

ANTIDegradation REVIEW

NPDES Permit # ID- Pesticide General Permit

Idaho Department of Environmental Quality
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Antidegradation Overview

The Idaho Water Quality Standards (WQS) contain an antidegradation policy providing three levels of protection to water bodies in Idaho. The first level of protection (Tier 1) applies to all water bodies and assures that existing uses of a water body and water quality necessary to protect those uses will be maintained. The second level of protection (Tier 2) applies to those water bodies that are considered high quality and assures that no lowering of water quality will be allowed unless it is deemed to be necessary to accommodate important economic or social development. The third level of protection (Tier 3) applies to water bodies that have been designated outstanding resource waters (ORWs) and requires activities to not cause a lowering of water quality.

In March 2011, Idaho incorporated additional sections addressing antidegradation implementation in the Idaho Code. At the same time, Idaho adopted antidegradation implementation procedures in its WQS. DEQ submitted the antidegradation implementation procedures to EPA for approval on April 15, 2011. DEQ is employing a waterbody-by-waterbody approach to implementing Idaho's antidegradation policy. This approach to antidegradation implementation means that any water body fully supporting its beneficial uses will be considered high quality. Any waterbody not fully supporting its beneficial uses will be provided Tier 1 protection for that use, unless specific circumstances warranting Tier 2 protection are met. The most recent federally approved Integrated Report and supporting data are used to determine support status and the tier of protection.

Types of Activities Covered

The draft final Pesticide General Permit (PGP) authorizes discharges to surface waters subject to the jurisdiction of the Clean Water Act (CWA) from the application of biological and chemical pesticides for the following four pesticide use patterns:

1. mosquito and other flying insect pest control;
2. aquatic weed and algae control;
3. aquatic nuisance animal control; and
4. forest canopy pest control.

These use patterns will be collectively referred to as "pesticide applications" in the remainder of this document. As described in EPA's "*Draft National Pollutant Discharge Elimination System (NPDES) Pesticides General Permit (PGP) for Discharges from the Application of Pesticides to or over, including near Waters of the U.S. Fact Sheet*" (2010, page 3), EPA has not historically regulated pesticide applications under the CWA. Rather, pesticide applications have been regulated under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). In fact, EPA issued a final rule in 2006 exempting pesticide applications from obtaining an NPDES permit. As a result of litigation over the final rule, EPA is now requiring NPDES permits for pesticide applications.

Pollutants of Concern

EPA estimated this permit would provide coverage for discharge of over 3,500 pesticide products that are currently registered for use (Fact Sheet, page 30). These pesticide products contain at least one of the more than 400 pesticide active ingredients and they may also contain a variety of other inert ingredients.

Receiving Water Body Level of Protection

The draft final PGP provides coverage to pesticide applications that may occur anywhere in Idaho. Because of the statewide applicability, all of the jurisdictional waters within Idaho may potentially receive discharge either directly or indirectly from a pesticide application covered under the PGP. DEQ uses a waterbody-by-waterbody approach when determining the level of antidegradation protection a waterbody will receive.

All waters in Idaho that receive discharge from pesticide applications authorized in the draft final PGP will receive Tier 1 antidegradation protection because Idaho's antidegradation policy requires the protection and maintenance of all existing uses and water quality necessary to support existing uses in waters of the U.S. Waterbodies that support their aquatic life or recreational uses will receive Tier 2 antidegradation protection. Although Idaho does not currently have any ORWs designated, it is possible that a water body could be designated as an ORW during the life of this permit. Because of this potential, this antidegradation review will also assess whether the permit complies with the outstanding resource water requirements of Idaho's antidegradation policy.

Protection and Maintenance of Existing Uses (Tier 1)

Waters throughout Idaho are designated for a variety of beneficial uses including: cold water, warm water, seasonal cold, salmonid spawning, or modified aquatic life; primary or secondary contact recreation; domestic, agricultural, or industrial water supply; wildlife habitats; and aesthetics. In order to protect and maintain the existing beneficial uses of a particular water body, a permitted discharge must comply with Idaho water quality standards (WQS). The WQS contain narrative and numeric criteria which are set at levels that ensure protection of existing and designated beneficial uses. The WQS also contain a variety of other provisions that a discharger must comply with, such as Section 054 which addresses water quality limited waters. Water quality limited waters are those that do not fully support existing or designated beneficial uses as determined by Idaho's current EPA-approved Integrated Report.

Most of the active and inert ingredients in pesticides do not have numeric criteria in Idaho WQS; therefore, for these pollutants, DEQ relies on the narrative criteria for toxic substances, hazardous materials, and deleterious materials to ensure protection of designated and existing beneficial uses. These narrative criteria states that water bodies shall be free of these substances and materials in concentrations that impair designated beneficial uses.

Before a pesticide that is not considered to be minimum risk can be registered for use, it undergoes significant review by the U.S. EPA in accordance with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). The purpose of this review is to ensure the pesticide is safe for workers and homeowners who might apply the product, safe when used on food items and safe for the environment. The review evaluates the risk to non target organism and seeks to

minimize those risks thru label restrictions that may limit the number or applications made on an annual basis or thru maximum application rates. EPA's review evaluates the risk of both active ingredients and the formulated end use product and considers the effects on the target pest(s) and the environment where the pesticide is applied. It takes into account how the pesticide is applied, how often it is applied (amount, timing, and frequency) and where it is applied. Before EPA will approve a pesticide they must determine it will "not generally cause unreasonable adverse effects" on the environment, pose a risk to workers or home applicators, or pose a human dietary risk from residues on food or in drinking water when used according to the pesticide label. In examining the environmental or human health effects, EPA considers whether the pesticide has the potential to cause adverse effects on non target organisms, wildlife, fish, and plants, as well as possible contamination of surface water or ground water from leaching, runoff, and spray drift. If a pesticide posed unacceptable acute or chronic risk, then EPA would not register the pesticide for use.

If EPA approves a pesticide for use, then EPA will impose restrictions on its use through labeling requirements that are designed to avoid unreasonable adverse affects on the environment and human health. The draft final PGP only authorizes the use of pesticides that have been registered according to FIFRA or that have been classified as minimum risk pesticides exempt from federal registration requirements.

In addition to the FIFRA requirement that pesticides be applied according to their label instructions, the draft final PGP contains non-numeric technology-based effluent limitations that are designed to minimize impacts from pesticide applications. These effluent limitations require Operators to use the lowest effective amount of pesticide per application and to perform regular maintenance activities to prevent and reduce unintended releases of pesticides and to ensure the equipment is operating properly. Furthermore, the draft final PGP contains a water quality-based effluent limitation that prohibits the discharge from violating WQS. In addition to these requirements, the draft final PGP prohibits the discharge of pollutants for which a water body is considered to be impaired. Table 1 lists Idaho water bodies not fully supporting their beneficial uses due to elevated concentrations of pollutants that have the potential to be contained in, or a degradate of, pesticides.

Table 1. Water bodies not fully supporting beneficial uses as a result of concentrations of pollutants that have the potential to be contained in, or a degradate of, pesticides. This list is based upon the EPA-approved Integrated Report (DEQ 2008). According to the draft final permit, pesticides that contain copper may not be used in or near the water bodies in this table.

Pollutant	Water body	Assessment Unit
Copper	Clark Fork River Delta - Mosquito Creek to Pend Oreille Lake	ID17010213PN001_08
	Clark Fork River - Cabinet Gorge Dam to Mosquito Creek	ID17010213PN003_08
	Clark Fork River - Idaho/Montana border to Cabinet Gorge Dam	ID17010213PN005_08
	Prichard Creek – middle, Butte Gulch to Eagle Creek	ID17010301PN004_03
	Prichard Creek - between Butte Gulch and Eagle Creek	ID17010301PN004_03
	Big Deer Creek – South Fork Big Deer Creek to mouth	ID17060203SL005_03
	South Fork Big Deer Creek - Bucktail Creek to mouth	ID17060203SL007_02
	Panther Creek - Blackbird Creek to Napias Creek	ID17060203SL011_02
	Panther Creek - Napias Creek to Big Deer Creek	ID17060203SL010_05

In consideration of the rigorous registration process for pesticide products and active ingredients and the requirements of the draft final PGP, the use of pesticides in accordance with the label instructions is not expected to result in concentrations that will impair designated or existing beneficial uses of Idaho’s water bodies (see Fact Sheet, pages 71-85 for further discussion). Additionally, the effluent limitations and associated requirements contained in the draft final PGP permit and this certification are set at levels that ensure compliance with the narrative and applicable numeric criteria as well as Section 054 of the Idaho WQS. Therefore, DEQ has determined the permit will protect and maintain existing beneficial uses in Idaho’s water bodies.

Protection of High Quality Waters (Tier 2)

As indicated previously, waterbodies that support their aquatic life or recreational uses will be provided Tier 2 protection. As such, the quality of these waters must be maintained and protected, unless it is deemed necessary and important to allow a lowering of water quality.

The pesticide applications identified in the draft final PGP have historically occurred in Idaho for decades. For example, mosquito abatement districts were formed in Idaho as early as the 1960’s and the Idaho mosquito abatement district statute (Title 39 Chapter 28) was enacted in 1959. Although not used often anymore, the U.S. Forest Service conducted forest canopy pest control in Idaho in the early 1970s as well as in the 1980s. The Idaho Department of Lands has employed aerial application of pesticides sporadically since at least 1965. In consideration of the historical application of pesticides directly to or near water bodies in Idaho, DEQ concludes that many of the pesticide application activities are existing and do not constitute a new or increased discharge to high quality waters. However, this permit may also result in new dischargers, such as the examples described below.

1. A new pesticide may be used in or near a water body that has historically received discharge either directly or indirectly from the application of a different pesticide.

2. A pesticide application to or near a water body that has never had a direct or indirect discharge of pesticides may occur during the term of this permit (e.g. a lake may be treated for milfoil for the first time in its history).

While a pesticide application might constitute a new discharge, DEQ expects that generally, the application of a pesticide will not result in a lowering of water quality. Idaho WQS define lowering water quality as a “measurable and adverse” anthropogenic change¹. Pesticides are not applied continuously; rather their application varies in magnitude, duration, and frequency depending upon the target pest(s) and product used. Pesticide applicators are required by FIFRA to follow the pesticide use directions and restrictions, which limit the application rate and in some cases, the frequency of application (e.g. total number of applications per season). In addition to their non-continuous application, pesticides have varying half-lives, ranging from hours to months and this is considered during the registration process. By complying with the use directions and pesticide labeling restrictions, the risks to human health and the environment from the pesticide application are minimized. Furthermore, the draft final PGP requires that pesticides be applied in the smallest effective amount possible and that the optimum application frequency be used, which is a requirement above and beyond simply complying with the FIFRA use directions and label restriction.

Given these factors, DEQ expects that many pesticide applications authorized by the draft final PGP will not result in measurable change in water quality. In recent years, the Idaho State Department of Agriculture (ISDA) provided funding to various Eurasian watermilfoil control projects implemented in various lakes and reservoirs in Idaho. Many of these projects conducted water quality monitoring for the pesticide active ingredient that was used. The Inland Empire Cooperative Weed Management Area has prepared at least four reports summarizing their Eurasian watermilfoil control efforts for 2006, 2007, 2008, and 2009 (<http://www.iecwma.org/milfoil/reports.htm>). These reports contain water quality monitoring data for the active ingredients in pesticide products that were applied in Hayden Lake, Cave Lake, and Medicine Lake. This data indicates that the active ingredients (e.g. 2,4-D and triclopyr) in pesticides were not measurable in treatment areas anywhere from 1 to 41 days following application. Similarly results have been found for fish eradication projects using rotenone. Finlayson, Siepmann, and Trumbo (2001)² found that for the various rotenone application projects in California, rotenone generally degraded to nondetectable levels in one to three weeks. In a more recent study (McMillin and Finlayson 2008³), concentrations of rotenone and rotenolone (a metabolite) in water were below reporting limits 32 and 54 days, respectively, after treatment in Lake Davis.

¹ The definition of lower water quality in DEQ’s pending antidegradation policy and implementation rules (Docket Number 58-0102-1001) no longer contain the concept of measurability. This concept is only applicable for the current (2010) Idaho WQS.

² Finlayson, B.J., S. Siepmann, and J. Trumbo. 2001. Chemical Residues in Surface and Ground Waters Following Rotenone Application to California Lakes and Streams. Pages 37-54 in R.L. Cailteux, L. DeMong, B.J. Finlayson, W. Horton, W. McClay, R.A. Schnick, and C. Thompson, editors. Rotenone in fisheries science: are the rewards worth the risks? American Fisheries Society, Trends in Fisheries Science and Management 1, Bethesda, Maryland.

³ McMillin, S. and B.J. Finlayson. 2008. Chemical residues in water and sediment following rotenone application to Lake Davis, California 2007. California Department of Fish and Game, Pesticide Investigations Unit, OSPR Administrative Report 08-01. Rancho Cordova, California.

While DEQ concludes that most pesticide applications, when done in accordance with use directions and label restrictions, will not result in a lowering of water quality, DEQ acknowledges that there may be circumstances where a pesticide application authorized under the draft final PGP has the potential to result in a lowering of water quality. We expect that projects with this potential will be only those that surpass the annual treatment area thresholds stipulated in the draft permit (Section 1.2.2). Where an activity may result in lowering of water quality, DEQ must assure that the activity is necessary to accommodate important social or economic development. DEQ considers activities covered under the draft final PGP to be necessary to accommodate important social or economic development for a variety of reasons.

First, DEQ believes that, with respect to the larger or more frequent applications that may cause a lowering of water quality, the draft final PGP only allows necessary pesticide application. The draft final PGP requires certain Operators (i.e. federal or state governmental entities, irrigation districts, pest control districts, and entities exceeding the annual treatment area thresholds) to consider a variety of pest control options including such options as no action, mechanical or physical control methods, or cultural methods. In selecting the pest control method, the Operator should consider the impact to water quality and non-target organisms, pest resistance, feasibility, and cost effectiveness. The most efficient and effective means of pest management that minimizes discharges of pesticides to waters of the U.S. must be chosen. The evaluation of pest control methods must be documented in the pesticide discharge management plan along with a description of how the selected control measure will be implemented to comply with the PGP. DEQ believes these draft final PGP requirements adequately satisfy the antidegradation requirement of ensuring that any potential degradation of high quality water is necessary.

Second, DEQ believes that pesticide application results in social and/or economic benefits to the community affected by the application. Controlling target pests is beneficial for economic and social reasons. For example, mosquito control reduces the potential risk of community members becoming infected with West Nile Virus. Treating lakes impacted with aquatic weeds such as Eurasian watermilfoil enhances recreational opportunities (such as boating or swimming) and can be beneficial to aquatic life uses (removing milfoil can prevent dissolved oxygen sags at the end of the growing season). Controlling weeds in agricultural water conveyances improves water delivery and helps to minimize loss of water, thereby benefiting the water users.

DEQ also believes that public involvement is provided for in connection with the draft final PGP. The draft final PGP and DEQ's certification, including this antidegradation review, are subject to public notice and comment. In addition, for Operators required to submit a Notice of Intent (NOI) the public has the opportunity to access and review an Operator's NOI and may contact the regulatory agencies if they have concern about a pesticide application program. In response to these comments, or based upon its own determination, EPA may determine that additional technology-based or water quality-based effluent limitations are necessary for a particular project (Draft Permit, Section 1.2.3).

Before DEQ can authorize a lowering of water quality, DEQ must assure that the highest statutory and regulatory requirements of point sources and cost-effective and reasonable best management practices for non point sources shall be achieved in the watershed. DEQ believes that this evaluation can be done on a statewide basis for both point and nonpoint sources of

pesticides. Aside from the draft final PGP, there are no other point source discharge permits that have effluent limitations for pesticides. Thus, DEQ concludes that the highest statutory and regulatory requirements of point sources are already in place. If a point source will discharge pesticides, then the discharge permit for that point source will require the highest regulatory and statutory control. For non point sources of pesticides, DEQ believes that compliance with the label use directions and restrictions constitutes the most cost-effective and reasonable best management practice for pesticide application. The Idaho State Department of Agriculture (ISDA) is the agency responsible for ensuring compliance with federal and state laws and rules governing the use of pesticides. To do this, ISDA actively implements various programs such as applicator licensing, pesticide registration, inspections, water quality monitoring, education, and enforcement. The public outreach and education program is aimed at ensuring users understand label instructions and use BMPs that effectively minimize drift and runoff. Furthermore, the federal pesticide re-registration process constitutes another layer of best management practices that will aid in controlling nonpoint sources of pesticides to waters of the U.S. EPA continues to review the registrations of pesticide products and active ingredients. If evidence suggests unacceptable environmental or human health risks based on new information (e.g. new toxicity studies or newly evaluated exposure pathways), EPA will not re-register active ingredients or pesticide products or EPA will change the label restrictions to minimize such risks.

In summary, DEQ concludes the permit requirements coupled with the requirements of this certification will ensure that high quality waters will likely be maintained and protected. Where projects may result in degradation of high quality waters, DEQ concludes: 1) such projects are necessary for important social or economic development and 2) the highest statutory and regulatory controls on point source discharges and cost-effective and reasonable best management practices of nonpoint sources of pesticides are being achieved in the State.

Protection of Outstanding Resource Waters (Tier 3)

Idaho's antidegradation policy requires that the quality of outstanding resource waters be maintained and protected from the impacts of point source discharges. As mentioned previously, no water bodies in Idaho have been designated as outstanding resource waters to date; however, it is possible that waters may become designated during the term of the PGP. Because of this possibility, DEQ evaluated whether the draft final PGP complies with the ORW antidegradation provision.

The draft final PGP only authorizes discharges to ORWs when specific conditions are met. Those conditions are: 1) the application must be made to restore or maintain water quality or to protect public health or the environment and 2) water quality must not be degraded on a long-term basis. Pesticide applications to, or near ORWs that do not meet these conditions are not eligible for coverage under the draft final PGP and will be required to obtain authorization under an individual permit. This requirement complies with Idaho's antidegradation provisions concerning ORWs.