective date of this Permit is in calendar year 2015; therefore a nonrefundable surcharge payment of \$150 is required of applicants seeking permit coverage in calendar year 2015.

The permit will use the most current 303(d) list of impaired waters as approved or established by EPA, in effect as of January 1 of year to determine where permit coverage is available. A majority of applications for suction dredge mining are processed after January 1 and typically just prior to the established in-water work period for suction dredge mining. DEQ can notify new applicants, yearly registrants, and 5-year registrants when a new EPA approved or established 303(d) list that affects these applicants and registrants is in effect.

In-water non-motorized equipment will be covered under the Permit and the operator will be required to follow all the applicable conditions, including having a copy of the Permit, but a person operating non-motorized equipment will not have to register for Permit coverage or pay a fee. DEQ does not view panning as non-motorized equipment and DEQ does not require NPDES permit coverage for panning.

Definitions in the permit describe two specific types of mining equipment authorized by this permit—(1) suction dredge and (2) in-water non-motorized mining equipment. Definitions were added for clarity. For example, by definition a suction dredge includes gravity and suction

dredges. Operators of gravity or siphon dredges are required to register for coverage under this Permit.

This Permit does not authorize either highbanking equipment operations such as using a power sluicibox, or other motorized classifying equipment used for mining below ordinary high water level of state waters. To prevent confusion, highbanker and a combination highbanker/suction dredge is defined and is not authorized to discharge under this general permit. If a person's proposed operation or type of equipment for placer mining does not conform to this Permit, then an individual NPDES permit may be required.

An individual permit is required to discharge from a suction dredge exceeding 30 horsepower and suction hose with inside diameter larger than six inches. A \$300 individual NPDES permit is available for suction dredges having a hose no larger than eight inches in diameter.

The cover page describes the format of the Permit. The Schedules contain the requirements, limitations, and conditions of the 700PM General Permit. Definitions and a summary of Permit application requirements to register under the Permit follow the cover page.

#### **SCHEDULE A - WASTE DISCHARGE LIMITATIONS**

Operations covered under this Permit may not cause or contribute to water quality standards exceedances. Water quality standards include beneficial uses of the water, numeric and narrative criteria to protect the uses and antidegradation measures that protect designated and existing uses and high quality waters.

Water quality-based effluent limits and technology-based effluent limits are the primary means used to protect water quality. Technology-based effluent limits require a minimum level of treatment of pollutants based on available treatment technologies.

Technology-based effluent limits have been established by EPA regulations for only some types of discharges. These EPA established technology-based effluent limits are also known as effluent limit guidelines and are contained in 40 CFR § 440.140 to 440.148. When effluent limit guidelines have not been established, permits must include technology-based effluent limits that are based on the best professional judgment of the permit writer. EPA's technology-based effluent limits do not apply to placer mining activities processing less than 5,000 cubic yards per year. For point sources not covered by effluent limit guidelines, permit writers develop technology-based effluent limits using best professional judgment.

Permits must contain technology-based effluent limits and any additional limits needed to ensure the permitted activity does not cause or contribute to an exceedance of water quality standards. The permit includes a narrative water quality based effluent limit that prohibits violation of water quality standards. The Permit includes provisions discussed below that address turbidity and prohibits discharges to certain water quality limited water bodies.

This general permit does not authorize discharges into waters that are listed as impaired for sedimentation, turbidity, or toxics (other than chlorine). Toxics embedded in sediment can be resuspended or otherwise released into the water from dredging.

Suction dredge operations create suspended particles that can be measured as turbidity. Literature on dredging recognizes that gravel and coarse sand will remain as “loose tailings” and the finer sediment will be carried further downstream in suspension. (Harvey 1998) Turbidity can adversely impact water quality and can have indirect effects on fish and other aquatic life. Turbidity is a measure of light transmission. Turbidity is seen as muddy or cloudy water. Visual monitoring is required to determine compliance with turbidity limits.

Sedimentation is a significant water quality parameter needing to be addressed for salmon recovery. (Oregon Department of Environmental Quality Oct. 2000) Sediments are transported downstream when bed material or bank material is disturbed by human or natural processes.

Suction dredges that do not exceed 16 horsepower and suction nozzles with inside diameters no larger than four inches are eligible for coverage to operate within essential salmon habitat. This restriction will minimize water quality impacts in environmentally sensitive areas. Less material is mobilized by a suction dredge and suction nozzle with an inside diameter no larger than four inches so that less turbidity will be generated from movement of bed material.

DEQ is restricting the size of the dredge inside of essential salmon habitat because DEQ’s 2004 field study on the four-inch dredge showed that it is more likely to meet the water quality effluent limit for turbidity. Turbidity is limited to a 300 foot mixing zone. An operator is required to take corrective action when visible turbidity extends beyond 300 feet. For example, visible turbidity may extend beyond 300 feet as a result from mining in silt and clay. A nozzle size limitation for a suction dredge operation in essential salmon habitat also aligns with DSL’s requirement for a general authorization (permit)(ORS 196.810(1)(b)).

The Permit includes most of the same permit limitations in Schedule A and C for all equipment, whether motorized or non-motorized as in the 2010 Permit. One difference is in Schedule A Condition 6, which requires a suction dredge to operate at a distance 500 feet upstream of water quality limited water. Monitoring requirements apply only to suction dredges.

#### **EFFLUENT LIMITS**

This Permit has conditions to minimize turbidity, suspended sediment that is seen as turbidity and toxics. Turbidity is muddiness or cloudiness in water. Suspended sediment can cause a turbid plume in the water. Disturbance of stream deposits in streams listed as water quality impaired for toxics other than chlorine, can lead to the release of toxic pollutants embedded in the sediment into the water column. For purposes of this Permit, the list of toxics excludes chlorine. Chlorine has properties that would not sequester the pollutant to sediments and would not lead to the release of toxic pollutants associated with stream deposits that are disturbed. Use of petroleum products can cause an oily sheen.

#### OAR 340-041-0036 Turbidity Criteria

The water quality criterion for turbidity contained in OAR 340-041-0036 allows no more than a ten percent cumulative increase in natural stream turbidities, as measured relative to a control point immediately upstream of the turbidity causing activity.

This Permit has effluent limits for turbidity and narrative criteria. Under narrative criteria in OAR 340-041-0007(1) conditions need to be provided to control activities to protect water quality. This Permit protects and maintains beneficial uses with best management practices.

The turbidity criterion (OAR 340-041-0036(2)) allows the turbidity to be exceeded for limited duration activities necessary to address an emergency or to accommodate essential dredging, construction or *other legitimate activities* provided all practicable turbidity control techniques have been applied and one of the following has been granted: a permit or certification authorized under terms of Clean Water Act sections 401 or 404 or OAR 141-085-0100 (Removal and Fill Permits, DSL), with limitations and conditions governing the activity set forth in the permit or certificate.

The Army Corps of Engineers has not issued a National General Permit for small scale suction dredge mining under 404. DEQ cannot issue a 401 certification without a 404 permit; therefore OAR 340-041-0036(2) is not applicable.

#### OAR 340-041-0053 Mixing Zone

DEQ has the authority under OAR 340-041-0053 to suspend water quality standards in a specified limited area called the regulatory mixing zone.

A regulatory mixing zone is a portion of a water body designated in an NPDES permit where water quality standards may be suspended, as long as the proposed mixing zone under OAR 340-041-0053(2)(c) is:

- as small as feasible;
- avoid overlap with any other mixing zones and be less than the total stream width minimizes the adverse effects on the indigenous biological community;
- allows the passage of fish and other aquatic organisms; and
- does not threaten public health and minimizes the adverse effect on other designated beneficial uses outside the mixing zone.

DEQ concludes that 300 feet is the distance at which there is no reasonable potential to violate the water quality criterion for turbidity. After the initial fallout, lingering suspended material will remain. The vast majority of sediment discharge will fall out of the water column and be diluted within distances much less than 300 feet. Suction dredging in streams that are water quality limited for toxics other than chlorine, could disturb stream deposits and lead to the release of toxic pollutants (Oregon Department of Environmental Quality 1999). A mixing zone is provided to allow for settling. Toxics return to background levels within 300 feet. (Royer, et al., April 1999)

For purposes of comparison, Table 1 summarizes information on regulation of turbidity plumes from placer mining.

Table 1		
Suction dredge size	Turbidity distance	Source of Information
Less than or equal to 4 inch nozzle, 12 HP, no throat more than 48 inches.	40 feet	Utah Division of Water Rights Recreational Dredging Application 2013-2014 Conditions of Approval located at <a href="http://www.waterrights.utah.gov/streamdb/rds/">http://www.waterrights.utah.gov/streamdb/rds/</a>
Nozzle diameter of 5 inch or less and HP 15 or less	150	Record of Decision ,Small-Scale Suction Dredging in Lolo Creek and Moose Creek ,Environmental Impact Statement, Lochsa and North Fork Ranger Districts, USDA Forest Service, Clearwater National Forest. Clearwater and Idaho Counties, Idaho <a href="http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5420675.pdf">http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5420675.pdf</a>
Intake size less than or equal to six inches	160 to 260 feet	DEQ March 15, 1999 Memo Suction Dredge Mining Permit—Addendum to Fact Sheet dated July 25, 1996
Intake nozzle up to 5 inch diameter	200 feet	Biological Evaluation for Small Placer Miners in Idaho National Pollutant Discharge Elimination System (NPDES) General Permit, August 2012 Prepared by: US EPA Region 10 Office of Water and Watersheds Office of Environmental Assessment
Intake nozzle up 5 inch diameter and multiple dredges equivalent to a 5 inch diameter intake nozzle	500 feet	EPA National Discharge Elimination System Permit in Idaho <a href="http://yosemite.epa.gov/r10/water.nsf/npdes+permits/idsu ction-gp">http://yosemite.epa.gov/r10/water.nsf/npdes+permits/idsu ction-gp</a>
Intake nozzle up to 10 inch diameter	500 feet	Alaska Pollutant Discharge Elimination System Permits GP #AKG375000 and GP # AKG371000 <a href="http://www.dec.alaska.gov/Water/WPSdocs/AKG375000_docs.pdf">http://www.dec.alaska.gov/Water/WPSdocs/AKG375000_docs.pdf</a> <a href="http://www.dec.alaska.gov/Water/WPSdocs/AKG371000_docs.pdf">http://www.dec.alaska.gov/Water/WPSdocs/AKG371000_docs.pdf</a>

The mixing zone is being minimized by a limitation on hours of operation, along with the 300-foot length. The mixing zone is minimized because an overlap with other plumes is not allowed and a turbidity plume cannot cover an entire stream width. Drinking water will be protected by not allowing a visible turbid plume to reach a drinking water intake.

Compliance with effluent limits for turbidity in Schedule A, Conditions 1 and 2 is required at all times. Schedule A, Condition 3 limits operation to daylight hours so that a visible plume can be seen. If turbidity is visible over 300 feet downstream or down current of suction dredging and non-motorized in stream mining, then turbidity exceeds the allowable in-stream water quality criterion and the Permit requires the operator to take immediate corrective measures. Corrective measures can include the options of moving to a location where the dredging of concentrated silt and clay are avoided, moving to increase the distance between dredging operations, using reasonable care to avoid dredging silt and clay materials, or reducing the volume of effluent discharged by limiting the amount of materials dredged or speed of the suction dredge.



#### OAR 340-013-0020 Environmental Standards for Wilderness Areas

Pursuant to OAR 340-013-0020(1)(b)(A) and OAR 340-013-0035, no measurable turbidity is allowed in wilderness areas established prior to 1972. The term 'no measurable increase' is not defined. For the purpose of implementing this standard in Schedule A, Condition 4, a measureable increase is any visible turbidity. Visible turbidity is defined in the Permit as turbidity that is distinctly visible when compared to background turbidity.

#### OAR 340-041-0007(12) oily sheen

The necessity of using, handling and storing petroleum products near water for operation of a suction dredge creates the potential for creating an oily sheen in water. An effluent limit for no visible oily sheen is included in Schedule A, Condition 5. Consistent with statewide narrative criteria in OAR 340-041-0007(12) Objectionable discoloration, scum, oily sheens, or floating solids, or coating of aquatic life with oil films may not be allowed, Schedule C of the Permit prohibits the creation of an oily sheen.

### **SCHEDULE B - MONITORING REQUIREMENTS**

Frequency of monitoring, information collected with the monitoring and record-keeping required for suction dredges are specified in Schedule B.

The Permit requires visual monitoring once per day during daylight hours to determine compliance with the turbidity limits. Recorded information on the location of visual monitoring must include township, range and section and latitude and longitude and stream name. If mercury is observed that information must be included in the monitoring report, as well as, the amount of mercury collected and the manner of hazardous waste disposal.

The following monitoring and record retention requirements from General Conditions are also in Schedule B.

- Section C6. regarding retention of records; (Schedule B, Condition 6)
- Section C7. records contents; (Schedule B, Condition 3 b, c, d, j and f)
- Section D3. other noncompliance; (Schedule B, Condition 3i.)
- Section D4. duty to provide information (Schedule B, Condition 7)

Schedule B, Condition 6 was modified to clarify a record retention of three years after permit expiration. DEQ requires information in the monitoring log and annual report of any noncompliance, which includes observation of a visible oily sheen or other noncompliance at any time. A spill that creates a visible oily sheen is required to be reported as provided in Condition 12 in Schedule C.

Persons registered are required to submit an annual report to DEQ. Schedule B, Condition 6 requires the monitoring log submitted as part of the DEQ annual report form. This annual report submittal is required even if suction dredging did not occur. DEQ can use annual reports to determine location of waterbodies where suction dredging occurs, number of suction dredges operating in a waterbody and compliance-related issues. Information from annual reports will assist

DEQ with permit renewal, document effectiveness of the Permit, and may be necessary to support development of total maximum daily loads or other load analysis.

Monitoring and record-keeping are not required for the non-motorized in-stream equipment and devices.

## **SCHEDULE C - BEST MANAGEMENT PRACTICES**

### **Best Management Practices**

Oregon's water quality standards are based on the protection of designated and existing uses, including aquatic organisms and public health, and the prevention of degradation of water quality. Best management practices together with effluent limits protect beneficial uses and water quality in the receiving waters of the state.

Placer mining activities have been studied for their turbidity impacts, the movement of bed material that can contribute to erosion and create deposition, as well as, more recently, toxic pollutants. The Institute for Natural Resources Policy Paper 2003-01, prepared by Oregon State University and entitled "Recreational Placer Mining in the Oregon Scenic Waterway System," states "[T]he result of not adopting all best management practices, . . . even by only a handful of recreational miners, can cause serious long-term damage to the ecological health of a particular stretch of river." (Bernell 2003)

In the process of dredging, sediments are taken up and re-deposited in water. The re-deposited sediments can have effect on fish spawning and benthic habitat. OAR 340-041-0007(11) does not allow the formation of appreciable bottom or sludge deposits or the formation of any organic or inorganic deposits that are harmful to fish or other aquatic life, public health, recreation or industry. This Permit retains best management practices that prevent creation of excess suspended material and sedimentation that can threaten the survival of fish and other aquatic species.

This Permit contains best management practices to minimize the impacts recovering precious metals and minerals from stream deposits have on beneficial uses and water quality.

This Permit includes best management practices used in previous Permits and commonly used in other state permits and regulations for placer mining, including EPA's 2013 NPDES general permit in Idaho and Montana's NPDES general permits. Other state's permits and regulations give an indication of what is reasonably expected as best management practices. Plans of operation for suction dredge mining, which are a part of federal land use authorizations, include similar terms and conditions to mitigate impacts on water quality, aquatic habitat and species. In this Permit, best management practices are technology-based effluent limits.

Schedule C, Condition 1 (no overlapping plumes), Schedule C, Condition No. 2 & 3 (in water work and the presence of fish eggs) Schedule C, Condition 4 (fish passage), Schedule C, Condition 5 (relocate if encounter mussels), Schedule C, Condition 6 (avoid working in or return to stream lamprey ammocoetes)

This Permit retains the condition to provide a continuous zone of passage that meets mixing zone rule requirements for free-swimming and drifting organisms. Visible turbidity must not cover the entire wetted perimeter (wetted width, from stream bank to opposite stream bank) as required in Schedule A, Condition 1. Schedule C, Condition 1 of the Permit requires that there be no overlap in turbidity plumes where more than one piece of equipment is operating in the same waters. Unobstructed fish passage is required in Schedule C, Condition 4.

Re-deposition of suspended sediments downstream of dredging that covers fish eggs reduces the availability of oxygen. Excavation and deposition that would disturb fish eggs and their spawning grounds are protected by specifying in Schedule C, Conditions 2 and 3, that suction dredge operations need to observe in-water work periods. The in-water work periods are based on the protection of fish and fish spawning and are developed by the Oregon Department of Fish & Wildlife and give primary consideration to anadromous and other game fish, and threatened, endangered or sensitive species. Schedule C, Condition 2 was modified to remove an alternative for suction dredges to operate at times other than the established *Timing of In-Water Work to Protect Fish and Wildlife Resources*. Modification of the timing guidelines would require a separate process through Oregon Department of Fish and Wildlife to recommend approval.

Best management practices were added in Conditions 3, 5 and 6. Suction dredges and in-water non-motorized mining equipment must not be used where fish eggs, Pacific lamprey and mussels are present. Pacific lamprey ammocoetes and mussels may be present when the in-water work schedule allows mining. However, fish eggs, lamprey ammocoetes, and mussels may also be present outside of the in-water work period. When lamprey ammocoetes are found at a mining site, salvage efforts in the area of operation and in the removed substrate must be made by sifting through streambed material in the area of operation and in the removed substrate and returning salvaged ammocoetes to the stream away from the activity. If live mussels are encountered, the operation must be relocated. Reference materials will be provided for guidance.

Schedule C, Conditions 7 (no mining of stream banks), 8 (undercutting), 9 and 10 (moving habitat), 11 (bridge footings, dams), 14 (10 feet into wetted perimeter), 15 (motorized equipment)

This Permit limits areas where suction dredging and non-motorized mining can occur to prevent excess sedimentation and turbidity and protect beneficial uses, such as aquatic life. In Schedule C, Condition 7, dredging or mining from stream banks is not allowed. Undercutting or eroding stream banks and removal or disturbance of boulders, rooted vegetation or embedded woody plants from the stream bank is prohibited in Schedule C, Condition 8.

The requirement in Schedule C, Conditions 9 and 10, for movement of in-stream habitat structure has changed from the current Permit. The Permit requires boulders, woody debris, and other key pieces of habitat structure that are moved in the course of mining to be returned to their original locations once a mining activity is complete. This condition also provides clarity on the

type of equipment that may be used when moving in-stream habitat structure by specifying only non-motorized or hand equipment may be used.

Studies have shown that placer mining can have a negative impact on habitat structure that is necessary for fish and benthic communities (Bernell 2003), (R2 Resource Consultants 2006), (Lisle 1986). Changes in habitat can affect the ability of a watershed to meet water quality standards (Oregon Department of Environmental Quality 2000). Streams have been added to DEQ's 303(d) 2010 list for impairment of biological conditions. Waters of the state, including habitats, must be of sufficient quality to support aquatic species without detrimental changes in resident biological communities.

Coarse woody debris and large boulders are beneficial to a stream and its biological community. Coarse woody debris can stabilize banks, provide a place for gravel build up and deep pools that add to a stream's complexity and function. Aquatic habitat restoration projects conducted around the state involve placement of large wood and boulders in stream and riparian areas to promote fish habitat.

In Schedule C, Conditions 9 and 10, boulders and habitat structure may be moved around in the stream but not removed. This Permit condition with its requirement to return habitat structure to its original location will limit adverse effects and prevent further degradation of natural complexity and function of streams.

Erosion increases the sediment load to a stream and increases turbidity. In Schedule C, Condition 14, mining into non-vegetated gravel bars up to 10 feet outside the wetted perimeter can occur only in non-essential salmon habitat. Under Schedule C, Condition 15, stream bank erosion is minimized by prohibiting motorized wheeled or tracked equipment from being used in-water. Access points for a suction dredges are kept to established areas.

These best management practices minimize the impact of erosion and protect the habitat for beneficial uses by keeping dredging excavating activities in the stream and along the wetted perimeter. Stream bank erosion can accelerate production of stream fines. Movement of a boulder may redirect flow in a stream to cause channeling or bank erosion. Finer sediments cause sediment and turbidity problems in the receiving stream. Dredging activities are regulated within the defined wetted perimeter to prevent erosion, release of finer material, loss of riparian shade, and change in stream morphology.

Schedule C, Condition 11, contains the requirement to manage operations to avoid affecting infrastructure, such as bridge footings and dams to prevent potential impacts from erosion. This requirement and may also satisfy requirements for a 401 certification if one is necessary.

Schedule A, Condition 1 (meet water quality standards), Schedule A, Condition 5 (no oily sheen), Schedule A, Condition 6 (water quality limited water), Schedule C, Conditions 12 (oil), 13 (drinking water sources), 17(chemical agents)

Schedule A, Condition 1 requires that no pollutants or wastes be discharged and no activities be conducted that will violate water quality standards. While compliance with the technology-based effluent limits in the Permit will generally meet the applicable water quality standards, the

Permit registrant remains responsible for ensuring discharges do not violate water quality standards, including toxics.

DEQ added clarity and new best management practices in Schedule C, Condition 12 for proper handling, storage and refueling of petroleum products. OAR 340-041-0007(12) states that objectionable discoloration, scum, oily sheens, or floating solids or coating of aquatic life with oil films may not be allowed. Preventing contamination from petroleum products can be managed in various ways. The requirement for no visible oily sheen is consistent with DEQ's water quality criterion and along with best management practices required in Schedule C, Condition 12 will protect water from leaks and spills of petroleum products resulting from operation or refueling of a suction dredge.

Schedule A, Condition 1 and Schedule C, Condition 17 remain unchanged from the existing Permit. Schedule A, Condition 1 requires that no pollutants or wastes be discharged and no activities be conducted that will violate water quality standards. Schedule A, Condition 6 was added to prevent a discharge from reaching a water quality limited water by operating upstream from such waters as follows: 500 feet upstream from a stream segment that is listed as water quality limited or 500 feet upstream from a tributary of a stream with a stream segment that is listed as water quality limited. There are no sampling requirements in this permit. Although metals are expected to settle within 300 feet, a requirement to operate 500 feet upstream of water quality limited water body is more protective of water quality limited water. The 500 feet allows for further dilution and settling of turbidity, sediment and metals. Schedule C, Condition 13 was clarified to make sure a visible plume would not reach a drinking water intake. Schedule C, Condition 17 states that use of chemical agents such as mercury are prohibited. Prohibiting the use of chemical agents will prevent chemical waste from entering water and protect water quality.

Some streams contain sediments contaminated with toxic pollutants. Suction dredging in streams that are water quality limited for toxics other than chlorine, could disturb stream deposits and lead to the release of toxic pollutants (Oregon Department of Environmental Quality 1999). Sediments contaminated with toxic pollutants are then transported downstream and deposited and can ultimately be ingested by benthic organisms and passed up the food chain (Oregon Department of Environmental Quality 2000). It is generally known that the properties of clay results in it adsorbing metals. Studies show higher concentrations of mercury are associated with silty and clay bed sediments (Hunerlach et.al 2004), (Fleck 2010). A mixing zone limitation of 300 feet serves to regulate disturbance of material like clay that may harbor contaminants and tends to stay in suspension. Monitoring and reporting on compliance with the mixing zone requirement are part of this Permit. This Permit continues to require in-stream turbidity to be minimized and localized to the general area of the in-stream mining activity. This Permit is not for water quality limited streams in categories 4 and 5 on DEQ's 303(d) list for toxics other than chlorine, unless there is a total maximum daily load that expressly provides for mining under the Permit either by allocation of a wasteload or determination that mining under the Permit is not a source.

Schedule C, Condition 13, states that the Permit registrant may not allow the visible plume discharged from the suction dredge operation to reach the intake of a drinking water source. This condition minimizes turbidity and contaminated sediment from being entrained in a drinking

water uptake. DEQ's Drinking Water Protection Program web page and Oregon Department of Water Resources web page provide tools to identify drinking water intakes.

Schedule C, Condition 16 (invasive species)

Schedule C, Condition 16 protects fish habitat. Best management practices for the prevention of invasive species remain in this Permit.

**SCHEDULE D: NPDES GENERAL CONDITIONS – INDUSTRIAL FACILITIES**

Schedule D includes conditions that describe operation and maintenance, monitoring and recordkeeping, and reporting requirements as they apply to suction dredge activity. The conditions in this section were taken from a more recent 2011 list of NPDES conditions that were reviewed by EPA, and are included in all industrial NPDES Permits issued in Oregon. DEQ has not included conditions from the standard General Condition that do not apply to suction dredging discharges. Where requirements in Schedules A, B, and C contain requirements that are more explicit than the general conditions, the provisions in the Permit supersede the general conditions.

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