

**National Pollutant Discharge Elimination System (NPDES)  
700PM- General Permit  
FACT SHEET**

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

**PERMIT WRITERS:** Beth Moore (503-229-6402) and Jim Billings (503-229-5073)

**PERMIT CATEGORY:** General Permit

**SOURCES REQUIRED TO REGISTER UNDER THIS PERMIT:**

- 1) small suction dredges not to exceed 30 horsepower with an inside diameter suction hose no greater than six inches used for recovering precious metals or minerals from stream bottom sediments in areas not designated as essential salmon habitat.
- 2) small suction dredges not to exceed 16 horsepower with an inside diameter intake nozzle no greater than 4 inches used for recovering precious metals or minerals from stream bottom sediments in areas designated as essential salmon habitat.

**SOURCES COVERED BY THE PERMIT BUT NOT REQUIRED TO REGISTER**

- 1) in-water nonmotorized mining equipment used for recovering precious metals or minerals from stream bottom sediments.

**SOURCES NOT REQUIRED TO OBTAIN A WATER QUALITY PERMIT**

- 1) hand panning

**SOURCE LOCATION:** Statewide

**Date:** July 30, 2010

**INTRODUCTION**

The Oregon Department of Environmental Quality (DEQ) is proposing to reissue the 700-PM NPDES General Permit. The permit expired on June 30, 2010. The expired permit is the subject of a pending court case and the proposed permit addresses issues raised in the case. The permit also is intended to align the activities covered with previous field work done by the department (Memorandum dated August 25, 2004 RE: Suction Dredge Visit) as well as statutes and rules administered by the Department of State Lands.

The final 700PM NPDES General Permit will applied to discharges from suction dredges not to exceed 30 horsepower with an inside diameter suction hose no greater than 6 inches and in-water nonmotorized mining equipment which are used to recover precious metals and minerals from stream bed sediments. Registration for the permit only applies to suction dredges. The permit contains requirements for the areas of operation for different size suction dredges to minimize the water quality impacts in areas that are considered environmentally sensitive. Small suction

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dredges not to exceed 16 horsepower with an inside diameter intake nozzle no greater than 4 inches can operate in areas designated as essential salmon habitat. The larger size dredges will be required to operate in areas not designated as essential salmon habitat. Hand panning not required to obtain a water quality permit.

A suction dredge is a mechanical device that floats on the stream surface and pumps stream water and stream bed material through a suction intake conduit to a sluice box from which gold or other minerals may be extracted. Gravity or siphon suction dredges operate without a motor. The discharge from the suction dredge consists of stream water and bed material that is discharged back into the receiving water.

Suction dredges have a sluice box as an integral part of the equipment. The material from the sluice box is often further separated by panning the sluice extract. The proposed permit will also cover in-water nonmotorized prospecting and small scale mining equipment such as an in-stream hand sluice or mini rocker. Because the small suction dredge and the other in-water nonmotorized small scale mining equipment utilize the same gravity separation and metal/mineral extraction process and have the same discharge of pollutants, DEQ considers these in-water small scale mining activities together in the evaluation.

Generally placer mining occurs for a period ranging from 2 to 8 hours a day and is limited to the in-water work periods authorized by the Department of Fish and Wildlife. The activity moves a relatively small amount of material, and it is common that multiple mining activities occur along the same stream.

Operation of a suction dredge and the in-water nonmotorized sluice box collectively referred to as placer mining requires a permit under the federal Clean Water Act and is governed by regulations for the National Pollutant Discharge Elimination System (NPDES) program. DEQ has been delegated the authority by the U.S. Environmental Protection Agency (EPA) to issue NPDES permits in Oregon.

DEQ's authority to regulate mining arises from both the federal Clean Water Act (33 USC Section 1251 et. seq.) and Oregon's own water quality statutes. Oregon Revised Statutes (ORS) Chapter 468B. Oregon's authority to regulate discharges to waters of the state under the CWA and state water quality laws is not preempted by the Mining Law of 1872. Under ORS 468B.035 and 468B.050, DEQ is authorized to require a water quality permit with limitations for point sources (such as a suction dredges, sluice box) that discharge to waters of the state and that add pollutants that may cause water quality problems, e.g. turbidity. The water quality permit has best management practices and other conditions to protect, maintain and improve the quality of the waters of the state for public water supplies, for the propagation of wildlife, fish and aquatic life and for 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**

The NPDES General Permit for suction dredging was first issued as the 700-J in 1992 with an expiration date in April 1997. In April 1997 the 700-J permit was renewed with an expiration date in March 31, 2002. The 700-J permit was modified in May 1999 to include antidegradation requirements per a court order following a permit challenge by the Northwest Environmental Defense Center (NEDC). In April 2002, the general permit expired and those already registered to the permit were administratively continued under the permit. DEQ provided new suction dredge operators with coverage under Mutual Agreement and Order (WQ/I-ER-02-114, WQ/I-WR-02-113 and WQ/I-NWR-02-112) until the permit was reissued. In 2004, DEQ acted in response to a notice of intent to sue unpermitted miners and began the permit renewal process for the 700-J permit. From June 2004 through June 2005, DEQ met with miners, miner organizations, Department of State Lands, and legislative officials, observed suction dredging operations and provided the opportunity for comment. The 700-J NPDES general permit for suction dredging became the 700PM NPDES general permit when it was renewed on July 5, 2005. The permit expiration date is June 30, 2010. The activities leading up to the reissuance of the 700PM permit are provided below.

The 700PM suction dredge general permit was challenged by NEDC and the Eastern Oregon Miners Association pursuant to ORS 183.400. The challenge NEDC raised was that the permit was not stringent enough and it was adopted without meeting certain procedural requirements. Eastern Oregon Miners Association argued that DEQ lacked the legal authority to issue the permit. The challenges were heard in the Oregon Court of Appeals. (NEDC v. EQC, A129732 (12/23/2009))

On December 23, 2009, the Oregon Court of Appeals issued a decision finding the permit invalid on the ground that its coverage was too broad. In summary, the court held:

- The permit purports to regulate both discharged pollutants that are suspended in the water column and waste rocks and sand that are redeposited on the bottom of the water body under the dredge;
- The permit was issued under delegated authority under Section 402 of the CWA; which addresses pollutants discharged into the water column ; while the redeposit of waste rocks and sand under the dredge are regulated by the United States Army Corp of Engineers (USACE) under Section 404 of the CWA; and
- DEQ did not assert that it was regulating under independent state authority.

The plaintiffs in the case have file petitions for an Oregon Supreme Court review of the decision of the Court of Appeals. The Oregon Supreme Court has not yet determined whether it will review the decision.

In preparation for the proposed permit, the DEQ revisited the scientific studies that have been developed over the years on suction dredging, including new information on turbidity as it relates to the current water quality standard. The current standard for turbidity under 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. A mixing zone can be established to provide for a short term increase of the standard. The studies show that the adverse effects are short lived and a mixing zone is allowable. Outside the wilderness area, the turbidity standard is required to be met at no farther than 300 feet from the mining activity.

The turbidity standard also allows for limited duration activities necessary to address an emergency or to accommodate essential dredging, construction or other legitimate activities which cause the standard to be exceeded provided all practicable turbidity control techniques have been applied and one of the following has been granted (340-041-0036 (2)): a permit or certification authorized under terms of section 401 or 404 or OAR 141-085-0100 ( Removal and Fill Permits, Department of State Lands), with limitations and conditions governing the activity is 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.

### **Legal Authority**

This section addresses the commonly asked questions on DEQ's legal authority to regulate the activities covered under this permit. Placer mining activities covered under this permit are required to have a permit before discharging.

### **Clean Water Act**

Placer mining activities covered under this permit are properly regulated under the Clean Water Act (CWA) section 402. Under CWA Section 402, an NPDES permit is required for the discharge of a pollutant from any point source to waters of the United States.

The discharge from suction dredges is considered a point source. The CWA defines a point source as "any discernible, confined, and discrete conveyance," including pipes and conduits. CWA section 502(14)[33 USC §1362(14)]. The definition of point source has been further defined in court cases interpreting these definitions, such as in, *League of Wilderness Defenders v. Forsgren*, 309F3d 1181, 1184-1185 (9<sup>th</sup> Cir 2002) and *Rybachek v. EPA*, 904 F2d 1276, 1285 note 8 (9<sup>th</sup> Cir 1990).

The permit authorizes the discharge of pollutants as defined under the CWA. The term "pollutant" is broadly defined under the CWA and includes dredge spoils, rock, sand and almost all other forms of waste. CWA Section 502(6). The federal Environmental Protection Agency (EPA) has determined that the re-introduction of waste materials from the stream bed into the water column through the process of suction dredging and sluicing constitutes the addition of a pollutant. There is no exception to the amount of the discharge under CWA 402.

Recent decisions by the US Supreme Court in the case of *Coeur Alaska v. Southeast Alaska Conservation Council*, 129 S.Ct. 2458 (2009) and the Oregon Court of Appeals in the case of

NEDC v. EQC A129732 (12/23/2009), indicate the US Army Corps of Engineers retains authority under CWA Section 404 to regulate the discharges from the dredges that are not suspended in the water column. This permit recognizes the authority of the USACE in this regard. At present, the Corps has not issued a general permit and it is unclear whether it will require individual permits. If the Corps does issue a permit, it is DEQ's intent that the registration under the general permit will serve as the state's water quality certification for purposes of CWA Section 401.

### **State Permitting Authority**

The state's water quality statutes authorize the Environmental Quality Commission to adopt all rules and take any other actions necessary to implement the CWA (ORS 468B.035). This includes all actions required for EPA approval to operate the NPDES permit program established by CWA Section 402. DEQ received approval to operate the NPDES general permit program in February 1982.

Oregon law also authorizes DEQ regulation of suction dredges under independent provisions of state law, some of which predate the CWA. Oregon law requires DEQ permits for any discharge of wastes into waters of the state from any industrial or commercial activity or any disposal system (ORS 468B.050). This permit requirement implements legislative policies set out in ORS 468B.015 and 468B.020.

The CWA expressly recognizes that states have independent authority to regulate to protect water quality. CWA Sections 101(b) and 404(t).

This permit regulates pollutants such as turbidity and protects, maintains, and improves beneficial uses through best management practices. The best management practices are protective of water quality standards. Water quality standards include beneficial uses of the water, anti-degradation, which protects water quality limited water and numerical and narrative criteria to protect the uses. Turbidity is the primary pollutant of concern in the discharge of effluent from suction dredge operations. Literature on dredging recognizes that the gravel and course sand will remain as "loose tailings" and the finer sediment will be carried further downstream in suspension. (Effects of Suction Dredging on Streams: a Review and an Evaluation Strategy, Bret C Harvey and Thomas E. Lisle, Fisheries Habitat Vol 23, No. 8 ) Suction dredge operations create suspended particles which can be measured as turbidity. Turbidity is a measure of light transmission. High levels of turbidity can adversely impact water quality and can have indirect effects on fish and other aquatic life. This permit has effluent limits for turbidity and also includes narrative criteria.

### **Mining Law of 1872**

Placer mining activities must comply with state and federal environmental law and regulations including the Clean Water Act even when mining is conducted under the Mining Act of 1872 as amended. The U.S. Supreme Court has previously held that the Mining Act of 1872 "expressed no legislative intent on the...subject of environmental regulation." *California Coastal comm'n*,

*supra* at 581 (1987). The Court also held that the subsequent amendments to federal mining law known as the Multiple Use Mining Act (30 USC § 601 *et. seq.*) and federal agency implementing regulations did not pre-empt state or federal environmental regulation. *Id.* at 582.

The Oregon Court of Appeals has expressly rejected the notion that the federal mining laws create any right to use waters of the state for the purpose of waste disposal. *Kinross Copper Corp. v. State of Oregon*, 163 Or App 357 (1999), *cert den*, 531 US 960 (2000). There is nothing in text, context or legislative history of the more recent CWA that suggests a general exemption from permitting requirements for mining on federal lands. CWA Sections 313 and 402. Subsequent amendments to federal mining, environmental and land management statutes all provide strong evidence against any inference of pre-emption. *See, e.g.*, 30 USC § 21(a); 30 USC §§ 601 *et seq.*; 42 USC §§ 4321 to 4370d.

### **Land Use Issues**

When the 700PM permit was reissued in 2005, DEQ and the EQC determined that registration under the 700PM permit is not a program affecting land use and that determination is carried forward in this proposed permit.

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

Please be aware there are other applicable federal and state laws that apply. U.S. Army Corps of Engineers under Section 404 of the Federal Clean Water Act and Oregon Department of State Lands (DSL) under Oregon Revised Statute (ORS) 196.795 regulate the discharge of dredged material from suction dredges by removal-fill permitting.

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 and in some cases a may be required for operations involving less than fifty cubic yard per year. A permit from DSL does not eliminated the need for a DEQ permit.

Out-of-stream mining and non-chemical ore processing with no wastewater discharge to surface waters requires a DEQ 600 WPCF General permit. Off-stream mining an ore processing with a wastewater discharge to waters of the state requires an individual NPDES permit.

## **I. COVER PAGE**

The cover page describes the scope of permitted activities and type of operation covered by this permit. The proposed NPDES General Permit covers the following types of small scale mining operations:

- small suction dredges not to exceed 30 horsepower with an inside diameter suction hose no greater than six inches used for recovering precious metals or minerals from stream bottom sediments in areas not designated as essential salmon habitat.

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- small suction dredges not to exceed 16 horsepower with an inside diameter intake nozzle no greater than 4 inches used for recovering precious metals or minerals from stream bottom sediments in areas designated as essential habitat.
- in-water nonmotorized mining equipment used for recovering precious metals or minerals from stream bottom sediments.

Registration will be required to for the suction dredges. Registration includes submitting an application and paying an annual permit fee or a fee for the term of the permit.

A person requiring registration under the general permit can obtain that registration on an annual basis or the five-year term of the permit, which expires in December 2014. The cover page of the permit indicates whether the permit has been assigned on an annual basis or the full term of the permit, which is based on the fee payment.

The 700PM permit registration fees are provided for under ORS 468B.052 and are as follows:

- \$25 annual fee for each year the person registers under the general permit.
- \$100 for a five-year registration under the permit.

In-water nonmotorized 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 the operator will not have to register for permit coverage or pay a fee.

Hand panning is not covered by the permit, and DEQ does not believe that an NPDES permit is required for panning.

An individual permit is required to operate a suction dredge having a hose greater than 6 inches in diameter. A low cost (\$300) individual NPDES permit is available for suction dredges having a hose no greater than 8 inches in diameter.

The cover page presents 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.

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

The Clean Water Act directs EPA to adopt effluent limit guidelines to implement technology-based requirements for various industrial categories. (CWA Section 304(b)). NPDES permits are required to have, at a minimum, all effluent limits needed to meet the technology based requirements of the CWA sections 301,304, 306 and 402.

EPA has specific effluent limit guidelines (ELGs) as technology-based requirements for certain placer mining activities, but these ELGs do not apply to dredges processing less than 5,000 cubic

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yards per year. (40 CFR § 440.140 to 440.148) For point sources not covered by an ELG, permit writers develop technology-based effluent limits using best professional judgment.

Permits must contain technology based effluent limits and additional limits needed to ensure the permitted activity does not cause or contribute to a violation of water quality standards(CWA Sections 301, 303 and 402). This proposed permit uses the technology-based effluent limits based on the best management practices used in the previous permit and commonly used in other state permits including the proposed EPA Idaho general permit for suction dredging and EPA's accompanying biological evaluation. The use of other state's permit provide a confirmation of what is reasonably expected in best management practices. The Idaho biological opinion evaluation is for suction dredging and non-powered sluice equipment. The California Department of Fish and Game Suction Dredge Permitting Program Literature Review (2009) referenced some of the articles that DEQ used to develop the previous 700-J and 700PM permits. Additional studies were included in this final fact sheet in response to public comment that newer studies were needed.

The final permit includes larger suction dredges with not to exceed 30 horsepower with an inside diameter suction hose no greater than six inches and designates the area outside of essential salmon habitat for operation. Suction dredges that do not exceed 16 horsepower with an inside diameter intake nozzle no greater than 4 inches are designated for areas within essential salmon habitat. Restricting the areas of operation for different size suction dredges will minimize the water quality impacts in areas that are considered environmentally sensitive. 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 the water quality effluent limit for turbidity. This also aligns with DSL's requirement.

The final permit also retains the nonmotorized small scale mining equipment. Prior to the reissuance of this permit DEQ was contacted by several miners who use this type of equipment because they were concerned that the only permit option available was an individual NPDES permit. These are point sources that require an NPDES permit. The Department has determined that it is appropriate for the in-water sluicing equipment and other in-water nonmotorized small scale mining equipment that is commonly used in Oregon to be included in this general permit. Operators of in-water nonmotorized small scale mining equipment will be 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 an 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 number of these types of operations is not exactly known, DEQ estimates that there are 1000 in operation. The type of material discharged is the same. DEQ focus is on the suction dredges. In considering whether or not to include in-water nonmotorized equipment in the registration process, DEQ has determined that in-water non motorized means of mining move less material over time then the smaller suction dredges and that there ways to identify hand sluice operators through reported information

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required by state law ,such as, DSL regulations. DEQ estimates that there are 1000 of this type of equipment.

To protect water quality and the beneficial uses of fish habitat and aquatic life, the proposed permit requires the same permit limitations in Schedule A and C for all equipment. Monitoring requirement are only for suction dredges. Condition 5 in Schedule A and Condition 2 in Schedule B of the previous permit (2005), which excluded requirements for suction dredges with hoses less than 4 inches, were removed.

In 2005, DEQ made a decision that field visits conducted in the summer 2004 indicated that smaller suction dredges have no reasonable potential to violate state turbidity criteria. However, upon review of those studies in support of this reissuance, DEQ does not reach the same conclusion. Turbidity measurements taken above and below the suction dredges observed in the field studies indicate levels greater than 10% above background. Further, the EQC staff report indicates that “DEQ may consider including turbidity exceedances for the next permit renewal, once the new turbidity standard is in place.”

There is no duration assigned to this standard, but DEQ can provide a mixing zone where between the end of the dredge and the 300 feet downstream, the water quality standards can be exceeded, as long as acutely toxic conditions are prevented and the mixing zone does not impair the beneficial uses of the receiving water.

The following table is an example of turbidity values that may occur for a short distance behind placer mining activity and is allowed within the 300 feet mixing zone for the duration of the activity. Table 1 below is taken from a document made in preparation for streams that did not water quality limits for sediment (Rowe, M.D., Essig, and B. Jessup. Guide to Selection of Sediment Targets for Use in Idaho TMDLs,2003) it summarizes the effects of turbidity.

**Table 1.** Summary of effects on fish, periphyton, and invertebrates noted for turbidity ranges. Units of Nephelometric (NTU) and Jackson (JTU) turbidity units are roughly equivalent (U. S. EPA 1983a).

Effect	Organism	Turbidity range	Reference
Increased blood sugar levels	Juvenile coho	Linear correlation	Sevizi and Martens 1992
Increased coughing	Juvenile coho	3-30 NTU for 24 hours	Sevizi and Martens 1992
Altered behavior	Juvenile coho	10-60 NTU	Berg 1982; Berg and Northcote 1985
	Largemouth bass and green sunfish	14-16 JTU	Heimstra et al. 1969
Emigration/avoidance	Steelhead and coho	11-51 NTU	Sigler et al. 1984
	Juvenile coho and steelhead	22-265 NTU	Sigler 1980
	Juvenile coho	>37 NTU	Sevizi and Martens

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Effect	Organism	Turbidity range	Reference
			1992
Reduced feeding rate	Juvenile coho	10-60 NTU	Berg 1982; Berg and Northcote 1985
	Brown trout	7.5 NTU	Bachman 1984
	Lahontan cutthroat trout and Lahontan redbside shiner	3.5-25 NTU	Vinyard and Yuan 1996
Reduced reaction distance	Lake trout, rainbow trout, cutthroat trout	3.2 – 7.4 NTU	Vogel and Beauchamp 2001
	Brook trout	0 – 43 NTU	Sweka and Hartman 1999
Reduced growth	Juvenile coho and steelhead	22-113 NTU	Sigler 1980
	Juvenile coho and steelhead	as low as 25 NTU	Sigler et al. 1984
Reduced survival	Juvenile coho	15 – 27 JTU	Smith and Sykora 1976
Reduced primary production	Algae/periphyton	3 – 25 NTU	Lloyd et al. 1987
Reduced density	Benthic invertebrates	8.4 – 161 NTU	Quinn et al. 1992
Reduced feeding rate, food assimilation, and reproductive potential	<i>Daphnia pulex</i>	10 NTU	McCabe and O'Brien 1983

Based on DEQ's review of the studies (cited below), and by including a condition that requires corrective action be taken if the 300 feet distance is exceeded, DEQ believes that 300 feet is the distance at which there is no reasonable potential to violate the water quality standard for turbidity. The 300 feet distance is a mixing zone that takes into consideration that this permit is for all streams in the state. The mixing zone of 300 feet was determined to meet OAR 340-041-0053 where the mixing zone is required to be as small as feasible, minimize the adverse affects on the indigenous biological community and allow the passage of fish and other aquatic organisms, not threaten public health and minimize the adverse effect on other designated beneficial uses outside the mixing zone.

Studies have reported, as in Baley's Final Report on "Response of fish to cumulative effects of suction dredge and hydraulic mining in the Illinois Subbasin, Siskiyou National Forest, Oregon" (2003) that local disturbances would need to have a strong cumulative intensity of many operations to have a measureable effect." No overlapping of the turbidity plume is allowed, which minimizes the cumulative effects of the operations.

**Effluent Limits**

The primary pollutant of concern in the discharge of effluent from mining is suspended particles, such as clay, silt in suspension which can be measured as turbidity. The water quality criterion

for turbidity is found in OAR 340-041-0036 where no more than 10% cumulative increase in natural stream turbidities may be allowed, as measured relative to a control point immediately upstream of the turbidity causing activity. Under OAR 340-013-0020(1)(a)(A), no person engaged in an activity other than emergency or recreation within a wilderness area established prior to 1972 shall cause a measurable increase in turbidity. The importance of regulating turbidity can be summed up in this statement: While effects of light penetration are usually associated solely with primary production, turbidity is also associated with elevated stress in fish, predatory efficiency, inducement of invertebrate drift, and suffocation of incubating salmonid embryos (Rowe 2003).

#### OAR 340-041-0036 Turbidity

The permit limits the discharge of visible turbidity at one set distance of 300 feet downstream from the suction dredging and in-water nonmotorized equipment discharge point except for those that operate within a wilderness area established prior to 1972. The vast majority of sediment discharge will fall out of the water column within distances much less than 300 feet, lingering suspended particles as turbidity is being measured after that initial fallout to determine compliance with the standard.

In retaining the 300 feet distance for turbidity, the reasonable potential analysis for the 300 foot distance that was provided in the March 15, 1999 Memo Suction Dredge Mining Permit—Addendum to Fact Sheet dated July 25, 1996 was considered. This information from the reasonable potential analysis is provided below.

**Turbidity/Sediments:** Since suction dredging activities discharge sand, gravel and water from a sluice box, the activity can increase turbidity in the stream. Studies conducted in Canyon Creek, California by the California Cooperative Fishery Research Unit, U. S. Fish & Wildlife Service, and Humboldt State University (1986)<sup>1</sup> were reviewed to determine effects of suction dredging mining on turbidity. These studies measured turbidity above and below the dredging site. The data from the above study and other studies<sup>2,3</sup> show that these activities have a localized impact on the stream. These studies also note that turbidity levels return to background levels 50 to 80 meters downstream of the dredge site. The studies note that the turbidity is elevated during the periods when suction dredging occurs, typically about 2-4 hours per day.

1. “Impacts of Suction Dredge Mining on Anadromous Fish, Invertebrates, and Habitat in Canyon Creek, California”, California Cooperative Fishery Research Unit, U.S. Fish & Wildlife Service, and Humboldt State University, 1986.
2. “Final Environmental Impact Report-Adoption of Regulations for Suction Dredge Mining State of California-Department of Fish and Game, April 1994.
3. Harvey, Bret C.; McCleneghan, Kim; Linn, Jack D.; Langley, Cheryl L., “Some physical and Biological Effects of Suction Dredge Mining, “June 1982.

In the Canyon Creek (1986) report, the background turbidities were less than 1 NTU with one or two readings of 3NTU. In the field data for the 4 inch aperture dredge the background turbidity reading was 0.88 NTU, the turbidity 13 feet from the dredge was 5.6 NTU and at the end of the

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measured distance of 164 feet the turbidity was 2.85 NTU. Since at the distance of 164 feet the turbidity was reduced by half, it is assumed that the turbidity level would reach background levels or 10 % above background (1.0 NTU) at a distance of 300 feet from the dredge. Certainly, the DEQ's requirement for no visible turbidity would be met at the 164 feet distance and the 300 feet distance for the dredges studied.

The Final Environmental Impact Report (1994) states that for dredges with an intake size less than or equal to 6 inches, the area most impacted was 30 meter (100 feet) downstream and that the impact zone could be larger or smaller depending upon the size of the dredge and the stream bottom characteristics.

For this permit reissuance, DEQ also considered the equipment size regulated in other permits in order to determine what was more likely achievable. Utah's permit covers suction dredges with an nozzle of 4 inches or less with a 12 horsepower engine and hand held sluices with no throat more than 48 inches. The turbidity limit under this permit does not allow an increase in turbidity beyond 40 feet.

A 100 feet mixing zone was proposed in the 700-J permit that was being renewed in 1997, during the public comment period for that permit, the Siskiyou National Forest Service offered comments that it was highly unlikely that operators of recreational dredges with 4 inches or less would be able to comply with such a restrictive turbidity standard. The 300 foot mixing zone was selected for the final permit after consideration of the transient and noncontinuous nature of the turbid discharge combined with other restrictions related to spawning areas.

The permit authorized by EPA in Alaska is for placer mining by suction dredges with intake nozzles less than or equal to 10 inches and greater than 6 inches. Alaska's permit for these larger suction dredges allows a 500 feet mixing zone to meet turbidity limits of 5NTU above background.

The turbidity standard is protective of primary production (food web dynamics) in a water body. As noted in (Lloyd, Koenings, LaPerriere, North American Journal of Fisheries Management Vol 7:18-33, 1987) Turbidity of 5 NTU's can decrease the primary productivity of shallow clear water streams by about 3-13%. An increase of 25 NTU's may decrease primary production by 13-50% in shallow streams. The 300 foot mixing zone is protective of water quality even though the standard of no greater than 10% above background will be exceeded, because along with the requirement for no overlap in the turbidity plumes, more light will be available to reach the stream bottom.

More recently EPA's biological evaluation for the proposed EPA Idaho permit has cited similar studies that support the 300 feet mixing zone measured as visible turbidity while recognizing that finer sediment will be carried further down stream in suspension.

- Suction dredging generally causes turbidities of between 15 and 50 Nephelometric Turbidity Units (NTU) immediately downstream of the operation, with background levels

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returning between 164 and 525 feet downstream and in some cases as short as 36 feet (Harvey 1986; Somer and Hassler 1992; Thomas 1985, Griffith and Andrews 1981, Stern 1988, Prussian et al. 1999).

- Harvey et al. (1982) and Harvey (1986) measured settleable solids and turbidity in three California Rivers from dredging activities. The settleable solids and turbidity levels reduced to background levels within 100 feet downstream. The study also noted that substrate type was very influential in determining which particles were suspended. The disturbance of clay deposits increased turbidity whereas disturbance of sand and gravel did not increase turbidity. Harvey (1986) found turbidity peaked at 50 NTU 16 feet downstream from a dredging operation and returned to background levels within 264 feet downstream. These studies demonstrate that effects of suction dredging on turbidity and suspended sediment concentrations are limited to the area immediately downstream of the operation for the duration of the dredging activity.
- Dredging in streams with higher proportions of fine materials will generate a more extensive turbidity plume (Harvey et al. 1982, Harvey 1986). Studies have shown that suction dredging can elevate suspended sediment concentrations up to 300-340 mg/L immediately downstream of the dredge with levels decreasing to background within 524 feet (Stern 1988, Thomas 1985).

In the development of the 2005 700PM permit DEQ conducted site visits in 2004 to observe suction dredging at a number of locations and sampled for turbidity on Althouse Creek in the Illinois River Basin and on the Applegate River. The dredging was conducted with a 4 inch suction dredge with a 4 hp engine. The distances for the turbidity were measured by walking out the distance, which is similar to what would occur in the field.

The data from the Althouse Creek is representative of a suction dredge operation in a stream bed with higher silt and clay, that when disturbed, create persistent visible turbidity at distances beyond 300 feet. For the 4 inch suction dredge operating in Althouse Creek, which is a relatively highly suspended sediment stream, the turbidimeter measurement showed that turbidity decreased from approximately 30 NTUs to approximately 6.5 NTUs at 100 feet downstream from the working dredge. The turbidity level measured at approximately 300 feet downstream was approximately 5.5 NTUs, which was more than the standard of 10% above the background of 0.6 NTU. By comparison the Applegate River was considered a typical river and DEQ data shows that the river returned to 10% above background at less than 300 feet downstream. Turbidity readings were not taken at the 300 feet distance downstream. Measurements taken above the dredge were 1.7 NTU. Measurements taken about 100 feet below the dredge were 1.96 NTU.

Under the proposed permit, dredging must be done such that turbidity is minimized and localized to the general area of the dredging activity. If turbidity is visible 300 feet downstream of suction dredging, then turbidity exceeds the allowable in-stream water quality standard and the permit calls for immediate implementation of preventative measures.

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

Pursuant to OAR 340-013-0020(1)(A) 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 “no measurable increase” will be defined as no visual turbidity. Visible turbidity is defined in the permit as turbidity that is distinctly visible when compared to background turbidity. In an article “Laboratory Experiments to Investigate Human Sensitivity to Changes in Water Clarity by Smith and Perrone, Journal of Environmental Management, 48 (1996), there are multiple references published in the same journal on turbidity in the management of natural waters for recreation. The basis of water clarity is on the human perception is visible turbidity which was measured and quantified to determine what a noticeable difference would be to a human observer. Wilderness areas are set aside for its pristine nature and minimal impact recreational enjoyment. So the term ‘no measurable increase” should be in keeping with that concept.

Compliance with the effluent limits for turbidity limits in Schedule A is required at all times. Preventative measures are required if suction dredging is creating a visible plume beyond 300 feet. Preventative measures can include the options of moving to a location where the dredging of concentrated silt and clay can be 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 discharge by limiting operation or speed of the suction dredge.

The effluent limits and the best management practices established in this permit are protective of beneficial uses. The discussion of the best management practices are provided under Schedule C.

### **III. SCHEDULE B - MONITORING REQUIREMENTS**

The proposed permit requires visual monitoring once per day to determine compliance with the proposed turbidity criteria. The visual monitoring is required during daylight hours to determine compliance with the turbidity limits. The frequency of monitoring, information collected with the monitoring and recordkeeping required for suction dredges is explained in this section.

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

Other monitoring and record retention requirements are contained in the General Conditions, Schedule D, Section C, Monitoring and Records; however provisions in the permit supersede those in the General Conditions.

### **IV. SCHEDULE C - SPECIAL CONDITIONS**

#### **Best Management Practices**

Oregon’s water quality standards are based on the protection of aquatic organisms and public health, beneficial uses and anti-degradation of water quality. The best management practices and

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effluent limits are intended to protect the beneficial uses in the receiving waters of the state.  
 These beneficial uses 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

Placer mining activities have been studied for their effects of turbidity, the movement of bed material that can contribute to erosion and create deposition, as well as, more recently toxic pollutants. In the Institute for Natural Resources Policy Paper 2003-01, prepared by Oregon State University, entitled “Recreational Placer Mining in the Oregon Scenic Waterway System.” It states that miners and their representative organizations make a strong claim, backed by a number of studies done by government and academic institutions, that recreational placer mining does not have a harmful impact on the natural environment if certain practices are followed.

This permit contains limitations to minimize the impacts of placer mining on the beneficial uses through best management practices.

Erosion: Schedule C, Condition Nos. 5 (no mining of stream banks), 6 (undercutting), 7&8 (moving habitat), 9 (bridge footings, dams), 12(10 feet into wet perimeter), 13(motorized equipment)

Studies have shown that placer mining can have a negative impact on habitat structure that benefits fish and benthic communities. Coarse woody debris and large boulders are beneficial to the stream.

Coarse woody debris and large boulders can be beneficial by adding stability, providing concealment for fish, and provide conditions in streams that influence species composition and the productivity of benthic vertebrates (Effects of Suction Dredging on Streams: A Review and an Evaluation Strategy Fisheries Habitat Vol. 23, No. 8, Bret C. Harvey and Thomas E. Lisle, August 1998).

In the biological evaluation for the proposed Idaho suction dredging permit, it states that “Removal of coarse woody debris or boulders from a river can have substantial impacts on the stream environment, including redistribution of sediment and changes in stream topography and changes in size and location of pools to name a few. These changes in flow can alter the production of benthic invertebrates and the survival and development of developing fish embryos (Bilski 2008, Merz et al. 2006).” California Department of Fish and Games 2009 literature review states that “suction dredging along the channel margins has the potential to undercut the streambank, resulting in bank erosion and potential bank destabilization and collapse.”

In a Fisheries Habitat article it states that “Erosion of stream banks are likely to be greater where stream banks and riparian vegetation are directly disturbed by suction dredging and related activities. Excavation of stream banks anywhere is likely to substantially increase suspended sediment because banks commonly contain abundant finer sediment. The article goes on to explain that unless significant bank erosion occurs, increased sediment transport is limited by what is in the channel and the overall effects downstream are probably minor. (Effects of Suction Dredging on Streams: A Review and an Evaluation Strategy Fisheries Habitat Vol. 23, No. 8, Bret C. Harvey and Thomas E. Lisle, August 1998)

Stream bank erosion can accelerate production of stream fines. Finer sediments cause sediment and turbidity problems in the receiving stream. Dredging activities are kept along the wet perimeter to prevent erosion because “banks commonly contain abundant finer sediments.” (1998 Fisheries Habitat Vol. 23, No.8, ‘Effect of Suction Dredging on Streams: A Review and an Evaluation Strategy’) CA Sept 2009 literature review. In a 1987 article, by Lloyd, Koenings, LaPerrier in North American Journal of Fisheries Management vol. 7 entitled Effects of Turbidity in Fresh Waters of Alaska, it states that although it was previously thought the release of settleable solids and increased fines in bottom substrates from habitat alteration reduced invertebrate densities, turbidity had the strongest statistical descriptor of reduced density and biomass of macroinvertebrates.

The best management practices minimizes the impact of erosion and protects the habitat for beneficial uses by keeping dredging excavating activities in the stream and along the wet perimeter. Boulders and habitat structure may be moved around in the stream but not removed (Schedule C, Condition No. 7 and 8). This permit limits the areas where dredging can occur; dredging of stream banks is not allowed, (Schedule C, Condition No. 5 ), only into non vegetated gravel bars up to 10 feet outside the wet perimeter in non essential salmon habitat (Schedule C, Condition No 12). Undercutting or eroding stream banks and removal or disturbance of boulders, rooted vegetation or embedded woody plants from the stream bank is prohibited,(Schedule C, Condition No. 6). Erosion increases the sediment load to a stream and increases turbidity due to the fines being disturbed. Stream bank erosion is minimized by prohibiting motorized wheeled or tracked equipment from being used in-water. (Schedule C, Condition no. 13). These BMPs will limit the potential impact of erosion and protect habitat. The EPA Idaho permit, Alaska permits and the Montana permit contain similar conditions to protect habitat. In Schedule C, Condition No. 9, the requirement will limit the potential impact of erosion as well as satisfy requirements for a 401 certification is one is necessary.

Excavation and Deposition: Schedule C, Condition No. 1 (no overlapping plumes), Schedule C, Condition No. 2&3 (in water work and the presence of fish eggs)

In the process of dredging, material is taken up and re-deposited in the stream. The re-deposited material can have effect on fish spawning and benthic habitat. OAR 340-041-0007(12) 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.

Excessive suspended material and sedimentation threatens the survival of fish and other aquatic animals. The effects of turbidity and suspended solids include: respiratory and feeding impairment, social disorganization.

Excessive fine sedimentation in spawning grounds limits available oxygen and removal of metabolic toxins near eggs and physically renders spawning sites less suitable.(Umatilla Basin TMDL, ODEQ, May 9, 2001)

Excavation and deposition have been shown to create a disturbance in benthic invertebrate habitat, with some benthic invertebrates showing the ability of recovering more rapidly than others depending upon the amount of area disturbed. The excavation exposes the macroinvertebrates to damage, increased predation and redistribution. Redistribution occurs from uptake and movement with the stream flow or changing the stream bottom from gravel to a finer sediment which causes a natural selection for that type of substrate. Keeping the distance between dredges by prohibiting the overlapping plumes reduces this impact. "Recolonization on tailings would probably be slower if dredging were more extensive because potential colonizers would be less abundant and more remote." (Bret C. Harvey and Thomas E. Lisle.) Effects of Suction Dredging on Streams: A Review and an Evaluation Strategy, Fisheries Habitat Vol. 23, No. 8, 1998

Schedule C, Condition No. 1 is the best management practice that minimizes the effects of excavation and deposition by preventing overlapping plumes and limiting the distance for visible turbidity to 300 feet. In the EPA permit fact sheet for suction dredges AKG-37-1000 in 2005, there is a discussion which supports the selection of 300 feet and its impact on the macroinvertebrate community.

- As with water clarity, the effect of suction dredging on macroinvertebrate abundance and diversity was confined spatially to a relatively small area downstream of the dredge. Both abundance and diversity were notably reduced for 33 feet downstream of Site 1 with similar occurrence at Site 2. By 262 feet, both appeared to be unaffected by the dredge plume.

It should be noted that the deposition from tailing piles can have an impact on fish that spawn in the fall, such as chinook salmon and coho salmon because these fish may choose tailings for their spawning habitat. The tailings are less stable and are subject to scour before incubation is complete. In a 1999 article in the North American Journal of Fisheries Management by Harvey, Bret C. and Lisle, Thomas E., "Scour of Chinook Salmon Redds on Suction Dredge Tailings", it states that if natural spawning sites were relatively abundant then tailings were not strongly selected for redds but if natural spawning substrate was in short supply, a large proportion of redds would locate in the tailings. The article further states that these manmade redds are subject to scour and that where there is a high potential for scour and a low number of spawners, there should be a regulation that requires that tailings be redistributed to restore the original bed topography. This type of impact is also mentioned in the Institute for Natural Resources Policy

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Paper (2003-01). It should be noted that ORS 390.825(17) requires a recreational miner to level pits, piles, furrows or potholes outside the main channel of the waterway upon leaving the site.

The excavation and deposition that would disturb fish eggs and spawning grounds are protected by specifying in Schedule C, Condition No. 2 & 3 suction dredging need to observe the in-water work periods. The in-water work periods are based on the protection of fish and fish spawning developed by the Oregon Department of Fish & Wildlife and gives primary consideration to anadromous and other game fish, and threatened, endangered or sensitive species. The non motorized mining equipment may not be used where fish eggs are present.

Toxics: Schedule A Condition No. 1 (meet water quality criteria), Schedule C, Conditions Nos. 10 (oil), 11 (drinking water sources), No. 15(chemical agents) No. 19 (Water Quality Limited Streams). In 1999, DEQ prepared an evaluation of the pollutants of concern from suction dredging which included toxic pollutants. In the discussion DEQ noted that some streams contain sediments that have been contaminated with toxic pollutants. Suction dredging in streams that are water quality limited for toxics could disturb stream bottom sediments and lead to the release of toxic pollutants into the water column.

More recently water quality studies downstream of dredging activities has been conducted in Washington and Alaska for toxics such as arsenic, copper, silver zinc, lead, chromium, nickel, antimony, cadmium and selenium. The California Department of Fish and Game Suction Dredge Permitting Program Literature Review (2009) characterized these studies as follows:

Johnson and Peterschmidt (2005) found elevated levels of arsenic, copper, zinc, and lead immediately downstream of suction dredging in the Similkameen River, WA, but levels quickly returned to background 30-60 m downstream. Another study showed elevated copper and zinc immediately downstream of suction dredging, but background levels were reached within 80 m (Prussian, et al. 1999).

In the process of mining, mercury is taken up in the sluice and removed from the stream. DEQ has a fact sheet that informs miners about the recovery of mercury and DEQ has worked with miners to collect mercury for disposal. DEQ noted that recreational mining can actually produce a benefit to water quality when miners remove mercury from rivers left behind by old commercial mining operations. (INR Policy Paper 2003-01, prepared by Oregon State University). DEQ has not examined the study on the physical alteration of mercury as it goes through the suction dredge and re-enters the stream. There is a report that suggests the mercury becomes more available and bioaccumulation through the food chain is a concern (2005 State Water Resources Control Board, Division of Water Quality). DEQ has standards on the amount of mercury that can be present in the water column that is protective of aquatic life and human health. The water quality standard for mercury is based on water and fish consumption.

Schedule A, Condition No. 1 requires that no pollutants or wastes be discharged and no activities be conducted that will violate water quality standards and in Schedule C, Condition 16 use of chemical agents such as mercury are prohibited. The acute (short term) water quality standards in

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fresh water for aquatic protection are extremely low at 2.4 ug/L (OAR 340-041 Table 33A). Prohibiting the use of chemical agents will prevent the material from entering the water body and protect this water quality standard. In addition, the permit contains a prohibition against suction dredging activities in streams that are water quality limited for toxic pollutants (Schedule C, Condition No.19). The best management practices in the permit also require that the discharge from the dredging activity no impact the intake of a drinking water source so that no more than background levels are entrained in the drinking water uptake. (Schedule C, Condition No.11)

In the Response to Comments for the Montana Suction Dredge General Permit NPDES Permit MTG370000, there is mention of one study of a 4-inch suction dredge operation conducted on the Clark Fork River on June 28, 1985 (Department memo written by Mike Pasichnyk to Greg Schmaus on July 1, 1985). The data shows slightly elevated toxic metal concentrations immediately downstream from the dredge, which return to background levels within 200 feet.

In a DEQ report entitled Turbidity Analysis for Oregon Public Water Systems: Water Quality in Coast Range Drinking Water Source Areas June 2010 it states that

- Suspended sediment is of concern for drinking water safety as it can reduce the effectiveness of disinfection treatments (LeChevallier *et al* 1981), harbor pathogens (e.g. Chang *et al* 1960, Tracy *et al* 1966, Sen & Jacobs 1969, Meschke & Sobsey 1998), contribute to formation of disinfection by-products (Nikolaou *et al* 1999, US EPA 2002a), and carry nutrients, heavy metals, pesticides, and other toxic chemicals (Lick 2008). Unpleasant tastes and odors frequently co-occur with excessive turbidity (US EPA 1998). Prevention or removal of fine sediment pollution from water reduces these risks to acceptable levels (US EPA 2001).

The report discusses that the basic treatment technology can handle 5 NTU but greater than that requires additional treatment. DEQ is going to provide available information on the location of domestic water supplies and private water supplies with the permit.

OAR 340-041-0007(13) states that objectionable discoloration, scum, oily sheens, or floating solids or coating of aquatic life with oil films may not be allowed. The permit establishes preventative measures to minimize the potential for contamination of surface water by petroleum products. Schedule C, Condition No. 10 is protective of this water quality standard.

Schedule C, Condition No. 14 protects fish habitat. Best management practices were also included for the control of invasive species. The control of invasive species is considered one of the six key issues of statewide concern in the Oregon Conservation Strategy. As of January 1, 2010 some boats will need an aquatic invasive species prevention permit from the Oregon Marine Board.

Invasive species are species not native to ecosystems to which they have been intentionally or accidentally introduced and whose introduction causes or is likely to cause economic or environmental harm. Many non-native species have been introduced to Oregon. While not all non-native species are invasive, some crowd out native plants and animals and become a serious

problem. They alter habitat composition, increase wildfire risk, reduce productivity, or otherwise disrupt natural habitat functions.

DEQ has included permit condition to provide a continuous zone of passage that meets water quality criteria for free-swimming and drifting organisms. The visible turbidity must not cover the entire wet perimeter as required in Schedule A, Condition No.1. In Schedule C, Condition No 1 the permit requires that there be no overlap in turbidity plumes where more than one piece of equipment is operating in the same waters. As cited in EPA's biological opinion for the EPA Idaho permit, "Thomas (1985) and Harvey (1986) concluded that in streams where dredges operate at low density, suspended sediment is not a significant concern because effects are highly localized and readily avoided by mobile organisms." There is also a requirement for safe fish passage in Schedule C, Condition No.4.

Schedule C contains other requirements for dredge operation and work practices that are consistent with revised statutes and Oregon Administrative rules for Oregon Scenic Waterways and Essential Salmon Habitat,

Oregon Scenic Waterways and Essential Salmon Habitat

Suction Dredging is prohibited in Oregon Scenic Waterways. The policy statement and ORS 390.815 support that the Legislature created the Oregon state scenic waterways system, among other things, to preserve and protect water quality in designated rivers.

The permit contains requirements for the areas of operation for different size suction dredges to minimize the water quality impacts in areas that are considered environmentally sensitive. This condition is aligns with DSL regulations. Small suction dredges not to exceed 16 horsepower with an inside diameter intake nozzle no greater than 4 inches can operate in areas designated as essential salmon habitat. The larger size dredges will be required to operate in areas not designated as essential salmon habitat.

Permitting Process: Antidegradation

This permit is a permit reissuance for a permit that was active but a final decision may be made that makes the permit invalid by a court order and will be treated as a permit renewal for the purpose of the antidegradation evaluation.

There are not a significant number of new registrations under the permit. DEQ has as many as 2000 registration records under the permit and those that are active are shown below.

Year	Re-registration	New Registrations
2009	470	464
2010	773	432

This is a general permit for activities that are conducted statewide. The permit limits and best management practices were developed to be protective of water quality standards in waters of the state. The permit as written does not result in the lowering of water quality in high quality water, or water quality limited water. There is no outstanding resource water in the state.

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This permit retains the antidegradation requirements for Oregon water quality limited streams that was in the modification of the 1997 permit. In 1999, A court order invalidated the permit on waterbodies that were water quality limited for temperature and required the DEQ to apply the antidegradation rule (OAR 340-041-0025(3)(a)(C)). In response to the court order, DEQ evaluated pollutants of concern associated with suction dredging activities in the March 15, 1999 memo, addendum to the July 25, 1996 suction dredging mining permit.

The evaluation of turbidity/sediments, toxic pollutants, dissolved oxygen and temperature resulted in a permit condition that prohibited suction dredging in certain streams that are on the State 303(d) list as water quality limited for sediments, turbidity or toxics. In the evaluation, the DEQ concluded that there was no conclusive evidence that small scale dredging adversely affected stream temperature, if the activity included no check dams or other obstructions. This permit maintains this requirement as a best management practice in Schedule C, Condition 4 where the fish holder must not obstruct fish passage. DEQ has not found any new studies that relate in stream turbidities from suction dredging to an increase in temperature. The protection of the habitat structure in the best management will protect the riparian areas that provide shade.

Suction dredging is prohibited in Oregon streams that are water quality limited for sediments, turbidity, or toxics. This prohibition does not apply, however, to stream segments that were properly subject to mining under the 700-J permit between May, 3, 1999 and July 1, 2005, or to stream segments subject to a total daily maximum load (TMDL) that specifically authorizes mining under the 700 PM permit. DEQ will provide a list of water quality limited streams on the 303(d) list for those registering under the permit.

Suction dredging is prohibited in all water quality limited streams during periods when native migratory fish are rearing and spawning through fry emergence, as identified by ODFW. Nonmotorized mining equipment may not be used where fish eggs are present. Suction dredging is prohibited in Oregon Scenic Waterways. As well DEQ restricts suction dredging in the Clackamas River, McKenzie River, and North Santiam River as provided in OAR 340-041-0350.

Under the proposed permit the Department is including in-water nonmotorized mining equipment that is used for recovering precious metals or minerals from the stream bottom sediments, such as, the use of a hand sluice and a mini rocker. The in-water nonmotorized mining process includes excavation and extracting with gravity separation. The Department understands that this type of mining activity is done in Oregon and was not meant to be excluded from the general permit coverage of small scale mining operations. In the public comments for 1997 700-J permit, the DEQ stated that sluice boxes with the discharge to surface water were included under the permit.

This activity was part of the early mining technology and mining has been conducted since precious metals were discovered in Oregon. The Department considers this an existing use, there is information to support that discharge from these point sources existed prior to 1994 (OAR 340-041-0350(3)(b)). Under DEQ's internal management directive for anti-degradation, a

historic discharge that is not expected to have a load greater than the historic discharge is not considered a new discharge.

The in-water non motorized mining processes are not expected to create pollutants that are different than those evaluated under suction dredging. The permit requirements are the same for all dredging activities under this permit with the exception of compliance with OAR 340-041-0350. As written OAR 340-041-0350 prohibits suction dredging in certain areas of the Clackamas River, McKenzie River, and North Santiam River . The Department finds that keeping these same conditions in the permit for in-water nonmotorized mining equipment are acceptable for the protection of water quality limited waters.

#### **VI. SCHEDULE D: NPDES GENERAL CONDITIONS – INDUSTRIAL FACILITIES**

Schedule D includes conditions that describe operation & maintenance, monitoring & recordkeeping, and reporting requirements as they apply to suction dredge activity. The conditions in this section were taken from a more detailed November 25, 2009 list of NPDES conditions that were reviewed by EPA, and are included in all industrial NPDES Permits issued in Oregon. These conditions in this section are appropriate for this general permit. When requirements in Schedules A, B, and C contain requirements that are repeated in the general conditions, the provisions in the permit supersede the general conditions.