

Response to Comments

January 6, 2010

On December 15, 2009, Ecology hosted a meeting of the Permit Advisory Committee to discuss the proposed modification of the irrigation district aquatic pesticide permit. More information about the permit is available at http://www.ecy.wa.gov/programs/wq/pesticides/irrigation/irrigation_index.html. Four irrigation districts sent comments by the December 23, 2009 deadline (Quincy-Columbia Basin Irrigation District, Roza-Sunnyside Board of Joint Control, East Columbia Basin Irrigation District, and Naches-Selah Irrigation District). The public review draft is available on January 6, 2010. Ecology expects the permit will be modified in March 2010.

Comment:

In the presentation, it is stated that the toxicity of Cascade in relation of Parr to smolt metamorphosis is 1.5 – 3.5 mg a.e./L (acid equivalent). Converted to (a.i.) active ingredient the mg a.i would be from 2.145 mg a.i. to 5.005 mg a.i. which is a substantial range.

In understanding what these numbers represent, the District would have to be over the range of 2.145 mg a.i. and 5.005 mg a.i. in order to be of any danger to smolts at the compliance sites that discharge into fish bearing waters. With these numbers is it even necessary to have an effluent limit in the NPDES permit unless we expect to have numbers above those listed above at the compliance sites? Field trials have indicated that longer treatments provide more complete control over a longer period of time and require lower dose (application) rates. For example: 1 ppm for 24 hours, 2 ppm for 12 hours. These rates would be below the metamorphosis threshold by the standards mentioned above; therefore, having an effluent limit in the permit would have no purpose.

Response:

The label allows the use of Cascade at 5 mg a.i./L. This is well into the range of concentrations found to have a negative effect on smoltification. The purpose of the permit is to avoid harm to aquatic life, so allowing a concentration that affects smoltification is inappropriate. The proposed limit of 1.0 mg a.e./L (1.4 mg a.i./L) is designed to be below the concentration that affects smoltification. Since permittees can apply at concentrations above 1.4 mg a.i./L, effluent limits are necessary. If a district is applying at less than 1.4 mg a.i./L they can request reduced monitoring.

Comment:

The Cascade label allows treatment rates from 0.5 ppm to 5 ppm with a seasonal limit of 30 ppm. Limiting the District's ability to use the product in the NPDES permit by restricting the number of applications per season from 1 – 3 applications is counterproductive. The District needs the ability to be flexible in order to control aquatic weeds based upon weed conditions not on the number of applications allowed per the NPDES permit.

Response:

The draft permit does not limit the number of applications. The number of expected applications was included in the presentation for informational purposes.

Comment:

All documentation the District has read states that longer applications are better and more effective. That being said, the District also understands that there are treatments that must be shortened due to the lengths of certain laterals or canals, the travel times for each lateral and/or canal and how close they are to compliance sites. Keeping the rates between 0.5 ppm (48 hours) to 5 ppm (6 hours) would allow the District the flexibility to work with Cascade and determine the best rate of application for each lateral or canal based upon the aquatic weed growth, the targeted treatment area and conditions.

- a. SVID and Roza would like the flexibility to apply Cascade between the concentration and hours of application of 0.5 ppm at 48 hours to 5 ppm at 6 hours. The Districts are considering the use of all "Rule of 24" concentrations and treatment times.
 - a. The Districts will apply two to three times per year. The Districts do want the ability to apply up to the manufacturer's label concentration limit for the season.
 - b. The Districts would follow the label and tailor the information gained from UPI research and use their reference to the "Rule of 24". Both Districts' preference is to treat at a level that a No Effect Concentration (NOEC) condition would exist at the Point of Compliance. However, we want the flexibility in the permit to treat to the label specifications.
2. Application of Cascade (Endothall): Field trials conducted in cooperation with the U.S. Army Corps of Engineers identified consistent treatment regimens using treatment duration and rates as a multiply of 24 to achieve 90%+ control. For example: 1ppm for 24 hours, 2ppm for 12 hours, 3ppm for 8 hours and 4ppm for 6 hours. These treatment regimens result in 1.27 gallons of Cascade being injected per cfs over the duration of the treatment, regardless of the rate. These field trials have indicated that longer duration treatments provide more complete control over a longer period of time. This District anticipates this method will provide a wide range of application rates and treatment durations and would also anticipate using a rate of 1-3ppm for the associated durations listed above. The number of applications documented in field trials indicates fewer applications with Endothall are needed. Historically, some irrigation seasons, because of temperature, have extended into longer durations. The District would like to keep the number of applications done during the irrigations season at label limits which is a maximum single application of 5ppm with a 7-day interval per application and a maximum seasonal limit of 30ppm, based on residue trials conducted by UPI (United Phosphorus, Inc.) for irrigation permitting.

Response:

Permittees are free to use any concentration allowed by the label as long as they are able to meet the effluent limits at the point of compliance. Many districts will have enough endothall-free dilution water to meet effluent limits at the point of compliance even if they apply at concentrations above the effluent limits.

Comment:

Yes. The Districts want the ability to use either herbicide tool to control weeds in both facilities.

3. Application of Teton: The District would prefer to have Teton included in the NPDES permit. Field trials at the Twin Falls Canal Company indicate there is evidence of good efficacy when low rates of Cascade (0.85ppm) and Teton (0.15ppm) are combined. An 8-hour duration with the combined Cascade/Teton at 1ppm provided control on both vascular plants and algae. The combined application may prove to be more cost effective with the least use of chemical.

The District firmly believes that Teton should be included in the NPDES modified permit. In the right circumstances with the correct rate, Teton could potentially be a better choice than other chemicals, enabling the District to use less amounts of aquatic chemical and still be able to control algae.

Field trials at the Twin Falls Canal Company have shown evidence of good aquatic weed control using a combination of both Cascade and Teton. They applied low rates of Cascade and Teton and maintained control of their aquatic weeds and algae.

NSID has not had much time to evaluate if Endothall is a practical aquatic pesticide for the target species in our system. Teton (dimethylalkylamine) being an algaecide shows potential to be a substitute for Copper Sulfate crystals. NSID supports the permit modification to add both Cascade (dipotassium salt) and Teton to the current NPDES permit.

Response:

Teton is included in the draft permit. It is far more toxic than Cascade. Ecology will need to carefully evaluate Teton again for future permits.

Comment:

In closing, I would like to make one other request or statement. As we all know, Endothall is a new product for Irrigation Districts and it comes with new challenges. While in the learning process, the District has the desire and willingness to learn the best way to use these new products, what are the best rates and application times, and at what rates will the District maintain control of the aquatic weeds in our systems. The District needs the flexibility to learn the BMP's (Best Management Practices) of these chemicals and is asking Ecology for the same grace period that was granted in the original NPDES permitting process.

Without knowing how Teton and/or Cascade will perform in the NSID system, it is hard to speculate on what concentration levels will be acceptable. A graduated compliance schedule would allow for a learning period to develop and compare application methods. With treatment affects lasting a number of weeks, there will be only a few opportunities each season to test different methods in the same season.

Response:

Ecology is not proposing to include the same “grace period” as was used in the original permit. Since permittees are able to apply Cascade at concentrations below the effluent limits, this flexibility is not needed. Permittees know how their systems work far better now than when the original permit was issued.

Comment:

- c. SVID may conduct research during the non-irrigation season, and requests the ability to treat from March 1 to November 30 to accommodate this time frame.

Response:

The draft permit allows for year-round use of endothall. A DMR is required whenever endothall is used.

Comment:

- d. Rhodamine WT tracer dye will be used to assist in defining the beginning and end of the treatment along with documented and new time of travel tests will be conducted if new application sites are selected.

Response:

Comment noted. Travel time studies are required in the draft permit.

Comment:

1. Effluent Limit: The values stated for the toxicity of Cascade in relation to Parr to Smolt Metamorphosis is 1.5-3.5 a.e./L. Converted to active ingredient (a.i.) this would be 2.145-5.005 mg a.i./L. Applications of Cascade will most likely occur in late May to early June. The water temperatures in Eastern Washington increase at this time and are not fish friendly. If compliance site numbers are below 1.5 a.e./L., there should be no influence on smolts. The only precautions needed for compliance are when salmonid fish species are present.

Allowed discharge concentration levels will be the controlling limit in applications of Endothall to the NSID system. Given the wide variety of systems covered under the permit, a permit wide maximum concentration for each Cascade and Teton like the other covered pesticides is preferred.

Response:

After discussion with the permit advisory committee, Ecology determined that a single effluent limit (a permit wide maximum concentration) is best. Permittees should be able to meet the 1.0 mg a.e./L effluent limit – often even at the application site. Having different salmon present / absent effluent limits would unnecessarily complicate the permit and require in-depth studies of salmon habitat.

Comment:

The Irrigation Districts need to have the ability to apply Endothall products at their fully labeled limits while searching for the optimum effective use of the chemicals. The range of 1.5-3.5 a.e./L limit for Parr to Smolt Metamorphosis suggests that there is uncertainty about the

affects at varying concentrations. The Districts need the flexibility and some grace period in the permit to develop application methods that will suit different application situations and travel times. There are numerous treatment options available within the 2.145 a.i./L – 5.005 a.i./L range associated with allowable limits.

Response:

The uncertainty in the effects of endothall suggests taking a more precautionary approach in setting effluent limits, not a more lax approach. The proposed limit of 1.0 mg a.e./L is designed to be below the concentrations shown to affect salmon.

Comment:

NSID prefers that the permit allow for reasonable flexibility in the application of both chemicals. The successes in Idaho are encouraging, but NSID and other Washington irrigation systems have different characteristics. The permit should also allow for different application strategies that may be developed in the next few years.

Response:

The permit allows different application strategies (time of year, concentration, duration, number of application, etc.) as long as the effluent limit is met.

Comment:

The total costs of applying Endothall including required monitoring is a major consideration for NSID. The current compliance schedule for Copper causes NSID to consider alternative algaecides. Adding Cascade and Teton to the NPDES permit provides NSID and other districts with more pesticide treatment options. Competition in the aquatic pesticide market should improve costs.

Response:

Comment noted. Ecology attempted to craft a draft permit that would protect aquatic life while not being overly burdensome on permittees.