FACT SHEET FOR THE FRESH FRUIT PACKING DRAFT GENERAL PERMIT

A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM AND STATE WASTE DISCHARGE GENERAL PERMIT

REISSUANCE DATE: NOVEMBER 17, 2021

EFFECTIVE DATE: JANUARY 1, 2022

DEPARTMENT OF ECOLOGY
State of Washington

EXECUTIVE SUMMARY

The Washington State Department of Ecology (Ecology) has determined to reissue the Fresh Fruit Packing General Permit. This general permit applies to the entire fresh fruit packing industry in the state of Washington except for those that have obtained individual permits from Ecology and for facilities located within certain tribal boundaries. Facilities covered under this General Permit primarily store, pack, cool, and ship, apples, pears, and cherries. However, other fruits and berries may also be covered under this permit that include, but are not limited to, blueberries, apricots, peaches, pluots, etc.

Under this general permit, wastewater discharges from Permittees are subject to certain Treatment/Disposal Methods (TDMs) and effluent limitations. Compliance with this general permit may require Permittees to install and implement pretreatment facilities, Best Management Practices (BMPs), and/or any other tools that may be deemed necessary by Ecology in order to carry out the provisions of this general permit. The proposed terms, limitations, and conditions contained herein are tentative and may be subject to change based upon the outcome from subsequent public process reviews of the draft permit and factsheet.

Permittees covered under this general permit will not be relieved of any responsibility or liability at any time during the life of this general permit for violating or exceeding state water quality standards, or any other local, state, or federal regulations and/or standards. Facilities not accepted under this general permit must apply for an individual permit from Ecology. Any fresh fruit packing facility not covered under either this general permit or an individual permit will be considered to be operating without a discharge permit and subject to potential enforcement action.

INTRODUCTION

Introduction: In 1994, the Washington State Department of Ecology (Ecology) developed a National Pollutant Discharge Elimination System (NPDES) general permit to regulate the discharge of wastewater from fresh fruit packing facilities.

This permit was developed to meet the requirements of Chapters 90.48, 90.52, and 90.54 Revised Code of Washington (RCW) as amended, and the Federal Water Pollution Control Act (FWPCA) (Title 33 United States Code, Section 1251 et seq.) as amended. All requirements of 40 Code of Federal Regulations (CFR) 122.41 and 122.42 are incorporated in this general permit by reference.

The fruit packing industry is eligible for coverage under a general permit due to: (1) the similar wastewater characteristics among facilities; (2) the uniform discharge conditions to which all facilities would be subject; and (3) the significant reduction of resources necessary for permit handling. However, individual NPDES/State Waste Discharge permits will still be applied in

those instances where Ecology determines the general permit is not appropriate for a facility or an individual facility does not wish to be covered by the general permit.

This general permit establishes Treatment/Disposal Methods, effluent limits, and Best Management Practices for discharges from the fresh fruit packing industry. Compliance with this general permit is anticipated to protect human health and waters of the state.

PUBLIC INVOLVEMENT OPPORTUNITIES IN THE PERMIT RENEWAL PROCESS

A listening session for both English speaking and Spanish speaking (interpreter provided) individuals was held via WebEx on **July 15, 2021**. Notice of this opportunity to provide information about the reissuance of the Fresh Fruit Packing General Permit was announced through public broadcasting in both English and Spanish versions. Notice of this opportunity to provide information was also published in the Yakima Herald Republic, and The Wenatchee World.

A Public Notice of Draft (PNOD) was published in the legal sections of the Yakima Herald-Republic and The Wenatchee World in both the English and Spanish versions of the newspapers on **September 1, 2021.** Notice in the Washington State Register ran concurrently.

Interested persons are invited to submit comments regarding the proposed reissuance of the Fresh Fruit Packing General Permit. Written comments can be submitted to Ecology until the comment period ends **October 15, 2021**. To provide comments via the e-comments form (preferred), access the form here: https://wq.ecology.commentinput.com/?id=mBGE7

Comments on the general permit may also be given at the public hearings as either written or oral testimony. **Existing Permittees are offered information on changes to the General Permit, followed by a public hearing via WebEx beginning at 1:00 p.m. on October 6, 2021 and via WebEx on October 7, 2021 beginning at 5:00 p.m.** Spanish interpreter is provided.

Links to sign up for workshops and/or Public Hearings:

October 6, 2021 beginning at 1:00 p.m.:
https://watech.webex.com/watech/onstage/g.php?MTID=e348440dc7e0cb03e8240a30c7eb7681b

October 7, 2021 beginning at 5:00 p.m.:
https://watech.webex.com/watech/onstage/g.php?MTID=e6e1204be98fc36f57b1ed14728310c5d

All of the testimonials and comments received during this comment period are located in **Appendix C**. Spanish language submittals are presented in original text and translated text.

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PURPOSE OF THIS FACT SHEET

This fact sheet is a companion document to the draft National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit for Wastewater Discharges Associated with the Fresh Fruit Packing Industry (General Permit for the Fresh Fruit Packing Industry, or FFPGP). The draft permit authorizes the discharge of wastewaters generated at fruit packing facilities, and certain conditionally authorized "di-Minimis" discharges. This fact sheet explains the nature of authorized discharges, Ecology's decisions on limiting the pollutants in discharges associated with the fresh fruit packing industry, and the regulatory and technical bases for those decisions.

The Washington State Department of Ecology (Ecology) is proposing to reissue the FFPGP with changes. The major changes to the permit are documented in Table 1 of this fact sheet. The permit will replace the permit that expires on **August 31, 2021**, with the administrative extension until **December 31, 2021**. The permit authorizes wastewater discharges associated with fresh fruit packing activities and a limited number of non-fresh fruit packing discharges. The permit limits the discharge of pollutants to surface waters under the authority of the Federal Water Pollution Control Act (U.S.C.S. 1251) and limits the discharge of pollutants to surface and groundwater under the authority of Chapter 90.48 RCW. Ecology anticipates that Permittees' diligent implementation of the requirements of this permit will result in discharges that do not cause or contribute to violations of State Water Quality Standards.

This fact sheet does not contain any independently enforceable requirements. The General Permit contains all of the actual requirements applicable to dischargers. In case of any conflict between the fact sheet and the General Permit, the terms of the General Permit govern.

Summary of Major Changes in the FFPGP

Table 1 — Summary of Major Changes in Draft FFPGP

General Permit Section(s)	Summary of Previous Permit Language (if applicable)	Summary of New Permit Language or Requirement.
S1.C	Not included in previous permit	Allows conditional authorization for discharges from very small CA storage only facilities that utilize well water, do not discharge to a surface water, and do not use chemical additives.
S2.E.3	Not in previous permit	Requires facilities to submit coverage modifications, engineering reports, plans, and/or Operation and Maintenance (O & M) Manuals prior to installation of wastewater treatment or handling, or chemical production facilities that change the quantity or quality of the discharge.
Permit Section(s)	**Summary of Previous Permit Language (if applicable)**	**Summary of New Permit Language or Requirement**
S3 (Table 4)	• Difenoconazole allowed in Lined Evaporative Lagoons only. • Citric Acid not in previous permit • Electrolyzed Water Processes not in previous permit	• Difenoconazole allowed with certain restrictions for Lined Evaporative Lagoon *and* Dust Abatement. • Citric Acid allowed with certain restrictions with most TDM's • Electrolyzed water processes with certain restrictions allowed in some TDM's.
S4.B (**See Appendix B of the Permit**)	Not in previous permit	Flow meter installation requirements to facilities discharging to surface waters of the state
S4.C and S5.F.6 (**See Table 22 of the Permit**)	Not in previous permit	Flow meter installation and heat load monitoring for facilities direct discharging to the Columbia River and if issued a wasteload allocation in the Columbia River TMDL.
S4.E and S5.F.6 (**See Table 21 of the Permit**)	Not in previous permit	Implementation of wasteload allocations for facilities direct discharging to the Mid-Yakima River Basin TMDL.
S5.B and S5.C (**See Tables 12 and 15 of the Permit**)	Not in previous permit	Table allowing only one sample event during drenching season instead of quarterly monitoring. Batch mix records must be kept and available upon request.
S11.	Not in previous permit	Requires Operation and Maintenance (O&M) manuals be submitted for facilities that have installed wastewater treatment units. The O&M Manuals must comply with WAC 173-240-150 and include all components of the treatment unit(s).

The Washington State Department of Ecology is proposing to reissue this general permit, which will allow the discharge of wastewater from the fresh fruit packing industry into waters of the state of Washington including groundwater, pursuant to the provisions of chapters 90.48, 90.52, and 90.54 Revised Code of Washington (RCW) and the Federal Water Pollution Control Act (FWPCA) as amended. This fact sheet explains the nature of the proposed discharges, Ecology's decisions on limiting the pollutants in the wastewater, and the regulatory and technical basis for these decisions. Ecology mailed out *Application for Permit Coverage* forms to all Permittees on **December 1, 2020**. Completed forms were required to be returned, or postmarked by, to Ecology by **March 4, 2021**, which is 180 days prior to expiration of the current permit.

The Federal Clean Water Act (FCWA, 1972 [later modifications 1977, 1981 and 1987]) established water quality goals for the navigable (surface) waters of the United States. One mechanism for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which are administered by the United States Environmental Protection Agency (EPA). The EPA authorized the state of Washington to manage the NPDES permit program in our state. Washington's legislature accepted the delegation and assigned the power and duty for conducting NPDES permitting and enforcement to Ecology. The legislature defined Ecology's authority and obligations for the wastewater discharge permit program in 90.48 RCW.

Ecology decided to issue a general permit for the fruit packing industry because of the:

- Similar wastewater characteristics among facilities.
- Uniform discharge conditions to which all facilities would be subject.
- Significant reduction of resources necessary for general permit issuance and management as compared to individual permits.

However, individual permits will still be applied in those instances where a facility requires more detailed guidance, or when an individual packer so desires, and Ecology approves.

The regulations adopted by Ecology in regards to this general permit include the following:

- *Waste Discharge General Permit Program, chapter 173-226 Washington Administrative Code (WAC)*
- *National Pollutant Discharge Elimination System Permit Program, chapter 173-220 WAC*
- *Water Quality Standards for Surface Waters of the State of Washington, chapter 173-201A WAC*
- *Water Quality Standards for Groundwater of the State of Washington, chapter 173-200 WAC*
- *Sediment Management Practices, chapter 173-204 WAC*
- 40 CFR 131

These regulations require that an industrial facility obtain a permit before discharging wastewater to state waters. They also help define the basis for limits on each discharge and for performance requirements imposed by the permit.

Under the NPDES permit program, Ecology must prepare a draft permit and accompanying fact sheet and make them available for public review before final issuance. According to chapter 173-226-130 WAC, Ecology must also publish a Public Notice of Draft (PNOD) telling people where they can read the draft permit, and where to send their comments, during a period of at least thirty days. See **Appendix A of this Fact Sheet - Public Involvement** for more details about the PNOD and comment procedures.

Representatives of the industry have reviewed this fact sheet and draft permit. Ecology corrected errors and omissions identified in this review before going to public notice. After the public comment period ends, Ecology may make changes to the draft permit in response to comments submitted. In **Appendix C of this Fact Sheet– Comments Received and Response to Comments**, Ecology will summarize the comments submitted (which includes testimonials from the public hearings), write a response for each of the comments, and summarize any permit changes that occurred due to the comments.

Technology-Based Effluent Limits

Sections 301, 302, 306, and 307 of the FWPCA established discharge standards, prohibitions, and limits based on pollution control technologies. These technology-based limits are "Best Practical Control Technology" (BPT), "Best Available Technology Economically Achievable" (BAT), and "Best Conventional Pollutant Control Technology Economically Achievable" (BCT). Compliance with BPT/BAT/BCT may be established using a "Best Professional Judgment" (BPJ) determination.

Washington State has similar technology-based limits that are described as, "All Known, Available, and Reasonable Methods of Prevention, Control, and Treatment" (AKART). AKART is referred to in Washington State law under chapters 90.48.010 RCW, 90.48.520 RCW, 90.52.040 RCW, and 90.54.020 RCW. The Federal technology-based limits and AKART are similar, but not equivalent. AKART may: (1) be established for an industrial category or on a case-by-case basis; (2) be more stringent than Federal regulations; and (3) include not only treatment, but also Best Management Practices (BMPs) such as prevention and control methods (i.e., waste minimization, waste/source reduction, or reduction in total contaminant releases to the environment). Ecology and the EPA concur that historically, most discharge permits have determined AKART as equivalent to BPJ determinations.

Water Quality-Based Effluent Limits

Chapter 90.48.035 RCW authorizes establishment of water quality standards for waters of the state. Washington State has implemented groundwater quality standards in chapter 173-200 WAC. Washington State has also implemented surface water quality standards in chapter 173-201A WAC. All waste discharge permits, whether issued pursuant to NPDES or SWD regulations

must prevent damage to waters of the state and include conditions so that all authorized discharges meet Washington State water quality standards. Both surface and groundwater standards include an antidegradation policy, which requires Ecology to protect existing and designated uses.

Discharges from the fresh fruit packing industry may contain pollutants that, in excessive amounts, have a reasonable potential to cause, or contribute to, violations of Washington State water quality standards due to the presence of, but not limited to, Total Dissolved Solids (TDS), Biochemical Oxygen Demand (BOD_5), chlorine, turbidity, high temperature, high or low pH, or toxic materials. Ecology has determined that if the fruit packing industry properly treats and disposes of its wastewater as required by the general permit's terms and conditions, it will: (1) ensure compliance with Washington State water quality standards; (2) protect POTWs; (3) maintain and protect the existing characteristic beneficial uses of the waters of the state; and (4) protect human health. Ecology may reopen the general permit if new information collected during the term of this general permit indicates violations of water quality.

Receiving Water Identification

Activities from the fresh fruit packing industry may potentially affect both surface waters and groundwater in the state of Washington. The small percentage of fresh fruit packing Permittees that discharge directly or indirectly to surface waters must meet the state water quality standards for surface waters. In order to protect them, *chapter 173-201A WAC* ascribes all surface waters a designated use, narrative criteria and an antidegradation policy. Based on the use designations, numeric and narrative criteria are assigned to a water body to protect the existing and designated uses. Ecology must condition permits to maintain and protect existing and designated uses at all times. Permits must not allow degradation that would interfere with, or become injurious to, existing or designated uses for a water body. The designated uses in *chapter 173-201A WAC* are separated into two separate categories, fresh and marine waters.

The fresh water designated uses are aquatic life uses, recreational uses, water supply uses, and miscellaneous uses.

The marine water designated uses are aquatic life uses, shellfish harvesting, recreational uses, and miscellaneous uses.

The larger percentage of fresh fruit packing Permittees, which discharge directly or indirectly to groundwater, must meet at a minimum, all the state groundwater quality standards as given in *chapter 173-200 WAC*. Fresh fruit packing industry dischargers must not substantially degrade groundwater, which is generally high quality. For discharges, which contain complex synthetic chemicals, the groundwater standards require that no significant change be allowed above background water quality. A significant change occurs when a contaminant level increases above the level of the background water, while using the lowest quantifiable analytical method. For discharges which contain other chemicals, the groundwater standards require that no substantial change of background water quality or exceedances of any listed chemical criterion

is allowed. A substantial change occurs when a chemical contaminant level increases above background water quality.

Types of Facilities or Dischargers Covered

Every new or existing fresh fruit packing facility which receives, packs, stores, and/or ships either hard or soft fresh fruit, and discharges wastewater (with the exception of discharges of only domestic wastewater or discharges only to a delegated pretreatment POTW) must apply for and obtain coverage under either this general permit or an individual NPDES/State Waste Discharge Permit. This fact sheet will primarily discuss apple, pear and cherry packers; however, some information may also relate and apply to the packing of other fruits, any differences relative to the varying fruit types in packing operations and methods will be noted where appropriate.

Beginning this permit term, refrigeration/storage of any unprocessed product that falls under the following NAICS Group codes may be covered under this permit for non-contact cooling water discharges only. This may include hops for storage only, excluding in processing of hops that generate wastewater. The reason hop storage is included because hop storage works well in fruit Controlled Atmosphere (CA) storage rooms. When facilities are sold, some are being converted over to hops. Hops in itself is not a "fresh fruit" it is a flower. However since the rooms are being used for the refrigeration storage were developed as fruit storage rooms, the permit will allow them as long as the hops are not processed in any way that discharges a wastewater source, which is the same for fruit processing.

This General Permit covers activities under the following NAICS groups:

Table 2 — Activities that may Require Permit Coverage and the Associated NAICS Group

Fruit Packing Activity	NAICS Group
Postharvest Crop Activities	115114
Fruit Precooling	115114
Fruit Sorting, Grading, and Packing	115114
Refrigerated Warehousing and Storage	493120

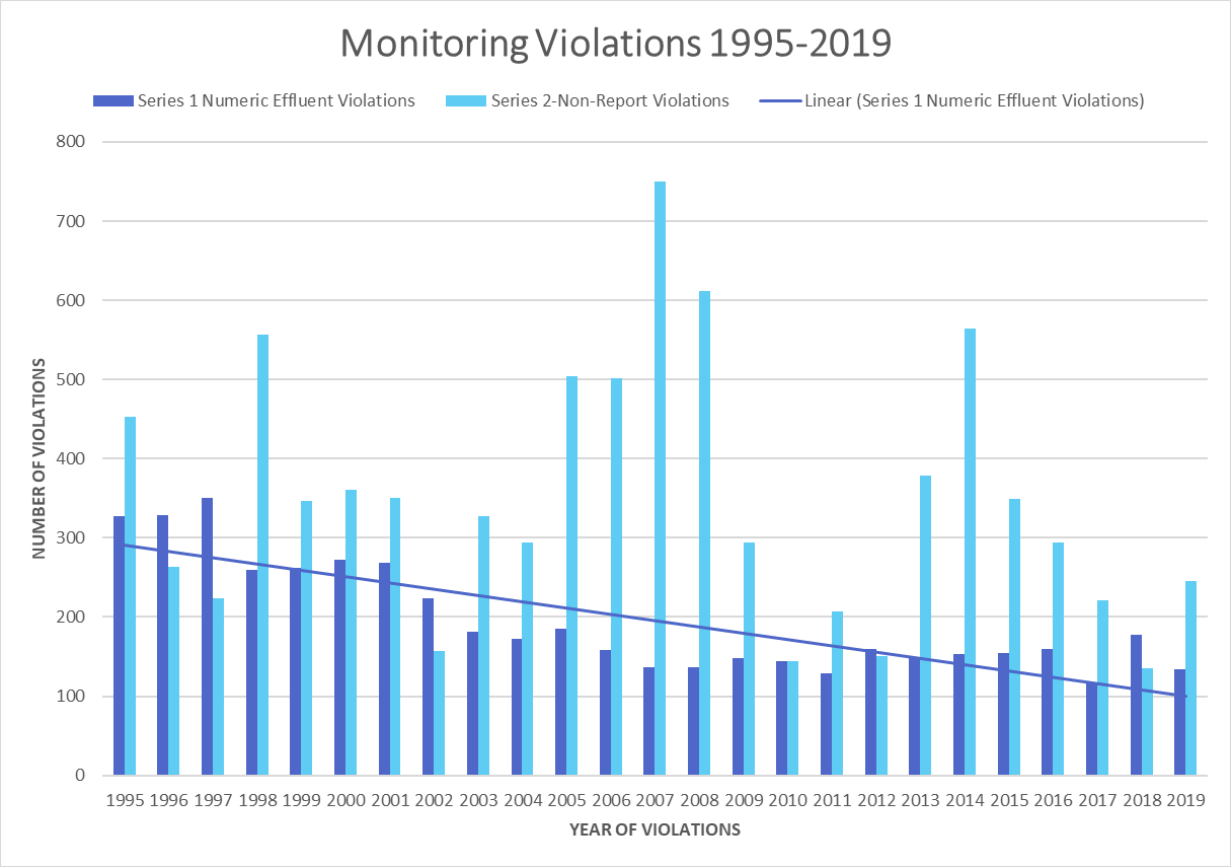
Any facility as described above, which is located on the Colville Reservation, may apply for coverage of only non-surface water discharges under this general permit. Discharges to surface water on the Colville Reservation remain under the jurisdiction of the EPA.

Geographical Area of Coverage

Although the fresh fruit packing industry is primarily located in the state's centralized fruit growing region along the Yakima, Columbia, Wenatchee, and Okanogan Rivers, this general permit covers the entire State of Washington.

Compliance with the General Permit during the Previous Permit Cycle.

Permit compliance consists of several parts. For reporting purposes, it includes submittal compliance (submitting required reports on time) and monitoring compliance (testing the wastewater to verify compliance within the permit effluent limitations). Permit compliance also consists of compliance with Best Management Practices (BMP's) as well as other narrative requirements of the permit. Monitoring compliance includes both non-report violations (failure to complete a required test) and effluent limit violations (actual exceedances of the permit effluent limits). The chart below summarizes monitoring violations for the fresh fruit packing industry during the previous twenty-five years, 1995-2019.



Wastewater Characterization

Process wastewater discharges to surface water require that a monthly DMR be submitted to Ecology. The parameters for this monthly DMR are Flow, Biochemical Oxygen Demand (BOD5), chloride, chlorine residual, pH, Temperature, and Total Suspended Solids (TSS). Table 1 below is a 52-month average of those parameters taken from every discharge of process wastewater to a surface water between September 1, 2016 and December 31, 2020.

Table 3 — Average of Process Wastewater Discharges to Surface Waters Data Range 09/01/2016 – 12/31/2020

PARAMETER	FLOW	BOD[a]	Chloride	Chlorine Residual	pH	Temperature	Total Suspended Solids
UNITS	Gals/Day	mg/L[b]	mg/L[b]	mg/L[b]	S.U.[c]	°C[d]	mg/L[b]
AVERAGES	11,214	30.5[e]	30.4	0.01	7.1	14.95	14.70

[a]Biochemical Oxygen Demand
[b]milligrams per liter
[c]Standard Units (pH is measured in S.U. of pH). pH is not averaged, but median of all values reported is listed.
[d]Degrees Celsius
[e]Average Value for the 52-month period exceeds permit limitations

Water Sources

The fresh water used by the fresh fruit packing industry is obtained from municipal purveyors, reservoirs, surface water and/or groundwater (i.e., private wells). The amount of water consumed during packing operations varies depending upon the facility size, operating policies, type of the cooling water system, water cost/availability, and even the condition of the harvested fruit. However, those fresh fruit packers utilizing a pre-size scheme and cherry packing operations typically use larger amounts of fresh water than those not using a pre-size scheme or packing cherries. This increase in water use is due primarily to the flumes utilized in pre-size and cherry packing operations, as well as some duplication of processes (washing and rinsing) in the pre-sizing process.

General Processes

Industrial fresh fruit packing operations vary within individual packers due to customer preferences and the types and/or varieties of fruit being processed. However, the wastewater discharged from these individual facilities is characteristically very similar. Fruit packing was historically seasonal, coinciding with the fruit harvest season, which generally begins in June (cherries) and ends in November (apples). However, with the advent of CA storage, the industry currently packs fresh fruit for almost the entire year.

When fruit is picked, the producer first collects them in wooden or plastic bins. These bins are subsequently stacked and trucked to warehouse facilities for final preparation, packing, and/or storage. Upon arrival at the packing warehouses, the fruit will be handled in one of three ways: (1) immediately processed; (2) put into regular cold rooms (refrigeration only) for short-term storage; or (3) placed in CA rooms for intermediate or long-term storage after generally first being treated with antioxidants and/or fungicides. The stored fruit bins are removed as needed from storage to be packed and shipped.
For cherry packing operations that have no long-term storage possibilities, fruit is brought in, in bins, from the orchards, and immediately mechanically hydro-cooled and then packed. Because of this, cherry packing operations typically are short-term, and are over by the end of July.

The process of storing fruit in either CA or regular cold storage requires substantial cooling capabilities. There are various cooling systems possible (i.e., Freon and ammonia phase change) with some using Non-Contact Cooling Water (NCCW) for defrosting purposes. The fresh fruit packing industry has trended toward evaporative cooling systems in which water is re-circulated through tall towers where captured heat energy is released through evaporation. Although these systems effectively reduce overall water consumption, recirculation of water can lead to "fouling" of the towers. Fouling is characterized by two principal occurrences; chemical scale formation (calcium and magnesium salts) and physical blockages (suspended solids, corrosion products, and microbial growth). These principal fouling problems are typically controlled by regular treatments with chemical products, some of which display toxic properties.

The use of both CA storage and evaporative cooling tower methods has significantly increased the marketability of fruit throughout the entire year. However, these same methods involve the use of chemical additives, some of which have a significant potential to cause degradation of surface and groundwater quality.

During storage, fruit is susceptible to several postharvest diseases and disorders. The most common ***diseases*** are:

1) Gray Mold, *Botrytis cinerea*, which generally enters through the calyx and wounds in the skin at the field site;
2) Blue Mold, *Penicillium expansum*, which often enters through wounds or bruises during storage;
3) Bull's Eye Rot, *Neofabraea perennans*, which is a rot primarily established on the fruit in the orchard; and
4) Mucor Rot, *Mucor piriformis*, which is a soil-borne fungus that grows well at cold storage temperatures.

The most common ***disorders*** are: (1) Scald, which is a brown discoloration of the skin caused by oxidation; and (2) Bitter Pit, another degradation of the fruit flesh. A more detailed description of common postharvest diseases and disorders can be found in *Market Diseases of Apples, Pears, and Quinces*, Agricultural Handbook No. 376, 1976, ARS-USDA.

In order to reduce the transmission of such diseases and the occurrence of disorders, the fresh fruit packing industry relies on various chemical treatments. Formerly, the first application of a post-harvest chemical was done at the "drencher" or during pre-size operations immediately prior to the fruit being placed in storage. Though drenching operations continue at a small number of facilities, the majority of facilities have turned to “fogging” of chemical treatments into CA rooms already full of fresh produce and sealed. Oxygen is removed from the sealed rooms too typically at or less than 2%. With fogging operations, the chemical treatment has remained the same; the application method has evolved that creates less discharge of wastewaters. Fogging has greatly reduced the number of drenchers and chemical treatment at pre-sizers in recent years. Pear drenching operations continue at some facilities.

The fresh fruit packing industry's wastewater typically originates from the following areas, drenchers, packing processes (pear float tanks, packing line flumes, packing line dump tanks, hydrocoolers, etc.), cleanup processes and NCCW. Other sources of wastewater from fresh fruit packers can include sanitary sewage and stormwater. These wastewaters (process and others) are characterized below.

Drencher Operations

Certain varieties of apples are drenched with a solution containing the antioxidant Diphenylamine (DPA) (which may also be combined with fungicidal chemicals) prior to storage. DPA is used to combat the apple disorder scald, while fungicides are used to reduce post-harvest decay. Calcium chloride can also be used as a post-harvest drench to prevent disorders such as bitter pit in varieties of apples susceptible to those certain disorders. Calcium chloride can be used with DPA and fungicides.

Pears may be drenched with an Ethoxyquin solution, another antioxidant product used to treat scald. Other drench products include the fungicides thiabendazole (TBZ), pyrimethanil, fludioxonil, and difenoconazole that are typically used in postharvest drench solutions for apples, but can be used on pears as well. Another possible drencher additive is a food grade silicone de-foaming agent, which is not considered environmentally detrimental at the concentrations typically used by the fresh fruit packing industry.

There are two basic drenching methods, truck drenching and bin drenching. In **truck drenching,** (typically used for processing more than 50,000 bins per year) the drench solution is applied to the fruit while still in bins on the truck. A typical truck-drencher has at least one 1500 to 3000 gallon storage/mix tank with overhead coarse-spray nozzles. Some drenchers also have side nozzles. Drenchers are typically used only during harvest and must be drained periodically to remove dirt, sticks, leaves, organic wastes, and to recharge the chemical agents.

The predominant method for determining when to drain is based on the number of bins processed and label instructions from the chemicals used. However, some Permittees drain their drencher solutions when the chemical concentration in the solution has been determined to be “spent.” Drenching solution is recirculated: the solution cascades down through the apple bins, and is ultimately funneled by concrete berms on the floor of the drenching area and returned to the storage or mixing tanks. This collected drench solution is then re-applied onto fresh bins of apples until a decision is made to drain out the solution and make up a new batch.

In **bin drenching**, (typically used for processing less than 50,000 bins per year) the drench solution is applied to the individual bins of fruit (which have been removed from the truck) by spraying them while on a conveyor. A bin-drencher usually has one 500 to 1000 gallon tank. The drenching solution is recirculated and/or re-charged when “spent” in bin drenching through a similar method as in truck drenching.

Fogging Operations

During the previous permit term (2016-2021), drenching operations began to decrease in use, as electro-thermo fogging ("fogging") became increasingly popular for post-harvest fungicide applications for long-term storage of pome fruits. Thus, dust abatement discharges from drenching operations similarly decreased. Even though some drenching operations remain intact (primarily for permittees shipping to certain overseas markets), there was enough of the discharge decrease to make adjustments in the sampling requirements for the treatment/disposal method (TDM) for drenching operations for this permit term. Monitoring and reporting requirements remain unchanged for this permit term, however sampling frequency has been reduced to one per drenching season (typically the harvest season is late August to November, which corresponds to the drencher use season) in this permit term (2022-2027). The sampling frequency in previous versions of the permit required drenching discharges to be monitored quarterly. Since the number of facilities using this method of applying fungicide preservatives has decreased rapidly along with the fact that the drenching season is considered to be roughly a calendar quarter in length, reducing the sampling frequency aligns this permit requirement with other short season uses (cherry packing) sampling frequency. Facilities with multiple drenchers must sample **one time per season from each drencher.**

As previously discussed, drencher operations re-use product through recycling the drenching liquid until the fungicide component is determined to be "spent" (spent in this context means no longer efficacious in controlling the targeted organisms). This recycling method of drencher fluid also caused spores to be distributed throughout the bins, from bin-to-bin, and from truck-to-truck, resulting in the need to apply even more and different fungicides to the drench fluid to combat the mold from spore distribution. The spent fluid must then be disposed of, most often through the dust abatement TDM, with appropriate monitoring of the water quality of this spent fluid. Estimations for 2017 alone indicate more than 2 million metric tons of apples had been treated via fogging as opposed to drenching operations, saving as much as 6 million gallons of water use, and disposal of spent water and residual post-harvest fungicides, through this general permit TDM.

However, during the previous permit term (2016-2021) there were suspected issues with some fogging operations that created over-drift and over-spray that potentially contaminated Non-contact Cooling Water (NCCW) with residuals from fogging. NCCW discharge monitoring from this permit does not include monitoring for residual post-harvest fungicides. For this permit term, Ecology has determined to monitor fogging operations (via routine inspections) to assure that Federal Insecticide Fungicide and Rodenticide (FIFRA) label instructions are properly followed for fogging including the following:

- Turn off room cooling systems and humidifiers 12 hours prior to and during treatment.
- Turn off room circulation fans immediately prior to and during treatment.
- Visually check that the fog has totally disappeared (about 5 hours post-treatment) before restarting the cooling systems.

Packing Processes

When market orders for fresh fruit arrive, the packer opens either a CA or regular cold storage room. Whenever a storage room is opened, the stacked bins of fruit are removed as soon as possible and brought to the beginning of the packing lines.

Apple and Cherry Dump Tanks - Dump tanks are used to remove the fruit from the bins. As each bin is completely submerged in the water solution, the fruit floats out, thereby eliminating any excessive physical contact which might reduce marketability. The water then transports the fruit to one of two distinct, packing schemes; non-presize and presize. The water solution used in dump tanks often contains no chemicals, contains chlorine-based fruit sanitization products (or other sanitizers) or is acidified. During post-harvest operations, residual concentrations are checked relatively often because these chemicals are typically adsorbed onto solids and organic sugars, which could degrade their effectiveness. Ecology has determined there is only minor, if any, chemical carry-over from storage to dump tank wastewater.

Pear Float Tanks - When packing pears, since pears will not float, certain chemicals are often added to increase the water's specific gravity, which allows the fruit to float. The chemicals and/or products typically used for this purpose are lignosulfonate, sodium silicate, sodium sulfate, potassium carbonate, and potassium phosphate. These products are not necessary when using a "float-less" packing system.

Pear dump tanks may also contain the fungicide, sodium o-phenylphenoxide (SOPP) or a sanitizer such as chlorine. The interval at which the tank water solution is emptied varies and depends on each specific packing facilities operation policy.

Wastewater from pear packing float tanks may contain significant carry-over concentrations from the specific gravity enhancers and fungicides mentioned above. Lignosulfonate is especially prone to this, resulting in a potential for significant BOD_5 loading and color carryover in wastewater. The dark brown color from lignosulfonate can interfere with a POTW UV disinfection system, pass through a POTW without being treated, and may have other biological impacts to small POTWs. Therefore, any wastewater (float or rinse) containing lignosulfonate is not allowed to discharge to POTWs with UV disinfection. A number of Permittees have installed low-volume pre-rinse bars to return as much of the specific gravity enhancers to the float tank as possible.

As an alternative to chemical float enhancers, "float-less" rollover dumpers are used in some facilities. In this process, bins are placed in a cage and submerged in the tank where they are slowly rotated. A bottom chain moves non-floating fruit up to the exit flume. In addition to eliminating the need for float enhancing chemicals, rollover dumpers make it possible to apply fungicides such as SOPP in smaller in-line dip tanks, which can greatly reduce the amount of fungicide used.

Packing Lines - Packing lines vary between fruit packing facilities in the type and quantity of both chemical additives used and wastewater discharged. The fresh fruit packing industry typically uses a linear alkyl sulfonate (LAS) based detergent that washes and removes natural waxes, dirt and other orchard residues from the fruit prior to further processing. Additional acidic or basic apple wash additives such as peracetic acid, phosphoric acid, citric acid, sodium hydroxide, tri-sodium phosphate, sodium carbonate, etc., may be used. Typically, fruit packers use two distinct, but similar, packing line schemes, non-presize and presize. The non-presize scheme uses six steps, flotation, washing and rinsing, waxing, sorting and final packaging. The presize schemes use basically the same steps, but in differing orders, and include two different presize methods corresponding to whether the presizing occurs before or after long-term storage.

Non-presize schemes - Can be used with any fruit and can be used year round. For apples, the fruit is elevated or conveyed out of the dump tank. Next, the apples pass underneath a wash spray, which typically contains a detergent and/or sanitizer. The rollers in this area are usually bristle-covered (brushes) to physically aid in the effectiveness of the wash solution. The fruit are then rinsed with a spray of freshwater to flush off excess chemicals. In some cases, the rinse is followed with an additional sanitizer spray.

The fruit is finally moved across a series of brushes or sponge-covered rollers to remove excess water from the surface of the fruit. Sometimes, additional devices (i.e., fans, heaters, and dehumidifiers) are used to expedite the removal of rinse water through evaporation. From this point on, the rest of the packing process is waterless.

Once the fruit surface has been dried, the fruit may be coated by passing through a fruit coating spray on top of bristle-covered rollers (brushes). Use of brushes assures even application of the coatings, which are usually shellac (fast drying with high gloss), carnauba (usually for export), or a combination of the two. The coating spray may also contain a fungicide. After passing through the “waxer,” the fruit continues on top of regular rollers through a forced-air dryer/dehumidifier to assure fixation of the coating. They are then physically directed into specific lanes of movement, which guide the fruit through the sorting process.

In the more modernized packing plants, the fruit next passes underneath either or both of the following optic/mechanical devices; a row of “electric eyes” which analyze the fruit for percent of color and/or a row of precise microprocessor-controlled scales for weight determinations. Each individual fruit is carried down parallel sorting lines and gently placed at a specific location, which has been calculated by the microprocessor according to various marketing categories pre-selected by the operator. This is in contrast to older facilities, where the fruit is still hand-sorted for both size and color.

At the end of the packing line, the fruit is given a final visual quality control check and placed into a variety of packaging containers including boxes, bulk bags, plastic clamshells, totes, and so on. These are then boxed, and put into regular cold storage until time for shipment.

Presize schemes - Are used mainly with apples or pears and can occur either before or after long-term storage. Presize schemes are more extensive and tend to use greater quantities of water than non-presize schemes. This is because fruit conveyance is done by water **flumes** rather than the mechanical devices used in non-presize schemes. Chlorine-based products are often used to control spore build-up of postharvest decay fungi. However, total residual chlorine can potentially combine chemically with other waste products to produce toxic by-products (i.e., chloramines). A typical presize fruit packer uses a number of flumes at any one time, from six to 18. Flume dimensions may vary considerably. The most important factor is that all sorting is completed separate from the packing line, which itself is nearly identical to that of the non-presize scheme.

When presizing occurs before CA storage, harvested fruit is brought from the fields and drenched at this time (if drenching), before placement in short term storage. The fruit is then removed from storage, placed in dump tank, sorted, and re-binned. The full bins are placed into long-term storage according to produce size. When market orders arrive, the bins of properly sized apples are retrieved from storage and sent through the non-presize scheme (as described above), with exception of sorting, since that has been previously completed.

When presizing occurs after CA storage, binned fruit is taken out of storage and then is placed in dump tank, washed, rinsed, and sorted. Once the sorting has been accomplished, the apples are re-binned and placed into regular cold storage. When market orders arrive, the bins of properly sized apples are retrieved from storage and sent through the non-presize scheme (as described above), with exception of sorting, since that has been previously completed.

Non-Contact Cooling Water (NCCW)

Chemicals Used to Prevent Fouling - NCCW commonly requires some type of treatment, typically chemical-based in order to prevent biological or physical fouling. The industry uses a wide variety of these chemicals in various combinations and concentrations. These chemical additives, by their nature, have the potential to exhibit toxicity in the receiving water. Given the large number of chemicals and the potential synergistic effects of their combinations, Ecology concluded it would not be practical to regulate these additives individually in this general permit. Whole Effluent Toxicity (WET) testing will better demonstrate toxicity. Permittees that wish to discharge NCCW (with chemical additives) to surface waters must pass the WET test in order for that discharge to be covered under this general permit. WET testing is discussed in more detail under TDM 6 – Surface Water, at S5.F.7 of the general permit.

Currently there exists, alternative non-chemical treatment technologies for NCCW. Some examples of these technologies are as follows, Ultrasound, Pulse-Power, and Ozone. Ultrasound is used as microbiological (bacteria/algae) control treatment in cooling water systems. When applied to NCCW, ultrasound frequencies that are greater than 16 kHz result in cavitation, creating high local pressures and temperatures. This causes light and highly reactive radicals to be emitted. Pulse-Power systems can be used to control corrosion, scale, and bacteria/algae. These systems include a high frequency pulse generator (controller) and a reaction chamber.

The controller introduces a high frequency, time-varying electromagnetic field into the cooling water via a reaction chamber. This electrical field deteriorates the cell membranes, which kills bacteria and other pathogens. Ozone treatments help control scale and bacteria/algae growth in water-cooling towers. Ozone treatment systems compress ambient air, then dry and ionize it to produce ozone. The ozone is then added to the circulating water in the tower (*Cooling Tower Study: Facts and Lessons Learned*, Washington State Department of Ecology [TREE], September 2007, pages 8, 9, and 10).

NCCW that contains priority pollutants, dangerous wastes, or toxics in toxic amounts, will only be permitted to discharge into lined evaporative lagoons. NCCW that does not contain priority pollutants, dangerous wastes, or toxics in toxic amounts, is permitted to be discharged to any of the six TDMs (following a passed WET test for surface water discharges).

Total Dissolved Solids (TDS) in NCCW - TDS, which affects the aesthetic value of groundwater, is a secondary groundwater criterion set at the Groundwater Quality Standard of 500 mg/L, established in chapter 173-200 WAC. The health risks associated with TDS, especially at the levels reported by most packers are low. Packers obtain water for NCCW purposes from several sources including private wells, surface waters and municipal water systems. The TDS content of the source water sometimes exceeds the groundwater criterion of 500 mg/L.

TDS is generally considered a conservative pollutant. Given the complexity of soil forms and aquifer/soil interactions, it is difficult to generalize or predict the impact TDS will have on aquifer concentrations, especially after wastewater containing high levels of TDS has been discharged via land application. Given the reported TDS concentration levels, the implementation of BMPs, and the relatively low volumes of application, Ecology has determined a TDS effluent limit for discharges of NCCW to dust abatement and land application is unnecessary however, sampling, analysis, and reporting will continue.

Note: References to human health refer to those risks associated with impacts of wastewater discharges into waters of the state. It does not refer to risks associated with exposure to any chemical additive or ingestion of any chemical residue on the fruit.

Chlorine-Based Chemicals

Calcium hypochlorite (CAS# 7778-54-3), sodium hypochlorite (CAS# 7681-52-9) and chlorine dioxide (CLO2) (CAS# 10049-04-4) –

Calcium hypochlorite, sodium hypochlorite, chlorine dioxide, and other chlorinated chemicals are common additives and disinfectants used during the packing of fruit. Calcium hypochlorite is highly toxic to aquatic organisms.

Chlorine dioxide is a powerful oxidizing agent used as an alternative disinfectant to chlorine. It has 2.5 times the oxidizing capability of chlorine, and generates no chloramines or tri-halomethanes and inhibits the formation of chloroform. It is a greenish-yellow gas that is

typically produced on-site due to its explosive nature. Off gassing of chlorine can occur with the use of chlorine dioxide, so worker health should also be considered. Human health concerns with the wastewater should be low when used at normal use concentrations.

A new process has been introduced into this permit issuance as an alternative to direct chlorine product purchases. Electrolyzed Water Processes are allowed to be installed and the products produced from the process are allowed to be utilized and discharged through any TDM (except dust abatement). This process includes hypochlorous acid that may be utilized as a disinfection product. Discharges are required to meet all permit limitations for chlorine residuals.

Chlorine can form highly toxic chloramines upon contact with ammonia and/or nitrogenous compounds. However, fruit packing wastewaters generally lack significant amounts of ammonia and/or nitrogenous compounds. Residual chlorine, in the absence of ammonia, may also produce chloroform due to its reactivity with organic material. Residual chlorine has a strong adsorption to soil; therefore, chlorine-based compounds are not expected to leach through the soil matrix in dust abatement, land application, and percolation treatment/disposal methods (TDM) uses.

Total residual chlorine concentrations are of concern when using chlorine-based chemicals because they are extremely toxic for aquatic organisms. In order to discourage high total residual chlorine concentrations, the fruit packing industry is encouraged to employ best management practices, waste reduction techniques and/or chemical substitution. These techniques should minimize the formation of potentially toxic or environmentally unsound wastewater and thereby protect the quality of ground and surface waters of Washington State.

Wastewater containing any type of chlorine-based chemical are allowed to be discharged to any of the six TDMs, but total residual chlorine must be sampled for if chlorine-based products are utilized. The most stringent total residual chlorine discharge limit for dust abatement and land application is 10.0 mg/L. The general permit limits discharges to POTWs to 0.50 mg/L of total residual chlorine and discharges to percolation systems to 5.0 mg/L of total residual chlorine. Discharges to surface waters are limited to 0.019 mg/L of total residual chlorine, the acute freshwater water quality criterion. If a packer uses the diethyl-p-phenylene (DPD)/colorimeter test method (40 CFR Part 136) to measure this parameter, then the enforceable limit is the established quantitation level (analytical detection limit) of 0.05 mg/L due to the lack of a reasonably priced field test kit which can detect total residual chlorine at lower levels. A packer does not violate the permit when it measures a total residual chlorine value between 0.019 mg/L and 0.05 mg/L, but it must report the value as “less than 0.05 mg/L.” If total residual chlorine concentrations exceed the above effluent limits then packers must de-chlorinate the discharge.

Fungicides

Fludioxonil (CAS# 131341-86-1), 4-(2, 2-difluoro-1, 3benzodioxal4-yl-1H–pyrrole-3-carbonitrile) –

Fludioxonil is a postharvest fungicide that helps control the pathogens that cause postharvest diseases such as blue mold, gray mold, bull's eye rot, rhizopus rot, bitter rot, sphaeropis rot, phacidiopynis rot, and white rot to pome fruits (fleshy fruits such as apples or pears). Fludioxonil comes from the Phenylpyrrole chemical class. It can be applied in drenchers, dip tanks and packing line spray systems. It is used in concentrations of 300 mg/L and can be used in conjunction with DPA, Ethoxyquin and other fungicides. Fludioxonil also has low mobility capabilities and therefore has a low potential to leach to groundwater.

Due to it being highly toxic to aquatic organisms, wastewater containing Fludioxonil is prohibited from discharging to any TDM other than lined lagoon, dust abatement and/or land application. The strictest maximum permit limit for both dust abatement and land application is 300 mg/L, at an application rate of 1800 gal/acre/day, every other day, to a maximum of 30 applications a year.

Difenoconazole (CAS# 119446-68-3), 1{2-[4-(chlorophonoxy) - 2chlorophenyl-(4-methyl-1, 3-dioxolan-2-yl))-methyl]}-1H-1, 2, 4-triazole

Use of Difenoconazole was a new addition to the Fresh Fruit Packers' general permit that became effective on September 1, 2016 as a postharvest dip or drench, or as a line spray fungicide after it was registered by EPA on March 26, 2015. The EPA Registration number is 100-1529. This product was conditionally registered in accordance with FIFRA section 3(c) (7) (B). For this issuance of the Fresh Fruit Packing General Permit, the TDM allowed for use has been expanded to included dust abatement. The limitations for use remain the same, however, the discharge to dust must be separate sites from DPA, Chlorine based product, Natamycin and the sets backs from fresh water sources and well water sources remain 200 feet.

Difenoconazole is a postharvest dip or drench, or line spray fungicide that helps control the pathogens that cause postharvest diseases such as:

- Alternaria rot (side rot) and surface mold (*Alternaria alternata*)
- Bitter rot (*Colletotrichum gloeosporioides*)
- Blue mold (*Penicillium expansum)*
- Bull's-eye rot (*Neofabraea malacorticis; N. alba; N. perrenans; N. nova)*
- Gray mold (*Botrytis cinerea)*
- Phacidiopycnis rot (*Phacidiopycnis piri*)
- Rhizopus rot (*Rhizopus stolonifer)*
- Speck rot (*Phacidiopycnis washingtonensis*)
- Sphaeropsis rot (*Sphaeropsis pyriputrescens*)
- White rot (*Botryosphaeria dothidea*)

Considering the toxicity to aquatic organisms and data gaps such as the unknown synergistic effects of this fungicide with other classes of fungicides allowed for use in this permit. Wastewater containing Difenoconazole is prohibited from discharging to any TDM other than lined lagoon and dust abatement on separate sites. The allowable concentration of Difenoconazole is 300 mg/L.

Refer to APPENDIX B—REPORTS AND DOCUMENTS RELATED TO DIFENOCONAZOLE for more information concerning this post-harvest fungicide.

Pyrimethanil (CAS# 53112-28-0), (4, 6–dimethyl–n phenyl–2–pyrimidinamine) –

Pyrimethanil is a postharvest fungicide that helps control pathogens that cause postharvest diseases such as blue mold, gray mold, bull's eye rot, sphaeropsis rot, phacidiopycnis rot, and other pathogens often found in pome fruits. Pyrimethanil can be applied in drenchers, dip tanks and as a packing line spray systems. It is typically used in drenchers at a concentration of 500 mg/L, but can be used in concentrations of up to 2,000 mg/L and can be used in conjunction with DPA, ethoxyquin, and other fungicides.

Wastewater containing pyrimethanil is prohibited from discharging to any TDM other than lined lagoon, dust abatement, and land application. This general permit contains two different maximum permit limits for wastewater containing pyrimethanil, the first being 500 mg/L, with an application rate of 1800 gallons/acre/day, every other day, to a maximum of 30 applications per year and a maximum of 1000 mg/L, with an application rate of 1800 gallons/acre/day, every other day, to a maximum of 15 applications per year.

Captan® (CAS# 133-06-2), (4-cyclohexane-1, 2-dicarboximide, N-((trichloromethyl) (thio))

Captan® is a fungicide usually applied on stone fruits (including cherries) and berries. It can also be applied as a postharvest dip to apples and pears. Captan® is used at concentrations up to a maximum of 1200 mg/L.

Due to it being highly toxic to aquatic organisms, wastewater containing Captan® is prohibited from discharging to any TDM other than a lined evaporative lagoon, dust abatement and/or land application. The strictest maximum permit limit for dust abatement and land application discharges is based on the dangerous waste regulation calculated maximum concentration limit of 10.0 mg/L.

Thiabendazole (TBZ) (CAS# 148-79-8)

TBZ is a fungicide used to control blue and gray molds. It is typically used in drencher solutions at concentrations of up to 615 mg/L, which is the maximum label use rate. It can also be used in a line spray or added to the wax coating at rates up to 2000 mg/L for treatment of postharvest decays.

TBZ is a General Use Pesticide (GUP) and is in EPA toxicity class III (slightly toxic). It was declared eligible for registration by the EPA in 2002. TBZ is stable to photolysis in soil and hydrolysis. It does not metabolize significantly in soils under aerobic or anaerobic conditions. TBZ is readily

adsorbed onto soil particles and is practically immobile in soil. Its affinity for soil binding increases with increasing soil acidity. EPA has concluded that due to its affinity for soil and high soil/water partitioning coefficients, the risks for leaching into groundwater and runoff into surface waters are low. Given TBZ's low solubility, it is most likely to be bound to sediment.

Drencher wastewater (no matter what chemicals are used) is not allowed to discharge to POTWs, percolation systems, and surface waters. Discharges to POTWs (with permission) of wastewater containing TBZ (except drencher wastewater) will have a maximum limit of 50 mg/L and discharges (except drencher wastewater) to percolation systems will have a max limit of 10.0 mg/L (the aquatic toxicity value). Individual POTWs may deny discharge or may set limits that are more stringent if they feel it is necessary to protect their operations. Any wastewater containing TBZ is prohibited from discharging to surface waters. The maximum permit limit for wastewater (drencher and packing wastewater) containing TBZ for both dust abatement and land application is 615 mg/L, at an application rate of 1800 gallons/acre/day, every other day, to a maximum 30 applications per year. Ecology requires only one annual analysis of TBZ for drencher wastewater discharges to dust abatement and land application.

SOPP (sodium ortho-phenylphenoxide) (CAS# 132-27-4)

SOPP is a fungicide commonly used in pear float tanks at concentrations from 1000 to 6000 ppm. It is used primarily with one of the following pear float enhancers, lignosulfonate, sodium sulfate, sodium silicate, and potassium carbonate. It may also be used in a separate in-line dip tank. This chemical has proven to be highly toxic to aquatic organisms.

Chlorine should not be used in conjunction with SOPP because the chlorine can destroy the compounds in SOPP and possibly form polychlorobiphenyls (PCBs). The chlorine would not be able to attain a free disinfection residual that would be sufficient to destroy postharvest pathogen spores (*Investigation into Effluent Discharges from Washington Fresh Apple Packers* (EPA Contract No. 68-03-2578), September 1980, 110 pg.).

At concentrations lower than 10.0 mg/L, SOPP is easily and rapidly biodegraded. Discharges of wastewater containing SOPP to POTWs are limited to maximum permit limit of 50.0 mg/L. Individual POTWs may set limits that are more stringent if they feel it is necessary to protect their operations. Discharges of wastewater containing SOPP to percolation systems have a maximum permit limit of 6.0 mg/L, the LC50 toxicity value. The tiered application rate for land application and dust abatement established in the previous permit remains in effect. Application frequency is limited to once per week to reduce the risk of the SOPP inhibiting the microbial action needed for its degradation. The maximum SOPP concentration is set at the normal maximum use concentration of 6000 mg/L for the same reason. These limits are subject to change if additional research becomes available, or if any biological testing or monitoring indicates SOPP concentrations at these levels are not being adequately treated.

Natamycin

Natamycin is a post-harvest active ingredient used to control several post-harvest diseases on pome and stone fruits. It is a non-synthetic pesticide produced by fermentation of naturally

occurring soil microorganisms. Its primary use will be associated with organic fruit packing as a dip, drench, or spray. The treatment/disposal methods (TDMs) in the general permit are limited to that receive direct sunlight exposure: dust abatement and land application. The POTW TDM was also included because residual product will undergo treatment process before discharge. The concentration of products with active ingredient Natamycin for use under the general permit is 1,000 mg/L, which meets the FIFRA approved label concentration level for use on pome and stone fruit.

Citric Acid

Citric acid is an active ingredient in pesticide products registered for residential and commercial use as a fungicide. These products may be used to kill odor-causing bacteria, mildew, pathogenic fungi, certain bacteria and some viruses. Citric acid occurs naturally in plants and in animal tissues and fluids. It can also be extracted from citrus fruit, pineapple waste, and produced on an industrial scale by mold-based fermentation of carbohydrates such as molasses. The Environmental Protection Agency (EPA) has waived most of the generic data collection requirements for re-registration for Citric Acid. Citric acid is a well-known component of carbohydrate metabolism in living organisms, and is found naturally in soil and water. It degrades readily when in contact with a variety of microorganisms that are found in soil, natural waters and sewage treatment systems. Its primary use will be associated with organic fruit packing as a dip, drench, or spray.

Antioxidants

Diphenylamine (DPA) (CAS# 122-39-4)

DPA is an antioxidant that prevents the brown "scald" discoloration of apples and may be used in combination with other fungicides. It is used in drenching solutions at concentrations of up to 2200 mg/L. In 1997, DPA was approved for re-registration for post-harvest use by the EPA. The Re-registration Eligibility Decision (RED) states that DPA appears to be very labile in the environment, with aerobic soil metabolism and aqueous photolysis being important. When exposed to light in water transformation half-life is 4.39 hours. It undergoes rapid degradation in the presence of ultraviolet (UV) light and air, having a half-life of approximately 30 days in unamended soil. However, some substances enhance the degradation process, showing a half-life of approximately 10 days. It appears the ultimate fate of DPA residues is; mineralization and soil binding. Relatively little information is available about the transformation products of DPA under aerobic soil metabolism or aqueous photolytic conditions. DPA readily adsorbs onto soil, exhibiting low mobility and therefore, is not expected to leach. The mobility of DPA ranges from somewhat mobile in clay soil to mobile in other soil types (EPA Re-registration Eligibility Decision (RED), Diphenylamine EPA738-R-97-010).

The RED indicates DPA is moderately toxic to fish (LC50 (96hr) =2.2 for rainbow trout).

DPA has been found to interfere with POTW processes at 10 mg/L and since actual discharges have significantly interfered with POTWs in the past, this TDM is prohibited for use. Wastewater containing DPA is prohibited from discharging to any TDM other than lined

lagoons, dust abatement or land application. The most stringent discharge limit for land application is the maximum normal use concentration of 2200 mg/L. For dust abatement apply DPA-containing waste streams at any rate of up to a maximum annual rate of 990 lbs. /acre of road surface or bin lot, which is equivalent to the discharge of 1800 gallons/acre of 2200 mg/L of DPA, 30 times per year, every other day. Ecology will not require an annual analysis of this parameter for the above TDMs, if the Permittee complies with all the terms and conditions of this general permit and applies wastewater containing DPA at a maximum rate of 1800 gallons/acre/day, every other day, to a maximum of 30 applications per year.

Ethoxyquin (CAS# 91-53-2)

Ethoxyquin is an antioxidant used to control pear scald. This chemical is typically used at a concentration of approximately 2700 mg/L and may be used in combination with other fungicides. Effects on POTWs and environmental degradation processes are not known.

The discharge limit for wastewater (drencher and packing) containing ethoxyquin for both dust abatement and land application is the maximum normal use concentration of 2700 mg/L, at a maximum application rate of 1800 gallons/acre/day, every other day, to a maximum 30 applications per year. Not all drencher wastewater (no matter what chemicals are used) is allowed to discharge to POTWs, percolation systems and surface waters. Discharges of wastewater (except drencher wastewater) containing ethoxyquin to POTWs will have a maximum permit limit of 50 mg/L and discharges (except drencher wastewater) to percolation systems will have a maximum permit limit of 5.0 mg/L. Any wastewater containing ethoxyquin is prohibited from discharging to surface waters. Ecology will only require an annual analysis of ethoxyquin for dust abatement and land application discharges.

Pear Float Gravity Enhancers

Potassium Carbonate (CAS# 584-08-7)

Potassium carbonate is a specific gravity enhancer for pears and is usually used at a starting concentration of 27,000 ppm. It is often used with SOPP in float tank systems.

Float tank and rinse wastewater containing potassium carbonate is prohibited from discharging to surface waters. Only **rinse** wastewater containing potassium carbonate is allowed to discharge to POTWs. The strictest discharge limit is the maximum normal use concentration of 27,000 mg/L. Untreated wastewaters containing potassium carbonate will most likely be high in pH (11-12) and will therefore need to be reduced to at least a pH of 6.0 to 9.0 either before or after application.

Potassium Phosphate (CAS# 7320-34-5)

Potassium phosphate is a specific gravity enhancer for pears and is often used with chlorine in float tank systems. It is typically used at a starting concentration of about 28,800 ppm.

Float tank wastewater containing potassium phosphate is prohibited from discharging to any TDM other than lined lagoons and land application. Rinse wastewater containing potassium

phosphate is allowed to discharge to dust abatement, land application and lined lagoons. The strictest discharge limit for land application and dust abatement is the maximum normal use concentration of 28,800 mg/L.

Sodium Silicate (CAS# 1344-09-8)

Sodium silicate is a specific gravity enhancer for pears and is used at a starting concentration of 30,000 ppm. Sodium silicate has been detrimental to some POTW processes due to its abrasiveness and corrosive nature. However, this same characteristic may have significant road maintenance qualities, making it appropriate for discharges to dust abatement.

Float tank and rinse wastewater containing sodium silicate is prohibited from discharging to any TDM other than a lined lagoon, dust abatement, or land application. The strictest discharge limit for dust abatement and land application is the maximum normal use concentration of 30,000 mg/L. Untreated wastewaters containing sodium silicate will normally be high in pH (10.0 to 11.0) and will need to be reduced to at least a pH between 6.0 - 9.0 either before or immediately after application.

Sodium Sulfate (CAS# 7757-82-6)

Sodium sulfate is a specific gravity enhancer for pears and is used at a starting concentration of 30,000 ppm. The FDA has classified this chemical as an indirect food additive due to being poorly absorbed into the gastrointestinal tract.

Both float tank and rinse wastewater containing sodium sulfate is allowed to discharge to lined lagoons, dust abatement, and land application. Only **rinse** wastewater containing sodium sulfate is allowed to discharge to POTWs and percolation systems. Both float tank and rinse wastewater containing sodium sulfate is prohibited from discharging into surface waters.

The main concern about wastewater containing sodium sulfate is the sulfate component. Even if sodium sulfate is not used, sulfate is a required monitoring parameter for discharges to the following TDMs: POTWs (excluding NCCW), land application (excluding NCCW and drencher wastewater), and percolation systems (excluding NCCW). The only time sulfate is a required parameter for discharges to dust abatement is when sodium sulfate is used. Whenever sulfate is a required parameter, the maximum permit limit is always the same, 250 mg/L, which is the state's groundwater quality standard. Wastewaters containing sodium sulfate will normally be high in sulfate and may need pretreatment before discharge.

Lignosulfonate (CAS# 8061-51-6)

Lignosulfonate is a specific gravity enhancer used to float pears. The normal float tank concentration is 12% (120,000 mg/L) lignosulfonate, of which 50% or 60,000 mg/L are solids. The BOD_5 to solids ratio is generally 0.3 to 1 resulting in approximately 18,000 mg/L BOD_5 in the float tank solution. The maximum permit limit for dust abatement is the normal float tank use concentration of 12% or 120,000 mg/L lignosulfonate. If the Permittee complies with all the terms and conditions of this general permit, Ecology will not require analysis of this parameter for the above TDM.

Rinse wastewater containing Lignosulfonate is allowed to be discharged to lined lagoons, POTWs (which do not use UV disinfection), land application and dust abatement. Even in rinse wastewater there is a strong potential for effluent limit violations due to lignosulfonate being extremely high in BOD_5. Odor control measures may be necessary for discharges to lined lagoons due to the high BOD_5 content. In the past, quantities of lignosulfonate wastewater entered POTWs, adversely affecting the operation of the POTWs, either because of the BOD_5 exceeding the limits or because of the color interfering with the UV disinfection system and passing through the system untreated. Measures must be taken to ensure that such discharges must not exceed any limit given for any specific TDM or cause any interference or by-pass at a POTW. Such measures can include process and source control methods such as; countercurrent washing systems, pre-rinse bars, collection and return of tank overflow and other runoff to the dump tank, recycling, dry or float less dump systems, alternative chemicals or any other new pollutant reduction techniques that become available. This general permit prohibits the discharge of both float tank wastewater and rinse water containing lignosulfonate to POTWs that use UV disinfection. At such time, that scientific evidence would indicate that different limits and/or TDMs would be possible without causing significant potential to violate any state or federal law or standard, this general permit may be modified accordingly.

Other Chemicals/Processes

Calcium Chloride (CAS# 10043-52-4)

Calcium chloride is used to help prevent disorders in fruit that are caused by low calcium levels, such as bitterpit. It may be used in postharvest drencher solutions at a concentration of approximately 2200 mg/L (equivalent chloride concentration = 1406 mg/L). It can be used with DPA or other fungicides.

Wastewater containing calcium chloride is prohibited from discharging to any TDM other than lined lagoons, dust abatement and land application. The best way to control chlorides is with the use of BMPs, including specifying a maximum use concentration and a maximum annual application rate. The maximum use concentration is the label use rate of 2200 mg/L and the maximum annual application rate for dust abatement and land application is 1800 gal/acre/day, one (1) time a year. These rates were chosen using a biased model to determine the annual application rate of calcium chloride that could be diluted by dormant seasonal precipitation to coincide with a concentration rate that would be protective of groundwater.

One of the main concerns using calcium chloride is its chloride component. Chloride is a secondary groundwater criterion and is set at the Groundwater Quality Standard of 250 mg/L, with the main concern being the aesthetic value of the water. The criterion was set as a drinking water standard at the point where a salty taste could be detected. There is a minimal health risk associated with chloride. Chloride is considered a conservative pollutant in that the only “treatment” it can receive is dilution. For all TDMs besides lined lagoons, permittees are required to sample for chloride in all wastewater except for drencher wastewater and NCCW

(even when calcium chloride is not used) at a max rate of 250 mg/L (Groundwater Quality Standard).

Ozone

The tri-atomic molecule of oxygen is a bluish gas that has been used for disinfecting drinking water since 1893. The effectiveness of ozone is not as dependent on pH and temperature as chlorine, nor does it require extensive contact time. Ozone does not react appreciably with ammonia and produces no known toxic by-products. It has a disinfection potential of at least twice that of chlorine. These experiments found that ozone at 0.3 ppm, or chlorine at 54 ppm, in dump (float) tank water controlled *Penicillium* and *Cladosporium* to the same levels. An ozone level of 0.5 ppm killed approximately 80% of the spores in an exposure time of three (3) minutes (Spotts RA, "Use of Ozone for Decay Control", Proceedings of the 7th Annual Washington Tree Fruit Postharvest Conference, March 27 and 28, 1991).

Peroxyacetic Acid (also referred to as Peracetic Acid) (CAS# 79-21-0)

Peroxyacetic acid (PAA) is used in postharvest fruit packing process water to control microbial growth in water systems or on equipment. It is most often used in dump tanks and packing line spray systems, but can also be used in flume water. For fruit packing purposes, peroxyacetic acid is most often used in a formulation that contains hydrogen peroxide and acetic acid. This formulation is commonly just referred to as peroxyacetic acid or peracetic acid. It is typically used at a concentration between 40-100 mg/L.

Agitation or contact with organics such as apples, leaves and dirt accelerates the decomposition of peroxyacetic acid. Once decomposition occurs, it degrades rapidly into water, oxygen, and acetic acid.

Due to a lack of ecological and toxicological information, wastewater containing peroxyacetic acid is prohibited from being discharged to any TDM other than lined lagoon, dust abatement, or land application. Under certain circumstances, discharges to a POTW may be allowed, but these discharges must be approved by the POTW and Ecology. Ecology will not require analysis of this parameter for the above TDMs as long as the Permittee complies with all the terms and conditions of this general permit.

Psuedomonas syringae CAS #68583-32-4 (available as Bio-Save®)

Bio-Save® consists of bacterium strains of *Psuedomonas syringae,* CAS# 68583-32-4*,* which is also the active ingredient. It is generally applied to apples and pears in drencher solutions or packing line spray systems in order to help control blue mold, gray mold, and mucor rot. When used on apples and pears, it can be used in conjunction with DPA. For use with cherries, it is applied via overhead drip or packing line spray systems and helps control blue mold and gray mold. This application results in minimal discharge, only during clean up. It is killed on contact with sanitation cleaners such as bleach and quaternary ammonium compounds. Ecology will not require analysis of this parameter if the Permittee complies with all the terms and conditions of this general permit.

Silicone defoaming agent (organosilicone fluid emulsion)

This product is used to de-foam process water and is typically used up to a maximum of 100 mg/L, which corresponds to the maximum FDA limit of 10.0 mg/L silicone solids. It has a pH between 4 and 5. Human health risks appear to be low as the product used is FDA food grade. The strictest discharge limit for any application is the maximum normal use concentration of 100 mg/L. Ecology will not require analysis of this parameter if the Permittee complies with all the terms and conditions of this general permit.

Coatings (carnauba or shellac), with/without fungicide additives

Coatings are often applied to give fruit physical protection and an attractive appearance for shipment. These products are spray applied and are assumed to be a minor contributor to overall wastewater discharges and thus not detrimental to any of the TDMs. Human health risk appears to be low, as these are typically food grade additives. Apples are typically given an application of either a shellac or carnauba-based coatings, which may also contain small concentrations of a fungicide to prevent bacterial action.

Other Chemicals, Products, or Processes

Packing lines vary between fruit packing facilities in the type and quantity of both chemical additives used and wastewater discharged. The fresh fruit packing industry typically uses linear alkyl sulfonate (LAS) based detergent washes to remove natural waxes, dirt and other orchard residues from the fruit prior to further processing. Additional acidic or basic apple wash additives such as acetic acid, phosphoric acid, citric acid, sodium hydroxide, trisodium phosphate, sodium carbonate, etc., may be used to remove hard water deposits which can result from overhead irrigation. After washing, apples are rinsed with copious amounts of clean fresh water prior to entering the dehumidifier, coating application, and dryer. Packing line and cleanup wastewaters primarily contain detergents, disinfectants, and wax removing products in concentrations that appear compatible with all the allowed TDMs.

New sanitization products that can include doorway sanitizers for forklift traffic must be approved by Ecology before use.

Process A:

A recent development and installation at fruit packing facilities includes a settling tank where float tank waters are settled out with the use of conditioners and synthetic polymers to reduce the suspended solids and BOD in the discharge. The following products are allowed to be used in this wastewater handling process:

- Miles Chemical Company: CM-402
- SNF, Inc.: FLOPAM EM 533
- SND, Inc.: FLOPAM EM 640 CT
- Aquamark, Inc.: AQ 702

Discharges from this type of industrial facility treatment process, is anticipated to have very little residuals of the conditioning and polymer products. However to prevent process upsets and spills, permit limitations include settleable solids monitoring and reporting of the discharge when these products are used prior to discharge.

Process B:

Electrochemically Activated Water (also known by various equipment providers as Acidic Oxidizing Water, Acidic Electrolyzed Water, Electrochemically Activated Water, Functional Water, Redox Water, SterilOx Water, Super Oxide Water, and others). Electrolyzed water processes utilize 'table' salt and water combined with electrical charge to provide two by-products via electron transfer, hypochlorous acid (disinfectant) and sodium hydroxide (detergent). This process has gained traction recently to utilize the by-products for packinghouse pathogen control, post-harvest disease control, fungal control, and foodborne pathogen reduction.

Permit limitations in the General Permit are sufficient to control and mitigate effects to the environment from most of the treatment/disposal methods (TDM) in the general permit for discharge waters containing product residuals from the activated water processes with the following mitigating provisions in the General Permit:

a. Surface water discharges of fresh fruit packing wastewaters containing residuals from any activated water process are allowed only after a secondary treatment process of the wastewater;

b. Discharges of fresh fruit packing wastewaters containing residuals from any activated water process to publicly owned treatment works (POTW) are allowed only after recertification by the POTW authorities recognizing the potential corrosiveness of the discharge waters from any activated water process;

c. The activated water process generates a leftover "brine" product that can be heavily polluted with salts, and potentially contain uncontrolled concentrations of other pollutants present in the feed water. Therefore, the permit limits disposal of the brine to an approved lined evaporative lagoon, with no potential to be discharged to any other TDM allowed.

Table 4 — Selection of Treatment/Disposal Methods (TDMs) and Allowed Discharges for Each TDM

Chemical/Product Used[a]	Discharge Source	Restrictions	ONLY ALLOWED TDM'S
DPA, TBZ, fludioxonil, pyrimethanil, Captan® calcium chloride & ethoxyquin **(Industry common names: Captan® Pyrimethanil—Penbotec® Fludioxonil—Scholar®, Academy®) ****	Dip or Drench	-Limit treatment to the lowest effective concentration -Do not exceed **Table 5** levels	-Lined Lagoon -Dust Abatement -Land Application
Difenoconazole	Dip or Drench Apple and Stone Fruit Packing	-Limit treatment to the lowest effective concentration -Do not exceed **Table 5** levels -More stringent setbacks (Table 7)	-Lined Lagoon -Dust Abatement
No post-harvest fungicides, chlorine-based products only, washing/waxing products with or w/out chlorine-based products (may include PAA, buffers, and non-chlorine based sanitizers)	Apple and Stone Fruit Packing	-Limit treatment to the lowest effective concentration -Do not exceed label levels -Washing/Waxing products must receive secondary treatment before discharge to surface waters	-Lined Lagoon -Dust Abatement -Land Application -POTW -Percolation Systems -Surface Water
Citric Acid	Apple and Stone Fruit Packing Pear Packing	-Limit treatment to the lowest effective concentration -Do not exceed label levels -No discharges to Dust Abatement	-Lined Lagoon -Land Application -POTW -Percolation Systems -Surface Water
TBZ	Apple and Stone Fruit Packing	-Limit treatment to the lowest effective concentration -Do not exceed **Table 5** levels -No discharges to surface waters -POTW levels restricted to 50 mg/l -Percolation system levels restricted to 10 mg/l	-Lined Lagoon -Dust Abatement -Land Application -POTW -Percolation Systems
Captan®, pyrimethanil	Apple and Stone	-Limit treatment to the lowest	-Lined Lagoon

Chemical/Product Used[a]	**Discharge Source**	**Restrictions**	**ONLY ALLOWED TDM'S**
(penbotec®), fludioxonil (scholar®, academy®)**	Fruit Packing	effective concentration -Do not exceed **Table 5** levels	-Dust Abatement -Land Application
Natamycin	Apple and Stone Fruit Packing	-Limit treatment to the lowest effective concentration -Do not exceed **Table 5** levels -POTW must approve receiving wastewater with residuals of Natamycin	-Lined Lagoon -Dust Abatement -Land Application -POTW
Lignosulfonate with or without SOPP	Pear Packing	-Limit treatment to the lowest effective concentration -Do not exceed **Table 5** levels -Additional monitoring requirements may be applicable (**see Table 9**) -Discharge not allowed to POTW that use UV Disinfection	Float— -Dust abatement only Rinse— -Lined Lagoon -Dust Abatement -Land Application -POTW
Potassium carbonate with or without SOPP or chlorine-based or other sanitizers	Pear Packing	-Limit treatment to the lowest effective concentration -Do not exceed **Table 5** levels -pH adjustments may be needed before discharge	Float— -Lined Lagoon -Dust Abatement -Land Application -Percolation System Rinse— -Lined Lagoon -Dust Abatement -Land Application -POTW -Percolation System
Potassium phosphate with or without SOPP or chlorine-based products or other sanitizers	Pear Packing	-Limit treatment to the lowest effective concentration -Do not exceed **Table 5** levels	Float— -Lined Lagoon -Land Application Rinse— -Lined Lagoon -Dust Abatement -Land Application
Sodium silicate with or without SOPP or chlorine-based products	Pear Packing (Float OR Rinse)	-Limit treatment to the lowest effective concentration -Do not exceed **Table 5** levels -pH adjustments may be needed before discharge	-Lined Lagoon -Dust Abatement -Land Application

Chemical/Product Used[a]	**Discharge Source**	**Restrictions**	**ONLY ALLOWED TDM'S**
Sodium sulfate with or without SOPP or chlorine-based products	Pear Packing	-Limit treatment to the lowest effective concentration -Do not exceed **Table 5** levels - In order to meet sulfate limitations, pretreatment may be needed	Float— -Lined Lagoon -Land Application Rinse— -Lined Lagoon -Dust Abatement -Land Application -POTW -Percolation System
Ethoxyquin and/or Floatless Dumper with SOPP	Pear Packing	-Limit treatment to the lowest effective concentration -Do not exceed **Table 5** levels -Discharge to POTW with Ethoxyquin restricted to 50 mg/l	-Lined Lagoon -Dust Abatement -Land Application -POTW -Percolation System
Floatless dumper with or without chlorine-based products	Pear Packing	-Limit treatment to the lowest effective concentration -Do not exceed **Table 5** levels	-Lined Lagoon -Dust Abatement -Land Application -POTW -Percolation Systems -Surface Water
Electrolyzed Water Processes[b]	The use of bi-products (hypochlorous acid and sodium hydroxide) from electrolyzed water processes are approved for pack line use	-Limit treatment to the lowest effective concentration -Follow operation and maintenance recommendations from supplier -pH adjustments or dechlorination processes may be required before discharge. -Due to potential corrosivity of water POTW must certify acceptance of wastewater at the time of equipment installation	-Lined Lagoon -Land Application -POTW -Percolation Systems -Surface Water
Brine	From any Electrolyzed Water Process	-No Disposal except lined evaporative lagoon.	-Lined Lagoon
Non-Priority Pollutants, dangerous waste, or	Non-Contact Cooling Water	-Limit treatment to the lowest effective concentration	-Lined Lagoon -Dust Abatement

Chemical/Product Used[a]	Discharge Source	Restrictions	ONLY ALLOWED TDM'S
toxics in toxic amounts	with or without additives	-Do not exceed recommended label concentrations -Discharges of NCCW with or without additives to POTW requires approval by Ecology before discharges begin -Discharges of NCCW with additives to surface waters require whole effluent toxicity testing under certain conditions, contact Ecology for more information.	-Land Application -POTW -Percolation Systems -Surface Water
With priority pollutants, dangerous wastes or toxics in toxic amounts	Non-Contact Cooling Water with or without additives	-Limit treatment with additives to the lowest effective concentration -Do not exceed recommended label concentrations.	-Lined Lagoon
SNF, Inc. FLOPAM™, EM 533 GR, AQUAMARK, Inc. Aquamark 702**	Water Treatment Chemicals from any processes	-Limit treatment with additives to the lowest effective concentration -Do not exceed recommended label concentrations.	-Lined Lagoon -Dust Abatement -Land Application -POTW

[a] The recommended analytical methods are listed in **Appendix A**.

[b] This process has several "trade" names including but not limited to, Acidic Oxyidizing Water, Acidic Electrolyzed Water, Electrochemically Activated Water, Functional Water, Redox Water, SterilOx Water, Super Oxide Water, plus many others. Requirements and restrictions apply to any or all.

** **Common names of products, even if a registered trademark, often become industry terminology. Those names are included as a matter of convenience. Ecology does not recommend or endorse any product or company. Facilities are responsible to conduct their own research and determine the best product that contains the needed active ingredient, and that will enable the facility to meet the requirements of this general permit.**

Table 5 — Chemical Additive Maximum Use Rates

CHEMICAL TYPES	CHEMICAL NAME	MAXIMUM USE CONCENTRATION RATES[a,b]
Pear float tank gravity enhancers	Lignosulfonate	120,000 mg/L or 12% solids
	Sodium sulfate	30,000 mg/L or 3% solids
	Sodium silicate	30,000 mg/L or 3% solids
	Potassium carbonate	27,000 mg/L
Drencher/Dip Tank chemicals and other chemicals and additives	DPA	2,200 mg/L
	TBZ	615 mg/L
	Ethoxyquin	2,700 mg/L
	Calcium chloride	2,200 mg/L
	Captan®	1,200 mg/L
	Fludioxonil (scholar®/academy®)**	300 mg/L[2]
	Difenoconazole	300 mg/L
	Pyrimethanil (penbotec®)**	See Tables 10 & 14
	SOPP	6,000 mg/L – see Tables 10 &14
Packing line chemicals	TBZ	2,000 mg/L
	Fludioxonil (scholar®/academy®)**	300 mg/L[2]
	Difenoconazole	300 mg/L
	Pyrimethanil (penbotec®)**	2,000 mg/L
	SOPP	6,000 mg/L – see Tables 10 & 14
	Ethoxyquin	2,700 mg/L
	Natamycin	1,000 mg/L

a Maximum use concentration rates are not the same as discharge rates – see the discharge rates and limitations listed throughout the fact sheet.

b Concentration of specific product used must not exceed the concentration defined in the table.

** **Common names of products, even if a registered trademark, often become industry terminology. Those names are included as a matter of convenience. Ecology does not recommend or endorse any product or company. Facilities are responsible to conduct their own research and determine the best product that contains the needed active ingredient, and that will enable the facility to meet the requirements of this general permit.**

Conditional Use of Chemicals Not Listed In the Permit

Ecology may modify this general permit to include the conditional use of products/chemicals not normally allowed if certain procedures are first followed. The EPA and/or the Washington State Department of Agriculture (WSDA) must approve the products for a specific use. The products must also undergo a risk assessment process that must be approved by Ecology. For

more information regarding the conditional use of chemicals, please refer to *Special Condition S13* in the permit.

Ecology will no longer modify a general permit without an industry-demonstrated need for the product to be added to the permit. Ecology has also established a procedure to allow site-specific facility cover pages to be issued to individual coverages (after completing the public notice process as established in *chapter 173-226-130 (5) WAC*) that will allow use of new or emerging class of chemicals not listed in this general permit. This use will be on a site-specific basis for the facility to utilize until the next renewal of the general permit. The procedures may also be utilized for the chemical provider companies to conduct risk assessment studies on products. Ecology must still approve the use of the chemical at a facility on a site-specific basis and it must follow the public process listed above. Limits on length of time of use maybe included in the facility cover page.

Sample Type and Frequency

Fruit packers must collect representative grab samples with the exception of measurements for pH, total residual chlorine and temperature, which must be done on grab samples immediately after collection. Monitoring must be done in any quarter in which there is a discharge. Monitoring frequency must be quarterly for all wastewater discharges except: (1) TBZ and ethoxyquin concentrations in drencher wastewater, which must be done annually; and (2) all process wastewater discharges to surface waters, must be done monthly.

Moreover, Ecology may establish specific monitoring requirements in addition to those contained in this general permit by a companion administrative order. Current in effect companion administrative orders are included in Appendix D of the permit and are continued through the next permit cycle.

Selection of TDMs

Ecology has studied the characteristics of wastewater discharges from the fresh fruit packing industry. The TDMs discussed below were designed for the protection of waters of the state, POTWs, and human health. They must not conflict with any stricter existing zoning, land use, and/or local health department regulations. This general permit requires the Permittee to identify all of the wastewater streams to be discharged by the facility. The Permittee must then select for each wastewater stream, the appropriate TDM based upon the actual type of wastewater.

A Permittee may use one or a combination of the following six allowed TDMs, as appropriate:

Definition of Lined Evaporative Lagoons (Lined Lagoons)

Lined lagoons are lined, engineered structures that rely largely upon evaporation for water

removal. Lined lagoons also include pre-manufactured, aboveground fiberglass or metal tanks. Lagoon geomembrane liners constructed after September 1, 2016 must meet or exceed the performance specifications of a 60 mil synthetic HDPE liner. For the purposes of this general permit, clay liners are not acceptable.

Lined Lagoon Requirements

Permit Special Condition S5.A.1 states that the construction and design of any lined lagoon must be managed by a geomembrane specialist or a licensed professional engineer (P.E.) unless this requirement is waived by Ecology in accordance with *chapter 173-240 WAC*.

Lagoon geomembrane liners constructed after September 1, 2016 must meet or exceed the performance specifications of a 60 mil synthetic HDPE liner. Ecology recommends double lined evaporative lagoons with a leak detection system, with each geomembrane liner with a minimum of a 40 mil thickness. Permittees may alternatively use above ground, pre-manufactured fiberglass tanks or fiberglass or metal lined tanks in lieu of geomembrane liners.

BMPs

Five-year lagoon liner examinations/inspections - All lagoons must be completely emptied and liners must be examined at least once every five (5) years after being built. Permittees must maintain (on-site) documentation showing the results and the date of the five year examination and what actions were or will be taken. If significant deterioration and/or tears are found during the five-year examination/inspection and the liner is less than 60 mil, the liner must be replaced. Ecology will strictly review documentation from any completed five-year examination/inspection.

Permittees operating a double lined lagoon with a leak detection system may submit a leak detection plan, and detection results, in lieu of the requirement to completely empty the lagoon.

Table 6 — Effluent Limits & Monitoring of Discharges to Lined Lagoons

PARAMETER	MINIMUM	SAMPLE FREQUENCY	SAMPLE TYPE
Freeboard (reported in feet)	2 feet	Quarterly	Measurement

Table 7 — Minimum Setback Distances (feet) for Lined Lagoons[1]

	Surface Waters Of The State	Potable Water Wells
Lined lagoons with DPA and/or Difenoconazole	250 feet	250 feet
Lined lagoons without DPA	50 feet	100 feet

[1] No chemical testing is required for discharges to lined lagoons.

Rationale for Lined Lagoons

The general permit does not include requirements for analyzing wastewater discharged to lined evaporative lagoons. Discharge limitations are the maximum normal use concentrations and discharge volumes must not exceed the two-foot freeboard daily minimum monitoring limit.

Due to the nature of some of the products used in fresh fruit packing and their potential to contaminate groundwater, Ecology implemented the requirements above and requires that recommended Best Management Practices (BMP's) be implemented for all lined lagoons under the Fresh Fruit Packing General Permit. As a part of BMP's lined lagoons are required to be drained, cleaned out, and the liner inspected and/or repaired every five (5) years or once per permit term.

Often times in the fresh fruit packing industry, facilities utilize lined evaporative lagoons as holding ponds for a time, and then eventually discharge the water to another TDM. This is an approved method of storage. It often occurs during winter season when land application or dust abatement activities are not possible. When a facility continues discharges to another TDM **from** the lined evaporative lagoon, all discharges from the lagoon to another TDM, must follow the monitoring and reporting schedule on that discharge from the lagoon ("stored" wastewater) according to the TDM requirements.

Table 8 — Application/Discharge Rates & Frequencies for Dust Abatement (TDM 2) and Land Application (TDM 3) Discharges

WASTEWATER DESCRIPTION		MAXIMUM APPLICATION[a]	
		RATE	FREQUENCY
LAND APPLICATION ONLY: Any permitted wastewater (see table 3) with BOD_5 or TSS levels of: (Excluding any drencher wastewater, NCCW, pear float tank wastewater, wastewater containing fludioxonil (scholar®, academy®) and/or pyrimethanil (penbotec®))**	0 to 200	6000 gal/acre/day	Every other day
	201 to 400	3000 gal/acre/day	Every other day
	401 to 600	2000 gal/acre/day	Every other day
	More than 600	Discharge Not Allowed	
Any permitted wastewater (see Table 3) except the following: Any drencher wastewater, NCCW, pear float tank wastewater, wastewater containing fludioxonil (scholar®, academy®), pyrimethanil (penbotec®), DPA, or Difenoconazole **		1800 gal/acre/day	180 applications/year every day
Any drencher wastewater – NOT containing calcium chloride, fludioxonil (scholar®, academy®) and/or pyrimethanil (penbotec®)**		1800 gal/acre/day	30 applications/year every other day
Drencher wastewater – containing calcium chloride		1800 gal/acre/day	ONE (1) application/year
Any wastewater containing Fludioxonil (scholar®, academy®) with a concentration in mg/L of:**	Maximum of 300	1800 gal/acre/day	30 applications/year every other day
Any wastewater containing pyrimethanil (penbotec®) with a concentration in mg/L of:**	0 to 500	1800 gal/acre/day	30 applications/year every other day
	500 to 1000	1800 gal/acre/day	15 applications/year every other day
	more than 1000	discharge not allowed	
Any pear float tank wastewater[b] with an SOPP (or other fungicide) concentration in mg/L of:	0 to 1000	4840 gal/acre/day	Once per Week
	1001 to 2000	2420 gal/acre/day	Once per Week
	2001 to 3000	1613 gal/acre/day	Once per Week
	3001 to 4000	1210 gal/acre/day	Once per Week
	4001 to 5001	968 gal/acre/day	Once per Week
	5001 to 6000	807 gal/acre/day	Once per Week
	More than 6000	Discharge Not Allowed	

[a] Application rates are valid only if chemical concentrations are in compliance with the maximum use rates specified in Table 5.
[b] Pear float tank wastewater containing; lignosulfonate, sodium sulfate, sodium, silicate and potassium carbonate is allowed to be discharged via dust abatement. Only rinse wastewater containing potassium phosphate is allowed to be discharged via dust abatement.

Table 9 — Required Soil & Groundwater Monitoring For Discharges to Dust Abatement and Land Application with Lignosulfonate[a]

DISCHARGE/APPLICATION FREQUENCY	REQUIRED MONITORING	TESTING FREQUENCY
Once every 30 or more days	None	N/A
Once every 14 to 29 days	Test subsoil with dipyridyl for the presence of Fe^{+2} ions at 12-inch depth within the lowest part of the application site where ponding may occur.	Quarterly
Once every 7 to 13 days	Install a down gradient monitoring well to test groundwater for BOD_5 and with dipyridyl test for the presence of Fe^{+2} ions.	Monthly

[a]The max use rate of lignosulfonate is 12% solids or 120,000 mg/L, the max application rate is 4840 gal/acre and the max application frequency is no more than once every 7 days.

Definition of Dust Abatement

Dust abatement is the discharge of wastewater to unpaved bin storage lots, unpaved roads (i.e., orchard roads), or unpaved driveways/parking lots for the purpose of dust suppression. This TDM is primarily intended for the discharge of drencher wastewater and pear float wastewater. Permittees may discharge other wastewater sources via dust abatement; see *Permit Special Condition S5.B* in the general permit for more information. Each facility desiring to use this TDM must prepare a Road Management Plan (RMP); see *Permit Special Condition S5.B.2.d* of the general permit for more information about RMPs.

Any wastewater streams containing DPA, lignosulfonate, difenoconazole, or chlorine-based chemicals must have separate application sites and RMPs. The Permittee's RMP must not allow for potential or actual contamination of waters of the state, or violate any other federal, state, or local regulation.

Batch mix records must also be maintained to ensure accurate chemical concentration within the wastewater. The batch mix records are not required to be submitted to Ecology, but must be available upon request by Ecology representatives. See *Permit Special Condition S5.B.2.b* for more info on batch mix records. A batch mix record that meets the requirements of the BMP's is included in Appendix F of the general permit.

Table 10 — Effluent Limits & Monitoring for NCCW and Other Allowed Discharges to Dust Abatement

Analysis is Required for All of the Following Parameters Except When: (1) Chemical is Not Used or (2) Those Marked Not Required (N)

PARAMETER/ POLLUTANT[b]	DAILY MAXIMUM PERMIT LIMIT[a]		SAMPLE FREQUENCY	SAMPLE TYPE
	NCCW only	Other allowed wastewater sources[c]		
Flow (gallons/day)	Record Value	Record Value	Report The Highest Number of Total Gallons Applied During any 24 Hour Period In The Quarter	Measurement
Application Area	Record acres used	Record acres used	Quarterly	Record acres used
Application Loading Rate	**See Table 8**	**See Table 8**	Quarterly	Calculated
pH (standard units)	6.0 – 9.0	6.0 – 9.0	Quarterly	Grab
Total chloride (mg/L)	**NR**	250	Quarterly	Grab
Total dissolved solids (TDS) (mg/L)	record value	500	Quarterly	Grab
Total residual chlorine[d] (mg/L)	10	10	Quarterly	Grab
Total sulfate[e] (mg/L)	**NR**	250	Quarterly	Grab
Captan® (mg/L)	**NR**	10	Quarterly	Grab
SOPP (mg/L)	**NR**	**See Table 8**	Quarterly	Grab
SOPP loading rate	**NR**	40.4 lbs./acre/day	Quarterly	Grab
Fludioxonil (mg/L)	**NR**	300	Quarterly	Grab
Pyrimethanil (mg/L)	**NR**	**See Table 8**	Quarterly	Grab

[a] Effluent limits & monitoring are valid only if all chemical concentrations & app. rates are in compliance with those specified in Tables 5 and 8.

[b] The recommended analytical methods are listed in **Appendix A of the permit**.

[c] This applies to all other wastewater sources except drencher wastewater and cherry packing wastewater see Table 11 for the cherry packing discharge information.

[d] Required test only if chlorine-based products are used.

[e] Required test only if sodium sulfate is used.

Table 11 — Effluent Limitations & Monitoring for Cherry Packing and Drencher (Bin or Truck) Wastewater Sources to Dust Abatement

Analysis is Required for All of the Following Parameters Except When:

(1) Chemical is Not Used or (2) Those Marked Not Required (NR).

Facilities with Multiple Drenchers Must Monitor each Drencher Separately.

Batch Mix Records for each Drencher Must be Available Upon Request.

PARAMETER/ POLLUTANT[b]	DAILY MAXIMUM PERMIT LIMIT[a]		SAMPLE FREQUENCY	SAMPLE TYPE
	Cherry Packing Season	Drencher Harvest Season		
Flow (gallons/day)	Record Value	Record Value	Maximum Day Flow	Report Maximum Day Flow
Application Area	Record acres used	Record acres used	One Time Each Season	Record acres used
Application Loading Rate	**See Table 8**	**See Table 8**	One Time Each Season	Calculated
pH (standard units)	6.0 – 9.0	6.0 – 9.0	One Time Each Season	Grab
Total chloride (mg/L)	250	**NR**	One Time Each Season	Grab
Total dissolved solids (TDS) (mg/L)	500	**NR**	One Time Each Season	Grab
Total residual chlorine[c] (mg/L)	10	10	One Time Each Season	Grab
Captan® (mg/L)	10	10	One Time Each Season	Grab
Ethoxyquin (mg/L)	**NR**	2700	One Time Each Season	Grab
TBZ (mg/L)	**NR**	615	One Time Each Season	Grab
Difenoconazole (mg/L)	**NR**	300	One Time Each Season	Grab
Fludioxonil (mg/L)	300	300	One Time Each Season	Grab
Pyrimethanil (mg/L)	**See Table 8**	**See Table 8**	One Time Each Season	Grab
Natamycin (mg/L)	500	**NR**	One Time Each Season	Grab

[a] Effluent limits & monitoring are valid only if all chemical concentrations & app. rates are in compliance with those specified in Tables 5 and 8.

[b] The recommended analytical methods are listed in **Appendix A**.

[c] Required test only if chlorine-based products are used.

Table 12 — Minimum Setback Distances (Feet) for Dust Abatement Discharge Sites

	SURFACE WATERS	POTABLE WATER SUPPLY WELLS
Dust Application Sites without Difenoconazole	50 feet	100 feet
Dust Application Sites with Difenoconazole	250 feet	250 feet

Rationale for Dust Abatement Effluent Limits and Application Rate Limits

Due to the low amount of permit violations, Ecology has determined that requiring only quarterly sampling (excluding TBZ & Ethoxyquin, which are annual) is adequate to determine permit compliance and compliance with the State's surface water and groundwater quality standards for NCCW and other allowed discharges.

For drenching and cherry operations, the packing season is routinely less than three months long for cherries, and the drenching season is routinely equal to or less than three months in length. Ecology has determined that one sample per cherry packing season and one sample per drenching harvest is analogous to "quarterly monitoring" even though the season for the activity may cross an actual calendar quarter boundary. For all drenching operations, batch mix records must be kept showing discharge amounts and locations, and must be available upon request. A batch mix record, developed by Ecology, that includes all needed elements are available for copying in the General Permit appendix.

Minimum Setback Distances – Due to the inclusion of such chemicals as difenoconazole, fludioxonil, and pyrimethanil, which range from moderately to highly toxic to aquatic organisms, and in order to be more protective of the quality of surface waters and groundwater, the permit writer for Ecology has established minimum setback distances for this General Permit based upon professional judgement.

BOD_5 and Lignosulfonate - The permit does not require monitoring for BOD_5 for any wastewater discharges to dust abatement. Other than those containing lignosulfonate, most discharges to dust abatement are estimated to have BOD_5 concentrations of less than 500 mg/L. This, combined with the maximum daily application rate of 1800 gallons/acre, results in BOD_5 loadings of less than 7.5 lbs./acre/day, which should protect groundwater. Ecology determined that BOD_5 from pear float solutions containing lignosulfonate are best controlled using proper solution preparation, application rates, and BMPs. Lignosulfonate solutions must not exceed the normal use rate of 12% (120,000 mg/L), of which 50% or 60,000 mg/L are solids. With a BOD_5 to solids ratio of 0.3 to 1, this results in a maximum BOD_5 limit of 18,000 mg/L.

pH - Ecology placed the technology-based effluent limits for pH in the permit. Packers must maintain pH in the range of 6.0 to 9.0. This is less stringent than the state's groundwater quality standard of 6.5-8.5 – set in *Chapter 173-200 WAC*. pH is **not** a required parameter for drencher wastewater to dust abatement.

Total Chloride - The maximum permit limit of 250 mg/L, is the state's groundwater quality standard – set in *Chapter 173-200 WAC*. Total chloride is **not** a required parameter for drencher and NCCW discharges to dust abatement.

Total Dissolved Solids (TDS) - TDS, which affects the aesthetic value of groundwater, has a maximum permit limit of 500 mg/L for process wastewater, which is the state's groundwater quality standard – set in *Chapter 173-200 WAC*. NCCW discharges to dust abatement do not have a maximum permit limit for TDS, but it is still a required parameter. Permittees obtain water for NCCW from several sources including private wells, surface waters and municipal water systems. The TDS content of the source water often exceeds the groundwater criterion of 500 mg/L. During the cooling process, evaporative losses concentrate the naturally occurring dissolved solids in the source water, resulting in TDS criterion exceedances. The health risks associated with TDS, especially at the levels reported by most Permittees are low. Given the complexity of soil forms and aquifer/soil interactions, it is difficult to generalize or predict the impact TDS will have on aquifer concentrations. Given the reported TDS concentration levels, the implementation of BMPs and the relatively low volumes of application, Ecology determined a TDS effluent limit for discharges of NCCW to dust abatement, unnecessary. However, TDS in process wastewater discharges to dust abatement have a maximum permit limit of 500 mg/L.

Total Residual Chlorine (TRC) - The maximum permit limit is equal to the dangerous waste regulations calculated maximum concentration of 10 mg/L. TRC is a required parameter for all wastewater types being discharged to dust abatement that contain chlorine-based products however, if no chlorine-based products are used, TRC does **not** need to be sampled for.

Total Sulfate - The maximum permit limit is 250 mg/L, the state's groundwater quality standard – set in *Chapter 173-200 WAC*. Sulfate is **not** a required parameter for drencher and NCCW discharges to dust abatement and are only required if Sodium Sulfate is used with any of the other wastewater source types (i.e., packing line wastewater).

'Captan' (N-Trichloromethylthio-4-cyclohexene-1,2-dicarboximide) - The permit includes a maximum permit limit equal to the dangerous waste regulations calculated maximum concentration of 10 mg/L for wastewater discharges with this chemical to dust abatement. Captan is only a required parameter if used. Captan is not used in NCCW.

Ethoxyquin - The permit includes a maximum permit limit equal to the maximum normal use concentration of 2700 mg/L. If the Permittee complies with all the terms and conditions of this

general permit, ethoxyquin is only required to be sampled for once a year within drencher wastewater discharges via dust abatement. Ethoxyquin is only a required parameter if used. Ethoxyquin is not used in NCCW.

TBZ - The maximum permit limit is the maximum normal drencher use concentration of 615 mg/L. If the Permittee complies with all the terms and conditions of this general permit, TBZ is only required to be sampled once a year in drencher wastewater being discharged via dust abatement. TBZ is only a required parameter if used. TBZ is not used in NCCW.

SOPP - The maximum permit limit is equal to the dangerous waste regulations calculated maximum concentration of 6000 mg/L. However, depending on the SOPP concentration, maximum application rates may vary. See Table 9 of the general permit for more information regarding wastewater discharges containing SOPP to dust abatement. SOPP is only a required parameter if used. SOPP is not used in drencher water or NCCW.

SOPP Loading Rate - The loading rate equals the Maximum Application Rate multiplied by the SOPP reported concentration level then that sum is divided by 120,000. To calculate the loading rate per acre, convert the discharge to flow to million gallons per day (gallons discharged/1,000,000) X laboratory concentration in mg/L X 8.34 lbs. /gallon = lbs. per day of SOPP. For lbs. per acre, divide the lbs. per day of SOPP (first calculation above) by the number of acres = lbs./acre/day.

Fludioxonil - The maximum permit limit for wastewater containing fludioxonil discharged via dust abatement is 300 mg/L. Ecology continues to require quarterly analysis of this parameter for discharges to dust abatement in other approved discharges, and is allowed once per season for drencher operations. Monitor for fludioxonil levels only if using the product. Fludioxonil is not used in NCCW.

Pyrimethanil - This general permit allows pyrimethanil to have two different maximum permit limits. When applied at a maximum concentration of 500 mg/L or less, the maximum permit limit is 500 mg/L, with an application rate limit of 1800 gallons/acre/day, every other day and not to exceed 30 applications per year to a single application site. When used at a concentration between 500 mg/L and the drencher application maximum permissible amount of 1000 mg/L, the permit limit is 1000 mg/L, with an application rate limit of 1800 gallons/acre/day, every other day, and not to exceed 15 applications per year to a single application site. Ecology allows once per drenching season monitoring for this parameter in drencher operations. Monitor for pyrimethanil levels only if using the product. Pyrimethanil is not used in NCCW.

DPA - The maximum permit limit is equal to the maximum normal use concentration of 2200 mg/L at a daily maximum application rate of 1800 gallons/acre, every other day, 30 applications per year to a single site. This is equivalent to an annual application rate of 990 lbs. of DPA/acre.

The maximum annual and daily rates were derived using data collected by Gray & Osborne, Inc. (Gray & Osborne, Inc., *Soil Column Study*, 1993) These maximum rates and frequencies will remain in force for the life of this general permit unless scientific evidence becomes available indicating that a different limit may be allowed. This general permit may then be modified accordingly.

This general permit will not require an analysis of this parameter, if the Permittee complies with all the terms and conditions of this general permit. The Permittee must maintain records of all drencher water discharges using a **Batch Mix Record**. The permit specifies required fields of the Batch Mix Records.

Difenoconazole - The maximum permit limit for wastewater containing difenoconazole discharged via dust abatement is 300 mg/L. Ecology requires monitoring once per season for drenching operations and quarterly for other approved wastewater of this parameter for discharges to dust abatement. Monitor for difenoconazole levels only if using the product. Difenoconazole is not used in NCCW.

Sodium Silicate - The permit includes a discharge limit equal to the maximum normal use concentration of 30,000 mg/L. Analysis of this parameter will not be required for dust abatement discharges if the Permittee complies with all the terms and conditions of this general permit. Any application rate (not concentration) that does not produce runoff or ponding will be permitted. However, this wastewater needs to be adjusted to an acceptable pH range (6.0 to 9.0) prior to application/discharge.

Potassium Carbonate - The permit includes a discharge limit equal to the maximum normal use concentration of 27,000 mg/L. Analysis of this parameter will not be required for dust abatement discharges if the Permittee complies with all the terms and conditions of this general permit. Any application rate (not concentration) which does not produce runoff or ponding will be permitted. However, this wastewater needs to be adjusted to an acceptable pH range (6.0 to 9.0) prior to application/discharge.

Definition of Land Application

Land application is an engineered system for discharging wastewater onto a vegetated land surface. The chemical, biological, and physical processes treat the discharged wastewater as it flows through the plant-soil matrix. The system generally consists of an application site (i.e., piece of land) and a distribution system (i.e., sprinklers) for uniformly distributing the wastewater. A lined storage tank or lagoon for holding the wastewater during periods when it cannot be land applied (i.e., frozen or flooded ground) may be required. Such storage must comply with the general permit's lined lagoon requirements.

See Tables 8 and 9 of this Fact Sheet for additional chemical use information that applies to discharges for Dust Abatement AND to Land Application.

Table 13 — Effluent Limits & Monitoring for NCCW and Pack Line Discharges to Land Application Sites

PARAMETER/ POLLUTANT[b]	DAILY MAXIMUM PERMIT LIMIT[a]		Sample Frequency	SAMPLE TYPE
	NCCW only	Other allowed wastewater sources[c]		
Flow (gallons/day)	Record Value	Record Value	Maximum Day Flow	Report Maximum Day Flow
BOD_5 (mg/L)	**NR**	**See Table 8**	quarterly	Grab
BOD_5 loading rate	**NR**	10 lbs./acre/day	quarterly	Grab
pH (standard units)	6.0 - 9.0	6.0 - 9.0	quarterly	Grab
Total Chloride (mg/L)	**NR**	250	quarterly	Grab
Total Sulfate (mg/L)	**NR**	250	quarterly	Grab
Total Dissolved Solids (TDS) (mg/L)	record value	500	quarterly	Grab
Total Suspended Solids (TSS) (mg/L)	**NR**	**See Table 8**	quarterly	Grab
TSS Loading Rate	**NR**	10 lbs./acre/day	quarterly	Grab
Total Residual Chlorine[d] (mg/L)	10	10	quarterly	Grab
Captan® (mg/L)	**NR**	10	quarterly	Grab
TBZ (mg/L)	**NR**	500	quarterly	Grab
SOPP (mg/L)	**NR**	**See Table 8**	quarterly	Grab
SOPP loading rate	**NR**	40.4 lbs./acre/day	quarterly	Grab
Fludioxonil (mg/L)	**NR**	300	quarterly	Grab
Pyrimethanil (mg/L)	**NR**	**See Table 8**	quarterly	Grab

[a] Effluent limits & monitoring are valid only if all chemical concentrations & app. rates are in compliance with those specified in Tables 5 and 8.

[b] The recommended analytical methods are listed in **Appendix A**.

[c] This table applies to all wastewater sources except drencher wastewater sources and cherry packing wastewater sources.

[d] Required test only if chlorine-based products are used.

Table 14 — Effluent Limits & Monitoring for Cherry Packing and Drencher Discharges to Land Application Sites

PARAMETER/ POLLUTANT[b]	DAILY MAXIMUM PERMIT LIMIT[a]		SAMPLE FREQUENCY	SAMPLE TYPE
	Cherry Packing Season	Drencher Harvest Season		
Flow (gallons/day)	Record Value	Record Value	Maximum Day Flow	Report Maximum Day Flow
Application Area (acres)	Record Acres Used	Record Acres Used	One per Harvest Season	Record Acres Used
Application Loading Rate (gals/acre/day)	**NR**	**See Table 8**	One per Harvest Season	Calculated
BOD_5 (mg/L)	**See Table 8**	**NR**	One per Harvest Season	Grab
BOD_5 Loading Rate (lbs./acre/day)	10 lbs./acre/day	**NR**	One per Harvest Season	Calculated
pH (standard units)	6.0 – 9.0	**NR**	One per Harvest Season	Grab
Total chloride (mg/L)	250	**NR**	One per Harvest Season	Grab
Total Sulfate (mg/L)	250	**NR**	One per Harvest Season	Grab
Total dissolved solids (TDS) (mg/L)	500	**NR**	One per Harvest Season	Grab
Total Suspended Solids (TSS) (mg/L)	**See Table 8**	**NR**	One per Harvest Season	Grab
TSS Loading Rate (lbs./acre/day)	10 lbs./acre/day	**NR**	One per Harvest Season	Calculated
Total residual chlorine[c] (mg/L)	10	10	One per Harvest Season	Grab
Captan® (mg/L)	**NR**	10	One per Harvest Season	Grab
Ethoxyquin (mg/L)	**NR**	2700	One per Harvest Season	Grab
TBZ (mg/L)	**NR**	615	One per Harvest Season	Grab
Fludioxonil (mg/L)	**NR**	300	One per Harvest Season	Grab

PARAMETER/ POLLUTANT[b]	DAILY MAXIMUM PERMIT LIMIT[a]		SAMPLE FREQUENCY	SAMPLE TYPE
	Cherry Packing Season	Drencher Harvest Season		
Pyrimethanil (mg/L)	**NR**	**See Table 8**	One Time Each Season	Grab
Natamycin (mg/L)	500	**NR**	One Time Each Season	Grab

[a]Effluent limits & monitoring are valid only if all chemical concentrations & app. rates are in compliance with those specified in Tables 5 and 8.

[b] The recommended analytical methods are listed in **Appendix A**.

[c] Required test only if chlorine-based products are used.

Table 15 — Minimum Setback Distances (Feet) for Land Application Discharge Sites

	SURFACE WATERS	POTABLE WATER SUPPLY WELLS
Land Application Sites	50 feet	100 feet

Rationale for Land Application Effluent Limits and Application Rate Limitations

Due to the low amount of permit violations, Ecology has determined that requiring only quarterly sampling (excluding TBZ and Ethoxyquin, which are annual) is adequate to determine permit compliance and compliance with the State's surface water and groundwater quality standards. For drenching and cherry operations, the packing season is routinely less than three months long for cherries, and the drenching season is routinely equal to or less than three months in length. Ecology has determined that one sample per cherry packing season and one sample per drenching harvest is sufficient to determine permit compliance and compliance with the State's surface water and groundwater quality standards.

For drenching and cherry operations, the packing season is routinely less than three months long for cherries, and the drenching season is routinely equal to or less than three months in length. Ecology has determined that one sample per cherry packing season and one sample per drenching harvest is sufficient to determine permit compliance and compliance with the State's groundwater quality standards. For all drenching operations, batch mix records must be kept showing discharge amounts and locations, and must be available upon request. A batch mix record developed by Ecology that includes all needed elements are available for copying in the General Permit appendix.

Minimum Setback Distances – Due to the inclusion of such chemicals as fludioxonil and pyrimethanil, which range from moderately to highly toxic to aquatic organisms, the general permit contains minimum setback distances from water resources. Most setbacks in the

general permit have remained unchanged since the first general permit for this industry was issued in the mid-1990. The setbacks are considered acceptable management practices as they provide reasonable assurance of protecting public health and water resources (EPA-841-B-05-004, 2005) and remain unchanged for this reissuance.

BOD_5 - The permit controls BOD5 through the use of a tiered maximum daily application rate schedule based upon the actual BOD5 concentration in the wastewater. See Table 9 above for actual maximum permit limits and application rates. BOD_5 is **not** a required parameter for drencher wastewater and NCCW discharges to land application.

BOD_5 Loading Rate - The loading rate equals the maximum Application Rate multiplied by the parameter's reported level, then 120,000 divide that sum. The loading rate must not exceed 10 lbs./acre/day. BOD_5 loading rate is **not** a required parameter for drencher wastewater and NCCW discharges to land application.

pH - Ecology placed the technology-based effluent limits for pH in the permit. Packers must maintain pH in the range of 6.0 to 9.0. This is less stringent than the state's groundwater quality standard of 6.5 to 8.5 – set in *Chapter 173-200 WAC*. pH is **not** a required parameter for drencher wastewater discharges to land application.

Total Chloride - The maximum permit limit of 250 mg/L, is the state's groundwater quality standard – set in *Chapter 173-200 WAC*. Total chloride is **not** a required parameter for drencher and NCCW discharges to land application.

Total Sulfate - The maximum permit limit is 250 mg/L, the state's groundwater quality standard – set in *Chapter 173-200 WAC*. Sulfate is **not** a required parameter for drencher and NCCW discharges to land application.

Total Dissolved Solids (TDS) - TDS, which affects the aesthetic value of groundwater, has a maximum permit limit of 500 mg/L for process wastewater discharges to land application, which is the state's groundwater quality standard – set in *Chapter 173-200 WAC*. NCCW discharges to land application do not have a maximum permit limit for TDS, but it is still a required parameter.

Permittees obtain water for NCCW from several sources including private wells, surface waters and municipal water systems. The TDS content of the source water often exceeds the groundwater criterion of 500 mg/L. During the cooling process, evaporative losses concentrate the naturally occurring dissolved solids in the source water, resulting in TDS criterion exceedances. The health risks associated with TDS, especially at the levels reported by most Permittees are low. Given the complexity of soil forms and aquifer/soil interactions, it is difficult to generalize or predict the impact TDS will have on aquifer concentrations. Given the reported TDS concentration levels, the implementation of BMPs and the relatively low volumes of

application, Ecology determined a TDS effluent limit for discharges of NCCW to land application, unnecessary. However, TDS in process wastewater discharges to land application have a maximum permit limit of 500 mg/L.

Total Suspended Solids (TSS) - The permit includes limits for TSS at the same-tiered application rates as for BOD_5. Ecology believes the same justification applies for TSS as for BOD_5. See the description in the BOD_5 section. TSS is **not** a required parameter for drencher and NCCW discharges to land application.

TSS Loading Rate - The loading rate equals the maximum Application Rate multiplied by the parameter's reported level, and then 120,000 divide that sum. The loading rate must not exceed 10 lbs./acre/day. TSS loading rate is **not** a required parameter for drencher wastewater and NCCW discharges to land application.

Total Residual Chlorine (TRC) - The maximum permit limit is equal to the dangerous waste regulations calculated maximum concentration of 10 mg/L. TRC is a required parameter for all wastewater types being discharged to land application that contain chlorine-based products however, if no chlorine-based products are used, TRC does **not** need to be sampled for.

'Captan' (N-Trichloromethylthio-4-cyclohexene-1,2-dicarboximide) - The permit includes a maximum permit limit equal to the dangerous waste regulations calculated maximum concentration of 10 mg/L for wastewater discharges with this chemical to land application. Monitor for Captan levels only if using the product.. Captan is not used in NCCW.

Ethoxyquin - The permit includes a maximum permit limit equal to the maximum normal use concentration of 2700 mg/L. If the Permittee complies with all the terms and conditions of this general permit, ethoxyquin is only required to be sampled for once a year within drencher wastewater discharges via land application. Ethoxyquin is only a required parameter if used with drencher water. Ethoxyquin is not used in NCCW.

TBZ - The TBZ maximum permit limit for drencher wastewater is the maximum normal drencher use concentration of 615 mg/L. For drencher wastewater discharges to land application containing TBZ, only one sample is required per year. The TBZ maximum permit limit for all other wastewater sources other than NCCW is 500 mg/L. All other wastewater sources other than NCCW discharging to land application, must also sample for TBZ once a year unless it is not used. TBZ is not used in NCCW.

SOPP - The maximum permit limit is equal to the dangerous waste regulations calculated maximum concentration of 6000 mg/L. However, depending on the SOPP concentration, maximum application rates may vary. Monitor for SOPP levels only if using the product. SOPP is not used in drencher water or NCCW.

SOPP Loading Rate - The loading rate equals the Maximum Application Rate (see Table 9 of general permit) multiplied by the SOPP reported concentration level, that sum is then divided by 120,000.

Fludioxonil - The maximum permit limit for wastewater containing fludioxonil discharged via land application is 300 mg/L. Even in packing line situations where fludioxonil is used in concentrations up 1,200 mg/L, the maximum permit discharge limit must not exceed 300 mg/L. Ecology continues to require quarterly analysis of this parameter for discharges to land application. Monitor for fludioxonil levels only if using the product. Fludioxonil is not used in NCCW.

Pyrimethanil - This general permit allows pyrimethanil to have two different maximum permit limits. When applied at a maximum concentration of 500 mg/L or less, the maximum permit limit is 500 mg/L, with an application rate limit of 1800 gallons/acre/day, every other day and not to exceed 30 applications per year to a single application site. When used at a concentration between 500 mg/L and the maximum permissible amount of 1000 mg/L, the permit limit is 1000 mg/L, with an application rate limit of 1800 gallons/acre/day, every other day, and not to exceed 15 applications per year to a single application site. Ecology continues to require quarterly analysis of this parameter for discharges to land application. Monitor for pyrimethanil levels only if using the product. Pyrimethanil is not used in NCCW.

DPA - The maximum permit limit is equal to the maximum normal use concentration of 2200 mg/L at a daily maximum application rate of 1800 gallons/acre, every other day, 30 applications per year to a single site. This is equivalent to an annual application rate of 990 lbs. of DPA/acre. The maximum annual and daily rates were derived using data collected by Gray & Osborne, Inc. (Gray & Osborne, Inc., *Soil Column Study*, 1993) These maximum rates and frequencies will remain in force for the life of this general permit unless scientific evidence becomes available indicating that a different limit may be allowed. This general permit may then be modified accordingly. This general permit will not require an analysis of this parameter, if the Permittee complies with all the terms and conditions of this general permit. The Permittee must maintain records of all drencher water discharges using a **Batch Mix Record**.

Sodium Silicate - The permit includes a discharge limit equal to the maximum normal use concentration of 30,000 mg/L. Analysis of this parameter will not be required for land application discharges if the Permittee complies with all the terms and conditions of this general permit. Any application rate (not concentration) that does not produce runoff or ponding will be permitted. However, this wastewater will need to be adjusted to an acceptable pH range (6.0 to 9.0) prior to application/discharge.

Potassium Carbonate - The permit includes a discharge limit equal to the maximum normal use concentration of 27,000 mg/L. Analysis of this parameter will not be required for land application discharges if the Permittee complies with all the terms and conditions of this

general permit. Any application rate (not concentration) which does not produce runoff or ponding will be permitted. However, this wastewater may need to be adjusted to an acceptable pH range (6.0 to 9.0) prior to application/discharge.

Potassium Phosphate - The maximum permit limit is equal to the maximum normal use concentration of 28,800 mg/L. Analysis of this parameter will not be required for this TDM, if the Permittee complies with all the terms and conditions of this general permit. Any application rate (not concentration) that does not produce runoff or ponding will be permitted. However, this wastewater may need to be adjusted to an acceptable pH range (6.0 to 9.0) prior to application/discharge.

Definition of a POTW

A POTW is a municipal or regional wastewater treatment plant (i.e., city sewer system)**.**

Compliance with More Stringent Conditions Imposed by a POTW

A POTW may impose stricter conditions as they see fit. Compliance with the terms and conditions of this general permit does not relieve the Permittee from the responsibility to comply with any local limits, contracts or agreements with the POTW, including responsibility for any contamination, pass-through, interference or upset of a POTW related to the discharge from a Permittee. The discharge of significant amounts of NCCW to a POTW is prohibited except under extraordinary circumstances (i.e., lack of an alternative TDM). Permittees must not discharge NCCW to a POTW unless the discharge has been approved by both Ecology and the POTW.

Table 16 — Effluent Limits & Monitoring for All Discharges Allowed to POTWs

PARAMETER/ POLLUTANT[a]	DAILY MAXIMUM PERMIT LIMIT		SAMPLE FREQUENCY	SAMPLE FREQUENCY CHERRY PACKING SEASON[b] ONLY	SAMPLE TYPE
	NCCW only	Other allowed wastewater sources			
Flow (gallons/day)	Record Value	Record Value	Maximum Day Flow	**Maximum Day Flow**	Report Maximum Day Flow
BOD_5 (mg/L)	**NR**	500	Quarterly	**Once Per Season**	Grab
pH (standard units)	6.0 - 9.0	6.0 - 9.0	Quarterly	**Once Per Season**	Grab
Total Chloride (mg/L)	**NR**	250	Quarterly	**Once Per Season**	Grab
Total Sulfate (mg/L)	**NR**	250	Quarterly	**Once Per Season**	Grab
Total Suspended Solids (TSS) (mg/L)	**NR**	500	Quarterly	**Once Per Season**	Grab
Total Residual Chlorine[c] (mg/L)	0.5	0.5	Quarterly	**Once Per Season**	Grab
Ethoxyquin (mg/L)	**NR**	50	Quarterly	**NR**	Grab
SOPP (mg/L)	**NR**	50	Quarterly	**NR**	Grab
TBZ (mg/L)	**NR**	50	Quarterly	**NR**	Grab
Natamycin (mg/L)	**NR**	500	Quarterly	**Once Per Season**	Grab

[a] The recommended analytical methods are listed in **Appendix A**

[b] The cherry packing season is the period of time when cherries are harvested and packed monitoring is required one time during actual packing and hydrocooling operations.

[c] Required test only if chlorine-based products are used.

Rationale for POTW Effluent Limits and Application Rate Limitations

BOD_5 - The permit includes a discharge limit of 500 mg/L for dischargers to POTWs. This represents a limit approximately twice as great as typical average domestic sewage (250 mg/L BOD_5). Domestic sewage BOD_5 concentrations have reached 500 mg/L with no substantial disruption of POTW activities. This limit should adequately protect POTWs from slug load disruption. BOD_5 is **not** a required parameter for NCCW discharges to POTWs.

pH - Ecology placed the technology-based effluent limits for pH in the permit. Packers must maintain pH in the range of 6.0 to 9.0. This is less stringent than the state's surface water quality standard of 6.5 to 8.5 – set in *Chapter 173-201A WAC*.

Total Chloride - The permit limit of 250 mg/L, is the state's groundwater quality standard – set in *Chapter 173-200 WAC*. Total chloride is **not** a required parameter for NCCW discharges to POTWs.

Total Sulfate - The maximum permit limit is 250 mg/L, the state's groundwater quality standard, set in *Chapter 173-200 WAC*. Sulfate is **not** a required parameter for NCCW discharges to POTWs.

Total Suspended Solids (TSS) - The permit includes a discharge limit of 500 mg/L. This represents a limit approximately twice the typical average domestic sewage (250 mg/L of TSS). Domestic sewage TSS concentrations have reached this quantity with no substantial disruption of POTW activities. This limit should adequately protect POTWs from slug load disruption. TSS is **not** a required parameter for NCCW discharges to POTWs.

Total Residual Chlorine (TRC) - The maximum permit limit is 0.5 mg/L, which takes into specific consideration the toxicity of chlorine. Monitor for chlorine levels only if using the product..

Ethoxyquin - The maximum permit limit is 50 mg/L, which takes into consideration the toxicity of ethoxyquin. Monitor for ethoxyquin levels only if using the product.. Ethoxyquin is not used in NCCW.

SOPP - The maximum permit limit is 50 mg/L, which takes into consideration the toxicity of SOPP. SOPP is only a required parameter if used. SOPP is not used in NCCW.

TBZ - The maximum permit limit is 50 mg/L, which takes into specific consideration the toxicity of TBZ. TBZ is only a required parameter if used. TBZ is not used in NCCW.

Potassium Carbonate - The permit allows Permittees to discharge rinse wastewater containing potassium carbonate to POTWs. Rinse wastewater containing potassium carbonate may need to be neutralized to an acceptable pH range (6.0 to 9.0) prior to discharge.

Definition of a Percolation System

A percolation system is an engineered system for the aerobic treatment of wastewater as it percolates through the soil matrix. The systems are designed to account for hydraulic and nutrient loading rates, wet and dry cycles, uniform wastewater distribution and other relevant design parameters. Ecology will review design plans of percolation systems before permitting. Reference for the design of percolation systems is the rapid infiltration land treatment process in the *EPA Process Design Manual and Supplement for the Land Treatment of Municipal Wastewater* (EPA 625/1-81- 013 and –013a).

Table 17 — Effluent Limits & Monitoring for Discharges to Percolation Systems

PARAMETER/ POLLUTANT[a]	DAILY MAXIMUM PERMIT LIMIT		SAMPLE FREQUENCY	SAMPLE FREQUENCY CHERRY PACKING SEASON[b] ONLY	SAMPLE TYPE
	NCCW only	Other allowed wastewater sources			
Flow (gallons/day)	Record Value	Record Value	Maximum Day Flow	**Maximum Day Flow**	Report Maximum Day Flow
BOD_5 (mg/L)	**NR**	100	Quarterly	**Once Per Season**	Grab
pH (standard units)	6.0 - 9.0	6.0 - 9.0	Quarterly	**Once Per Season**	Grab
Total Chloride (mg/L)	**NR**	250	Quarterly	**Once Per Season**	Grab
Total Sulfate (mg/L)	**NR**	250	Quarterly	**Once Per Season**	Grab
Total Dissolved Solids (TDS) (mg/L)	**NR**	500	Quarterly	**Once Per Season**	Grab
Total Suspended Solids (TSS) (mg/L)	**Record Value**	100		**Once Per Season**	
Total Residual Chlorine[c] (mg/L)	5.0	5.0	Quarterly	**Once Per Season**	Grab
Ethoxyquin (mg/L)	**NR**	5	Quarterly	**NR**	Grab
SOPP (mg/L)	**NR**	5	Quarterly	**NR**	Grab
TBZ (mg/L)	**NR**	10	Quarterly	**NR**	Grab
Natamycin (mg/L)	**NR**	500	Quarterly	**Once Per Season**	Grab

a The recommended analytical methods are listed in **Appendix A**.

b The cherry packing season is the period of time when cherries are harvested and packed monitoring is required one time during actual packing and hydrocooling operations.

c Required test only if chlorine-based products are used.

Table 18 — Minimum Setback Distances (Feet) for Percolation Systems

	SURFACE WATERS OF THE STATE	POTABLE WATER SUPPLY WELL
Percolation Systems	50 feet	100 feet

Rationale for Percolation Systems Effluent Limits and Application Rate Limitations

Minimum Setback Distances – Due to the inclusion of packing and post-harvest fungicide residuals, which may range from moderately to highly toxic to aquatic organisms, the general permit contains minimum setback distances from water resources. Most setbacks in the general permit have remained unchanged since the first general permit for this industry was issued in the mid-1990. The setbacks are considered acceptable management practices as they provide reasonable assurance of protecting public health and water resources (EPA-841-B-05-004, 2005) and remain unchanged for this reissuance.

BOD_5 - The maximum permit is 100 mg/L. This represents a 50% reduction (safety margin) of the most conservative limit as indicated in *Guidelines for Preparation of Engineering Reports for Industrial Wastewater Land Application Systems,* Department of Ecology Publication #93-36). BOD_5 is **not** a required parameter for NCCW discharges to percolation systems.

pH - Ecology placed the technology-based effluent limits for pH in the permit. Packers must maintain pH in the range of 6.0 to 9.0.

Total Chloride - The maximum permit limit of 250 mg/L, is the state's groundwater quality standard – set in *Chapter 173-200 WAC*. Total chloride is **not** a required parameter for NCCW discharges to percolation systems.

Total Sulfate - The maximum permit limit is 250 mg/L, the state's groundwater quality standard - set in *Chapter 173-200 WAC*. Sulfate is **not** a required parameter for NCCW discharges to percolation systems.

Total Dissolved Solids (TDS) - TDS, which affects the aesthetic value of groundwater, has a maximum permit limit of 500 mg/L for process wastewater, which is the state's groundwater quality standard – set in *Chapter 173-200 WAC*. NCCW discharges to percolation systems do not have a maximum permit limit for TDS, but it is still a required parameter. Permittees obtain water for NCCW from several sources including private wells, surface waters and municipal water systems. The TDS content of the source water often exceeds the groundwater criterion of 500 mg/L. During the cooling process, evaporative losses concentrate the naturally occurring dissolved solids in the source water, resulting in TDS criterion exceedances. The health risks associated with TDS, especially at the levels reported by most Permittees are low. Given the complexity of soil forms and aquifer/soil interactions, it is difficult to generalize or predict the impact TDS will have on aquifer concentrations. Given the reported TDS concentration levels, the implementation of BMPs and the relatively low volumes of application, Ecology determined a TDS effluent limit for discharges of NCCW to percolation systems, unnecessary. However, TDS in process wastewater discharges to percolation systems have a maximum permit limit of 500 mg/L.

Total Suspended Solids (TSS) - The maximum permit limit is 100 mg/L. This represents a 50% reduction (safety margin) of the most conservative limit as indicated in *Guidelines for Preparation of Engineering Reports for Industrial Wastewater Land Application Systems*, Department of Ecology Publication #93-36). This is intended to compensate for the higher probability of leaching and thus groundwater contamination, than from land application. TSS is not a required parameter for NCCW discharges to percolation systems.

Total Residual Chlorine (TRC) - The maximum permit limit is 5 mg/L, which takes into specific consideration both the protection of the waters of the state and groundwater and its degradation characteristics.

Ethoxyquin - The maximum permit limit is 5 mg/L, which takes into specific consideration both the toxicity of ethoxyquin and the protection of the waters of the state and groundwater.

SOPP - The maximum permit limit is 6 mg/L, which takes into special consideration both the toxicity of SOPP and the protection of the waters of the state and groundwater.

TBZ - The maximum permit limit is 10 mg/L, which takes into specific consideration both the toxicity of TBZ and the protection of the waters of the state and groundwater.

Potassium Carbonate - The maximum permit limit is equal to the maximum normal use concentration of 27,000 mg/L. Analysis of this parameter will not be required for this TDM, if the Permittee complies with all the terms and conditions of this general permit. Any application rate (not concentration) which does not produce runoff or ponding will be permitted. However, this wastewater may need to be adjusted to an acceptable pH range (6.0 to 9.0) prior to application.

Definition of Surface Waters

The surface water TDM is a discharge to any of the surface waters of the state. Surface waters of the state include, but are not limited to, lakes, rivers, creeks, ponds, streams, inland waters, irrigation canals and return drains, wetlands, stormwater collection systems that discharge to a surface water, and all other surface waters and watercourses within the jurisdiction of the State of Washington. The Permittee's discharge must not cause or contribute to an excursion of the state's water quality standards in *chapter 173-201A WAC*, and human health-based criteria in the National Toxics Rule [40 CFR, part 131.36].

Allowed Discharges to Surface Waters

The discharge of wastewater from fresh fruit packing facilities directly to any surface waters of the state are only authorized for the following wastewater types:

a. Process wastewater containing no chemical additives, containing only chlorine-based products, non-chlorine based sanitizers, or containing secondary treated linear alkyl sulfonate (LAS) based soaps, acidic or basic washes, buffers, and/or food grade waxes. These types of process wastewater discharges require a monthly Discharge Monitoring Report (DMR); see *Permit Special Condition S5.F.3* and S7.A.2.
b. NCCW containing no priority pollutants, dangerous wastes or toxics in toxic amounts. Permittees must pass a Whole Effluent Toxicity (WET) test before discharging NCCW with additives to any surface water. **For New Permittees:** Conduct NCCW WET test within 12 months of permit effective date. **For Existing Permittees:** Conduct NCCW WET test within 90 days of any change of chemical. See Whole Effluent Toxicity below, for more information regarding WET testing.

Monitoring and Reporting Requirements for Discharges to Surface Waters

Permittees that discharge process wastewater to a surface water are required to submit monthly DMRs. The parameters and limits are located within Table 18. These reports are due the 15th of each month following the monitoring period. NCCW discharges to surface water are required to test parameters quarterly and submit the results annually.

All facilities (either existing or new) discharging pack line wastewaters to surface waters of the state must install flow meters on the outfall associated with this discharge. For multiple outfalls, combining of outfalls to one is encouraged. For existing permittees, flow meters must be installed and operational by **December 31, 2023**. New facilities permitted after the effective date of this permit must have flow meters installed and operating at the time of first discharge.

Table 19 — Effluent Limits & Monitoring for Discharges to Surface Waters[a]

PARAMETER/ POLLUTANT[b]		DAILY MAXIMUM LIMIT	SAMPLE FREQUENCY		SAMPLE TYPE
			NCCW only	All other allowed wastewater sources (flow must be metered by December 31, 2023).	
Flow (gallons/day), Must be metered by January 1, 2023		Record Value	1/Discharge Event	Total Daily Flow	Measurement
BOD5 (mg/L)		30	Quarterly	Monthly	Grab
pH (standard units)		6.0 – 9.0	Quarterly	Monthly	Grab
Temperature (Celsius)		record value	Quarterly	Monthly	Grab
Total Chloride (mg/L)		250	Quarterly	Monthly	Grab
Total Suspended Solids (mg/L)		30	Quarterly	Monthly	Grab
Total Residual Chlorine (mg/L)	Permit Limit	0.019	Quarterly	Monthly	Grab
	Enforcement Limit[c]	0.050			

[a] If a Permittee has been assigned a wasteload allocation (WLA) due to the passage of a total maximum daily load (TMDL), there will be additional parameter(s) not listed in Table 19. Tables 21-23 in the permit explain TMDL impacts.

[b] The recommended analytical methods are listed in **Appendix A.**

[c] The established QL (Quantitation Level) will serve as the enforceable limit for this parameter when using the required Spectrophotometric, DPD method (SM 4500-Cl G), or any other EPA approved method that is approved by Ecology. A measured value between 0.019 and 0.050 mg/L is not a violation due to the uncertainty of the accuracy of test results at this low concentration. Results less than 0.050 mg/L must be reported as "<0.05 mg/L >"

Whole Effluent Toxicity (WET) Testing for NCCW Discharges with Additives to Surface Waters

All **New Permittees** with a surface water discharge of NCCW containing chemical additives must, within one year of receiving coverage under this general permit. **Existing Permittees** must, submit to Ecology the results of a WET test for acute toxicity, as specified in Table 19. Complete within 3 months of any changes in chemical additives.

Any Permittee that fails a WET test must select a different TDM in order to continue to discharge NCCW containing chemical additives. IF a Permittee fails a WET test, but still wishes to discharge NCCW with additives to a surface water, one of the following options must be completed:

a. Select and implement an alternate chemical treatment regime and then repeat and pass the WET test.

b. Apply for coverage under an individual NPDES permit. If a facility with an individual permit meets the requirements of *chapter 173-205 WAC* for attainment of the WET performance standard it may reapply for general permit coverage.

Table 20 — WET Test Requirements

	WET TEST FOR ACUTE TOXICITY
Test Name	Daphnid 48-hour survival static test
Test Method	EPA-821-R-02-012
Test Species	Ceriodaphnia dubia, Daphnia pulex or Daphnia magna
Pass	65% or above survival in 100% effluent
Fail	Below 65% survival in 100% effluent

303-D Listed Surface Waters

The permit does not allow packers to discharge to surface waters if the effluent exceeds a water quality criterion and/or if the receiving water is on the current 303-(d) list for that criterion unless the facility either selects an alternative TDM or participates in the Total Maximum Daily Load (TMDL) process for that water body.

If a TMDL has not been completed, than the facility must demonstrate that discharges will not adversely affect the receiving water, or select another TDM. For facilities discharging into areas with an established TMDL, and if the facility is unable to meet the WLA under this general permit, the facility must select another TDM or apply for coverage under an individual NPDES permit.

Narrative Explanation of the 303-D Listed Surface Waters and TMDL's

The declared impairment of a water body in the State of Washington is an end-point from assessing water quality data that Ecology collects on surface water sources within the state. After assessments are completed, surface waters not meeting water quality standards for use, go into the impaired category, known as the 303(d) list, named for the section of the federal Clean Water Act that establishes this overall process.

Ecology uses the 303(d) list to determine what water quality improvements are most needed. Based on these needs, water quality improvement projects are developed. Ecology uses the TMDL process and we work with local governments, citizens, and other interested parties to identify pollution sources within the watershed and determine what needs to change in order to reduce or eliminate that pollution.

Although each TMDL project is unique, the process takes similar steps for each TMDL developed.

A **Total Maximum Daily Load (TMDL)** is a numerical value that represents the highest amount of pollutant a surface water body can receive and still meet water quality standards. This study includes monitoring, where the monitoring helps identify sources and amounts of pollutants causing the water quality problem. The technical analysis determines the pollution reductions each source must make to protect the water.

The study will determine the loading capacity of all of the pollutant loading the water body can absorb without violating water quality standards. The TMDL study will also reveal, load allocations for run-off sources of pollutants, and wasteload allocations for point sources at facilities such as Fruit Packing Facilities (among others). These wasteload allocations are then divided among all point sources dischargers in the water body, and a facility is issued a "load" of a pollutant that their discharge must not exceed.

A TMDL study also develops many other items used to help bring a water body back into compliance with water quality standards for use. A margin of safety (levels established under worst case conditions), a reserve capacity that can be used if other facilities are developed that want to discharge into the water body, an implementation plan, an estimated time when the surface water will meet surface water quality standards, and other items.

For complete information on the 303-D list and the TMDL process in Washington State please visit the following website: https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-improvement/Total-Maximum-Daily-Load-process.

Total Maximum Daily Loads (TMDL) Impacting Specific Facilities under the Fresh Fruit Packing General Permit

During the permit term that expires on August 31, 2021, one TMDL affected specific facilities with coverage under this General Permit, the **Wenatchee River Watershed Dissolved Oxygen and pH Total Maximum Daily Load: Water Quality Improvement Report Publication Number 08-10-062 revised.** Those load allocations will continue throughout the new permit cycle.

Also during the permit term that expires on August 31, 2021, two TMDL were promulgated, accepted, and approved. **1) The Mid-Yakima River Basin Bacteria Total Maximum Daily Load Water Quality Improvement Report Publication No. 15-10-028,** and **2) The Columbia and Lower Snake Rivers Temperature Total Maximum Daily Load, U.S. Environmental Protection Agency, Region 10, 1200 Sixth Avenue, Suite 155, Seattle, WA 98101-3188.** These two new TMDL's will be implemented in this permit term.

All wasteload allocations affecting specified facilities under the Fresh Fruit Packing General Permit are listed in the three tables **(Tables 21-23)** below. Facilities with multiple discharge points into the same receiving water are encouraged to combine outfalls if possible. **Facilities in Table 23** are also required to install flow-metering devices. Facilities are given until **December 31, 2023** to complete this task. All wasteload allocations listed below go into effect the effective date of the permit.

The facility must meet any Waste Load Allocation (WLA) assigned by the TMDL. If the facility is unable to meet the WLA under this general permit, the facility may be required to apply for an individual NPDES permit. Should later evidence indicate that the antidegradation requirements for surface waters are not being met, Ecology may modify an individual permit coverage to provide more stringent effluent limits, best management practices, or other permit conditions as needed. A facility unable to meet an assigned TMDL loading for any parameter may also select another TDM approved by Ecology.

New discharges OR existing facilities with expansions, production increases, or process modifications to waterbodies with applicable TMDL are not eligible for coverage under this permit unless the *facility*:

- Documents that the pollutant(s) for which the waterbody is impaired is not present at the facility and retains such documentation as part of the Environmental Compliance Plan (ECP); **or**
- For discharges to waters with an *EPA* approved or established *TMDL*, that there are sufficient remaining *wasteload allocations* in the TMDL to allow new discharges or increased discharges at existing facilities; **or**
- Facilities may also become eligible for coverage under this permit by selecting a different TDM.

Table 21 — Wenatchee River Discharges TMDL Loadings for Applicable Permittees

NAME OF TMDL	**Wenatchee River Watershed Dissolved Oxygen and pH Total Maximum Daily Load: Water Quality Improvement Report Publication Number 08-10-062 revised**		
CRITICAL PERIODS FOR THIS TMDL	The critical periods are the times of year when the river has relatively low stream flows. The critical periods for this watershed are 1) **March through May** and 2) **July through October**.		
MONITORING REQUIREMENTS FOR THIS TMDL	**Each Permittee listed below must sample one time annually from each outfall ID# listed, as long as discharge is occurring during any one of these months.** **March, April, May, July, August, September, or October**		
MONITORING PARAMETER	Phosphorous (see Appendix A for analytical methods)		
REPORTING CALCULATIONS	a). Convert mg/l to kg/l (you can do this on line if needed) b). Convert gpd to lpd. 3.78 l/gal x gpd c). kg/l x lpd (a. x b.) = Reportable kg/d of Phosphorous		
PERMITTEES AND SAMPLE LIMITATIONS FOR PHOSPHOROUS	**Permit Number**	**Outfall ID# from Permittee's permit coverage sheet**	**DAILY PHOSPHORUS MAXIMUM WASTE LOAD (kg/day)**
	WAG435090	**003A**	**0.0148**
		003C	**0.0030**
		003D	**0.0026**
		003E	**0.0047**
		[redacted]	
	WAG435094	**004**	**0.0330**
		005	**0.0465**
	WAG435140	**006**	**0.0025**

Table 22 — Mid-Yakima River Basin Bacteria TMDL Loadings for Applicable Permittees

NAME OF TMDL	**Mid-Yakima River Basin Bacteria Total Maximum Daily Load Water Quality Improvement Report Publication No. 15-10-028**		
CRITICAL PERIODS AND OTHER NEED TO KNOW INFORMATION CONCERNINGTHIS TMDL	TMDL's must list all point source discharges to the impaired water body and assign them a wasteload allocation. For this reason, the following Permittees are listed in this TMDL. **The critical period for this TMDL is May through November**. The earliest monitoring will begin in spring (May) of 2022. The hold times for the samples are very short. Facilities should begin to work with their laboratories concerning this monitoring as soon as possible after the effective date of this permit. **Any reporting results that are conducted outside of hold times must be resampled and retested.**		
MONITORING REQUIREMENTS FOR THE PERMITTEES	To assure these discharges are not contributing bacteria load, the following Permittees are required to monitor: E.Coli (see Appendix A for analytical methods) on discharges at the listed outfall ID number, **one time per year in the 2nd quarter (May or June only), 3rd quarter (July, August, or September), OR 4th quarter (October or November only).**		
REPORTING CALCULATIONS	There are no calculations needed for this monitoring. Simply report the colony forming units per 100 mls per day listed on the laboratory report from the commercial laboratory.		
	Permit Number	**Outfall ID From Permittee Coverage**	**LIMITATION FOR E.COLI in LOADING (equivalent to 1,000,000 colony forming units per day) Per Day**
PERMITTEES AND SAMPLE LIMITATIONS FOR E. COLI.	**WAG435031**	**001**	**0.1**
	WAG435036	**001**	**0.1**
	WAG435044	**003**	**0.1**
	WAG435046	**004**	**0.1**
	WAG435058	**002**	**0.1**
	WAG435070	**001**	**0.1**
	WAG435131	**005**	**0.1**
	WAG435176	**002**	**0.1**
	WAG435221	**001, 004, 005, 007**	**0.1 each outfall ID**
	WAG435245	**005A**	**0.1**
	WAG435251	**001**	**0.1**

Table 23 — Columbia River Basin Temperature TMDL Loadings for Applicable Permittees

NAME OF TMDL	**Columbia and Lower Snake Rivers Temperature Total Maximum Daily Load, U.S. Environmental Protection Agency, Region 10 1200 Sixth Avenue, Suite 155, Seattle, WA 98101-3188**		
CRITICAL PERIOD AND OTHER NEED TO KNOW INFORMATION CONCERNING THIS TMDL	The temperature sensitive critical period for the facilities with wasteload allocations in this TMDL are **July through October.** Temperature is an instantaneous reading to comply with this TMDL. There are no hold times allowing permittees to take samples to commercial laboratories. **The facility must purchase a NIST certified thermometer (pocket type with protective case recommended) that reads in .01 graduations in degrees Celsius.** **Each facility below will be required to install flow meters on the outfall designated in the table.** For those with multiple outfalls, combining outfalls ahead of discharge is recommended. Meters should be at a minimum in gallons per day. **Meters are required to be installed by December 31, 2023.** Until flow meters are installed, calculations to meet this wasteload allocation are to be based upon estimated discharge flows.		
MONITORING REQUIREMENTS FOR THE PERMITTEES	Each Permittee listed below must monitor for temperature (see Appendix A for analytical methods) **monthly** during the critical period from each outfall ID# listed, as long as discharge occurs during the critical period. The effective date begins July 1, 2022. **July through October: take one temperature reading of the discharge (grab sample and temperature reading is instantaneous) in degrees Celsius. Corresponding flow in gallons/day (gpd) is required.**		
REPORTING CALCULATIONS	Reportable Heat Load = Flow, MGD X Highest Monthly Temperature, $^{\circ}$C X conversion factor (3,760,000) [**example calculation:** 3,760,000 X 0.01 MGD X 17.5 ^{oC} = 658,000. The 658,000 is what would be reported] [Convert gallons per day (gpd) to MGD by dividing gpd by 1,000,000]		
	Permit Number	**Outfall ID From Permittee Coverage**	**LIMITATION FOR TEMPERATURE IN HEAT LOAD[a]**
PERMITTEES AND SAMPLE LIMITATIONS FOR TEMPERATURE	WAG435043	004	67,200
	WAG435157	004	8,050,000
	WAG435172[1]	002, 006, 011	9,870,000
	WAG435265	003	14,200,000
	WAG435270[1]	001, 002, 003	17,900,000

[a]The Columbia River TMDL lists heat load limitations in scientific notation. The DMR reporting portal does not accept scientific notation as a reportable value, so the heat load limitations and calculation values are listed in numeric values in this permit.

Rationale for Surface Water Effluent Limits and Application Rate Limitations

BOD_5 - Ecology used secondary treatment standards for municipal wastewater as the basis to limit this parameter to the maximum permit limit of 30 mg/L. Permits meeting the National Secondary Treatment Standard on a monthly average basis generally protect the dissolved oxygen levels in surface waters.

pH - Ecology placed the technology-based effluent limits for pH in the permit. Packers must maintain pH in the range of 6.0 to 9.0. This is less stringent than the state's surface water quality standard of 6.5 to 8.5, set in *Chapter 173-201A WAC*.

Temperature - Ecology did not specify a temperature effluent limit due to the site specific nature of such a limit. Ecology has determined that the current discharges protect background water quality for temperature given that correct BMPs are implemented. Any facility which has a surface water discharge to a water body that is on the most recent approved 303(d) list for temperature must participate in the TMDL process for that water body. If the implementation of the TMDL & WLA cannot be completed under this general permit's requirements, the facility must select an alternative TDM or apply for coverage under an individual NPDES permit.

Total Chloride - The maximum permit limit is 250 mg/L for surface water discharges, which is the state's surface water quality standard – set in *Chapter 173-201A WAC*. If a packer meets this limit, they will meet the freshwater quality criterion given in *Chapter 173-201A WAC*.

Total Suspended Solids (TSS) - Ecology used secondary treatment standards for municipal wastewater as the basis to limit this parameter to a maximum permit limit of 30 mg/L. Given that the particle size of the TSS associated with fresh fruit packing wastewater is generally large in size, Ecology believes that typical fruit packing wastewater with a TSS of 30 mg/l would not exceed the water quality standard of no more than 5 NTU. This meets the water quality standards for turbidity set in Chapter 173-201A-200 WAC.

Total Residual Chlorine (TRC) - The permit restricts TRC to a maximum permit limit of 0.019 mg/L, for surface water discharges, which the state's surface water quality standard – set in *Chapter 173-201A WAC*. Due to the lack of a reasonably priced field test kit which can detect total residual chlorine to this level, the established quantitation level of 0.05 mg/L (analytical detection limit), when using the required DPD/colorimeter test method, 40 CFR Part 136, will serve as the enforceable limit for this parameter. A measured value between 0.019 and 0.05 mg/L may not be a violation due to the uncertainty of the test results at this concentration, and must be reported as "less than 0.05 mg/L". This limit should be protective of background water quality.

Storm Water Discharges at Fresh Fruit Packing Facilities

1. The following applies to all facilities (new and current) that receive coverage under the General Permit for the Fresh Fruit Packing Industry:

    a. Permittee's are required to determine if stormwaters at their facility are co-mingled with any facility discharges, including non-contact cooling water discharges, to surface waters of the state, or to any other TDM available to the facility.

    b. Stormwater, when it is combined with fruit packing process discharges, including non-contact cooling waters, is considered wastewater and remains covered under the General Permit for the Fresh Fruit Packing Industry, and additional coverage under the Washington State Industrial Stormwater General Permit may not be required.

    c. Additional monitoring and/or reporting may be required for facilities discharging combined stormwater and process discharge waters, on a case-by-case basis.

2. All facilities (new and current) that receive coverage under the General Permit for the Fresh Fruit Packing Industry that have stormwaters that discharge directly to surface waters or direct discharge to a storm sewer system, and are not co-mingled with Fresh Fruit Packing discharges, may be subject to coverage under the Washington State Industrial Stormwater General Permit and shall apply for coverage under that permit. For more information, please refer to: http://www.ecy.wa.gov/programs/wq/stormwater/industrial/index.html

3. Permittees that plan to expand and/or build on their facility property may need to obtain the WA State Department of Ecology Construction Stormwater General Permit. If a construction activity will disturb one or more acres of land and discharge stormwater off site into waters of the state, the facility may need to obtain coverage under this permit. For more information, please refer to: http://www.ecy.wa.gov/programs/stormwater/construction/index.html.

In accordance with state and federal regulations, each facility receiving coverage under this general permit must develop and retain on-site, an Environmental Compliance Plan (ECP) with the following four sections:

Reporting and Record Keeping

The reporting and recordkeeping requirements of Special Conditions S7 are based on Ecology's authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges. Reporting of monitoring results are specified in 40 CFR §122.44(i) (3 and 4) and WAC 173-226-090(3).

Discharge Monitoring Reports (DMRs) must be submitted to Ecology even if there is no discharge for a reporting period. Recordkeeping requirements in the draft permit are specified in 40 CFR §122.41(j) (2) and WAC 173-220-210(2) (b). The requirements of Condition S7 will assure that Ecology records are maintained and demonstrate compliance with sampling requirements by the facility.

The draft permit retains requirements for all permit documents to be submitted electronically, using Ecology's (online) Water Quality Permitting Portal system, unless a waiver from electronic reporting has been granted (e.g., if a Permittee does not have internet access) or if electronic forms have not yet been created. If a waiver has been granted, DMRs must be postmarked or delivered to one of the following addresses by the due date. For counties:

Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, and Yakima

Department of Ecology
Central Regional Office Water Quality
1250 W. Alder Street
Union Gap, WA 98903-0009

Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, and Whitman

Department of Ecology
Eastern Regional Office Water Quality
4601 N. Monroe Street
Spokane, WA 99205-1295

The electronic requirement has saved time and resources for Permittees and Ecology (e.g., eliminating paperwork, data entry workload, database errors) while improving compliance and protection of water quality. It also enhances transparency, public accountability, and provides a more level playing field among Permittees. The electronic waiver provisions are intended to allow a paper option for certain small businesses that may not have the ability to use the Water Quality Permitting Portal system.

The requirement for electronic submittals makes progress with Ecology obligation to comply with EPA's proposed NPDES Electronic Reporting Rule (40 CFR §Parts 122, 123,127, 403, 501 and 503)17. The draft permit S7 retains that DMRs are required annually for most permittees, and monthly for those discharging packing process wastewaters to surface waters.

The draft permit retains language that requires Permittees to submit a written explanation with their DMR if there was no sample taken or "No Discharge" explaining why the sample was missed or how there wasn't a discharge.

For more information or guidance for the electronic reporting process, go to the following websites:

For more information about the WQWebPortal, visit:
https://secureaccess.wa.gov/ecy/wqwebportal

Guidance for WQWebPortal, visit:
https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance/WQWebPortal-guidance

Treatment/Disposal Method Operating Plan

In accordance with state and federal regulations, the Permittee is required to take all reasonable steps to properly operate and maintain the treatment system (40 CFR 122.41(e) and chapter 173-226-080 WAC).

Solid Waste Management Plan (SWMP)

Ecology has determined that the Permittee has a potential to pollute waters of the state through inappropriate disposal of solid waste or through the release of leachate of solid waste. This general permit requires, under the authority of chapter 90.48.080 RCW that the Permittee develop and implement a SWMP designed to prevent solid waste from polluting waters of the state.

Spill Prevention Plan (SPP)

Ecology has determined that the fruit packing industry stores a quantity of chemicals that have the potential to pollute waters of the state if accidentally released. Ecology can require the Permittee to develop BMPs to prevent this accidental release [section 402(a) (1) of the Federal Water Pollution Control Act (FWPCA) and chapter 90.48.080 RCW]. This general permit requires Permittees to develop or update and implement the SPP for preventing the accidental release of pollutants into waters of the state and for minimizing damages if such a spill occurs.

Pesticides

Ecology has established, and will enforce limits and conditions, expressed in this general permit for the discharge of waste streams containing various pesticides registered for use by the EPA and the Washington State Department of Agriculture. These agencies will enforce the use, storage, and disposal requirements expressed on pesticide labels. The Permittee must comply with both the pesticide label requirements and this general permit's conditions. This general permit does not supersede or preempt federal or state label requirements or any other applicable laws and regulations. General permit Condition G4 reminds the Permittee of this fact.

Modifications for the Conditional Use of Products/Chemicals Not Allowed for Use in the General Permit

Ecology will not modify this general permit to add products or chemicals without an industry-demonstrated need of at least 5% of the permitted facilities in the state making the request for the same product, chemical, and/or active ingredient. The opportunity to request modification of this General Permit will be available to permittees one time, at mid-permit term, if the above conditions are met. Mid-permit term is between year two and three from the effective date of this permit.

It is not the policy of Ecology to endorse, approve, or provide individual letters of acceptance for any particular chemical, product, or process to be utilized in the fresh fruit packing industry for water/wastewater control, treatment, or disposal. Permittees are responsible to acquire consultant or engineering firms with the knowledge and expertise available that will enable them to make the decision on whether a particular chemical or product will allow a Permittee discharge to meet the requirements of this permit. Written demonstration, such as an engineering report or consultant study, may be required.

Additional Requirements for Modification Under S13 of the General Permit

Risk Assessment - Products/chemicals may be required to undergo a risk assessment process in order to be approved for use by Ecology. This risk assessment must be an evaluation of the product/chemical independent of the risk assessment performed by the EPA during the registration process and is intended to be more specific to Washington State water quality concerns.

The risk assessment (if determined to be required) must be prepared by a qualified toxicologist, preferably working for the company that produces the product/chemical/active ingredient, be approved by Ecology, and may have to include, in addition to those items listed above, but not be limited to:

- Mitigation measures for the discharge and disposal of residual product
- Half-life (soil and water)
- A summary of peer reviewed literature concerning the use of the product in the fresh fruit packing industry

Any request to include a product/chemical (whether as a request for a modification of this General Permit or request for individual coverage usage) may be required to include any or all of the following with the request upon request by Ecology:

- A copy of the EPA approved label

- A copy of the product safety data sheet (SDS)
- Manufacturer name
- Brand name
- Chemical name and formula
- Identifying numbers (i.e., CAS #)
- Physical properties
- Fruit type it can be used on (i.e., apples, pears, cherries, etc.)
- Part of packing process it can be used in (i.e., dip tanks, drenchers, float tanks, etc.)
- Concentrations (label use and discharge rates)
- Mass loading concentrations
- Any potential pretreatments
- Toxicity information concerning human and aquatic health effects
- All available environmental and ecological information and its environmental fate in water, on soil, or at POTW's, at the label use rate
- The availability of an acceptable method of detection of residual product in the discharge, as well as the detection and quantitation level of the analysis.

GENERAL CONDITIONS

General Conditions are based directly upon state and federal laws and regulations, and have been standardized for all NPDES permits issued by the Ecology. Some of these conditions were developed for different types of discharges. Although Ecology is required by federal regulation to include them in the permit, they may not be strictly applicable.

Condition G1 requires discharges and activities authorized by the draft permit to be consistent with the terms and conditions of the permit in accordance with 40 CFR §122.41.

Condition G2 prevents discharges to waters of the state not covered under discharge permits in accordance with RCW 90.48 and WAC 173-226-020.

Condition G3 requires permittees not to discharge wastewater to any water of the state that does not comply with the conditions of this permit to waters of the state in accordance with RCW 90.48 and WAC 173-226.

Condition G4 prohibits the Permittee from using the permit as a basis for violating any laws, statutes or regulations in accordance with 40 CFR §122.5(c).

Condition G5 requires Permittees to submit additional information or records to Ecology when necessary in accordance with 40 CFR §122.41(h).

Condition G6 specifies that the permit does not convey property rights in accordance with 40 CFR §122.41(g).

Condition G7 requires the Permittee to comply with all conditions of the permit in accordance with 40 CFR §122.41(a).

Condition G8 informs permittees of the possibility of enforcement when permit conditions are not complied with according to RCW 90.48 and chapter 173-226-250 WAC

Condition G9 describes the penalties for violating permit conditions in accordance with 40 CFR §122.41(a) (2).

Condition G10 requires Permittees to report any relevant information omitted from the permit application in accordance with 40 CFR §122.41(l) (8).

Condition G11 requires responsible officials or their designated representatives to sign submittals to Ecology in accordance with 40 CFR §122.22, 40 CFR §122.22(d), chapters 173-220-210(3) (b), and 173-220-040(5) WAC.

Condition G12 requires the Permittee to allow Ecology to access the facility and conduct inspections of the facility and records related to the permit in accordance with 40 CFR §122.41(i), RCW 90.48.090, and chapter 173-220-150(1)(e) WAC.

Condition G13 requires Permittees to report planned changes in accordance with 40 CFR §122.41(l) (1).

Condition G14 requires the Permittee to notify Ecology when facility changes may require modification or revocation of permit coverage in accordance with 40 CFR §122.62(a), 40 CFR §122.41(l), chapters 173-220-150(1) (b), and 173-201A-510(1) WAC.

Condition G15 requires the submittal of engineering reports and plans prior to building any wastewater control facility in accordance with chapter 173-240 WAC.

Condition G16 identifies conditions that may result in modifying or revoking the general permit in accordance with 40 CFR §122.62, 40 CFR §124.5, and chapter 173-226-230 WAC.

Condition G17 identifies conditions for revoking coverage under the general permit in accordance with 40 CFR §122.62, 40 CFR §124.5, chapters 173-226-240, 173-220-150(1) (d), and 173-220-190 WAC.

Condition G18 requires transfer of coverage under the general permit in accordance with 40 CFR §122.41(l) (3) and chapter 173-226-210 WAC.

Condition G19 requires Permittees to submit additional information or records to Ecology when necessary in accordance with 40 CFR §122.41(h).

Condition G20 requires the Permittee to reapply for coverage 180 days prior to the expiration date of this general permit in accordance with 40 CFR §122.21(d), 40 CFR §122.41(b), and chapter 183-220-180(2) WAC.

Condition G21 requires the Permittee to operate and maintain the facility in accordance with chapter 173-226-080 (i) WAC.

Condition G22 describes the penalties associated with falsifying or tampering with monitoring devices or methods in accordance with 40 CFR §122.41(j) (5).

Condition G23 notifies the Permittee that additional monitoring requirements may be established by Ecology in accordance with 40 CFR §122.41(h).

Condition G24 prohibits the reintroduction of removed substances back into the effluent in accordance with 40 CFR §125.3(g), RCW 90.48.010, RCW 90.48.080, chapters 173-220-130 and 173-201A-240 WAC.

Condition G25 provides the regulatory context and definition of “Upset” in accordance with 40 CFR §122.41(n).

Condition G26 requires the Permittee to comply with more stringent toxic effluent standards or prohibitions established under Section 307(a) of the Clean Water Act in accordance with 40 CFR §122.41(a)(1), chapters 173-220-120(5) and 173-201A-240 WAC.

Condition G27 describes the sequence of actions required when significant violations occur in accordance with 40 CFR §122.41(l).

Condition G28 requires Permittees to report anticipated non-compliances in accordance with 40 CFR §122.41(l) (2).

Condition G29 prohibits bypass unless certain conditions exist in accordance with 40 CFR §122.41(m).

Condition G30 describes the sequence of actions required when spills or other unauthorized discharges occur in accordance with chapter 173-303-070 WAC.

Condition G31 specifies that Permittees may request their general permit coverage be replaced by an individual permit in accordance with 40 CFR §122.62, 40 CFR §124.5, and chapter 173-220-040 WAC.

Condition G32 defines appeal options for the terms and conditions of the general permit and of coverage under the permit by an individual discharger in accordance with RCW 43.21B and chapter 173-226-190 WAC.

Condition G33 invokes severability of permit provisions in accordance with RCW 90.48.904.

Small Business Economic Impact Analysis

An Economic Impact Analysis Statement was conducted and is available at: https://ecology.wa.gov/FreshFruitPack

Permit Modification

Ecology may modify this permit to impose additional monitoring, if necessary, to meet Water Quality Standards for surface waters, sediment quality standards, or water quality standards for groundwaters, based on new information obtained from sources such as inspections, effluent sampling, and outfall studies.

Ecology may also modify this permit resulting from new or amended state or federal regulations.

Recommendation for Permit Issuance

This general permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life and the beneficial uses of waters of the state of Washington. Ecology proposes that this general permit be issued for five years.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

2014. *Difenoconazole: Summary of Analytical Chemistry and Residue Data* (EPA– PC Code: 128847) EPA Memorandum.

2015. *Difenoconazole-Pesticide Tolerances-Final Rule.* Federal Register V. 80. No. 63. Thursday, April 2, 2015. Rules and Regulations.

2011. *Ecological Risk Assessment for the Proposed New Uses of Difenoconazole* (EPA– PC Code: 128847) EPA Memorandum.

2012. *Federal Insecticide, Fungicide, and Rodenticide Act*

2021. *Guidelines Establishing Test Procedures for the Analysis of Pollutants* (40 CFR, Part 136)

1980. *Investigation into Effluent Discharges from Washington Fresh Apple Packers* (EPA contract no. 68-03-2578)

2021. *National Pollutant Discharge Elimination System* (40 CFR, Part 122)

1992. *National Toxics Rule* (40 CFR, Part 131.36)

2006. *Process Design Manual for the Land Treatment of Municipal Wastewaters.* (625/R-06/016)

1999. *Re-registration Eligibility Decision* (RED) for Captan, (EPA-738-F99-015).

1998. *Re-registration Eligibility Decision* (RED) for Diphenylamine, (EPA-738-R97-010).

2002. *Re-registration Eligibility Decision* (RED) for Thiabendazole, (EPA-738-R-020).

2020. *Total Maximum Daily Load (TMDL) for Temperature in the Columbia and Lower Snake Rivers*

2021. *Water Quality Standards* (40 CFR 131)

Federal Water Pollution Control Act (33 United States Code § 1251, Clean Water Act)

1972. Part 301 *Effluent Limitations*
1972. Part 303 (d) *Impaired Waters and Total Maximum Daily Loads*
1972. Part 307 *National and Local Pretreatment Standards*
1972. Part 402 *National Pollutant Discharge Elimination System*
1972. Part 306 *National Standards of Performance*
1972. Part 302 *Water Quality Related Effluent Limitations*

New Jersey Department of Environmental Quality and Energy

2019. *Statement of Basis: NPDES General Permit to Discharge Non-contact Cooling Water Into the*

Waters of the State of New Jersey, (NPDES Permit No. NJ0070203).

Spotts, RA

1991. *Use of Ozone for Decay Control* Procedures of the 7th Annual Washington State Tree Fruit Association Post-Harvest Conference.

State of Washington

Department of Ecology

1993. *A Guide for Fruit Packing Warehouses: How to Properly Manage and Reduce Your Pesticide Hazardous Wastes,* (Publication No. 90-42).

2007. *Cooling Tower Study: Facts and Lessons Learned*, Technical Resources for Engineering Efficiency [TREE].

2019. *Fact Sheet for the Industrial Storm Water General Permit*

1993. *Guidelines for Preparation of Engineering Reports for Industrial Wastewater Land Application Systems*, (Publication No. 93-36).

2019. Industrial Storm Water General Permit

2015. *Mid-Yakima River Basin Bacteria Total Maximum Daily Load Water Quality Improvement Report* (Publication No. 15-10-028)

2018. *Water Quality Program Permit Writers Manual* (Publication No. 92-109)

2009. *Wenatchee River Watershed Dissolved Oxygen and pH Total Maximum Daily Load: Water Quality Improvement Report* (Publication No. 08-10-062)

Revised Code of Washington (RCW)

1971. RCW 90.52 *Pollution Control Act of 1971*
1971. RCW 90.48 *Water Pollution Control*
1971. RCW 90.54 *Water Resources Act of 1971*

Washington Administrative Code (WAC)

2002. WAC 173-220 *National Pollutant Discharge Elimination System Program*
2013. WAC 173-204 *Sediment Management Practices*
2000. WAC 173-240 *Submission of Plans and Reports for Construction of Wastewater Facilities*
2002. WAC 173-226 *Waste Discharge General Permit Program*
2019. WAC 173-201A *Water Quality Standards for Surface Waters of the State of Washington*
1990. WAC 173-200 *Water Quality Standards for Groundwaters of the State of Washington*
1993. WAC 173-205 *Whole Effluent Toxicity Testing and Limits*

Syngenta

2014. *Safety Data Sheet.* Difenoconazole (CAS #119446-68-3), and Fludioxonil (CAS #131341-86-1).

United States Department of Agriculture

2003. *Agricultural Chemical Usage, Postharvest Applications, Apples and Pears* National Agricultural Statistics Service.

1976. *Market Diseases of Apples, Pears, and Quinces* ARS-USDA, Agriculture Handbook No. 376

2008. *Non-citrus Fruits and Nuts 2007 Summary*, National Agricultural Statistics Service.

DATABASES

EXTOXNET (Extension Toxicology Network)

Pesticide Information Profiles

Toxnet Literature Review, Toxicology Data Network.

Aquatic Toxicity Information Retrieval Database

PAN (Pesticide Action Network) Pesticide Database

Environmental Fate Data Base

PICOL (Pesticide Information Center OnLine) Database

APPENDIX A - PUBLIC INVOLVEMENT INFORMATION

Ecology proposes to reissue the Fresh Fruit Packing Industry general permit. The general permit includes wastewater discharge limitations and other conditions. This fact sheet describes Ecology's reasons for requiring permit conditions. This Appendix provides all of the opportunities for public engagement in the general permit renewal process that were provided.

Listening Session

Listening Sessions are held to allow voluntary participants to share their experiences and concerns over any part of the proposed General Permit renewal. One listening session was provided on **June 15, 2021 beginning at 6 p.m.** via WebEx which allowed individuals to participate anonymously if they desired. A Spanish language interpreter was provided for individuals needing that service. A focus sheet explaining the underlying basics and needs of the General Permit was also made available before the listening session in both English and Spanish language.

Both English and Spanish language notices of the Listening Session were advertised in Yakima Republic Herald, The Wenatchee World, and on radio stations of both languages in the centralized fruit growing regions of the state.

Ecology will place a Public Notice of Draft in the Yakima Herald Republic and the Wenatchee World to inform the public and to invite comment on the proposed draft National Pollutant Discharge Elimination System permit and fact sheet.

The notice:

- Tells where copies of the draft permit and fact sheet are available for public evaluation (a local public library, the closest regional or field office, posted on our website).
- Offers to provide the documents in an alternate format to accommodate special needs.
- Asks people to tell us how well the proposed permit would protect the receiving water.
- Invites people to suggest fairer conditions, limits, and requirements for the permit.
- Invites comments on Ecology's determination of compliance with antidegradation rules.
- Urges people to submit their comments, in writing, before the end of the comment period.
- Announces dates, locations, and times of public hearings.
- Explains the next step(s) in the permitting process.

PUBLIC NOTICE OF DRAFT GENERAL NPDES PERMIT FOR THE FRESH FRUIT PACKING INDUSTRY

Introduction: In 1994, the Washington State Department of Ecology (Ecology) developed a National Pollutant Discharge Elimination System (NPDES) general permit to regulate the discharge of wastewater from fresh fruit packing facilities.

The fruit packing industry is eligible for coverage under a general permit due to: (1) the similar wastewater characteristics among facilities; (2) the uniform discharge conditions to which all facilities would be subject; and (3) the significant reduction of resources necessary for permit handling. However, individual NPDES/State Waste Discharge permits will still be applied in those instances where Ecology determines the general permit is not appropriate for a facility or an individual facility does not wish to be covered by the general permit.

This general permit establishes Treatment/Disposal Methods, effluent limits, and Best Management Practices for discharges from the fresh fruit packing industry. Compliance with this general permit is anticipated to protect human health and waters of the state.

Types of Facilities or Dischargers and Geographic Area Covered: Every new or existing fresh fruit packing facility within the entire State of Washington which receives, packs, stores, and/or ships either hard or soft fruit is required to apply for coverage under either this general permit or an individual NPDES/State Waste Discharge Permit.

Documents Available for Review: You may download a copy of the draft permit and fact sheet, the SEPA for additional chemicals, the SEPA Determination of Non-significance, and the Small Business Economic Impact Analysis at https://ecology.wa.gov/FruitPackPermit ; or you may request a copy from Cynthia Huwe, (509)457-7105 or email cynthia.huwe@ecy.wa.gov.

Public Workshops: Public workshops and information for permittees on changes to the proposed reissued permit shall be held via **WebEx on October 6, 2021, beginning at 1:00 p.m**., and the public hearing will immediately follow. A **second WebEx event will be held on October 7, 2021, beginning at 5:00 p.m.**, and the public hearing will immediately follow the conclusion of the workshop. **It is anticipated that the workshop at both events will last approximately two hours.**

Links to sign up for the WebEx Public Events:

October 6, 2021
https://watech.webex.com/watech/onstage/g.php?MTID=e348440dc7e0cb03e8240a30c7eb7681b

October 7, 2021:
https://watech.webex.com/watech/onstage/g.php?MTID=e6e1204be98fc36f57b1ed14728310c5d

DATE	Wednesday, October 6, 2021	Thursday, October 7, 2021
Permittee Training/Public WORKSHOP	Begins at 1:00 p.m.	Begins at 5:00 p.m.
PUBLIC HEARING	Begins at the end of the workshop, but no earlier than 3:00 p.m.	Begins at the end of the workshop, but no earlier than 7:00 p.m.
LOCATION	Via WebEx	Via WebEx

When and How to Submit Comments: Comments on the proposed general permit may be given at the public hearings. Interested persons are also invited to submit written comments regarding the proposed general permit. All written comments must be submitted by 5:00 pm on October 15, 2021 to: Department of Ecology, 1250 West Alder Street, Union Gap, WA 98903, Attn: Cynthia Huwe, or email comments to cynthia.huwe@ecy.wa.gov.

An on-line public commenting form is available at:
https://wq.ecology.commentinput.com/?id=mBGE7. This on line form will be available from **September 1, 2021 through October 15, 2021**.

This notice will be published in the legal section of the Yakima Herald-Republic, The Wenatchee Daily World, and the State of Washington Register on September 1, 2021. A mailing containing this notice will be sent to all current permittees and other interested parties.

Comments may also be submitted on the SEPA for new chemical additions to this General Permit reissuance, and the SEPA Determination of Non-significance.

Final Determination: All comments received at the public hearings or at Ecology's Central Regional Office by 5:00 pm on October 15, 2021 will be considered before final permit terms, limitations, and conditions are established. A responsive summary of comments received during the comment period will be prepared and available for public review. If the final content of the general permit remains substantially unchanged from the draft permit, a copy of the final determination in the form of a Public Notice of Issuance shall be forwarded to all persons who submitted written comment or gave public testimony regarding the permit. However, if the final determination is substantially changed, another Public Notice of Draft Permit may be published.

Economic Impact Analysis: Ecology completed a new economic impact analysis that will be available September 1st, 2021 on Department of Ecology's Publications & Forms Website located here: https://fortress.wa.gov/ecy/publications/UIPages/Home.asp.

Tentative Determination to Issue: After Ecology receives and considers all public comments, it will issue the final permit.

Further Information: Contact Marcia Porter at marcia.porter@ecy.wa.gov or (509) 454-7864, (509)-406-6624 or at 1250 W. Alder Street, Union Gap, WA.

Ecology is an equal opportunity agency and does not discriminate on the basis of race, creed, color, disability, age, religion, national origin, sex, marital status, disabled veteran's status, Vietnam Era veteran's status or sexual orientation. If you have special accommodation needs or require this document in alternative format, please contact Cynthia Huwe at (509) 457-7105.

Ecology has published a document entitled *Frequently Asked Questions about Effective Public Commenting,* which is available on our website at https://fortress.wa.gov/ecy/publications/SummaryPages/0307023.html.

You may obtain further information from Ecology by telephone, 509/457-7105 or by writing to the address listed below.

Water Quality Permit Coordinator
Department of Ecology
Central Regional Office
1250 West Alder Street
Union Gap, WA 98903

The primary author of this permit and fact sheet is Marcia Porter, Environmental Specialist IV, Statewide Fresh Fruit Packing General Permit Administrator and Compliance Manager.

APPENDIX B - REPORTS AND DOCUMENTS RELATED TO DIFENOCONAZOLE

Difenoconazole is a broad spectrum fungicide belonging to the triazole group of fungicides. The mode of action of difenoconazole is as a demethylation inhibitor of sterol biosynthesis which disrupts membrane synthesis by blocking demethylation. It is used in concentrations of 300 mg/L and can be used in conjunction with Fludioxonil.

In soil, difenoconazole is persistent and slightly mobile. Difenoconazole has low potential to reach groundwater, except in soils of high sand and low organic matter content. During a runoff event, difenoconazole will potentially enter adjacent bodies of surface water. In an aquatic environment, difenoconazoles main route of dissipation is partitioning into the bottom sediment as shown in an aerobic aquatic metabolism study (MRID 42245134), in which the distribution ratio of sediment and water phases was 8:1 at 1 day post-treatment and 40:1 at 30 days post- treatment. Difenoconazole has the potential to undergo slow to relatively fast aqueous photolysis in clear water. **Table 2** summarizes the environmental fate data of difenoconazole and **Table 3** lists some affected species.

Table 1. Physical and Chemical Properties of Difenoconazole

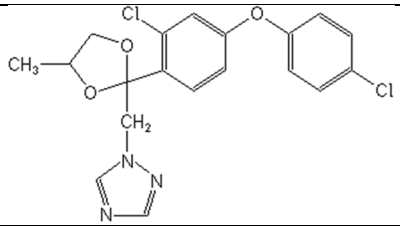
Property	Value	Source
Common Name	Difenoconazole	MRID 469501-04
CAS Registry No.	119446-68-3	
PC Code	128847	
Structure		MRID 469501-04
Chemical Name (CAS)	1-{2-[4-(chlorophenoxy)-2- chlorophenyl-(4-methyl-1,3-dioxolan-2-yl)-methyl]}-1H-1,2,4- triazole	MRID 469501-04
SMILES notation	O1CC(C)OC1(Cn2ncnc2)c3c(Cl)cc(O c4ccc(Cl)cc4)cc3	EPI Suite, v3.12 SMILES
Molecular Formula	$C_{19}H_{17}Cl_2N_3O_3$	MRID 469501-04
Molecular Weight	406.27	MRID 469501-04
Physical State	Red Liquid	
Vapor pressure	2.5×10^{-10} mm Hg (25 ^{o}C)	MRID 465159-01
Henry's Law constant	8.9×10^{-12} atm x m^3/mol	MRID 465159-01
Specific Gravity/ Density	1.14g/cm^3 @ 25 ^{o}C	MRID 469501-04
Solubility in water	15.0 mg/L @ 25 ^{o}C	MRID 469501-04
log Kow	4.4 (25 ^{o}C)	MRID 469501-05

Table 2. Summary of the Environmental Fate Properties of Difenoconazole

Property	Value	Source
Name	Difenoconazole	
Henry's Law constant	8.9×10^{-12} atm x m^3/mol	MRID 465159-01
Soil adsorption coefficient Koc (L/kg)	3867, 3518, 3471, and 7734 3870, 4587, 4799, and 11202	MRID 422451-35[A] MRID 469501-21
Hydrolysis half-life pH = 5 pH = 7 pH = 9	 Stable Stable Stable	MRID 422451-27
Photolysis half-life in water	6 days – ca. 1 ppm in sterile buffer solution (30-day study) ca. 9.2 days – 1mg ai/L in natural water 228 days – 1.52 ml ai/L in	MRID 422451-28 MRID 469501-04 MRID 469501-05[B]
Photolysis half-life in soil	349 - 823 days	MRID 469501-06[C]
Aerobic soil metabolism half-life	84.5 days – at 0.1 ppm concentration 1600 days – at 10 ppm in loam 1059 days – at 10 ppm in sandy loam 120 days – at 0.13 ppm; Swiss loam 104 days – at 0.13 ppm; Swiss loam 165 (158) days – at 0.23 ppm; Swiss sandy loam 204 (187) days – at 0.23 ppm; Swiss sandy loam/loamy sand 204 (198) days – at 0.23 ppm; French silty clay loam 433 (408) days – at ca. 0.1 ppm in CA loamy sand at 25 ^{o}C 533 days – at ca. 0.1 ppm in CA loamy sand at 25 ^{o}C	MRID 422451-31 MRID 422451-32[D] MRID 422451-33[D] MRID 469501-09 MRID 469501-10 MRID 469501-11 MRID 469501-12 MRID 469501-14
Anaerobic soil metabolism half-life	947 days – at 10 ppm in loam	MRID 422451-32

Property	Value	Source
Aerobic aquatic metabolism half-life	860 days (10 mg ai/L) 315 (330) days (nominal 0.1 kg ai/ha =0.17 mg ai/L); Swiss pond water-silty clay loam sediment) 335 (301) days (0.17 mg ai/L; Swiss river water-sandy loam sediment) 565 days (0.04 mg ai/L)	MRID 422451-34 [E] MRID 469501-16 MRID 469501-17
Anaerobic aquatic metabolism half-life	1245 days (10mg ai/L) 370 days (433) (0.04 mg ai/L)	MRID 422451-34 [E] MRID 469501-19
Terrestrial field dissipation half-life	252 days - determined in the 0- to 3-inch depth – CA bare loamy sand 231 days – GA bare loamy sand (four applications of 0.13 lb ai/A) 139 days – CA bare plot of loam soil (four applications of 0.13 lb ai/A) 462 days – ND bare sandy clay loam	MRID 422451-40 MRID 469501-26 MRID 469501-27 MRID 469501-29
Laboratory accumulation in fish bioaccumulation factor (*Lepomis macrochirus*) a depuration half-life	170x in edible tissues 570x nonedible tissues 330x for whole body 1 day	MRID 422451-42

[A] There was another adsorption/desorption study (MRID 422451-36) reviewed in which the test soils were autoclaved prior to conducting the study which could distort the mobility characteristic of difenoconazole, thus, the study results were not used for calculation of modeling input parameters.

[B] For modeling purposes, the longest half-life was used as it represents the most conservative scenario. However, there is considerable uncertainty in the photolysis half-lives because the duration of the studies was considerably shorter than the extrapolated half-life (MRIDs 469501-05 and 469501-06).

[C] The soil photolysis half-life under xenon light condition was recalculated to represent the conditions under natural sunlight intensity during 30-day periods between June and September (104.7-246.9 W·min/cm^2), as a result, a range of half-lives was obtained.

[D] In those aerobic soil metabolism studies (MRID 422451-32 and MRID 422451-33) the test application rate was significantly higher than expected under registrant-proposed use condition for difenoconazole.

[E] In those aquatic metabolism studies, the test application rates were significantly higher than expected under registrant-proposed use condition for difenoconazole.

Table 3. Potential Effects to Listed Species Associated with the Proposed New Use of Difenoconazole

Listed Taxa	Direct Effects[a]	Indirect Effects
Terrestrial and semi-aquatic plants – monocots and dicots	Yes (listed dicots)	Yes
Birds	No – Acute Yes – Chronic	Yes
Terrestrial-phase amphibians	No – Acute Yes – Chronic	Yes
Reptiles	No – Acute Yes – Chronic	Yes
Mammals	No – Acute Yes – Chronic	Yes
Aquatic plants	No[b]	Yes
Freshwater fish	No – Acute Yes – Chronic	Yes
Aquatic-phase amphibians	No – Acute Yes – Chronic	Yes
Freshwater invertebrates	No – Acute No – Chronic	Yes
Estuarine/marine fish	No – Acute Yes – Chronic	Yes
Estuarine/marine invertebrates	No – Acute Yes – Chronic	Yes
Terrestrial invertebrates	No	Yes[c]

[a] RQs for aquatic plants and chronic risk to fish and aquatic invertebrates were based on total toxic residues (TTR) due to a lack of guideline toxicity data for 1,2,4-triazole and triazole acetic acid. Degradate toxicity was assumed equal to that of difenoconazole for those endpoints.

[b] There is some uncertainty for non-vascular plants because an acceptable study with cyanobacteria is not available; however, there are not currently any listed non-vascular plant species.

[c] Only for obligate relationships with listed terrestrial plant species (dicots).

Reference Documents concerning difenoconazole are located at:

http://www.ecy.wa.gov/programs/wq/permits/fruit_packers/index.html

Difenoconazole Summary of Analytical Chemistry and Residue Data.pdf
https://www.regulations.gov/#!documentDetail;D=EPA-HQ-OPP-2014-0149-0009

Ecological Risk Assessment for Difenoconazole_Part1.pdf
http://www.ecy.wa.gov/programs/wq/permits/fruit_packers/EcologicalRiskAssessmentPart1.pdf

Ecological Risk Assessment for Difenoconazole_Part2.pdf
http://www.ecy.wa.gov/programs/wq/permits/fruit_packers/EcologicalRiskAssessmentPart2.pdf

Federal Insecticide, fungicide, and Rodenticide Act.pdf
https://www.epa.gov/laws-regulations/summary-federal-insecticide-fungicide-and-rodenticide-act and
http://www.agriculture.senate.gov/imo/media/doc/FIFRA.pdf

Federal Register- Difenoconazole-April 2015.pdf
https://www.gpo.gov/fdsys/pkg/FR-2015-04-02/pdf/2015-07354.pdf

SDS for Difenoconazole and Fludioxonil.pdf
http://www.syngentacropprotection.com/sds-label/academy

APPENDIX C - RESPONSE TO COMMENTS

The Department of Ecology provided a forty-five (45) day public commenting period on the draft Fresh Fruit Packing General Permit. Ecology also provided two public hearings via WebEx, one on October 6, and one on October 7, 2021. These notices and hearings are required in *WAC 173-226-130*.

Ecology received three written comments during the 45 day period, and zero (0) oral comments at public hearing(s). Ecology response to the written comments are below. Response to comments completed by Marcia Porter, marcia.porter@ecy.wa.gov or 509-454-7864.

Comment 1: **Name:** Malcolm Hanks **Address:** 2300 Ahtanum Rd **City:** Union Gap **Province:** WA **Postal Code:** 98903
Fresh Fruit Packing General Permit, Special Conditions, S5, Table 9.
Draft Fresh Fruit Packing General Permit 1/1/2022

Regarding Land Application rates listed in table 14.

PARAMETER/ POLLUTANT[b]	DAILY MAXIMUM PERMIT LIMIT[a]		SAMPLE FREQUENCY	SAMPLE TYPE
	Cherry Packing Season	Drencher Harvest Season		
Flow (gallons/day)	Record Value	Record Value	Maximum Day Flow	Report Maximum Day Flow
Application Area (acres)	Record Acres Used	Record Acres Used	**Once Per Season**	Record Acres Used
Application Loading Rate (gals/acre/day)	**NR**	**See Table 9**	**Once Per Season**	Calculated
BOD_5 (mg/L)	**See Table 9**	**NR**	**Once Per Season**	Grab
BOD_5 Loading Rate (lbs/acre/day)	10 lbs/acre/day	**NR**	**Once Per Season**	Calculated
Total Suspended Solids (TSS) (mg/L)	**See Table 9**	**NR**	**Once Per Season**	Grab
TSS Loading Rate (lbs/acre/day)	10 lbs/acre/day	**NR**	**Once Per Season**	Calculated

Table 9 – Application/Discharge Rates & Frequencies for Dust Abatement and Land Application Discharges

WASTEWATER DESCRIPTION	MAXIMUM APPLICATION[a]	
	RATE	FREQUENCY
Any permitted wastewater (see Table 3) <u>except the following:</u> Any drencher wastewater, NCCW, pear float tank wastewater, wastewater containing fludioxonil, pyrimethanil, DPA, or Difenoconazole	1800 gal/acre/day	180 applications/year every day

Table 14 Draft limits BOD and TSS application rate by table 9 gallons **AND**
10 pounds/acre/day. Table 9 Draft limits wastewater application rates to 1800 G/A/D and 180 applications/year.

This is a departure from the current Fresh Fruit Packing General Permit
which allows up to 6,000 G/A/D alternate days.

TABLE 14 – Application/Discharge Rates & Frequencies for Land Application Discharges

WASTEWATER DESCRIPTION	Concentration in mg/L:	MAXIMUM APPLICATION[1]	
		RATE	FREQUENCY
Any permitted wastewater (see table 3) with BOD_5 or TSS levels of: (Excluding any drencher wastewater, NCCW, pear float tank wastewater, wastewater containing fludioxonil and/or pyrimethanil)	0 to 200	6000 gal/acre/day	Every other day
	201 to 400	3000 gal/acre/day	Every other day
	401 to 600	2000 gal/acre/day	Every other day
	More than 600	Discharge Not Allowed	

This is a substantive change to the current permit and so I have to assume
that this is an oversight on Ecology's part since it is not identified in the list of changes.

If this rule stands as written it will limit the application rate to 60% of the existing rates and require packers to increase the disposal area by 60% to meet the proposed 1800 G/A/D limit.

Malcolm Hanks
Borton Fruit

<u>Response to Comment 1</u>: This is an oversight on Ecology's part and the Table 9 error missed in the review of the draft permit prior to the public comment period. The table in

question (Permit section S5, Table 9) has been updated and the table is identical to the current version of the permit.

Comment 2: Received October 7, 2021 via email.

FLUDIOXONIL (Scholar & Academy), PYRIMETHANIL (Penbotec)
But for those that are new to the WW disposal issues I think that it would be helpful if all of the chemicals that are used in the fruit industry were listed. Possibly this could be added to the Glossary along with a description of what they are typically used for along with any common names

Response to Comment 2: The Fresh Fruit Packing General Permit provides best management practices and product use limitations based upon the active ingredient rather than specific products. This allows permittees to select the product that contains the active ingredient that is best suited for their operations.

However, Ecology recognizes that a preponderance of the permittees use specific products that are more readily available in the Washington state fruit growing region. Based upon that, additions of common names will be added to the permit in applicable tables. A footnote will be added that states that Ecology does not endorse any specific product that contains the active ingredient.

The Fact Sheet for the Fresh Fruit Packing General Permit lists all active ingredients available in the permit and what each is commonly used for. For ease of use, an abbreviated descriptive list will be added to the permit as Appendix D.

Comment 3: Letter of support from the Washington State Tree Fruit Association.

Response to Comment 3: Thank you for your comments.

Washington State Tree Fruit Association

105 S. 18th Street, Suite 116 - Yakima, WA 98901 - 509-452-8555

October 14, 2021

Marcia Porter
Water Quality, Technical Unit
Department of Ecology- Central Regional Office
1250 West Alder Street
Union Gap, WA 98903-0009

Dear Marcia:

The Washington State Tree Fruit Association represents growers, packers, and marketers of apples, pears, cherries, and other tree fruit. We offer this letter in support of the Fresh Fruit Packing General Permit and Fact Sheet.

The tree fruit industry has worked closely with the Washington State Department of Ecology to fashion a document that addresses environmental concerns and is also effective and feasible for the fruit packers of Washington state. We believe the current draft is consistent with these goals and are glad you added the land application of Difenoconazole. We also want to work with you to ensure flow monitoring is implemented with as little disruption as necessary.

The Washington state apple, pear, and cherry industry supports the adoption of this permit.

Sincerely,
Ranie L. Haas

Ranie L. Haas
Director of Regulatory and Industry Affairs
Washington State Tree Fruit Association