

Response to Comments
on the January 6, 2010 Public Review Draft of the
Proposed Modification to the
Irrigation System Aquatic Weed Control NPDES Permit

March 17, 2010

Background

The Department of Ecology (Ecology) issued a public review draft of the Irrigation System Aquatic Weed Control National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit on January 6, 2010. Ecology also issued a draft Fact Sheet Addendum. Ecology held a public workshop and hearing in Yakima on February 9, 2010. Ecology placed a public notice in the Washington State Register (WSR) on December 22, 2009 (published on January 6, 2010). The notice is WSR 10-01-173.

Ecology also notified members of its permit advisory committee of the public review draft of the permit. The permit advisory committee also commented on preliminary permit information in 2009. The public comment period closed on February 19, 2010. Ecology received eleven comments from:

1. Pete Allen, Concerned Citizen (Allen)
2. U.S. Bureau of Reclamation (BOR)
3. East Columbia Basin Irrigation District (ECBID)
4. S. Jones, Concerned Citizen (Jones)
5. Quincy-Columbia Basin Irrigation District (QCBID)
6. Roza-Sunnyside Board of Joint Control (RSBOJC)
7. South Columbia Basin Irrigation District (SCBID)
8. SePRO Corporation (SePRO)
9. United Phosphorus, Inc. (UPI)
10. Washington State Department of Fish and Wildlife (WDFW)
11. Washington State Department of Agriculture (WSDA)

More information is available on the Department of Ecology website at http://www.ecy.wa.gov/programs/wq/pesticides/irrigation/irrigation_index.html.

Table of Contents

	Page:
General Comment (1)	2
General Comment (2)	3
General Comment (3)	3
Process Comment	3
S5.B4 Comment: Endothall Effluent Limitation (1).....	4
S5.B4 Comment: Endothall Effluent Limitation (2).....	11
S5.B4 Comment: Endothall Effluent Limitation (3).....	11
S5.B4 Comment: Chronic vs. Acute	12
S5.B4 Comment: Trade Names	12
S5.B10.a Comment: Plan for Endothall Use.....	13
S5.B10.a.vi. Comment: Changes in Copper Use	20
S5.B10.b Comment: Changes to the Plan	20
S5.B10.c Comment: Combined Treatment	21
S6.A Comment: Monitoring (1).....	22
S6.A Comment: Monitoring (2).....	22
S6.B Comment: Monitoring Reductions	22
S6.B5 Comment: Monitoring when Applying Below Effluent Limits	23
S6.A1 Comment: Monitoring Requirements	23
S11.A2 Comment: DMRs (Year-Round Use)	24
S10.B.1 Comment: Posting Procedures	25
Fact Sheet Comments	25

General Comment (1)

Any use of pesticides is counter-productive. Society has found time after time that pesticides cause problems. Why do we keep repeating these mistakes and harming the environment decade after decade?

(Allen)

Response: We have found many water quality problems resulting from general pesticide use. For example, DDT is still found at levels above our water quality standards even though it was banned decades ago. We encourage the reduction of pesticide use and the switch from more-toxic to less-toxic pesticides. We added the use of endothall in the permit since it is less toxic than the alternative pesticide acrolein.

General Comment (2)

Why is the permit using the term “pesticides”?
(Allen)

Response: We are using the EPA definition of the term “pesticides.” It states: “A pesticide is any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest. Though often misunderstood to refer only to insecticides, the term pesticide also applies to herbicides, fungicides, and various other substances used to control pests.” Copper, acrolein, xylene, and endothall are all algaecides and/or herbicides. We choose to use the more generic and simpler “pesticides” rather than the more specific but wordy “algaecides and/or herbicides”.

General Comment (3)

The benefits of Endothall are: 1) less toxic to the environment and aquatic life except targeted plant species; 2) less risk to the applicator; 3) longer time span for aquatic weed control; 4) fewer applications; and 5) longer distances in the conveyance system can be controlled with Endothall

(BOR)

Response: We agree that endothall will likely be superior to acrolein for the reasons BOR mentions. However, it does not break down quickly; this may be a challenge for irrigation districts that use it.

Process Comment

We are concerned about the timing of the Draft Notice of the Revised Washington State NPDES Permit. Specifically, when the process for revising the NPDES permit was initiated by the Permit Advisory Committee Meeting on Dec. 14, 2009, the US Environmental Protection Agency (EPA) had not yet published the tolerances reflecting the use of endothall in irrigation canals (published Dec. 18, 2009). Furthermore, the draft permit, fact sheet, etc. was filed with the State Register on Dec. 23, 2009, only shortly after the tolerances were revised and prior to the amended labels being made available to the public. The process of holding a Permit Advisory Committee Meeting as well as submitting documents with the State Register was premature given the USEPA had not approved the proposed new use pattern for endothall and no amended labels have been made available to the public, via EPA or the State.

Once USEPA and Washington State Department of Agriculture have completed their review and have approved the amended labels for the dipotassium salt and amine salt of endothall, we recommend the Ecology resubmit “A Public Notice of Draft Addendum”, include the amended labels and open the comment period to the public for an additional 45 days.

(Jones)

Response: We agree that, ideally, both the tolerances and the amended labels would have been done before the draft permit was available. However, nothing in the tolerances and the labels are expected to affect the effluent limitations set in the permit. The tolerances are designed to protect crops irrigated with treated water; they are not designed to protect water quality. The amended labels specify the maximum application rates. The labeled rates are expected to be above the effluent limits. Endothall users must comply with both the label and this NPDES permit. If the two have different requirements, endothall users must comply with the most restrictive requirements. If anything in the tolerances or the amended labels does somehow affect the NPDES permit, Ecology can modify the permit again and open it to public comment.

S5.B4 Comment: Endothall Effluent Limitation (1)

S5. B.4. The proposed effluent limit for the herbicide Endothall is 1.0 mg a.e./L for Cascade and 0.050 mg/L a.e. for Teton. The Districts request this effluent limit be raised to 3.5 mg/L a.e. for Cascade (Dipotassium Salt of Endothall) and 0.2 mg/L a.e. for Teton (N,N-Dimethyl Alklamine Salt of Endothall). In reviewing research, The Ecology Publication, Number 00-10-044 entitled *Herbicide Risk Assessment for the Aquatic Plant Management Final Supplemental Environmental Impact Statement, Appendix D, Volume 2: Endothall* has the following conclusions:

- Cascade, “Dipotassium Endothall salt, disodium Endothall salt and Endothall acid, will not effect the biota acutely or chronically when applied at concentrations (3.5 mg a.e./L=5.0 mg dipotassium Endothall salt/L) recommended on the label.” (Vol. 2, Sect. 4 - Page 8).

Teton, mono(dimethylalkylamine) salt of Endothall “a safe treatment rate of higher than 0.2 mg a.e./L cannot be recommended without potential for acute and chronic adverse impact. The exposure period should be as low as possible (high flow rates in canals)...” (Vol. 2, Sect 4, pg 11).

(RSBOJC) and:

Within the Draft Fact Sheet Addendum and Draft Modification of NPDES General Permit No. WAG-991000, Ecology proposes effluent limits for dipotassium salt of endothall (Cascade) at 1.0 mg/L (acid equivalent) and mono (N, N-dimethyl alklamine) salt of endothall (Teton) at 0.05 mg/L (acid equivalent). The South District feels that the proposed effluent limits for Cascade and Teton are excessive and conflict with data and recommendations proposed in Ecology’s *Supplemental Environmental Impact Statement Assessments (SEIS) of Aquatic Herbicides: Volume 2—Endothall, Section 4—Environmental Effects*.

The SEIS researchers concluded that Aquathol®K (dipotassium endothall salt), disodium endothall salt, and endothall acid will have no effect on biota acutely or chronically when applied at concentrations up to 3.5 mg a.e./L which is recommended on the current label (Vol. 2, Sec. 4, page 8). They also recommended that the lowest concentration possible should be used when applying Hydrothol®191 with a maximum safe treatment level of 0.2 mg a.e./L for Hydrothol®191. According to the SEIS this level would not only help mitigate the effects of Hydrothol®191 on aquatic life, but would also achieve the desired level of control for the South District when it comes to both aquatic macrophytes and algae control. Because of these conclusions the South District requests that the effluent limit for Cascade (dipotassium endothall salt) be set at 3.5 mg/L (acid equivalent), and 0.2 mg/L (acid equivalent) for Teton (mono [dimethylalkylamine] endothall salt) with the assumption that conclusions in the SEIS apply to Cascade and Teton, respectively, and support the District's request in regard to a change in the draft effluent limits.

For the 2010 irrigation season the South District anticipates using Cascade at multiples of 24 (concentration X duration) with rates of 1.5 to 3.5 mg a.e./L and durations of 12 to 24 hours of application. The SEIS in Vol. 2, Sec. 4, page 6 states that pondweeds (Potamogeton), milfoil (Myriophyllum), etc., "*should be controlled by Aquathol®K concentrations in the range of 2.0 to 3.5 mg a.e./L (2.8 to 5.0 mg a.e./L).*" This statement does support the District's intended application strategy for Cascade within the irrigation canal system. We would also wish to examine the potential use of Cascade at 0.85 mg a.e./L in combination with Teton at 0.15 mg a.e./L for the control of both vascular aquatic macrophytes and algae. This combination may provide better control of aquatic plants and algae with less herbicide used, and would still be below the levels of concern for all biota as stated in the SEIS.

Degradation of the endothall formulations Cascade and Teton are not anticipated as the chemical transits the irrigation canal system from point of application to points of compliance. Therefore, the effluent limit imposed in the NPDES permit would more or less establish the limit of application concentration. The draft effluent limits of 1 mg a.e./L for Cascade and 0.05 mg a.e./L for Teton would impose similar limits at the point of application for Districts that do not have groundwater drainage or other untreated water to provide adequate dilution prior to outfall to natural water bodies at the points of compliance. The SEIS does not support such restrictive effluent/treatment concentrations and, in fact, the limits may preclude concentrations that would provide vascular aquatic macrophyte and algae control in irrigation canals.

In the Draft Fact Sheet Addendum of January 6, 2010, Ecology notes concern for chronic exposure as well as potential interference with parr to smolt metamorphosis as the rationale for lower effluent limits. The SEIS (Vol. 2, Sec. 4) does not appear to support these concerns or the low proposed effluent limits. Because of the differences between lakes and irrigation systems, chronic exposures are unlikely since the residency of the chemical within the canal is short term and limited by application duration. It may also be possible to achieve adequate vascular aquatic macrophyte control with a single application during the irrigation season (May to October). If an additional application becomes necessary it would be several weeks or possibly months between treatments and will not present a chronic exposure. Because of this, the use of potential acute NOEC values should be used in place of the empirical chronic NOEC calculated in the SEIS.

The SEIS (Vol. 2, Sec. 4) does appear to support the assumption that salmon smolt may not survive a seawater challenge after exposure to field rates of Aquathol®K (1.5 to 3.5 mg a.e./L) or Hydrothol®191 (0.2 mg a.e./L), and similar results could be expected for Cascade and Teton field rate applications if smolt were present. Results of various laboratory studies by several authors (Dodson and Mayfield, 1979; Lorz et al., 1979; Liguori et al, 1983 [in Berry, 1984]; and Berry, 1984) demonstrate a wide range of smolt response. Field rate exposures to the dipotassium and dimethylalkylamine salt formulations of endothall produced mortalities of 0%, 45%, and 100% with conflicting conclusions. Most recently Serdar, D, et al., 1996 found no effect to Coho smolts after they where exposed to max label limits of endothall for 96 hours. According to the SEIS most canal treatments will occur during the time period of May to October and *“although effects on salmon smoltification is of legitimate concern, the threat to salmon and trout, parr-smolts will probably be low. Application of endothall would generally occur several months after salmon and trout smoltification has been completed.”* This conclusion does not support the need for lowered effluent limits proposed in the Draft Fact Sheet and modified NPDES permit.

If a lower rate is required for parr and smolt protection two limits should be used, one to establish protection during the *“fish window”* for parr and smolt metamorphosis period, and the other limit for discharges outside the *“fish window”* (Table 1). Restricting the period of use for Teton to May through October will help mitigate effects on parr to smolt metamorphosis as well. We feel that those *“fish window”* effluent limits for Cascade and restricting the season of use for Teton (May to October) will assure adequate protection of the environment and is supported by the information found in the SEIS for endothall (Vol. 2, Sec. 4).

Dipotassium Salt of Endothall (Cascade)	1.0 mg/L (acid equivalent) April 1 to June 1
Dipotassium Salt of Endothall (Cascade)	1.7 to 3.5 mg/L (acid equivalent) June 1 to March 31

Table 1.

(SCBID) and:

The draft modification NPDES permit proposes effluent limits for Cascade at 1.0 mg a.e. /L and 0.05 mg a.e. /L for Teton. The proposed effluent limits are more restrictive in comparison to the recommendations proposed in the Final Supplemental Environmental Impact Statement (SEIS), section 4, Environmental effects.

The SEIS concluded: "Aquathol® K (dispotassium endothall salt), disodium endothall salt and endothall acid will not affect the biota acutely or chronically when applied at concentrations (3.5 mg a.e./L=5.0 mg dipotassium endothall salt/L) recommended on the label." (Vol. 2, Section 4, pg. 8)

In Vol. 2, Section 4, pg. 11, the SEIS concluded "...To mitigate the effects of the use of Hydrothol® 191, the lowest concentration that will achieve the desired control of aquatic macrophytes and algae should be used. Currently, a safe treatment rate of higher than 0.2 mg a.e. /L cannot be recommended without potential for acute and chronic adverse impact."

The Draft Fact Sheet Addendum dated January 6, 2010, notes concerns for chronic exposure and potential interference with parr to smolt metamorphosis as reason to lower effluent limits. The SEIS appears to support the assumption that smolts may not survive a seawater challenge after field exposure rates of Aquathol® K (1.5 to 3.5 mg a.e./L) or Hydrothol® 191 (0.2 mg a.e. /L).

Effects of "Cascade" on salmon smoltification are a legitimate concern. However, the threat to salmon, trout parr-smolts will probably be low due to applications occurring after

salmon and trout smoltification has been completed. Water temperatures and turbidity in laterals and canals by mid June have reached levels that are not favorable for salmon spawning, rearing and migration. To insure the safety of parr to smolt metamorphosis, the District requests Ecology limit effluent to levels of 1.5 mg a.e. /L for Cascade and 0.05 mg a.e./L. for Teton from April 1st to June 15th and set a maximum rate of 3.5 mg a.e. /L for Cascade and 0.2 mg a.e./L for Teton from June 16th to April 1st. These proposed effluent limits will mitigate effects on parr to smolt metamorphosis and assure adequate protection of the environment and is supported by the information in the SEIS.

The District anticipates using Cascade at multiples of 24 (concentration x duration) with rates of 1.5 to 3.5 mg a.e. /L and durations of 12 to 24 hours of application. Field study results in the SEIS indicate that "pondweeds, milfoil, coontail and American waterweed should be controlled by Aquathol® K concentrations in the range of 2.0 to 3.5 mg a.e./L (2.8 to 5.0 mg a.i./L)." The District's intended application strategy is supported by the SEIS and initial studies show that low-concentration long-applications are more effective. The District will need to assess weed conditions prior to application of endothall to determine which rate will best suit the conditions.

(ECBID) and:

While it appears that endothall is generally less acutely toxic than acrolein to a variety of fish and wildlife species, we are concerned its potential adverse affect on the parr to smolt metamorphosis of anadromous juvenile salmonids, as well as concerns with risk to other species of fish life, amphibians, and sensitive priority species, including nesting waterfowl and shorebirds due to its apparent persistency and lack of adequate studies.

There is apparent uncertainty regarding the persistency of the effects of endothall exposure on salmonid smoltification. While it is currently assumed that the effects on smoltification may last days or months, the effects could perhaps persist through the following year on exposed salmonid parr. Therefore, since the affect on smoltification is evident in *Cascade* (variant of endothall) concentrations between 1.5-3.5 mg a.e./L, we request that the aquatic pesticide permit be conditioned to require that concentrations of *Cascade* exceeding 1.5 mg a.e./L not be permitted below the point of compliance at each site between March 1st and July 15th, or where anadromous smolts are expected to be present. Full consumption of the treated irrigation water, or dilution, appear to be the only means of lowering concentration of endothall as it apparently does not readily volatilize as with acrolein. Thus, sequestering the treated water over a period of time does not reduce concentration.

Endothall is applied differently compared to acrolein, generally at 0.5ppm over 48 hours, to 5ppm over six hours. Since the lower concentrations, spread over a longer time period, have been found to be equally or more effective than applications at higher concentration rates over shorter duration, we recommend that endothall use be restricted to the longer time periods, especially when exposure of endothall variants to anadromous fish bearing streams is a risk. The new permit should provide opportunity for less intensive and costly water quality monitoring for those applicators that are willing to use the longer duration/lower concentration application practices, as risk would be reduced.

In general, because endothall use will be new to many applicators, and it will take time for irrigation districts to become familiar with its use, the permit should provide some latitude regarding the timing and manner that it is used and applied. However, we would be very concerned in any instance where exposure to juvenile salmonids or smolts above threshold would occur, as there are various viable alternatives available to avoid such occurrences. Likewise, the use of Teton should not exceed known toxicity levels for aquatic invertebrates or birds. We will provide additional comments regarding the use of endothall in wetlands and lakes in the near future as these comments are specific to endothall use in irrigation facilities.

(WDFW) and:

Comment 1: On page 6 of the General Permit document under the Discharges at the Point of Compliance section, the level for Dipotassium salt of Endothall is 1.0 mg/L (acid equivalent) and the level for Amine salt of Endothall is 0.05 mg/L (equal to 50ug/L) (acid equivalent). UPI would argue that the Effluent Limits should be higher based on the NOEC data. These studies are chronic studies that are conducted over a 96-hour period, as Endothall treatments would last from 4 to 24 hours, the effluent limit could be raised to 2.5 mg/L (acid equivalent) for *Cascade* and still have a safety margin for the NOEC and the smolting salmon.

(UPI) and:

1. Change the discharges at the points of compliance (in red) to read as follows:

Dipotassium Salt of Endothall (Cascade)	Fish (Smolt) Window: From Mar 1 st to June 15 st 1.5 mg/l (acid equivalent)	All other: From June 16 th to Feb 28 th 3.5 mg/l (acid equivalent)
Mono (N,N-Dimethyl Alkamine) Salt of Endothall (Teton)	Fish (Smolt) Window: From Mar 1 st to June 15 st 0.050 mg/l (equal to 50 ug/l) (acid equivalent)	All other: From June 16 th to Feb 28 th 0.2 mg/l (acid equivalent)

The draft permit fact sheet for Endothall states effluent limits are based on the more restrictive of what is technically feasible and what is needed to protect water quality. Based upon this information (table below) the most restrictive would be during the smolt metamorphosis which would occur between the months of March 1st to June 1st each year. The rest of the year smolt would not be present therefore would not be affected.

Effects of Endothall on salmon smoltification are a legitimate concern. However, the actual threat to salmon, trout parr-smolt will be low due to the applications occurring after the parr smoltification has been completed and smolt are no longer present during the aquatic application season (June – September).

The majority of the District's aquatic applications take place from mid June through the end of September. The water temperatures in the laterals and canals by mid June have reached a temperature level that would not be conducive for salmonid spawning, rearing and migration due to warm water temperatures. On average receiving water temperatures from the Columbia River is over 17.5 C by mid June, which is the highest 7-DADMax temperature listed for aquatic life uses for salmonid spawning, rearing and migration as listed in Table 200 (1)(c) in Ecology's Water Quality standards Chapter 173-201A. The District's water temperature is too warm by Ecology's standards to support parrs during our application season; therefore higher effluent numbers could be justified.

(QCBID) and:

Comment: The proposed effluent limit for the amine salt of endothall does not appear to have been calculated using the same guidelines as with dipotassium salt of endothall (i.e. use of the lowest aquatic life toxicity endpoint). The lowest aquatic life toxicity endpoint for the amine salt of endothall (NOEC of 0.012 mg a.e./L for mayfly), should be used in calculating the amine salt discharge limit not the 0.79 a.e./L acute LC50 endpoint as currently proposed in the draft permit. A threshold of two-thirds 0.012 mg a.e./L endpoint would result in an effluent limit of 0.008 a.e. mg/L (0.018 mg a.i./L) which would more appropriately limit the potential for impact to the most sensitive of aquatic life (i.e. mayfly) below the point of compliance.

(Jones)

Response to Cascade Limit: We believe a higher limit is acceptable when salmonid smoltification is less of a concern (after July 15). We modified the permit to have two different limits. The limits are now 1.0 mg/l (acid equivalent) from March 1 to July 15 and 2.5 mg/l (acid equivalent) from July 16 to February 29. According to WDFW's comments, March 1 to July 15 is the important window for fish smoltification. It should be clearly noted that the different limits apply during the time periods specified in the permit; permittees are not allowed to choose the limit based on whether they see salmon smolting near the point of compliance. The justification of the 2.5 mg/l is included in the fact sheet and is within the range provided in the SCBID and UPI comments.

While the risk assessment did state that 3.5 mg/L will not affect the biota acutely, it also stated that "Exposure of anadromous fish to sublethal concentrations of Aquathol® K may interfere with the parr to smolt metamorphosis and result in significant mortality when smolts are subsequently exposed to seawater." (Volume 2, Section 4, Page 6) Since it would be clearly unacceptable to have a permit limit with this result, we kept the effluent limit during March 1 to July 15 at 1.0 mg/L, below the threshold for impacts to smoltification. The temperature of the receiving water is not relevant; just because the water is warm enough to negatively affect salmonids does not justify adding endothall at concentrations that may cause additional mortality. We agree with the comment that the studies of salmon smoltification have conflicting conclusions; however, we cannot dismiss those findings that showed problems.

Both the 1.0 and 2.5 mg/L effluent limits allow irrigation districts to apply endothall at concentrations below the effluent limits (no dilution or degradation of the endothall is needed). While applying at maximum label rates would require dilution water or endothall degradation, studies have suggested that the lower rates applied at longer periods of time are more effective. While we do not think it is appropriate to require low-rate long-duration application as the WDFW comment suggested, the effluent limits (and studies showing more effective treatment) should certainly encourage these applications.

Response to Teton Limit: We did not make changes to the Teton limit. While the risk assessment did state that a rate higher than 0.2 mg a.e./L cannot be recommended, it also stated that "treatments of water bodies that contain hard water should be avoided." (Volume 2, Section 4, Page 11) It also stated that "Hydrothol® 191 has a high acute toxicity for fish. The toxicity ranges from an LC50 of 0.079 mg a.e./L for cutthroat trout..." (Volume 2, Section 4, Page 9). Given the desire to avoid lethal doses of Teton for cutthroat trout at the point of compliance, an effluent limit of 0.05 mg a.e./L is appropriate. The Teton limit is not based on smoltification concerns, so seasonally-varying limits are not appropriate. We understand that a limit of 0.05 mg a.e./L may make using Teton in systems without internal dilution water a challenge.

S5.B4 Comment: Endothall Effluent Limitation (2)

The permit requirements for Endothall seem to be more stringent and restrictive than Acrolein and Xylene, which are far more toxic to humans, wildlife, and aquatic wildlife.

(BOR)

Response: We disagree that the endothall limit is any more stringent than for other pesticides. Numerically, the limits for endothall (0.05-2.5 mg/L) are lower than xylene (5.1 mg/L) but higher than copper (0.025 mg/L) and acrolein (0.021 mg/L). The limits for endothall were set at levels to protect aquatic life as required by the state's water quality standards. If the commenter believes the limits for acrolein and xylene are not protective of humans, wildlife, and aquatic wildlife, we will consider those comments when the permit is rewritten in 2013.

S5.B4 Comment: Endothall Effluent Limitation (3)

Comment: Endothall does not break down quickly. In systems without long-term (seasonal) storage, only the addition of non-treated dilution water will reduce the concentration at the point of compliance from the original concentration at the application site. By itself, short-term storage (days to weeks) is not an effective strategy to reduce endothall concentrations. This would suggest the more restrictive effluent limit (i.e. MCL) for endothall should not be exceeded at the point of compliance in order to protect beneficial water use downstream. The effluent limits at the point of compliance for all other actives listed in the permit appear to have been established using their more restrictive limits (whether aquatic life or human health endpoints). The highest allowable level of dipotassium salt of endothall at the point of compliance should be established at the more restrictive of what is technically feasible concentration 0.100 mg/L to appropriately protect water quality and human health.

The draft document acknowledges a 10-fold difference between proposed effluent level for dipotassium salt of endothall of 1.0 mg a.e./L and the 0.1 mg a.e./L MCL indicating that dilution and/or water plant treatment would be necessary to meet the MCL for drinking water. The draft permit language does not describe how actual dilution below discharge sites must be adequately monitored to confirm compliance at potable water intakes for all treatments, or misplaces responsibility for compliance upon water treatment facilities that have limited or potentially no focus on endothall as an analyte of interest in their routine water quality monitoring/treatment program. See EPA reference document at the following link, <http://www.epa.gov/ogwdw000/pdfs/factsheets/soc/tech/endothal.pdf>

(Jones)

Response: We understand the concern that the effluent limits are well above the 0.1 mg/L MCL for drinking water. However, we believe that the actual risk of high levels of endothall in drinking water is quite low. Drinking water intakes at the point of compliance would be problematic; fortunately, drinking water facilities are considerably downstream of any point of compliance. We agree that it would be inappropriate to shift the burden of treatment for endothall onto the drinking water facilities. Ecology will work with the Washington State Department of Health to identify any potential areas of concern. Finding high levels of

endothall from irrigation canal use in either municipal water supplies or private well water would be a serious concern and would justify immediate changes to the permit.

S5.B4 Comment: Chronic vs. Acute

Irrigation districts will apply these products once or twice during an irrigation season, which is from March to October. “In irrigation canals, chronic exposure does not occur because once the herbicide plume has passed, the EEC¹ is essentially zero.” (Vol.2, Sect. 4 – Page 10). The treatment represents an acute condition, not a chronic condition. In all cases for the Roza and Sunnyside Valley Irrigation Districts, the return flow will become highly diluted after its confluence with the Yakima River and will have no chronic effect at the river.
(RSBOJC)

Response: We agree that in most situations there will not be a true chronic exposure. Permittees must meet effluent limits at the point of compliance; there is no mixing zone or dilution zone beyond the point of compliance granted in the permit. The dilution that occurs after the point of compliance is different for each irrigation district and each point of compliance. In some situations there is a great deal of untreated water that mixes with the treated water and in other situations there is no untreated water.

S5.B4 Comment: Trade Names

At no other point in the 2008 Permit or the Draft 2009 Permit does the permit reference product tradenames. To remain consistent, we suggest Department of Ecology remove reference to the tradenames for the dipotassium salt and amine salt of endothall or include tradenames for all other products throughout the permit and fact sheet addendum.

(SePRO) and:

The endothall applications list Cascade and Teton. Does this mean that permittees may only use these labeled names? It may be better to keep the permit more generic.
(WDSA)

Response: We made changes to the permit to address this issue. Two of the many goals in a permit are to use only generic names and to make the permit easily understood. Unfortunately, there are two very similar forms of endothall and the generic names are not

commonly known. They are easily confused (dipotassium salt of endothall versus amine salt of endothall) and the toxicity of the two are quite different; mixing them up could have serious environmental consequences. Ecology did add “such as” before the use of trade names so it would not appear that we were allowing only one particular trade name of endothall.

S5.B10.a Comment: Plan for Endothall Use

General Response: Many commenters (see below) stated that the plan in S5.B10.a was too prescriptive. We made changes to the permit to emphasize that it was a general plan that needed to include proposed application sites, concentrations, and durations (or ranges or concentration and duration). The plan never required specifying application dates. The purpose of the plan is to ensure that permittees have thoroughly considered where and how much endothall to apply before the day of application. If the permittee decides to change the plan, the permittee must simply notify Ecology before the endothall is applied. This gives permittees nearly unlimited flexibility, as long as they meet the other requirements in the permit. The permit now reads:

“Permittees must submit a general plan to Ecology describing how the permittee intends to apply the endothall. The general plan must be submitted to Ecology 30 days before using endothall. The plan is only required for the first year of endothall use. The plan must include:

- i. A list of the proposed endothall application sites.
- ii. A list of the corresponding points of compliance for endothall.
- iii. The endothall formulation(s) the permittee is proposing to use: dipotassium salt (such as Cascade) and/or the amine salt (such as Teton).
- iv. The proposed concentration and duration of the endothall application. If the concentration and duration will depend on weed conditions, providing ranges of concentrations and durations is acceptable.
- v. A plan for tracking the treated water or time travel studies documenting the amount of time it will take the pesticide to travel from the proposed application site to the point of compliance under the expected flow.
- vi. The proposed changes in copper treatments or plan for adjusting copper treatments (endothall use may reduce the need for copper; maintaining the same copper treatment may lead to violations of the copper limits).”

Additional responses to specific comments are included below.

S5.10.a.i-v. Providing Endothall application information precisely thirty days before the first treatment date may be a difficult task. Both Roza and SVID will provide the requested information by May 1 of each year. Treatment is chosen by the plant and weather conditions, not an operations date. We hope this is taken into account when the actual treatment day is chosen. We suggest having a best estimate date for treatment. After the general date is selected, irrigation districts will inform Ecology 24 hours in advance of the first treatment.

(RSBOJC) and:

Providing endothall application information precisely 30 days before the first treatment date may be a difficult task. The South District will have a best estimate of 30 days before the date of treatment and will provide this information to the best of its ability. Treatments are chosen by plant growth and weather conditions, not an operations date. We hope this is taken into account when the actual treatment day is chosen. We suggest having a best estimate date for treatments and after the general date is selected, irrigation districts can inform Ecology 24 hours in advance of the treatment itself.

(SCBID)

Response: (See “General Response” above.) The proposed dates of treatment are not a required element of the plan. Permittees should submit the plan at least 30 days before they might first use endothall. For example, if you plan to first use endothall sometime between June 1 and July 30, submit the plan by May 1. The permittee chooses the actual treatment day, not Ecology. The treatment date simply needs to be at least 30 days after the permittee submits the plan in S5.B10.

The South District would also like to request that the reporting requirement be revised to 1/permit cycle and be included in the Summary of Permit Report Submittals. It would be needlessly redundant and cumbersome to require the information for every endothall application. Time of travel studies are already required yearly, and any changes could be reported under S5.BIO.b. It would also be helpful if the requirement in S5.BIO.c. be clarified in the permit. It is not clear what “capped by the initial concentration at the application site” means.

(SCBID)

Response: The plan is only required once – in the first year endothall is used. The permit was changed to specifically state this.

The East District requests a revision in the language in S5.B10.a. A 30 day prior notice to apply Endothall is extreme, considering the notification process in S11.C.1 of the current permit requires a permittee to give 24 hours notification by phone, fax or electronically, prior to any treatment. Notification for endothall should coincide with the same requirements established for Acrolein, Xylene and Copper.

The District also has comments on the following requirements proposed by Ecology.

- S5.B10.a.i. – ‘A list of endothall application sites’. Application sites are already listed on the Aquatic Herbicide Application (AHTS) sheets submitted weekly to Ecology. Sites change based on weed condition.

(ECBID)

Response: (See “General Response” above.) If your application sites for endothall are the same as the application sites for other pesticide use, submitting this part of the plan will be simple. However, some permittees may apply endothall at locations they did not use for copper, acrolein, or xylene.

- i. A list of “potential” Endothall application sites. Since the District bases treatments on weed conditions, sites can and do change based upon where there are weed conditions at the time and safety concerns in applying for employees.

(QCBID)

Response: (See “General Response” above.) Irrigation districts are free to choose the sites that work best for them. The permit only requires irrigation districts to tell Ecology where they plan on applying endothall. Ecology would encourage permittees to include all potential sites in the plan submitted under S5.B10.a. If the permittee chooses to use a different site than what they included on the plan, they are free to do so if they notify Ecology.

- S5.B10.a.ii. – ‘A list of corresponding compliance sites for endothall’. Compliance sites remain the same, no difference.

(ECBID)

Response: (See “General Response” above.) If your application sites for endothall are the same as the application sites for other pesticide use, then the compliance sites will be the same. However, some permittees may apply endothall at locations they did not use for copper, acrolein, or xylene so their compliance sites would be different.

ii. A list of the corresponding points of compliance for Endothall. Are the compliance sites based upon different criteria for Endothall? If smolts are not present then does that no longer count as a compliance site when Ecology is referring to Endothall? If Endothall has no affect on compliance sites, then our compliance sites would not change.

(QCBID)

Response: (See “General Response” above.) The compliance sites for endothall are based on the same criteria as the compliance sites for other pesticides. However, some permittees may apply endothall at locations they did not use for copper, acrolein, or xylene so their compliance sites would be different. The presence or absence of smolts does **not** affect the compliance site. All treatments must meet the effluent limits regardless of the expected presence of different aquatic life.

- S5.B10.a.iii. – ‘The endothall formulations the permittee will use’. The formulations to be used have yet to be determined. This will be based on field conditions and available products and cannot be pre-determined in advance.

(ECBID) and:

iii. The Endothall formulations the permittee will use: dispotassium salt (Cascade) and/or the amine salt (Teton). Once again, this is based upon aquatic weed conditions and cannot be pre-determined with any accuracy.

(QCBID)

Response: (See “General Response” above.) Ecology needs to know what formulation permittees are planning to use in order for the concentration and duration information to be helpful. If you may one or both depending on field conditions, state this in the plan. The plan does not need to specify which pesticide will be used on which day.

- S5.B10.a.iv. – ‘The concentration and duration of application’. The concentration and duration cannot be predetermined in advance. This will depend on weed conditions. The concentration and duration of treatment will also be dependent upon flow in the canal and the compliance location associated with sample collection.

(ECBID) and:

iv. The concentration and duration of the Endothall application. This is neither practical nor feasible to determine in advance what the aquatic weed conditions are in order to determine what rate to treat the system. When the District looks at concentration and duration of treatments, they must take into account where the treatment site is in relation to a compliance site; what rate would be appropriate for that treatment site, what the aquatic weed conditions are and what the duration of the treatment should be based upon weed growth and proximity to compliance site.

(QCBID)

Response: (See "General Response" above.) The plan can provide a range of proposed application concentrations and durations. If the concentration and duration will vary according to weed conditions, state this in the plan and provide the range of concentration and durations (for example, "if weed growth is moderate we will use ___ ppm for ___ hours, but if weed growth is heavy we will use ___ ppm for ___ hours").

- S5.B10.a.v. – 'Travel time studies documenting the amount of time it will take the pesticide to travel...' Travel time studies are dependent on flow in the canal, the duration of the treatment and the weed conditions. Predicting travel time 30 days in advance is

not feasible. Travel time studies are best done during an application. Prior studies give a close approximation of travel time, however, to predict in advance is not possible nor is it practical. It is also unknown whether travel times will differ from acrolein and xylene travel times. This is yet to be determined through monitoring. This requirement should coincide with S6.C of the existing NPDES permit that requires reporting results to Ecology by February 1st of each year.

(ECBID) and:

v. Travel studies in advance. The District cannot provide accurate travel time studies until we have actually used the product. Travel time studies would be dependent on CFS in the canal the day of treatment, duration of treatment and aquatic weed conditions. It would be impossible to predict those numbers 30 days in advance without knowing the CFS, duration or rate of application. It would be more prudent to include this in the travel time studies in S6.C of the NPDES permit.

(QCBID)

Response: (See "General Response" above.) In order to sample at the point of compliance at the correct time, permittees need to either (a) know the time of travel or (b) track the treated water. Condition S5.B10.a.v. simply requires that permittees either have a time of travel study or have a plan to track the treated water. It does not require knowing the exact travel time 30 days in advance. It is not appropriate to wait until February of 2011 to calculate the travel time since monitoring during 2010 is dependent on knowing when to monitor.

- S5.B10.a.vi. – ‘The changes in copper treatments...’ It is not yet known what effect endothall will have on copper, acrolein or xylene treatments. This is also not predictable in advance. If there are fewer algae because of an endothall application, less copper will be needed. Using BMP’s the District does not anticipate copper violations.

(ECBID) and:

vi. The changes in copper treatments. Ecology would like the Districts to predetermine how copper treatment will change based upon Endothall treatments. This is another point that cannot be determined ahead of time. It will again be based upon algae being present and it has yet to be determined how Endothall can or will change the need to treat with copper. If algae are present and needs to be treated the District will treat. However, if there is less algae due to the Endothall use, then obviously less copper will be used. All treatments at the District are based upon best management practices located in our Vegetation Management plan which are based upon presence of aquatic weeds.

(QCBID)

Response: (See “General Response” above.) Ecology included “or plan for adjusting copper treatments” in S5.B10.a.vi. The purpose of this requirement is to make sure that endothall use does not lead to violations of the copper limit. If your plan for copper use takes into account the effect of the endothall, simply include your plan for copper use in your submittal to Ecology. Many permittees apply a set amount of copper on set days; these permittees are most at risk for violating copper limits if endothall is used.

In section S5.B.10.b, if changes need to be made to the procedure for applying Endothall; the permittee is only required to give two weeks’ notice before the next treatment. The two week notification is more reasonable than the 30 days.

(BOR)

Response: (See “General Response” above.) The 30 day requirement provides ample time to write a general plan. Changes to the plan need to be submitted to Ecology before the endothall application. This gives permittees great flexibility.

2. Section 10 – For Endothall Applications

Must submit information to Ecology 30 days before using Endothall. After speaking with Andrew it was determined that this information request is a onetime request, and this needs to be clarified in the permit. A possible change of wording for clarification might be: Each District, who chooses to use Endothall, must notify Ecology of the intent to use Endothall at least 30 days before the first anticipated treatment date.

Upon reviewing items i through vi in section 10, the District is concerned with the information Ecology states permittee's must submit 30 days before the initial Endothall treatment. Each District has developed and uses a Vegetation Management plan which states that treatments are scheduled based upon monitoring current aquatic weed conditions. If aquatic chemical treatments are the best solution, then the District must take into account weather conditions, the cubic feet per second (CFS) of the potential treated site, the relationship and distance of treatment areas to corresponding compliance sites and what targeted aquatic species we are trying to control. The information Ecology would require to be submitted 30 days before the first treatment would contradict the Districts Vegetation Management plan.

(QCBID)

Response: (See "General Response" above.) Nothing in S5.B10 would contradict the vegetation management plan. Under the plan required in S5.B10, irrigation districts are free to base treatments on the factors the commenter includes.

The new modifications to the NPDES permit would require the Districts to provide a generic list of Endothall application sites, to provide to Ecology at least 30 days in advance what is the best formation of Endothall to use, to determine what concentration and duration we intend to use for Endothall treatments, to pre-determine how long the travel periods will be for Endothall and how the use of Endothall will affect copper treatments which would be impractical to provide if our best management practices are based upon aquatic weed conditions (per the District Vegetation Management Plan).

(QCBID)

Response: (See "General Response" above.) By providing a general plan and ranges of values, and allowing permittees to not follow the plan as needed, permittees have full flexibility to apply endothall according to the vegetation management plan and best management practices (as long as the other permit requirements such as the effluent limits are met).

S5.B10.a.vi. Comment: Changes in Copper Use

We do not see where it is appropriate for the permit to include comments about copper use patterns or suggest potential changes or violations in copper use in a section that is discussing endothall applications. At no other point in the permit is there reference to the use pattern of one herbicide or algaecide and implications to another herbicide or algaecide. Thus, we suggest this statement should be removed from the draft permit.

(SePRO)

Response: Endothall is a new pesticide that irrigation districts in Washington have not used, so additional planning is warranted. Endothall is expected to reduce to weed growth in the canals. Ecology is concerned that if irrigation districts continue to use the same amount of copper, the lack of weeds will lead to less uptake of copper in the canals causing violations of the effluent limits for copper. Ecology would prefer the irrigation districts to take this into account before using endothall and copper rather than find out after the fact that their treatments caused violations of the permit.

S5.B10.b Comment: Changes to the Plan

S5.10.b. – ‘Any changes to information submitted in S5.B10.a shall be submitted to Ecology two weeks before the next endothall treatment’. The requirement for a 2-week prior notice to Ecology for any changes to the above information in S5.B10.a is unrealistic. To predict in advance what conditions may be present is not practical. The changes to S5.B10.B. should be reported yearly as in S6.C of the existing NPDES permit. These requirements should be revised to 1/permit cycle, not every endothall application.

(ECBID) and:

10.b. Any changes to the information submitted in S5.b10a shall be submitted to Ecology two weeks before the next Endothall treatment. This section 10.b. is unrealistic based upon the information above. Since the Vegetation Management Plan is based upon aquatic weed conditions, location and distance from compliance sites, it is impractical to expect Districts to know what their treatments will look like two weeks ahead of schedule.

(QCBID)

Response: This section was changed to read: “The permittee shall notify Ecology of any changes to the information submitted in S5.B10.a before the application of endothall.” Most of the time, this can simply be included in the 24-hour notification. Permittees are free to notify Ecology up to the time they begin applying the endothall.

S5.B10.c Comment: Combined Treatment

S5.10.c. – Please clarify “The assumed concentration of the amine salt (Teton) will be capped by the initial concentration at the application site”.

(ECBID)

Response: We added an example to the permit. Hopefully this will clarify the requirement. Ecology will assume that the concentration of Teton at the point of compliance is no higher than the concentration of Teton at the application site.

It was indicated that the algaecide “Teton” (endothall variant) is commonly used with endothall and it more toxic to fish life and other wildlife species, although it has a lesser degree of adverse affect on smoltification. However, it apparently cannot be differentiated from “Cascade” during water quality sampling. Therefore, as indicated at the meeting, we concur that Ecology will assume that “Teton” is applied unless otherwise proven, as it is more acutely toxic to most species.

(WDFW)

Response: We agree.

Comment 2: On page 9 of the General Permit document under number 10, For Endothall applications, bullet c. If the permittee is using both Cascade and Teton the monitored concentration will be treated as Teton for the effluent limit. It is true that the lab cannot determine which product is used by testing, but if a combination application is made the Teton limit is too restrictive. As a part of the permit application, the permittee is required to notify DOE of the application rates of the products used. UPI would suggest that in the event of a combined Teton/Cascade application that the effluent monitoring limits be held to the Cascade limit minus the Teton application rate. The permittee would certify the Teton applied is at a concentration below the effluent level and the corresponding Cascade application is reduced enough to allow for the Teton level.

(UPI)

Response: Permittees are not always required to notify Ecology of the application rates ahead of time since the plan in S5.B10 is a one-time requirement for the first year’s use of endothall. The commenter recommends:

Combined limit (Teton&Cascade) = Cascade limit - Teton application rate.

We assume that the commenter meant the Cascade limit *plus* the Teton application rate. This would only be an advantage to permittees if the Teton was applied at a rate below the effluent limit and the Cascade was applied at a rate above the effluent limit. However, this will rarely be the case. The far more common scenario would be the reverse: Teton applied above the limit and Cascade applied below the limit. In this more common scenario, the total amount of endothall may be below the Cascade limit but above the Teton limit. Since the laboratory is unable to tell the different between Cascade and Teton, Ecology has no choice but to assume the Teton is above the limit. Improvements in laboratory methodology may help in the future.

S6.A Comment: Monitoring (1)

Monitoring of the endothall application to irrigation systems should be required to prevent excessive and toxic application rates resulting from accidental spills, equipment malfunction, or vandalism during application.

(WDFW)

Response: Monitoring for the permit will usually be at the point of compliance, though in some situations it can occur near the application site. Either way, the monitoring must be sent to a laboratory so it will not be helpful until after the fact for identifying spills, equipment malfunction, etc. However, having knowledgeable applicators on-site during the entire application will be essential to preventing spills, malfunction, and vandalism. This basic requirement should be included in the required spill plans for each permittee. In the future, field tests for endothall concentration will hopefully be developed to allow real-time testing.

S6.A Comment: Monitoring (2)

The permit should provide latitude for applicators to not have to intentionally spill water to measure water quality at the point of compliance as was discussed at the meeting. Full consumption, or dilution of the treated water through use of reregulation facilities and storage reservoirs should be permitted and required, to ensure that concentrations of endothall are below the threshold of smoltification effects prior to discharge to anadromous waters, especially during the March 1 through July 15th smolt outmigration period.

(WDFW)

Response: Nothing in the permit requires permittees to intentionally spill water to measure compliance. Only when treated water is discharged at a point of compliance is monitoring required. Most permittees do not have the storage capacity to prevent all discharge of treated water. Therefore, the effluent limits must be set low enough to protect salmon smoltification.

S6.B Comment: Monitoring Reductions

How many applications are necessary before a reduction in sampling can occur?

(BOR)

Response: Under S6.B5, only one treatment at each treatment site must be monitored in full before a reduction in sampling is granted. Under the existing permit conditions not affected by

this proposed modification (S6.B1-4), the number of applications varies. S6.B1 and 2 do not have a minimum number. S6.B3 and 4 require no monitoring.

S6.B5 Comment: Monitoring when Applying Below Effluent Limits

S6.B.5. Reduced monitoring

“If the permittee is applying Endothall at a concentration below the effluent limit, the permittee may request a reduction in sampling.” If the concentration is below the effluent limit, why require testing at the compliance sites? Wouldn't it be prudent to allow the District to test downstream from the treatment site and if the concentration in the treated water is below the effluent limit, then it isn't going to climb to a higher number downstream, therefore, one test downstream from the treatment site should be sufficient.

(QCBID)

Response: The draft and final permit specifically allows testing downstream of the treatment site. The final permit states: “The samples may be taken at either the point of compliance or anywhere downstream of the application site (but upstream of the point of compliance) in a well-mixed location.”

Comment: To clarify the location of sampling requirements, it is suggested the following bolded text be included in this sentence. The samples for the reduced monitoring may be taken at either the point of compliance or anywhere downstream of the application site, **but upstream of the point of compliance**, in a well-mixed location.

(Jones)

Response: We made the requested change.

S6.A1 Comment: Monitoring Requirements

S6.A.1. Since there is no peak pesticide concentration in using Endothall that is applied at a constant rate and since there is no immediate degradation of Endothall, the monitoring requirement that the first two samples have specific timed spacing (**S6.A.2.a-b**) is not applicable to Endothall. One sample taken at a Point of Compliance (POC) or at a location downstream of the injection position that is well mixed will sufficiently provide the concentration of the treated water. Irrigation districts provide each irrigation season's time of travel studies to Ecology as required by permit. A sample can be collected at the POC with confidence due to time of travel studies and the lengthy treatment times. (RSBOJC) and:

Since there is no peak pesticide concentration in using endothall that is applied at a constant rate and no immediate degradation of endothall, the monitoring requirement that the first two samples have specific timed spacing (S6.A.2.a-b) is not applicable to endothall. One sample taken at a point of compliance or at a location downstream of the injection position will sufficiently provide the concentration of the treated water. Recent time of travel studies have been provided and will be updated to ensure the samples are taken during treatment time.

(SCBID)

Response: The profile of endothall concentrations over time in a canal will be somewhat similar to the profile for acrolein. At the point of compliance, we expect a slug of endothall to last slightly longer than the amount of time it was applied with a leading edge and a trailing edge. We will leave the requirement as is, but if a permittee can show the time of travel is well-defined and the concentration is what they expect, reducing the monitoring frequency under S6.B of the permit should be fairly easy.

S11.A2 Comment: DMRs (Year-Round Use)

S11.A.2. The ability to use Endothall up to the end of November is advantageous to those irrigation districts that have stored water, such as re-regulation reservoirs, or flowing water all year in canals, laterals, or wasteways. Any non-irrigation treatment that is released will not interfere with fish smolting.

(RSBOJC) and:

Discussions at the December meeting indicated that pretreatment of irrigation canals with endothall during the winter, prior to the irrigation season, may be effective and endothall can act as a pre-emergent aquatic herbicide in some instances. Thus, opportunity for fall and winter treatment of canals should be included in the permit and encouraged to avoid use during the smoltification process. This alternative application method/time could be required in situations where there is risk of exposure exceeding threshold concentration to smolts in the March through June 30th time period. Thus, the permit should authorize fall and winter use of endothall prior to the irrigation season to provide opportunity for application when smolts are not present.

(WDFW) and:

The option of Endothall treatments during the non-irrigation season may prove to be beneficial to the aquatic environment and due to the nature of the herbicide (defoliant) could have positive effects on field crops, orchards, wineries, etc.

(BOR)

Response: Depending on the timing of the release of non-irrigation water, it could interfere with fish smoltification. However, by meeting the limits in the permit that allow year-round use, salmonid smoltification will be protected.

S10.B.1 Comment: Posting Procedures

Why is it necessary to post for Endothall treatments, as if they were Acrolein or Xylene treatments? Endothall readily breaks down in water due to microbial degradation.

(BOR) and:

Comment 3: On page 13 of the General Permit document under posting procedures, Endothall is listed as a pesticide that requires posting. Endothall has no issues with toxicity once the product is applied. UPI requests that the posting requirement for Endothall products be removed.

(UPI) and:

210.B. Post Procedures

The draft permit requires the Districts to include Endothall on the signage that is posted within one mile of application sites. The canals and laterals are currently posted with no trespassing signs, which would include swimming. Currently lakes which have Endothall applications applied to them require a swimming restriction due to the water not flowing like it does in canals. Endothall in lakes will stay in one area for a long period of time. While we do not allow swimmers in our canals and laterals, the District believes it is an unnecessary burden to change all our signage to include Endothall, especially since other signage is already in place.

(QCBID)

Response: Endothall does not break down readily during the time it is in the canals. There have been incidents of swimmers affected by endothall used in lakes. There are swimming advisories and restrictions for endothall use in the Aquatic Plant and Algae Management General Permit issued by Ecology. These were based on discussion with the Washington State Department of Health.

Fact Sheet Comments

The maximum labeled rate for Teton will be 5ppm for a single application; however, UPI sees Teton being used as an algaecide which would only require a rate between 0.15-0.3 ppm. All of the application rates for Teton will be in a.e., which is also how the label will be constructed.

I believe what you are referring to with the combination treatment I conducted last year included the following: 0.15 ppm a.e. Teton + 0.85 ppm a.i. Cascade. This treatment was very efficacious and I believe many irrigation canal companies are thinking about using a similar management program. The benefits of this type of treatment is they

will be able to control their vascular plant problems, as well as, algae problems with no impact to fish health.
(UPI)

Response: Ecology modified the fact sheet addendum to indicate the 0.15 ppm was acid equivalent, not active ingredient.