



2020

# COMPLIANCE AUDIT REPORT

*ENVIRONMENTAL MANAGEMENT ACT*

## Fruit and Vegetable Processing Industry



## EXECUTIVE SUMMARY

The B.C. Ministry of Environment and Climate Change Strategy (ENV) conducted a sector-wide compliance audit between June 12, 2020, and December 17, 2020, on select fruit and vegetable processing (FVP) facilities within the province of British Columbia (B.C.). The audit was conducted as part of the 2020 B.C. Service Plan and ENV's annual audit program, and the FVP industry was selected for audit based on its inclusion in the Waste Discharge Regulation (WDR) as a prescribed industry. The majority of authorized facilities in this industry are permitted to discharge effluent from one or more of the following sources: fruit and vegetable wash water, cooking water, floor wash water, cooling water, storm water, and fruit dump tank water.

The objectives of this audit were to:

- Determine overall compliance rates across the sector
- Determine if current authorizations contain consistent foundational environmental protection provisions (e.g. discharge limits, monitoring and reporting requirements)
- Improve compliance within the sector by identifying areas where the industry can improve on compliance, and by identifying opportunities for compliance promotion initiatives
- Provide recommendations to improve authorization enforceability and environmental protection, if required

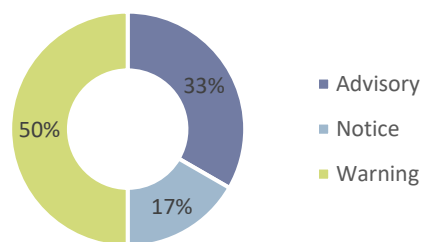
The scope of the audit included only facilities that had not been inspected in the past four years; inspections were conducted on five effluent discharge permits and one registration under the Organic Matter Recycling Regulation (OMRR). ENV inspectors conducted on-site inspections and reviews of records on file of all authorizations, and inspection data was then analyzed to determine compliance rates for the industry and the various permit clause categories.

Six inspection records were generated following inspections of each facility, leading to one notice of compliance, two advisories of non-compliance, and three warnings of non-compliance (figure 1). The OMRR registered facility was found to be closed and issued a notice advising de-registration.

With respect to individual facility compliance performance with permit clauses, two of five facilities had compliance rates above 25%, and these two facilities received advisories. The three facilities which received warnings all had compliance rates below 15%. Across all facilities inspected, the areas with the lowest levels of compliance included discharge monitoring and data analysis requirements, receiving environment monitoring requirements, and reporting requirements.

While results of the audit demonstrated low compliance rates with monitoring and reporting clauses, when data was available and clauses were applicable, most permit clauses were enforceable and protective of the environment. In the future, compliance promotion from ENV as well as better practices to review permit requirements regularly by FVP facilities could help to improve compliance rates in this industry.

**Figure 1. Audit Inspection Outcomes**



**Recommendations for FVP Industry:**

- Ensure that facility owners, operators, and staff are aware of and comply with all permit requirements
- Ensure all required monitoring is conducted as described in the permit
- Ensure authorized discharges are within permit requirements for discharge quality and quantity
- Ensure all data required to be reported to ENV is sent to [EnvAuthorizationsReporting@gov.bc.ca](mailto:EnvAuthorizationsReporting@gov.bc.ca) by the required deadlines
- Ensure that sludge is removed at the required frequency and disposed of as required by each permit, and that records are kept demonstrating compliance with these requirements
- Ensure that timely notification of any incidents, emergencies, bypasses, and changes are provided to ENV as required
- Ensure permit requirements are reviewed regularly to prevent requirements from being overlooked

**Recommendations for ENV:**

- Inspect facilities with new authorizations in the FVP industry soon after authorizations are issued. This would be beneficial to help the industry understand their authorization requirements and allow them to put procedures in place to comply with their permits from the onset
- Re-inspect audited facilities that received warnings
- Continue to target existing authorizations with no previous inspections on record for inspection and/or industry audit
- Improve compliance promotion with smaller general industry sectors, which do not tend to have a dedicated employee for environmental concerns
- Investigate the possibility that there may be unauthorized FVP facilities with discharges to the environment
- Review the definition of a “home-based business” in the WDR as it applies to the FVP industry, and clarify whether home-based farms and orchards are home-based businesses

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## LIST OF ABBREVIATIONS USED

Acronym	Definition
EMA	<i>Environmental Management Act</i>
ENV	B.C. Ministry of Environment and Climate Change Strategy
WDR	Waste Discharge Regulation
OMRR	Organic Matter Recycling Regulation
FVP	Fruit and Vegetable Processing
CBOD	5-day Carbonaceous Biochemical Oxygen Demand
TSS	Total Suspended Solids
EOCP	Environmental Operators Certification Program
QP	Qualified Professional
MWR	Municipal Wastewater Regulation
ND	Not Determined
NA	Not Applicable

## INTRODUCTION

### PURPOSE OF THIS REPORT

This report presents the findings of a sector-wide compliance audit conducted between June 12 and December 17, 2020, of the fruit and vegetable processing (FVP) industry within the province of British Columbia (B.C.) to determine the rates of compliance with the *Environmental Management Act* (EMA).

The specific objectives of this Audit were to:

- Determine overall compliance rates across the sector by inspecting:
  - Five permitted sites (45 percent of the FVP industry permits)
  - One Organic Matter Recycling Regulation (OMRR) registered site (100 percent of the registrations in the FVP industry);
- Determine if current authorizations contain consistent foundational environmental protection provisions (eg. discharge limits, monitoring and reporting requirements);
- Improve compliance within the sector by identifying opportunities for compliance promotion initiatives;
- Provide recommendations to improve authorization enforceability and environmental protection, if required; and,
- Inform the FVP industry on compliance issues within the industry.

### ABOUT THE INDUSTRY SECTOR

#### SELECTION

Industry sectors targeted by ENV's annual audit program are selected based on their inclusion in the Waste Discharge Regulation (WDR), as well as existing policy and direction such as the Environmental Protection Division's Inspection Policy and the 2020 B.C. Service Plan. The FVP industry was selected for an audit because it is listed as a prescribed industry in WDR and had a number of authorizations that had not been inspected in the previous five years. ENV's compliance policy sets a goal of inspecting 25 percent of all authorizations in the province each year, to accomplish the four-year compliance plan of inspecting every authorization at least once every four years. Additionally, it is beneficial to inspect an industry as a whole over a short period of time to inform overall improvements that could be made to achieve compliance.

#### SECTOR DESCRIPTION

Before retail sale, most fruits and vegetables undergo processing such as washing and packaging to prepare them for market. Processing also includes practices to preserve the fruits and vegetables like freezing, drying, or canning. Fruits and vegetables are also further processed in order to make products like jams, juices, pickles, and ketchup.



Apples being prepared for drying at FVP facility in Abbotsford B.C. (Photo captured during the Audit.)

The processing of fruits and vegetables plays an important role in the broader crop production sector in B.C. Statistics Canada reported that in 2020, total farm cash receipts in B.C. were reported at \$3.9 billion, and crops accounted for \$2.1 billion of that total<sup>1</sup>. The total production in 2019 of marketed fruit crops was estimated at 296,756 Metric tonnes<sup>2</sup>, and in the same year marketed vegetable crops were estimated at 86,133 Metric tonnes<sup>3</sup>. A portion of these crops, including the portion to be sold locally in B.C., are processed in province at facilities engaged in the FVP industry.

A report titled “Quality, Diversity: B.C.'s Agrifoods Sector” published in 2020 states that food processing is the second-largest of British Columbia’s manufacturing industries, generating over \$10 billion in sales in 2018, and employing 36,500 people. This same report states that there are an estimated 2,900 food processing firms of small and medium sizes operating in the province<sup>4</sup>. These food processing firms represent a wide verity of food processing industries such as animal food products, bakery products, and pet foods, and therefore the majority are not specifically captured in the FVP industry.

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<sup>1</sup> Statistics Canada. Farm cash receipts, annual (x 1,000). Available here:

<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3210004501&pickMembers%5B0%5D=1.11&cubeTimeFrame.startYear=2016&cubeTimeFrame.endYear=2020&referencePeriods=20160101%2C20200101>

<sup>2</sup> Statistics Canada. Area, production and farm gate value of marketed fruits. Available here:

<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3210036401&pickMembers%5B0%5D=1.13&pickMembers%5B1%5D=2.1&pickMembers%5B2%5D=4.7&cubeTimeFrame.startYear=2016&cubeTimeFrame.endYear=2020&referencePeriods=20160101%2C20200101>

<sup>3</sup> Statistics Canada. Area, production and farm gate value of marketed vegetables. Available here:

<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3210036501&pickMembers%5B0%5D=1.14&pickMembers%5B1%5D=3.1&cubeTimeFrame.startYear=2016&cubeTimeFrame.endYear=2020&referencePeriods=20160101%2C20200101>

<sup>4</sup> Quality, Diversity: B.C.'s Agrifoods Sector. Available here: <https://www.britishcolumbia.ca/TradeBCPortal/media/Marketing/bc-agrifoods-mit.pdf>

## REGULATORY OVERSIGHT

The EMA and the WDR are the principal pieces of legislation that protect soil, air and water quality in B.C. Under this legislation, the introduction of waste into the environment from identified “prescribed” industries, trades, businesses, operations, and activities requires authorization from ENV.

**The Fruit and Vegetable Processing Industry** is a prescribed activity/operation listed under Schedule 2 of the WDR and included in Section 6(2) of EMA. Therefore, FVP facilities require a site-specific authorization to discharge waste into the environment.

The FVP industry as defined under WDR includes:

“establishments, except home-based businesses, educational facilities and establishments of hobbyists or artisans, engaged in processing fruits or vegetables by canning, drying, freezing or any other preservation process, and includes fruit or vegetable growers and cooperatives and producers of juices, pickles, ketchup and similar products;”

These operations generally:

- Utilize processes like washing, freezing, cooking, drying, dehydrating, breaking down, juicing, canning, etc.;
- Employ multiple people to operate;
- Utilize equipment to help with processing;
- Require some type of infrastructure to manage the quantity of the discharge; and,
- Produce a product for retail.

Examples include:

- commercial scale processing of fruits and vegetables;
- manufacturing and processing including canning and bottling of fruit and vegetable juices; and,
- manufacturing and processing of other fruit and vegetable products including pies, candies and fruit leather.
- washing and packaging of fruit and vegetables.





Photo of commercial scale fruit processing equipment. Photo captured during the Audit.

Excluded from this definition are home-based business, educational facilities, hobbyists, or artisans as defined in the Waste Discharge Regulation Implementation Guide (Version Date: September 10, 2007):

Artisan	a trained or skilled person who creates an object or performs a task that has aesthetic value and who, generally in a small business, produces arts and crafts for retail or wholesale trade
Home-based Business	a small business that operates from a (residential) home base
Hobbyist	a person who conducts a pursuit outside of their regular occupation for recreation without expectation of commercial benefit
Educational Facility	a facility where teachers provide academic or practical education to students

## REGULATORY INSTRUMENTS

ENV utilizes waste discharge permits and OMRR registrations to regulate discharges from the FVP Industry to the environment. Under Section 14 of EMA, ENV can issue permits authorizing the introduction of waste into the environment subject to requirements for the protection of the environment that ENV considers advisable. These permits have site specific requirements with respect to discharges (including limits on quantity and quality, and treatment works), operations, monitoring, and reporting. OMRR is a regulation created under EMA to regulate multiple composting operations in B.C., with general requirements that are not site specific. A composting operation registered under OMRR must follow all the requirements of the regulation.

## **DISCHARGE TYPES AND METHODS OF POLLUTION CONTROL**

As of May 2020, when the Audit was initiated, ENV had 12 active discharge authorizations for facilities operating in the FVP industry. The discharges of contaminants of concern from FVP facilities vary based on the type of operation. Of the 12 active waste discharge authorizations in the FVP industry, one is for the discharge of air contaminants from a natural gas boiler; one is a registration under OMRR for the composting of solid waste generated during processing; and the remaining 10 are effluent discharges. Of these effluent discharge authorizations, all 10 authorize a discharge to ground, and one authorizes an additional discharge to the Fraser River.

### **Air**

The one air permit authorized with ENV in the FVP Industry authorizes the discharge of air from a natural gas boiler. The Permit had no discharge quality limits.

### **Refuse**

The FVP industry generates solid waste in the form of plant matter derived from processing. This waste is considered to be organic matter suitable for composting under OMRR. Only one FVP facility in the province holds an OMRR registration to do their own composting. Other FVP facilities in B.C. send their waste organic matter off-site to compost facilities or landfills. No assessments of the facilities which receive waste organic matter from the FVP facilities was conducted as part of this Audit.

### **Effluent**

All 10 FVP industry effluent discharge permits authorize a discharge to ground, and one authorizes an additional discharge to the Fraser river. The effluent is described in these permits as follows:

- Fruit and vegetable wash water, cooking water, and floor wash water;
- Cooling water, artesian well water and storm water;
- Compressor cooling water and fruit dump tank water;
- Process and wash water from a fruit packing plant;
- Effluent from a fruit washing and packing facility;
- Effluent from a vegetable drying plant;
- Effluent from a blueberry processing facility;
- Effluent from the fruit processing and bottle cooling areas;
- Effluent from a fruit packing plant drain field;
- Effluent from a tomato sauce processing Facility; and,
- Effluent from a leaf vegetable processing facility.

The environmental and human health concerns associated with these discharges include the potential contamination of groundwater and surface water bodies. The specific characteristics of the effluent discharge that are of concern from the FVP industry are temperature; pH; nitrate concentration; suspended solids; biochemical oxygen demand; and pathogens. The pollution control works used to treat the effluent include settling ponds and tanks, filters, aeration, raised sand mounds, rapid infiltration basins, and other types of effluent treatment.

## METHODS

### INSPECTIONS

#### DESCRIPTION OF THE AUDITED FVP FACILITIES

As of May 2020, there were 12 active authorized facilities in the FVP industry in B.C. This Audit focused on inspections of those facilities which had not been inspected in the past three years. As per this objective, the Audit targeted 50 percent of active authorized fruit and vegetable processing facilities (6 out of 12 authorizations). The target included an audit of 5 out of 11 permits, and the only active registration under OMRR. All FVP facilities included in this Audit are listed in Table 1.

**Table 1. Facilities Inspected for the FVP Audit**

Authorization Number	Permittee	Location	Requirement Source	Inspection Record	Facility Description
2488	BC Tree Fruits Cooperative	Lake Country	Permit	156617	fruit washing, packing, and cold storage
13701	B.C. Frozen Foods Ltd.	Mission	Permit	159813	Fruit and vegetable processing and freezing
17157	Fraser Valley Gleaners Society	Abbotsford	Permit	159808	Fruit and vegetable processing and drying
107403	SUN-RYPE PRODUCTS LTD.	Coldstream	OMRR Registration	158512	Closed – previously composting and land application
108091	FRASER VALLEY PACKERS HOLDINGS LTD.	Abbotsford	Permit	159809	Processing fresh and frozen blueberries
108582	KAHLON FARMS LTD.	Abbotsford	Permit	159810	Processing fresh and frozen berries

#### OFFICE REVIEW INSPECTION

As part of an office review portion of the inspection, ENV reviewed records stored in ENV files for each facility. The office review included authorization information within ENV's Authorization Management System (AMS) database and any other documents, reports, or data submissions required under each authorization between January 2018 and the date of inspection in 2020. The office review also included direct communication with the authorization holder to gather additional information necessary to complete the inspection.

#### ON-SITE INSPECTION

ENV conducted on-site inspections on all facilities as part of the FVP Audit. During each on-site inspection, ENV conducted a walkthrough of the site to verify facility and operational details and review monitoring records and maintenance logs. Site personnel were questioned on site history and operation details as necessary in order to verify compliance with the requirements of the permit. Photographs of the authorized works and discharges were taken as necessary. Effluent grab samples were collected by inspectors when effluent was available and accessible (at two of the six audited facilities). Samples were

analyzed by ALS Environmental of Burnaby, BC for total suspended solids (TSS), 5-day Carbonaceous Biochemical Oxygen Demand (CBOD), and nitrate.

## COMPLIANCE DETERMINATIONS AND RESPONSES

Inspections consisted of evaluating whether the authorization holder was compliant, on a clause-by-clause basis, with their discharge permit, or OMRR registration. Compliance findings for each section were one of four outcomes:

In	ENV determined that the authorization holder is in compliance with the regulatory requirement at the time of the inspection
Out	ENV determined that the authorization holder is out of compliance with the regulatory requirement at the time of the inspection
Not determined	There was not enough information for ENV to determine whether the authorization holder is in compliance with the regulatory requirement at the time of the inspection
Not applicable	Compliance with the regulatory requirement did not apply to the authorization holder at the time of the inspection

ENV determined the appropriate administrative response based on the compliance verification findings of the inspection using the risk-based non-compliance decision matrix contained in ENV's Compliance and Enforcement Policy and Procedure (See Appendix 1). This matrix uses levels of impact on environmental or human health and safety, and the categories of likelihood of compliance to determine available enforcement responses. Levels range from 1 to 5, with 1 representing non-compliances that are unlikely to have an impact or are minor and administrative in nature, and 5 representing non-compliances that have a severe impact on the environment or human health. Categories range from "A" for a high likelihood of ongoing compliance to "E" for indications of obstruction or continuing non-compliance. Both the level and category determine which administrative response will be issued as a result of the inspection.<sup>5</sup> A detailed description of some common administrative responses is included below:

Notice	A notice of compliance is a written confirmation that ENV determined that the authorization holder is in compliance with all of the regulatory requirements evaluated at the time of the inspection
Advisory	An advisory notifies the non-compliant party in writing that they are not in compliance with a specific regulatory requirement and often recommends a course of action that is expected to achieve compliance. An advisory is often the first enforcement response taken in cases of minor to moderate non-compliance when there is a high likelihood of achieving compliance.
Warning	Similar to an advisory, a warning notifies the non-compliant party in writing that they are not in compliance with a specific regulatory requirement; however, the warning differs from an advisory in that it warns of the possibility of an escalating response

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<sup>5</sup> B.C. Ministry of Environment and Climate Change Strategy. May 2014. Compliance and Enforcement Policy and Procedure, Version 3. Accessed at <https://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/natural-resource-law-enforcement/environmental-compliance/how-compliance-is-assessed>.

	should non-compliance continue. Warnings are generally used when it is determined that an exchange of information alone would not be sufficient in achieving compliance.
Administrative Monetary Penalty	An administrative monetary penalty is a financial penalty up to \$75,000 imposed by a ministry Statutory Decision Maker on a non-compliant party as prescribed in the Administrative Penalties ( <i>Environmental Management Act</i> ) Regulation

A notice of compliance is only issued if all the assessed sections are found to be in compliance. If a single non-compliance was found during an inspection, the minimum compliance response is an advisory.

All administrative responses to non-compliances serve as a formal record of the alleged non-compliance



Photo of fruit packing area taken at a fruit processing facility during inspection

and form an important element of the compliance history of the party in question. Other responses such as orders, administrative sanctions, etc., within ENV’s enforcement toolkit can be found in ENV’s [Compliance and Enforcement Policy and Procedure](#).

The results of each inspection, along with the administrative responses, were summarized in an inspection record, a copy of which was provided to the authorization holder.

## DATA ANALYSIS



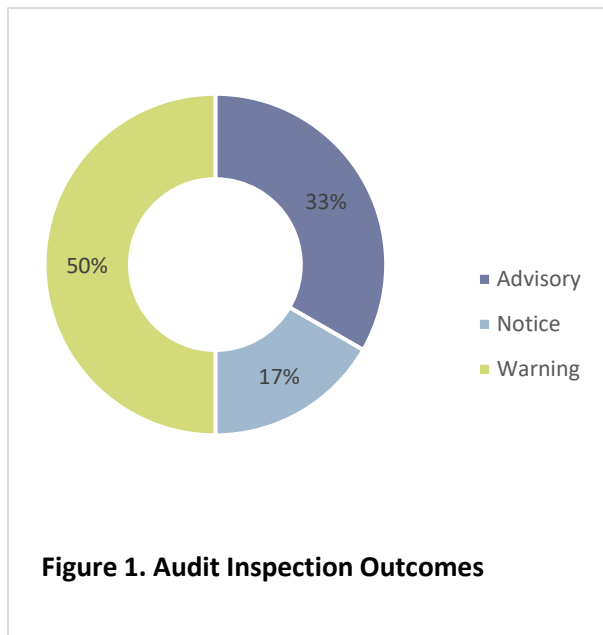
Photo of infiltration basin with effluent. Photo taken during Audit inspection.

ENV compiled the results of the inspections for each of the six facilities included in the FVP Audit to determine compliance rates with the requirements of their site-specific permits, and identify opportunities for improvement.

Compliance findings for each individual permit clause were tallied and aggregated to obtain data on sector performance. Authorization clauses were categorized based on their requirement type; for example, clauses which set limits for effluent quality were categorized as “discharge quality”, whereas clauses that set requirements for discharge sampling were categorized as “discharge monitoring” etc.

The analysis looked at permit clauses in each category of clause type (regardless of which permit they are from) and tallied the compliance findings in each category. This analysis was conducted to determine what percent of clauses (regardless of the permit) were in compliance with each category of requirement.

## RESULTS



Of the six facilities inspected, ENV issued one notice of compliance, two advisories, and three warnings (Figure 1). The notice of compliance was issued under OMRR, to a facility which was no longer in operation, and therefore, the requirements of OMRR were no longer applicable.

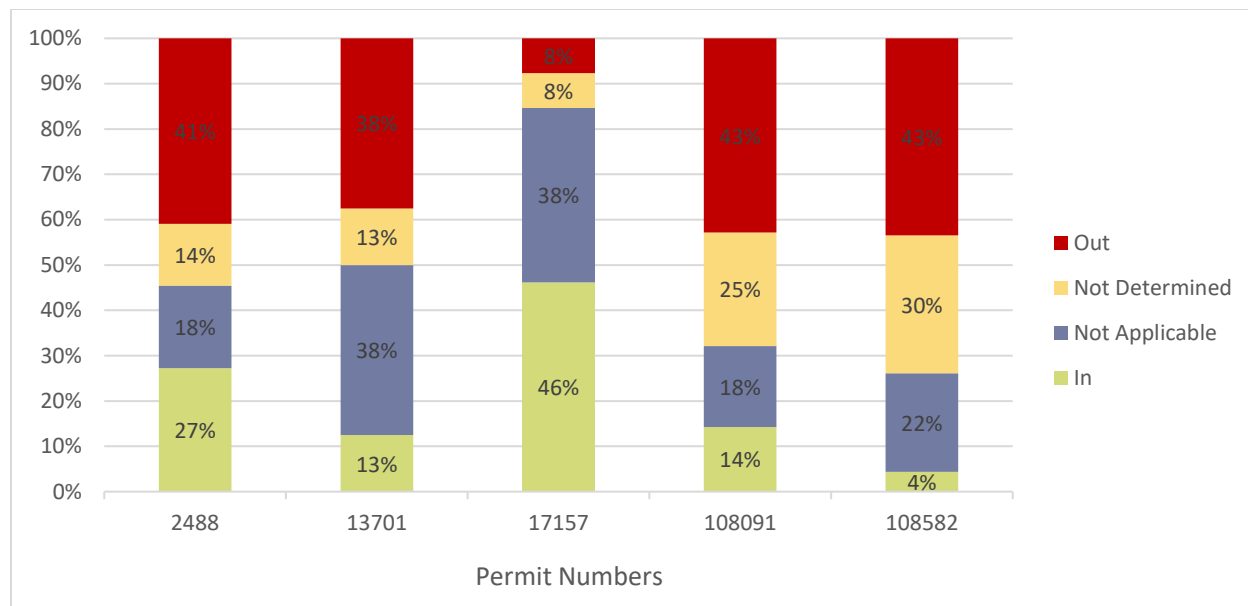
None of the permitted facilities inspected were found to be fully compliant with the requirements of their permits. However, the non-compliances found were either administrative deficiencies or considered to pose, at most, minor temporary impacts to the environment, human health, or safety. These facilities were assessed to be a Level 1 or 2 on ENV's Non-Compliance Decision Matrix (Table 2; see Appendix 1 for the full Non-compliance Decision Matrix).

**Table 2. Tally of Compliance Matrix Determinations**

Permit Numbers	Compliance Outcomes	Non-compliance Decision Matrix <u>Level</u> – an assessment of environmental, human health or safety impacts	Non-compliance Decision Matrix <u>Category</u> – an assessment of likelihood of compliance
<b>108091</b>	Warning	Level 2	Category B
<b>108582</b>	Warning	Level 2	Category A
<b>13701</b>	Warning	Level 2	Category C
<b>17157</b>	Advisory	Level 1	Category A
<b>2488</b>	Advisory	Level 2	Category A



The percentage of in, out, not determined, and not applicable findings each permit had, out of the total number of clauses assessed for each permit, is shown in Figure 2.

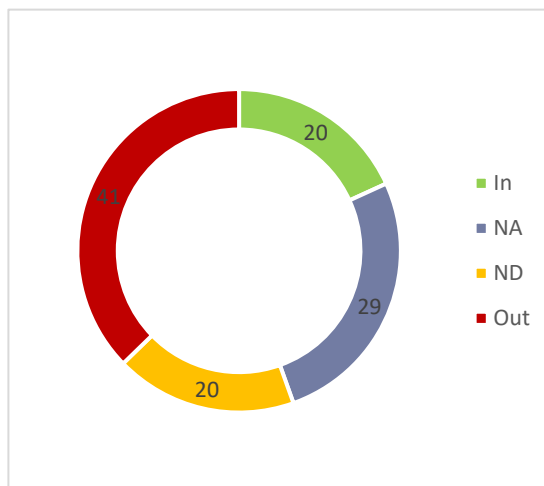


**Figure 2. Overall Compliance with Permit Clauses Evaluated**

## COMPLIANCE WITH PERMIT REQUIREMENTS

In total, 110 individual permit clauses were assessed as part of the FVP Audit. A breakdown of the compliance findings for the 110 permit clauses is shown in Figure 3, including the number of clauses found to be in compliance, out of compliance, not determined (ND), and not applicable (NA).

Table 3 presents the percentages of permit clauses, categorized according to clause type that were found to be in compliance, out of compliance, ND, and NA. Across all permits inspected, certain categories had higher levels of compliance than others. For example, clauses related to discharge period, authorized works confirmation, and operations and maintenance had relatively high levels of compliance. Conversely, clauses related to discharge monitoring and data analysis, receiving environment monitoring, and reporting, had relatively low levels of compliance (Table 3).



**Figure 3. Compliance Findings for Permit Clauses Evaluated in the Audit**

It should also be noted that some of the clause categories such as Environmental Operators Certification Program (EOCP), Qualified Professional (QP) certification of authorized works, notification of changes, and receiving environment do not apply to all facilities inspected.

**Table 3. Tally of Permit Clause Compliance Determinations per clause category**

Tally of Permit Clause Compliance Determinations									
	In		Out		Not Determined		Not Applicable		Total
Permit Clause Categories	Tally	% of total	Tally	% of total	Tally	% of total	Tally	% of total	
Discharge Rate	0	0%	1	13%	5	63%	2	25%	8
Discharge Quality	0	0%	2	29%	3	43%	2	29%	7
Discharge Period	4	67%	1	17%	0	0%	1	17%	6
Discharge Monitoring and Data Analysis	1	5%	13	59%	1	5%	7	32%	22
Receiving Environment	0	0%	2	50%	2	50%	0	0%	4
Reporting	0	0%	6	100%	0	0%	0	0%	6
Authorized Works Confirmation	7	50%	3	21%	3	21%	1	7%	14
Bypasses	0	0%	1	20%	0	0%	4	80%	5
QP Certification of Authorized Works	0	0%	2	67%	0	0%	1	33%	3
Notification of Changes	0	0%	1	25%	0	0%	3	75%	4
Provisional	0	0%	0	0%	0	0%	3	100%	3
Operations and Maintenance	8	53%	2	13%	3	20%	2	13%	15
Sludge Removal and Disposal	0	0%	3	50%	2	33%	1	17%	6
EOCP	0	0%	2	100%	0	0%	0	0%	2
Emergencies and Non-Compliances	0	0%	2	40%	1	20%	2	40%	5
<b>Grand Total</b>	<b>20</b>	<b>18%</b>	<b>41</b>	<b>37%</b>	<b>21</b>	<b>19%</b>	<b>28</b>	<b>25%</b>	<b>110</b>

The permits that were assessed for compliance as part of the Audit were found to have some variation in the types of clauses they included (Table 4.) The clause categories not included in every permit are: Discharge Monitoring and Data Analysis, Receiving Environment, Reporting, QP Certification of Authorized Works, Notification of Changes, Provisional, and EOCP. It is notable that only two permits contain receiving environment monitoring clauses and requirements to be certified with the EOCP. Permit 17157 does not include requirements to monitor the discharge, and this same facility requires effluent quality to be “equivalent to or better than typical septic tank effluent”. However, this is the smallest of all the audited facilities with a maximum rate of discharge of 3 cubic metres per day to ground.



**Table 4. Tally of Each Clause Type in Each Permit**

Tally of Each Clause Type in Each Permit						
<i>Clause Categories</i>	<b>2488</b>	<b>13701</b>	<b>17157</b>	<b>108091</b>	<b>108582</b>	<b>Grand Total</b>
<i>Discharge Rate</i>	1	2	1	2	2	8
<i>Discharge Quality</i>	1	2	1	2	1	7
<i>Discharge Period</i>	1	2	1	2	0*	6
<i>Discharge Monitoring and Data Analysis</i>	6	6	0	5	5	22
<i>Receiving Environment</i>	0	0	0	2	2	4
<i>Reporting</i>	1	1	0	2	2	6
<i>Authorized Works Confirmation</i>	2	4	2	4	2	14
<i>Bypasses</i>	1	1	1	1	1	5
<i>QP Certification of Authorized Works</i>	0	1	0	1	1	3
<i>Notification of Changes</i>	1	1	2	0	0	4
<i>Provisional</i>	0	0	1	1	1	3
<i>Operations and Maintenance</i>	6	2	3	2	2	15
<i>Sludge Removal and Disposal</i>	2	1	1	1	1	6
<i>EOCP</i>	0	0	0	1	1	2
<i>Emergencies and Non-Compliances</i>	0*	1	0*	2	2	5
<b>Grand Total</b>	<b>22</b>	<b>24</b>	<b>13</b>	<b>28</b>	<b>23</b>	<b>110</b>

\* indicates that provisions for these categories were included in the permit, but the clause was counted under another category because the clause included multiple types of requirements

## DISCUSSION AND RECOMMENDATIONS

### GENERAL DISCUSSION

**The categories with the highest compliance rates are as follows:**

- Discharge Period
- Authorized Works Confirmation
- Operations and Maintenance

In these three categories 50 percent or greater of the assessed permit clauses were found to be in compliance. These categories are all similar in the sense that they relate to the regular business of an operation, and the majority of clauses in these categories do not specify that records be made.

**The categories with the lowest compliance rates are as follows:**

- Discharge Monitoring and Data Analysis
- Receiving Environment Monitoring
- Reporting
- QP Certification of Authorized Works
- EOCP
- Sludge Removal and Disposal

In these categories, 50 percent or greater of the assessed permit clauses were found to be out of compliance.

The permit clause categories in the first column (i.e. Discharge Monitoring and Data Analysis, Receiving Environment Monitoring, and Reporting) are the type of requirements that if followed, provide both ENV and the facilities themselves with data on the potential risks the discharge may pose to the environment and human health. The data required to be gathered and then submitted by these clauses also provides insight into how the authorized works are functioning. A low compliance rate with these clauses indicates that problems may not be detected, which could pose a risk to the environment.

The remaining permit requirement categories with non-compliance rates of 50 percent or greater are all specific requirements related to certifying and/or operating authorized works (i.e. QP Certification of Authorized Works, EOCP, Sludge Removal and Disposal). These clauses all require actions outside of the normal day to day operation and the majority require records to be made. As record keeping is not typically associated with day to day work it could be more easily missed, causing lower compliance levels.

The categories with the highest rates of compliance findings of “not determined” are as follows:

- Discharge Rate
- Discharge Quality
- Receiving Environment

In these categories, 40 percent or greater of the assessed permit clauses received the finding of “not determined”. This means that ENV could not determine if the clauses were in or out of compliance. Determining compliance with all these clause types requires ENV to review data and records and the low compliance rates with the monitoring and reporting categories shows that there were a lack of data and records available for ENV to review and make a determination as to whether the facility was in or out of compliance.

**Provisional Categories:**

The following clause categories are provisional, which means that in order for them to apply, a certain circumstance must first occur:

- Bypasses
- Notification of Changes
- Provisional (provisional clauses that don't fit any other category)

- **Emergencies and Non-Compliances**

As shown in the results, these clause categories all had high percentages of not applicable findings. However, this is to be expected as compliance with these clauses would not be applicable unless the circumstances they apply to first occur. For example, a facility would only be in or out of compliance with a bypass clause if a bypass had occurred. The results do show that when these clause categories were found to be applicable, they had high rates of non-compliance. Table 3 indicates that all bypass clauses and notification of changes clauses found to be applicable were out of compliance, and of the three applicable emergency and non-compliance clauses, two were found out of compliance and one was not determined.

The results of the Audit suggest that the categories with the highest compliance rates are all requirements relating to normal day to day business. Conversely, the clauses with the lowest compliance rates all have requirements outside of normal day to day operations. For example, for a FVP facility to operate smoothly from a business perspective they need to maintain their works, but they would not necessarily need to monitor their effluent discharge quality or keep records of where their sludge was disposed.

If certain clauses categories have lower compliance rates, this could mean facilities are either choosing to overlook these clauses, or do not fully understand their permit requirements. Many operators spoken to during the Audit claimed that permit requirements had not been understood or had been forgotten with changes in staff over the years. A look at the compliance history of these facilities determined that only two of the active five had ever been inspected by ENV in the past, and the most recent inspection occurred in 2015. This strongly suggests that regular inspections and communication are key to assisting operators in understanding and following their permit requirements.

### **What is the likelihood of improved compliance in the future?**

As this is the first audit of the FVP industry, future compliance may be improved now that facilities have a better understanding of their permit requirements. As stated above, this was the first inspection for some of these facilities, and now that the requirements have been better explained, it is anticipated that the facilities will improve compliance in the future. Three of the five active facilities received warnings, which means that following ENV's policy they will be inspected again within one year. This process of conducting a follow up inspection could also improve the likelihood of future compliance.

### **What does this mean for the environment?**

Whether or not the low compliance rates of the FVP industry pose a significant risk to the environment is difficult to determine, as the clause categories with the lowest compliance rates are related to monitoring, reporting and record keeping. There is, therefore, an overall lack of data available from the industry that could be used to verify whether there was the potential for an impact to the environment. The authorized discharges from the FVP Industry are classified as low risk by ENV; however, discharge permits are issued to protect the environment and human health, so it is important that the industry works to improve compliance.

### **Do current authorizations contain consistent foundational environmental protection provisions?**

The results in Table 4 highlight that one permit in particular (i.e. 17157) does not include many important clause categories; however, with a maximum rate of discharge of 3 cubic metres per day to ground this size of discharge would not be required to register under the Municipal Wastewater Regulation (MWR), which provides a minimum daily flow rate of 22.7 cubic meters per day discharged to ground to qualify for registration. This is significant because the more recent FVP permits issued for effluent discharges follow MWR requirements closely. Additionally, permit 17157 is for a non-profit operation where volunteers process donated fruits and vegetables to be dried for soup mixes. This could qualify as a hobbyist operation and be exempted from having a permit.

Excluding permit 17157, the only clause categories not included in all permits are: receiving environment, QP certification of authorized works, and EOCP. These categories are only included in the newest permits. The older permits may benefit from the addition of these clauses; however, they may not be needed in smaller facilities. The inclusion of foundational environmental protection provisions (discharge limits, monitoring and reporting requirements) in all audited permits (with the exception of permit 17157) suggests that overall, FVP authorizations are protective of the environment.

### **Unauthorized Facilities**

Background information on the industry found that there are 2,900<sup>4</sup> food processors operating in the province. While no information was found on how many of those 2,900 food processors were specialized in FVP, it is likely that there are additional FVP facilities in B.C. that are not accounted for in the 12 FVP authorizations with ENV. There are several potential explanations for this result. The first is that discharge authorizations are only required for facilities that discharge to the environment, therefore it is probable that other FVP facilities are connected to sewer systems. A second possibility is that some facilities may be exempt from holding a discharge authorization because they are home-based business, educational facilities, hobbyists, or artisans and are exempt under the WDR. Finally, it is possible that there may be some unauthorised FVP facilities in B.C. which do require an authorization and are unknown to ENV. However, research into the existence of unauthorized facilities was not within the scope of this audit.

## **RECOMMENDATIONS**

Findings from the 2020 FVP Audit conducted on six FVP facilities in B.C. have highlighted opportunities for improvement for the FVP sector and ENV alike.

### **Recommendations for Facility owners/operators:**

- Ensure that facility owners, operators, and staff are aware of and comply with all permit requirements;
- Ensure all required monitoring is conducted as described in the permit and in the B.C. Field Sampling Manual found here: <https://www2.gov.bc.ca/gov/content/environment/research->

[monitoring-reporting/monitoring/laboratory-standards-quality-assurance/bc-field-sampling-manual](#) ;

- Ensure authorized discharges are within permit requirements for discharge quality and quantity;
- Ensure all data required to be reported to ENV is sent to [EnvAuthorizationsReporting@gov.bc.ca](mailto:EnvAuthorizationsReporting@gov.bc.ca) in the time line required;
- Ensure sludge is removed at the required frequency, disposed of as required by each permit, and records are kept verifying compliance with these requirements;
- Ensure that timely notification of any incidents, emergencies, bypasses, process changes, and administrative details are provided to ENV as required;
- Ensure that authorized works are complete and fully operational during discharge, with no unauthorized substitutions. Bypasses of authorized works are prohibited unless prior approval from ENV is obtained; and,
- Ensure permit requirements are reviewed regularly to prevent requirements from being forgotten.

#### Recommendations for ENV:

- Continue to prioritize inspections of authorizations that have not previously received an inspection. More than half of the audited facilities had never been inspected by ENV and compliance rates were found to be low overall. This indicates the importance of targeting these authorizations for inspection;
- Inspect facilities with new authorizations in the FVP industry soon after authorizations are issued. This would be beneficial to help the industry understand their authorization requirements and allow them to put procedures in place to comply with their permits from the start;
- Conduct follow-up inspections of audited facilities that received warnings;
- Improve compliance promotion with smaller general industry sectors which do not tend to have a dedicated employee for environmental concerns;
- Based on the estimated number of food production facilities in B.C., there may be some unauthorized facilities in this industry. While seeking these out was out of scope for the Audit, it is recommended that ENV investigate this in the future.
- Some of the highest rates of non-compliance were with reporting clauses that could be determined with a file review. It is recommended that ENV consider a system to check for the presence or absence of reports to flag reporting non-compliances quickly and with minimal resources; and,
- There is some uncertainty associated with the definition of the FVP industry provided in the WDR, specifically around the definition of home-based businesses. The ENV should review this definition, and clarify whether home-based farms and orchards are appropriately defined as home-based businesses.

## APENDIX 1: NON-COMPLIANCE DECISION MATRIX AND COMPLIANCE LEVELS AND CATEGORIES

		Level of Environmental or Human Impact				
		Level				
		1	2	3	4	5
Likelihood of Compliance	Category					
	A	ADVISORY	ADVISORY WARNING	WARNING ADMIN PENALTY	ADMIN PENALTY	I N V E S T I G A T I O N
	B	ADVISORY WARNING	WARNING ADMIN PENALTY			
	C	WARNING ADMIN PENALTY	WARNING ADMIN PENALTY ADMIN SANCTION	ADMIN PENALTY ADMIN SANCTION	ADMIN PENALTY ADMIN SANCTION INVESTIGATION	
	D	WARNING ADMIN PENALTY ADMIN SANCTION	ADMIN PENALTY ADMIN SANCTION INVESTIGATION	INVESTIGATION		
E	ADMIN PENALTY ADMIN SANCTION INVESTIGATION	INVESTIGATION				

Level	
1	<ul style="list-style-type: none"> <li>Non-compliance that does not result or is unlikely to result in any environmental, human health or safety impact; or</li> <li>Minor administrative non-compliance.</li> </ul>
2	<ul style="list-style-type: none"> <li>Non-compliance resulting in a minor, temporary impact to the environment or minor, temporary threat to human health or safety; or</li> <li>Significant administrative non-compliance.</li> </ul>
3	<ul style="list-style-type: none"> <li>Non-compliance resulting in a moderate, temporary impact to the environment or moderate, temporary threat to human health or safety.</li> </ul>
4	<ul style="list-style-type: none"> <li>Non-compliance resulting in a significant impact to the environment or significant threat to human health or safety (may be temporary or permanent).</li> </ul>
5	<ul style="list-style-type: none"> <li>Known or likely human health impact that is severe in effect, i.e. resulting in hospitalization and/or long term human health consequences.</li> </ul>

Category	
A	<b>Indications of future and ongoing compliance are very high</b> <ul style="list-style-type: none"> <li>No previous occurrences of non-compliance;</li> <li>Good demonstrated awareness and/or capacity to meet regulatory requirement; and/or</li> <li>Offender has a reasonable and cooperative attitude.</li> </ul>
B	<b>Indications of future and ongoing compliance are uncertain</b> <ul style="list-style-type: none"> <li>Few previous occurrences of non-compliance; and/or</li> <li>Questionable awareness of and/or capacity to meet regulatory requirement.</li> </ul>
C	<b>Indications of future and ongoing compliance are unlikely</b> <ul style="list-style-type: none"> <li>Numerous previous occurrences of non-compliance; and/or</li> <li>Little or no awareness of and/or capacity to meet regulatory requirement.</li> </ul>
D	<b>No indication of future and ongoing compliance</b> <ul style="list-style-type: none"> <li>Wilful violation of ministry regulatory requirement; and/or</li> <li>Little or no demonstrated willingness or capacity to meet regulatory requirement.</li> </ul>
E	<b>Indications of obstruction and ongoing or future non-compliance</b> <ul style="list-style-type: none"> <li>Hindering or obstructing a ministry official;</li> <li>Refusing to furnish required information; and/or</li> <li>Intentionally including false or misleading information in any required document.</li> </ul>