

# Nutrient Management Plan

For Columbia River Ranch Inc



Facility name: Columbia River Ranch LLC

Facility address: 8700 Green Dr, Culver, OR 97734

Operator's name: Gary Bailey

Mailing address: P.O. Box 1545, Clatskanie, OR 97016

*Complete if different than the operator*

Legal landowner: Mike Mazour

Mailing address: 8700 Green Dr, Culver, OR 97734

As the Operator of Columbia River Ranch, LLC, I agree to manage this facility in accordance with Nutrient Management Plan (NMP) #25001 on file with ODA and maintain those practices as described in the plan. This signed NMP is incorporated into the CAFO NPDES and WPCF General Permits by reference (Permit Condition S3.A.2.).

If changes are made to the animal population, facilities or change in the type of manure system of the CAFO, a new NMP must be submitted to ODA for approval at least 45 days before the modification is implemented unless a different schedule is allowed by ODA in writing (Permit Condition S3.D.1 and 2).

*Gary M Bailey*  
Operator's signature

Date

*4-26-25*

ODA USE ONLY

MA#

NMP#

Received Date:

Approval Date:

*Gary M Bailey*  
Operator's name (Please print clearly)

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## SECTION 1 - GENERAL INFORMATION

### 2021 Operation Information for Columbia River Ranch Inc

Calendar Year: 2021

Reporting period:

January 1 through December 31, 2021

<b>Name:</b>	Gary Bailey			<b>Permit</b>	null
<b>Business</b>	Columbia River Ranch Inc				
<b>Mailing</b>	P.O. Box 1545, Clatskanie, OR, 97016				
<b>Facility</b>	8700 SW Green Dr., Culver, OR 97734			<b>County:</b>	Jefferson
<b>Telephone</b>	(503)369-1907			<b>Cell Phone</b>	
<b>E-mail</b>	Columbia.Cattle@gmail.com				
Permitted and Actual number of animals by type at the CAFO averaged over the year [S4.D.2(a)/S4.D.2(a)(ii) of					
	Average Weight (Lbs)	Days on Farm			
Animal Type		Start Month	End Month	Permitted	Actual
Finishing Cattle	700.0	01/01	12/31	3500	3500
Total Animals -				3,500	3,500
Manure Solids Generated (CF) -				1,076,054	1,076,054
Bedding Generated (CF) -				0	0
Imported Solids (CF) -				0	0
Total Solids Generated (CF) -				1,076,054	1,076,054
Total Solids to Store based on a Volume Reduction Factor of 0.0 (CF) -				1,076,054	1,076,054
Manure Liquids Generated (CF) -				0	0
Rainfall-Evaporation on Storage plus Runoff Generated (CF) -				531,357	531,357
Process Water Generated (CF) -				0	0
Imported Liquids (CF) -				0	0
Total Liquids to Store (CF) -				531,357	531,357
Liquids Applied to Land (CF) -					0
Solids Applied to Land (CF) -					0
Grazing Manure Applied to Land (CF) -					30,133
Liquids Exported (CF) -					0
Solids Exported (CF) -					1,076,054
Solids Recycled for Bedding (CF) -					0
Acres of Land for Land Application Covered by NMP -					76.0 AC
Acres of Land Under Operator Control Used for Manure Applications -					76.0 AC



## **SECTION 1 - GENERAL INFORMATION**

### **2021 Storage Facilities for Columbia River Ranch Inc**

Facility Name	Description	Type	Storage Period (days)	Diameter (ft)	Top Length (ft)	Top Width (ft)	Depth (ft)	Side slope Z	Free board (ft)	Volume (CF)	Uncovered Surface Area (SF)
Feedlot	Livestock Pens	Solid	335		1,256	789	1	1	0	988,940	990,984
Runoff Pond	Planned Runoff Pond	Liquid	114		850	150	4	2	1	352,836	127,500

## SECTION 1 - GENERAL INFORMATION

### 2021 Storage Period Calculations for Columbia River Ranch Inc

<b>Solids Storage</b>			
Storage Unroofed Surface Area, SF	990984	Volume Reduction Factor =	0
Available Storage, CF =	988940	Solids Storage Period, Days =	335

Month	Number Of Days	Manure Lost In Grazing	Filtered Solids (CF)	Bedding (CF)	Solids Removal Factor (Pct)	Imported Solids (CF)	Solids To Store (CF)	Storage Volume Needed, CF
October 2021	31	2793	91158	0	100	0	91158	91158
November 2021	30	0	90920	0	100	0	90920	182077
December 2021	31	0	93950	0	100	0	93950	276027
January 2021	31	0	93950	0	100	0	93950	369977
February 2021	28	0	84858	0	100	0	84858	454836
March 2021	31	2793	91158	0	100	0	91158	545993
April 2021	30	2793	88127	0	100	0	88127	634120
May 2021	31	5390	88560	0	100	0	88560	722680
June 2021	30	5390	85529	0	100	0	85529	808209
July 2021	31	5390	88560	0	100	0	88560	896769
August 2021	31	2793	91158	0	100	0	91158	987927
September 2021	30	2793	88127	0	100	0	88127	1076054
Annual	365	30133	1076054	0	0	0	1076054	

<b>Liquids Storage</b>				Climate Station: MADRAS	
Storage Unroofed Surface Area, SF =	127500	25Yr-24Hr Storm Precip, In =	2	Total 25Yr-24Hr Storm Storage Needed, CF	195,735
Available Liquid Storage, CF =	352836	25Yr-24H4 Storm Runoff, CF =	0	Storage Period without 25yr-24hr Storm =	114
Unroofed Runoff Area, SF =	0	25Yr-24Hr Storm on Unroofed Storages, CF =	195,735	Storage Period with 25yr-24hr Storm =	59

Month	Number Of Days	Rainfall (Inches)	Evaporation (Inches)	Rain-Evap on Storages (CF)	Rainfall Runoff (CF)	Manure (CF)	Process Water (CF)	Imported Liquids (CF)	Monthly Liquids to Store (CF)	Total Storage Volume Needed (CF)
October 2021	31	0.77	2.08	49669	0	0	0	0	49669	49669
November 2021	30	1.39	1.27	116064	0	0	0	0	116064	165733
December 2021	31	1.25	0.62	109921	0	0	0	0	109921	275655
January 2021	31	1.24	0.64	108777	0	0	0	0	108777	384431
February 2021	28	0.97	0.95	80317	0	0	0	0	80317	464748
March 2021	31	0.89	1.8	63829	0	0	0	0	63829	528578
April 2021	30	0.87	3.26	46453	0	0	0	0	46453	575030
May 2021	31	0.95	5.26	32659	0	0	0	0	32659	607689
June 2021	30	0.57	6.4	-14872	0	0	0	0	-14872	592817
July 2021	31	0.53	7.49	-30182	0	0	0	0	-30182	562636
August 2021	31	0.48	6.68	-26236	0	0	0	0	-26236	536400
September 2021	30	0.46	4.51	-5044	0	0	0	0	-5044	531357
Annual	365	10.37	40.96	531357	0	0	0	0	531357	

## SECTION 1 - GENERAL INFORMATION

### 2021 Annual Nutrient Balance for Columbia River Ranch Inc

Nutrient Concentrations:	Nitrogen (Total N)	Phosphorus (P <sub>2</sub> O <sub>5</sub> )	Potassium (K <sub>2</sub> O)	Units
Liquid Manure -	0.00	0.00	0.00	lbs/1000 Gal
Solid Manure -	7.40	10.20	19.80	lbs/Ton

Nutrients Generated:	N Generated	P <sub>2</sub> O <sub>5</sub> Generated	K <sub>2</sub> O Generated
Liquid Manure -	0 lbs	0 lbs	0 lbs
Solid Manure -	143330 lbs	197564 lbs	383506 lbs
Grazing Manure -	8770 lbs	2456 lbs	3891 lbs
<b>Total -</b>	<b>152100 lbs</b>	<b>200019 lbs</b>	<b>387396 lbs</b>

Exported Nutrients:	N Exported	P <sub>2</sub> O <sub>5</sub> Exported	K <sub>2</sub> O Exported
Liquid Manure -	0 lbs	0 lbs	0 lbs
Solid Manure -	143330 lbs	86235 lbs	318262 lbs
<b>Total -</b>	<b>143330 lbs</b>	<b>86235 lbs</b>	<b>318262 lbs</b>

Crop Nutrient Removal:	N Utilized	P <sub>2</sub> O <sub>5</sub> Utilized	K <sub>2</sub> O Utilized
<b>Total -</b>	<b>17515 lbs</b>	<b>5388 lbs</b>	<b>14357 lbs</b>

Annual Nutrient Budget:	Nitrogen (N)	Phosphate (P <sub>2</sub> O <sub>5</sub> )	Potassium (K <sub>2</sub> O)
Nutrients Generated -	152100 lbs	200019 lbs	387396 lbs
Nutrients Removed by Crop and Exported -	160846 lbs	202952 lbs	397863 lbs
<b>Net Annual Nutrient Balance -</b>	<b>-8746 lbs</b>	<b>-2933 lbs</b>	<b>-10466 lbs</b>

Note: Total nutrients generated are computed from analytical data by taking the total volume of material applied times the nutrient analysis of the material. The total nutrients utilized are computed using the crop yield data times the crop uptake of nutrients.



## **SECTION 1 - GENERAL INFORMATION**

### **Background and Site Information**

**Animal Feeding Operation:** Large Concentrated CAFO

**Type and Size:** Beef Feedlot Operation- 3,500 animals

**Latitude/Longitude:** N44.513320, W121.252043

Columbia River Ranch Inc- Culver Farm is owned by Gary Bailey and is located off of SW Green Drive near Culver, Oregon. This is a beef feedlot on 38.2 acres of native desert and has 60.5 acres of irrigated crop and hay land and 15.5 acres of range land. The Production Area Map shows the layout of this facility. The beef feedlot is in full operation from January through December with a planned maximum capacity of 3,500 beef cattle. The cattle are of mixed breeds. Most of the young animals come to the feedlot in the fall at a weight of around 400 pounds. In the spring, they are shipped out at around 1,000 pounds. The average weight during the time in this feedlot is 700 pounds with up to 3,500 beef cattle in the lots in the spring and summer months.

### **Animal Mortality Management**

Any animal mortalities that occur during the year are buried onsite. Other approved methods of disposing of animal mortalities may be used if needed.

### **Manure Collection Methods**

Cattle are confined in earthen pens. Manure is collected in the pens, where it is mounded to dry and used as bedding or exported off farm. When the cattle are removed from the facility, the pens are cleaned and the dry manure is exported off farm. Most of the manure is left in the pens, mounded, and packed for bedding in the fall.

### **Runoff Collection and Containment**

Runoff calculations are in the storage calculation worksheet. Runoff from the livestock pens is captured by the rainfall runoff control berm shown on the Production Area Map. The low rainfall and high evaporation (10.37 inch average yearly rainfall, 40.96 inch average yearly evaporation), runoff will evaporate from bermed collection area and will not require land application.

### **Manure Storage Facilities and Transfer**

All manure generated on this facility is handled in dry solid form. The dry manure is scraped and mounded within feedlots during the confinement period and if needed exported off farm.

### **Manure Utilization**

The dry manure not needed for winter bedding is exported off farm. Manure exported off farm is utilized as a nutrient source and to improve soil tilth by the addition of organic matter.

This facility is situated on 114.3 acres which consist of 38.3 acres for the feedlot, 60.5 acres of irrigated hay/pasture land and 15.5 acres of rangeland. Irrigation water for irrigating the hay and pasture fields is supplied by the North Unit Irrigation District.

The soil concentration of phosphorus is very low on the irrigated hay/pasture fields. Applications of manure are planned on a nitrogen basis on all of the irrigated hay/pasture fields. Soil phosphorus concentrations will be monitored using soil tests on the fields where manure is applied.

## **SECTION 1 - GENERAL INFORMATION**

### **Emergency Response Plan**

#### **In Case of an Emergency Storage Facility Spill, Leak or Failure-**

##### **Implement the following first containment steps:**

- Stop all other activities to address the spill.
- Stop the flow. For example, use skid loader or tractor with blade to contain or divert spill or leak.
- Call for help and excavator if needed.
- Complete the clean-up and repair the necessary components.
- Assess the extent of the emergency and request additional help if needed.

#### **In Case of an Emergency Spill, Leak or Failure during Transport or Land Application-**

##### **Implement the following first containment steps:**

- Stop all other activities to address the spill and stop the flow.
- Call for help if needed.
- If the spill posed a hazard to local traffic, call for local traffic control assistance and clear the road

and roadside of spilled material.

Contain the spill or runoff from entering surface waters using straw bales, saw dust, soil or other

appropriate materials.

If flow is coming from a tile, plug the tile with a tile plug immediately.

Assess the extent of the emergency and request additional help if needed.

#### **Contacts to be made by the owner or operator within 24 hours-**

<b><u>Organization</u></b>	<b><u>Phone Number</u></b>
Oregon Department of Agriculture	(503) 986-4699
Natural Resources Division TTD	(503) 986-4762
635 Capitol St., N.E.	
Salem, OR 97301-2532	

Oregon Emergency Response (System OERS) (800) 452-0311

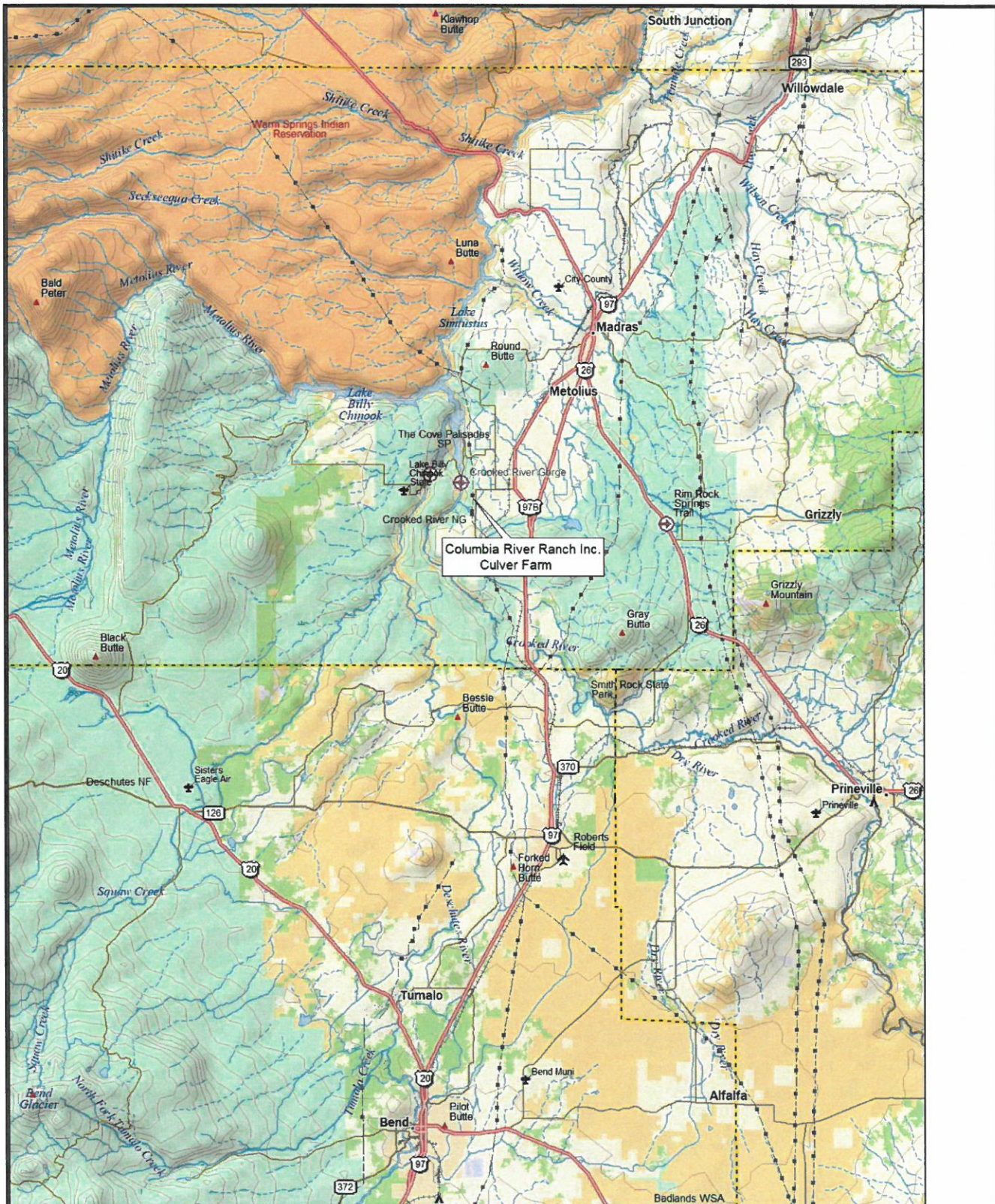
#### **Be prepared to provide the following information:**

- Your name and contact information.
- Farm location (driving directions) and other pertinent information.
- Description of emergency.
- Estimate of the amounts, area covered, and distance traveled.
- Whether manure has reached surface waters or major field drains. Include the name of the surface water source that manure reached. Contact the Oregon Emergency Response System if manure entered a drinking water source.
- Whether there is any obvious damage: employee injury, fish kill, or property damage.
- If a grab sample of the discharge was taken.
- Current status of containment efforts.



# SECTION 1 - GENERAL INFORMATION

## Location Maps for Columbia River Ranch Inc

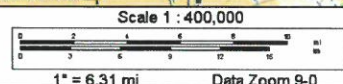


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Friday 14 February 2025



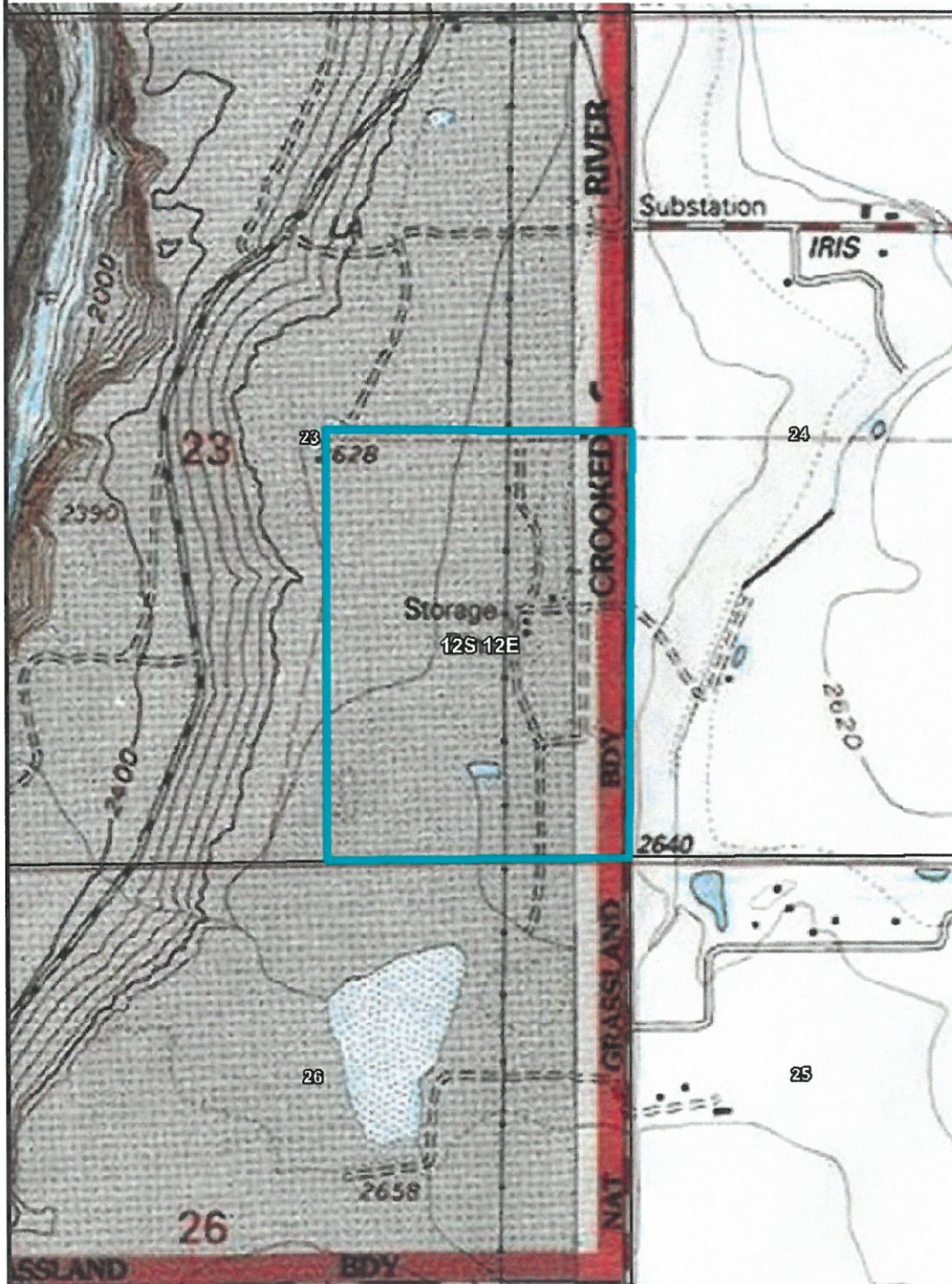
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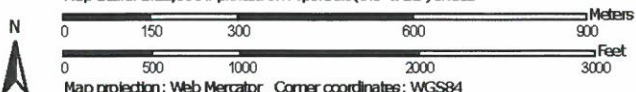
# SECTION 1 - GENERAL INFORMATION

## Topographical Maps for Columbia River Ranch Inc

Topography Map  
(Columbia River Ranch Inc- Culver Farm)



Map Scale: 1:12,000 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84



## **SECTION 2 - PRODUCTION AREA**

### **Animal Mortality**

To decrease non-point source pollution of surface and ground water resources, reduce the impact of odors that result from improperly handled animal mortality, and decrease the likelihood of the spread of disease or other pathogens, approved handling and utilization methods shall be implemented in the handling of normal mortality losses.

Animal mortalities must be handled in accordance with ORS 601.140 to prevent the discharge of pollutants to state waters. Animal mortalities will be managed to ensure that they are not disposed of in a liquid manure, storm water, process waste water storage or treatment system, or that is not specifically designed to treat animal mortalities.

Under no circumstances are animal mortalities to be disposed of in any type of liquid manure storage facility.

#### **Guidance for Proper Management of Dead Animals**

Refer to Plan for Catastrophic Animal Mortality Handling for guidance on what steps to take for a catastrophic animal mortality event. Having dead animals sent to an acceptable disposal site is the best method to deal with animal mortalities. A list of landfills and phone numbers can be found on the internet at <http://www.deq.state.or.us/lq/sw/disposal/permittedfacilities.html>. If a local landfill is not permitted to accept animal carcasses, the Oregon Department of Environmental Quality (DEQ) may grant an exception. Phone numbers to local DEQ offices can be found in most phone books or on the internet at <http://www.deq.state.or.us/about/locations.html>.

**Under no circumstances are animal mortalities to be disposed of in any type of liquid manure storage facility.**

#### **Acceptable methods and guidance for animal mortality disposal are:**

**Composting-** Composting animal mortalities requires a composting plan be prepared and submitted to the Oregon Department of Agriculture, Natural Resources Division. A composting plan consists of a site plan drawing of the composting facility, a description of how any runoff from the facility will be contained, a description of the composting process to be used and how the compost will be used. The composting facility for animal mortalities must have a concrete floor or similar impervious surface to prevent nutrient leaching. A roof covering the animal mortality composting facility is recommended to control moisture added by rainfall and rainfall runoff. Assistance to develop a composting plan is available from the Natural Resources Division of the Oregon Department of Agriculture, (503) 986-4700. A permit is also needed from the Department of Environmental Quality (DEQ) if animal mortalities will be imported from other farms for composting.

Rapid composting of dead animals occurs when the carbon to nitrogen (C:N) ratio of the compost mix ranges between 10 and 20 to 1. To achieve the recommended C:N ratio, build the initial compost pile by placing 18 inches of sawdust or other bulking agent on the floor of the composting area. The bulking agent should extend beyond the perimeter of the animal to be composted by at least 2 feet. If using a compost bin the bulking material should extend at least 1 foot beyond the perimeter of the animal being composted. Using a bulking agent such as sawdust will absorb any liquids as the animal decomposes during the composting process.

Once the bulking agent has been placed on the floor of the composting area, place the animal carcass on top. To decrease composting time and prevent bloating the body cavity should be cut open. Cover the carcass with 1 to 3 feet of separated manure solids or other material that has a moisture content between 30 to 60 percent and a C:N ratio of not more than 30 to 1. Use 1 foot of material for small carcasses and 3 feet for large carcasses such as cattle. Be careful not to add material that is too wet as it will hinder the composting.



process and cause odors. Small animals can be layered in a compost pile by placing 12 inches of the bulking agent between layers as shown in the figure below. Be sure the total height of the compost pile does not exceed 7 feet in height as it may spontaneously combust causing a fire.

The first heating or primary composting cycle will take approximately 15 to 90 days depending on the size of the animal being composted. Refer to the table below for estimated primary composting times. Check pile temperature using thermometer probe on a daily basis. The pile temperature should be checked at multiple points around the compost pile and at a point approximately 3 feet into the pile. The temperature of the compost pile should reach 130 degrees Fahrenheit (F) within a few days.

Temperatures should peak between 130 and 150 degrees F in 3 to 4 days. When the temperature of the compost pile falls below 130 degrees F, the compost needs to be aerated by turning or other means. Be sure carcasses remain covered with the bulking agent after being aerated. It is important to maintain a temperature above 130 degrees F for at least 7 days during the primary composting cycle as failure to do so may result in the incomplete destruction of pathogens and can cause fly and odor problems. After aerating the compost pile, the secondary composting times will be similar to the first.

**CAUTION:** It is unclear whether prions that are the proteins that cause Bovine Spongiform Encephalitis (BSE or Mad Cow Disease) are destroyed in the composting process. Animals showing signs of Mad Cow Disease and those with anthrax should not be composted and must be reported to the Oregon Department of Agriculture, Animal Health and Identification Division at (503) 986-4680 for guidance on disposal.

After aerating the compost pile by turning or other means, be sure to check the moisture content and add water if necessary being careful not to add too much water. The compost pile should feel moist to the touch but you should not be able to squeeze any water out of it.

Odors given off by the composting operation is a good indicator of how the compost operation is proceeding. Foul odors may mean that the process has turned from aerobic to anaerobic. Anaerobic conditions are the result of insufficient oxygen in the compost. This may be caused by excessive moisture in the compost or the need for turning or aerating of the compost pile.

After the composting process is finished, it may be used as a bulking agent for a new compost pile. A rule of thumb is to use 50 percent of the composted material for a bulking agent but you may want to use more or less depending on how degraded the bulking agent is in the finished compost. Using finished compost in a new compost pile reduces the amount of bulking agent needed for the new pile and provides microbial inoculants to get the composting process started.

Finished compost can also be applied to crop and pasture land fields for utilization of the nutrients and organics in the composted material. Compost from animal mortalities should not be applied to crops that will be consumed directly by humans. The nutrient content of the composted material should be determined and application equipment calibrated to ensure nutrients contained in the composted material are not over applied.

**Natural Disposal-** To allow nature to take its course the dead animal needs to be transported to a location at least ½ mile from any off-farm dwelling and at least ¼ mile from any water way in accordance with ORS 601.140. Once this criteria is met the carcass can be left to degrade naturally with the help of scavengers. This method is not an acceptable means of disposal for a large number of animal mortalities or for byproducts generated during butchering.

**Landfill-** Dead animals may be transported to a permitted landfill that accepts animal carcasses for disposal. Be sure to call the chosen landfill first to insure a landfill will accept your animal carcasses. Refer to the website given previously for permitted landfills to call. Contact the landfill operator and the DEQ at (800) 452-4011 if the landfill you would like to use is not a permitted facility to see if an exception may be granted for the disposal of animal carcasses.



**Incineration-** Dead animals may be burned as a method of disposal and as a method to control diseases. The economics of incineration and availability of incineration units usually make this option undesirable. A permit is needed from the Oregon Department of Environmental Quality (DEQ) Air Quality program to operate an incineration unit. Contact your DEQ at (800) 452-4011 for guidance on incineration of animal carcasses.

**Burial-** Dead animals may be buried in accordance with ORS 601.090(7) as a method of disposal. Large animals such as an adult cow will require a hole approximately 2 feet by 7 feet by 8 feet deep. Be sure to select a site that doesn't have a water table to insure the bottom of the hole will be dry. The animal carcass should be covered with hydrated lime and covered with at least 4 feet of soil mounded 2 feet above the natural ground line to allow for settling as the carcass decomposes. Burial sites should be located at least 500 feet down slope from surface waters or wells.

Burial is not an acceptable method of disposal for animal byproducts generated from butchering. Burial of large numbers of animal mortalities is not acceptable unless performed in accordance with a Catastrophic Animal Mortality Management Plan. Burial of imported animal mortalities is subject to disposal regulations and the Oregon Department of Environmental Quality (DEQ), the Oregon Department of Agriculture (ODA) and the local land use planning authority should be contacted.

### **Plan for Catastrophic Animal Mortality Handling**

The following information describes how you plan to manage catastrophic loss of animals in a manner that protects surface and ground water quality. You must follow all national, state and local laws, regulations and guidelines that protect soil, water, air, plants, animals and human health.

#### **Guidance in the event of a catastrophic animal mortality event:**

Remove animal mortalities from the livestock production area and place in an area designated for mortality storage to be determined at the time of the catastrophic event.

Contact the state veterinarian if animal death is suspicious or animal displayed unusual symptoms before death.

If it is determined that a disease outbreak may be eminent, implement procedures as directed by the State Veterinarian. This may include killing exposed animals, burning carcasses and burial of ashes in a predetermined catastrophic mortality burial areas.

Refer to state guidance regarding appropriate catastrophic animal mortality handling methods.

#### **Contact Information-**

<b><u>Organization</u></b>	<b><u>Phone Number</u></b>
Oregon Department of Agriculture Natural Resources Division 635 Capitol St. NE Salem, OR 97301-2532	(503) 986-4699 TTD- (503) 986-4762
Oregon Emergency Response System (OERS)	(800) 452-0311
Oregon State Veterinarian USDA APHIS 530 Center Street NE, Suite 335 Salem, OR 97301	(503) 378-4710 (503) 399-5871 Fax- (503) 399-5607

## ***SECTION 2 - PRODUCTION AREA***

### **Operation and Maintenance Considerations**

#### **SOLIDS STORAGE AREA-**

The feedlot pens serve as a solids storage area shown on the Production Area Map and stores solids containing manure generated by the feedlot. The storage capacity and estimated storage period for the solids storage area are shown on the Summary pages. Emptying of the solids storage area should begin in the spring and continue through the spring and summer months as weather conditions permit applying solids in accordance with the guidance given in Section 3, Utilization Area or exporting solids off farm. To function properly and have the greatest management flexibility, the solids storage area must be as empty as possible in the fall before the fall and winter rainy season begins.

Periodically inspect concrete and asphalt slabs, walls and curbs and repair or replace broken sections as needed. Cleanup any spillage of manure and organics from outside of the solids storage area and place them back in the solids storage area.

Maintain all fences, railings, and/or warning signs to provide warning and/or prevent unauthorized human or livestock entry. Immediately repair vandalism, vehicular or livestock damage to the structure, earthen areas surrounding the structure, or any appurtenances.

#### **BUILDING ROOFS-**

Inspect building roofs annually as a minimum. Repair and/or replace all rusted sections and secure loose sections as needed. Immediately replace all broken trusses, rafters, beams, poles as needed. Immediately determining the cause and necessary modification(s) to prevent reoccurring structural failure is essential.

Inspect rain gutters, downspouts, pipelines, trash guards, pumps, structures and appurtenances for proper operation. Keep them free of all foreign material, weeds and sediment. Repair or replace any damaged component as needed.

Keep downspouts and outlets free flowing. Repair or replace broken rodent guards as needed. If the hydraulic capacity is insufficient, replace gutters (and downspouts if needed) or make provisions for the waste management system to handle the extra water.

Protect downspouts from damage by livestock and equipment and repair any damaged components as needed.

Keep gutters, downspouts, pumps, conveyance pipelines and ditches and appurtenances in good operating condition as needed.

#### **FEEDLOT PENS-**

Maintaining a firm, dry feedlot surface is an important factor in maintaining a good environment that promotes good animal health.

Maintain diversions and drainageways so they direct clean water runoff away from the feedlot pens and holding areas. Stormwater runoff from the feedlot pens should be directed to storage or treatment areas.

Manure shall be contained in the feedlot pens until it can be transferred to a storage facility or applied to the fields or exported for utilization of nutrients and organics. Manure accumulations created for bedding mounds shall be managed such that manure does not create a potential pollution hazard. Take care to maintain the compacted layer when removing excess manure from the feedlot pens.

#### **FENCES-**

Do not allow livestock access to open water courses and drainageways. Provide off stream watering facilities where possible and limit access to designated watering areas.

Inspect fences periodically and repair or replace broken or decayed posts and tighten



## **SECTION 2 - PRODUCTION AREA**

sagging wire as needed. Broken wire can be spliced or replaced. Replace broken or missing insulators on electric fences as needed and repair or replace inoperative electric fence controllers. Insure gates and other appurtenances are in good working order. Replace or repair components as needed.

### **IRRIGATION SYSTEMS-**

Apply irrigation water in accordance with Irrigation Water Management guidance in Section 3. Maintain sprinkler irrigation systems in accordance with the manufacturer's recommendations to help ensure trouble free operation. Prevent livestock access to equipment during operation. Clean plugged nozzles and replace if worn or defective. Promptly repair all leaks by replacing valves, fittings, gaskets, worn or damaged parts. Prompt repair or replacement of damaged or worn components is necessary. Check to make sure all application components i.e. water control structures, gates, valves, ditches, etc. are functional and are in good operating condition. Maintain screening and filtering facilities. Maintain vigorous vegetative growth where applicable.

### **LIVESTOCK WATERING FACILITIES-**

Check all above ground connections, valves, gates, rodent guards, inlets and outlets to make sure they are functioning properly. Check troughs and tanks for leaks or cracks and repair or replace immediately, if necessary. Make certain the area adjacent to the trough is well protected with gravel, paving, or good cover. Be sure that the outlet pipe has a free outlet and is not causing any serious erosion problems. Check periodically to see if debris has fallen into the trough or tank which may restrict inflow or planned functions of the outflow system. Clean the entire system periodically and remove moss, algae growth, and/or sludge. Chemicals such as copper sulfate and chlorine can be used to prevent moss and algae growth. Local rules and regulations are to be followed when using chemicals to make sure they are safe for animals. Where necessary maintain coverings and insulation to prevent damage by freezing. Eradicate or otherwise remove all rodents or burrowing animals. Immediately repair any damage caused by their activity. Immediately repair any vandalism, vehicular or livestock damage.

### **PIPELINES-**

Drain the pipeline and components in areas that are subject to freezing. If parts of the pipeline cannot be drained, a non-toxic antifreeze solution may be added. Check to make sure all valves and air vents are set at the proper operating condition so they can provide protection to the pipeline. Inspect pipelines for signs of failure. Inspect risers and valves periodically for leaks or worn gaskets. Repair or replace pipeline, risers and valves as needed. Annually inspect underground pipelines for proper operation. Check fields for signs of positive pressure (blow holes) or negative pressure (sink holes) in underground pipelines. Repair or replace damaged or broken pipelines as needed maintaining designed depth of cover. For free draining underground pipelines, keep outlets free of vegetation and sediment. Correct and prevent erosion at outlets by installing riprap or other measures. Repair or replace damaged or broken rodent guards as needed. Avoid travel over underground pipelines with heavy equipment when the soil is saturated except at crossings designed for this purpose. Avoid any subsoiling operation that may disturb the underground pipeline.



## **SECTION 2 - PRODUCTION AREA**

Eradicate or otherwise remove all rodents and/or burrowing animals that have or can potentially damage any part of the system. Immediately repair any damage caused by their activity.  
Immediately repair any damage due to vandalism, vehicular or livestock.

### **PUMPS-**

Operate and maintain pumps in accordance with good judgment and manufacture's manuals and recommendations.

Drain liquid manure from pumps during cold weather to prevent freezing. If parts of the system cannot be drained, a non-toxic antifreeze solution may be added.

Inspect pumps periodically and remove debris wrapped around shafts and impellers. Maintain foot valves and check valves for proper operation.

For proper operation of electric motors and controls, maintain lubrication for all bearings, keep electric panel free from obstructions and debris. Maintain electrical safety devices, assure all electrical contacts are tight, and lock main electrical switch to "OFF" position during non-use season. Maintain adequate shade and ventilation for pump motors.

For proper operation of pumps, maintain lubrication for all bearings and pump shafts, assure belts are adjusted properly, maintain safety covering devices on open shafts and belt drives, check to make sure all safety valves and devices are set at proper operating conditions so they may provide protection to the pump and power unit. For centrifugal pumps, periodically measure tolerance between pump impeller and pump casing (i.e. wearing) and replace wear ring as needed to help restore new pump operating characteristics.

Use portable pressure gauge (preferably a liquid filled gauge) to monitor pump performance.

Operate and maintain agitators in accordance with the manufacture's manual and recommendations.

Inspect all plumbing annually as a minimum.

Replace, tighten, or repair broken or loose connections and lines as needed.

### **ROOF GUTTERS AND DOWNSPOUTS-**

Periodically check gutters, downspouts and all above ground pipelines, trash guards, pumps, structures, and appurtenances for proper operation. Repair or replace if needed.

Periodically remove debris from gutters, downspouts and outlet facilities.

Protect downspouts from damage by livestock and equipment. Repair or replace damaged components as needed.

Keep gutters, downspouts, pumps, conveyance pipelines and ditches and appurtenances in good operating condition with O & M performed as per site specific recommendations for each component.

### **WELL(S)-**

Protect the area immediately surrounding the well from being damaged by agriculture machinery, vehicles, or livestock.

All fences, railings, and/or warning signs shall be maintained to provide warning and/or prevent unauthorized human or livestock entry.

Do not allow any foreign debris to accumulate and maintain soil and vegetative covering in the immediate vicinity of the well.

Eradicate or otherwise remove all rodents or burrowing animals. Immediately repair any damage caused by their activity.

Check metal surfaces for rust and other damage especially sections in contact with earthfill and with other materials. Repair or replace damaged section and apply paint as a protective covering.

Keep all surface water from entering or accumulating at the immediate vicinity of the well site.

## **SECTION 2 - PRODUCTION AREA**

Immediately repair any vandalism, vehicular, or livestock damage.

### **CHEMICAL HANDLING CHECKLIST-**

The following measures shall be taken to prevent chemicals from contaminating process water or storm water storage and treatment systems:

1. Make sure all chemicals are stored in proper containers. Expired chemicals and empty containers are to be properly disposed of in accordance with state and federal regulations. Pesticides and associate refuse are to be disposed of in accordance with the FIFRA label.
2. Chemical storage areas are to be self-contained with no drains or other pathways that will allow spilled chemicals to exit the storage area.
3. Chemical storage areas are to be covered to prevent chemical contact with rain or snow.
4. Emergency procedures and equipment are to be in place to contain and clean up chemical spills.
5. Chemical handling and equipment wash areas are to be designed and constructed to prevent contamination of surface waters, waste water, and storm water storage and treatment systems.



## SECTION 2 - PRODUCTION AREA

### Production Area Maps for Columbia River Ranch Inc





**SECTION 3 - UTILIZATION AREA**  
**Field Maps for Columbia River Ranch Inc**

**Columbia River Ranch Inc**  
**Culver Farm**



**Map Legend**

Field Name  
Acres - Field Boundary, Field Name, Acres



Scale 0 500 1000 1500 Feet



**SECTION 3 - UTILIZATION AREA**  
**Setback Maps for Columbia River Ranch Inc**

**Columbia River Ranch Inc  
Culver Farm**



Scale 0 500 1000 1500 Feet

**Map Legend**

- Field Name Spreadable Acres - Field Boundary, Field Name, Spreadable Acres
- Setback Areas - Setback Areas



## **SECTION 3 - UTILIZATION AREA**

### **Application Considerations**

The manure and irrigation application systems will be calibrated in accordance with guidance in this section to insure the applications of manure, bedding and runoff from the waste storage facilities are in accordance with agronomic rates.

No application of wastewater or solids containing manure is to be made to the field buffer areas shown on the Setback Map in Section 3-2. Applications of wastewater and solids containing manure should be made in accordance with guidance in this section to reduce the risk of contaminated runoff to surface water sources and leaching of contaminants to ground water sources.

The phosphorus runoff rating for each of the farm fields is based on the Oregon Natural Resources Conservation Service Phosphorus Index and is shown in the table in Section 4-3. Wastewater, solids and commercial fertilizer for any field with a LOW runoff rating can be applied on a nitrogen basis. Wastewater, solids and commercial fertilizer for any field with a MEDIUM or HIGH runoff rating must be applied on a phosphorus basis. No applications of manure or commercial fertilizer containing phosphorus are to be made on a field with a ZERO OUT phosphorus runoff rating.

**Manure applications may be made at any time of the year provided certain factors have been considered.** However, the overriding factor one should use in considering whether or not to apply nutrients to a crop, irrespective of the nutrient source, is the agronomic need of the crop at the time of application. The following guidelines are to be considered once the decision has been made to make a manure application.

**Consider using T-Sum 200 to determine when manure applications are to begin** as long as you can comply with all other permit and AWMP requirements. Calculations for T-Sum 200 are outlined in OSU Extension Fertilizer Guide for Pastures (OSU FG63, 2000). T-Sum 200 is based on accumulated heat units and is an accurate guide to estimate plant activity. Research has shown that T-Sum 200 is the earliest date when plant roots begin to grow in the spring and thus are receptive to applied nutrients.

T-Sum 200 is determined by monitoring surface air temperature and summing the daily minimum and maximum air temperatures and dividing the sum by two to get the average daily air temperature then converting that to centigrade ( $F \text{ degrees minus } 32 \text{ times } 0.556$ ). Manure applications may begin once 200 heat units have been accumulated. However, one must still apply manure at agronomic rates based on the estimated growth potential of the crop and anticipated climatic events.

Based on crop nutrient uptake patterns, manure applications should stop when the crop is done growing for the year and before the first significant rainfall event that is expected to result in saturated soils or surface runoff.

Fields that are subsurface (TILE) drained require additional precautions when manure is applied. Any pre-application tillage should leave as much residue as possible on the soil surface. Water control structures installed in subsurface drainage systems should be managed to prevent discharge of manure and wastewater during periods of application.

Be aware of the location of sensitive areas, concerns of neighbors or concerns of the public, which require special application procedures. To reduce odor problems, apply



### SECTION 3 - UTILIZATION AREA

wastewater and solids containing manure in mid-morning when temperatures are warming and air is rising rather than in the afternoon or evening when air is cooling and settling. Avoid applications during periods of fog.

Calibrate application equipment to insure uniform distribution and accurate application rates in accordance with guidance given in the Considerations for Manure Applications and with guidance on the calibration of application equipment.

Maintain setbacks for manure application from any surface waters. The management goal is not to allow manure to enter surface waters at any time. The following table shows **minimum setback requirements** for manure applications:

Manure Type	Application Equipment	Month and Setback Distance in Feet <sup>a, b, d</sup>											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Liquid	Big gun	100	100	100	35	35	35	35	35	35	100	100	100
Liquid	Spreader Bar	100	100	35	35	35/15 <sup>c</sup>	15	15	15	35	100	100	100
Liquid	Tank Wagon	100	100	35	35	35/15 <sup>c</sup>	15	15	15	35	100	100	100
Liquid	Tanker Truck	100	100	35	35	35/15 <sup>c</sup>	15	15	15	35	100	100	100
Solid	Spreader	100	100	35	35	35/15 <sup>c</sup>	15	15	15	35	100	100	100

Note:

- Setbacks are the distance between open waterways and manure application area.
- Setback requirements will generally increase for manures which are applied aerially (such as a traveling big gun) versus manures applied lower to the ground (such as a splash bar) due to potential for drift from wind or splashing.
- This is a floating date and should be evaluated based on current weather conditions and forecast information.
- Fifteen (15) feet is the suggested setback distance during summer months, however larger and/or smaller distances may be set depending on conversations with the ODA.

Record applications, transfers or exports of nutrients (manure and fertilizer) and maintain them for at least 5 years. The CAFO Recordkeeping Calendar or other acceptable record keeping systems can be used to record this information.

#### **CONSIDERATIONS FOR DRY SEASON MANURE APPLICATIONS:**

Apply wastewater and solids containing manure at agronomic rates using the following guidelines:

- Consider using T-Sum 200 as a guideline to begin making manure applications.
- Do not apply to soils immediately before or during rainfall events that are expected to result in saturated soils or surface runoff.
- Apply to land being prepared for crops. Till manure into soil within 3 days of application if possible or apply to actively growing crops such as grass, clover or alfalfa after cutting.
- Maintain the setback buffer distances described in this section and shown on the Setback Map when making applications of liquids or solids containing manure.
- Record applications, transfers or exports of nutrients (manure and fertilizer) and maintain them for at least 5 years. The CAFO Recordkeeping Calendar or other acceptable record keeping systems can be used to record this information.

## **SECTION 3 - UTILIZATION AREA**

### **CONSIDERATIONS FOR WET SEASON MANURE APPLICATIONS:**

Only apply manure during this time period if the following guidelines CAN be met. Call the ODA CAFO Program at (503) 986-4700 for guidance if a manure application is needed and the following guidelines CANNOT be met:

- Apply manure only to actively growing crops such as grass, clover or alfalfa.
- Minimize application rates by using the maximum travel rates for the application equipment.
- Maintain the setback buffer distances described in this section and shown on the Setback Map when making applications of liquids or solids containing manure.
- Do not apply to soils immediately before or during rainfall events that are expected to result in saturated soils or surface runoff.
- Do not apply to saturated or flooded soils. It is recommended that application(s) be limited to soils (areas) where the flooding frequency class rating is None, Very Rare or Rare.
- Do not apply to slopes greater than 5%. See the Soil Map in Section 4-1 for the location of soil map units with slopes greater than 5%.

Applications of wastewater or solids containing manure to frozen soils should be avoided. Do the following if an application of wastewater or solids containing manure is to be made to frozen soils:

- Apply only enough wastewater or solids containing manure to address storage limitations until suitable soil conditions for application are available.
- Minimize applications to 5 wet tons per acre or less of solids containing manure and 6,788 gallons (0.25 inches) per acre or less of wastewater.
- Apply to alternating strips to reduce the risk of contaminated runoff reaching surface water sources.
- Apply to fields of established hay, pasture or fields containing at least 90% cover and are the furthest from open water sources.
- Do not apply wastewater or solids containing manure within 200 feet of surface water sources, drainageways, wells, or inlets to subsurface drainage systems.
- Runoff control systems such as earthen dikes must be in place where applications will be made to fields with slopes greater than 5%.

Record applications, transfers or exports of nutrients (manure and fertilizer) and maintain them for at least 5 years. The CAFO Recordkeeping Calendar or other acceptable record keeping systems can be used to record this information.

Do not apply manure or commercial fertilizer to fields receiving applications unless the nutrients applied in the manure are less than the annual application of nutrients planned in the nutrient budget for the fields.

### **HOW TO CALIBRATE APPLICATION EQUIPMENT**

Calibration of application equipment is a critical part of nutrient management. Calibration should be completed at least annually to insure manure and fertilizer will be uniformly applied. There are two basic approaches for calibrating a manure spreader – the load area and the weight area methods. The load area method is more accurate and can be used for both liquid and solid manure. The weight area method works only with solid or semi-solid manure.



## SECTION 3 - UTILIZATION AREA

### Irrigation System Calibration

Place 3-5 buckets throughout the irrigation spray pattern and collect samples while operating the pump at a given rpm and pressure (for a traveling gun record the travel speed also). At the end of the planned sample period measure the amount of liquid collected in inches (average the samples). The following chart shows how many gallons per acre applied per inch of liquid applied:

<u>Inches Liquid Manure Applied</u>	<u>Gallons per Acre</u>
0.20	5,431
0.30	8,146
0.40	10,862
0.50	13,577
0.75	20,366
1.00	27,152
1.25	33,943
1.50	40,731

### Soft Hose Injection System with Irrigation Hose:

Alternative 1. Use a flow meter mounted on the injector system and calculate the distance and width to determine amount applied over a measured area. Example the flow meter measures 1,000 gallons over a distance of 600 feet and 10 feet wide.

Formula: Application Rate (7,260 gallons/acre) = (Gallons Applied (1,000 gal) X 43,560 sq. ft/acre) divided by (Distance traveled (600 ft) X Application width (10 ft))

Alternative 2. (Requires a 10-20 gallon graduated measuring container)

Step 1) In the field, measure the flow out of one injector for 5 seconds into the graduated measuring container and record gallons, repeat three (3) times and average the results.

Step 2) Multiply the average amount collected from one injector by the number of injectors (equals amount applied for the whole system for 5 seconds).

Step 3) Multiply the results of Step 2 times 12 to get gallons per minute.

Step 4) Place the injector in the soil at the planned depth and operating speed and record the distance traveled in 1 minute (average 3 different measurements).

Step 5) Determine the effective application width (number of injectors X injector spacing in feet).

Step 6) Multiply the effective width times the distance traveled in 1 minute (this gives the square feet covered in 1 minute).

Step 7) Divide the result of Step 6 by 43,560 (this gives the acres covered in 1 minute).

Step 8) Divide the results of Step 3 (gallons per minute) by the results of Step 7 (acres covered in 1 minute) - (this gives the gallons applied per acre.

For example:

Step 1) Collect an average of 6 gallons from one injector for 5 seconds.

Step 2) Applicator has 8 injectors (8 injectors X 6 gallons per injector = 48 gallons for 5 seconds)

Step 3) 48 gallons in 5 seconds X 12 = 576 gallons/minute applied

Step 4) Average distance covered in 1 minute was 250 feet

Step 5) Average width of the applicator is 12 feet.

Step 6) 12 feet wide X 250 feet long = 3000 square feet

Step 7) 3000 square feet divided by 43,560 square feet/acre = .0688 acres covered in 1 minute

Step 8) 576 gallons/minute divided by .0688 acres/minute = 8,372 gallons/acre.

## **SECTION 3 - UTILIZATION AREA**

### **Manure Spreader/Tanker Calibration**

There are several methods that can be used to calibrate the application rate of a manure spreader. The two best methods are the load-area method and the weight-area method. It is desirable to repeat the calibration procedure 2 to 3 times and average the results to establish a more accurate calibration.

Before calibrating a manure spreader, the spreader settings such as splash plates should be adjusted so that the spread is uniform. Most spreaders tend to deposit more manure near the middle than at the edge of the spread pattern. Overlapping can make the overall application more uniform. Calibrating application rates when overlapping is involved requires measuring the width of two spreads and dividing by two to get the effective spread width.

Calibration should take place annually or whenever manure is being applied from a different source or consistency.

### **Load-Area Method:**

The load-area method is the most accurate and can be used for both liquid and solid manure. The load area method is a 3-step process:

Step 1) Determine the amount of manure in the spreader. The most accurate way to determine the amount of manure in a spreader is weighting the spreader when it is empty and again when it is full. For a reliable estimate of spreader capacity, weigh several representative loads (at least five) to determine the average gross weight. Subtract the empty spreader weight. Then, calculate the average net loaded weight.

Step 2) Determine the area of spread using the method at the right. Width measurements near the beginning and end of the spread pattern should be avoided because the spreader may not be operating at full capacity.

Step 3) Calculate the application rate. The application rate is calculated using the formula for either liquid or solid manure.

Formula for Solid Manure Equals Tons/Acre

(Average Loaded Weight (lbs) x 21.81) divided by (Distance Traveled (ft) x Width of Spread (ft))

Formula for Liquid Manure Equals Gal/Acre

(Tank Volume (gal) x 43,560) divided by (Distance Traveled (ft) x Width of Spread (ft))

### **Weight-Area Method:**

The weight-area method can only be used with solid or semi-solid manure. When a scale is not available, the application rate of a box spreader can be determined by collecting manure on a tarp or piece of heavy material. The weight area method is less accurate than the load area method.

This method consists of eight steps:

Step 1) Prepare/cut three 56-inch square tarps or pieces of heavy material (this size equals 1/2,000 of an acre). The pounds of manure collected on 56 inches square equals tons applied per acre.

Step 2) Weigh one of the clean tarps and a large bucket on a platform scale. Record the weight.

Step 3) Anchor the three tarps in the field ahead of the spreader near the beginning, middle, and end of the area that will be spread with one load.

Step 4) Drive over the three tarps at a normal speed to collect a representative manure sample.

Step 5) Fold and place the first tarp into the empty bucket without spilling the manure.

Weigh the bucket, tarp, and manure. Subtract the weight of the clean tarp and bucket recorded in step 2.

Step 6) Repeat the process for each of the two remaining tarps.



### **SECTION 3 - UTILIZATION AREA**

Calculate the average weight (pounds) of the manure collected. This value equals tons of manure applied per acre.

Factor for converting pounds to tons and square feet to acres ( $21.8 = 43,560 \text{ sq ft per acre divided by } 2,000 \text{ lbs/ton}$ ).

The factor for converting square feet to acres =  $43,560 \text{ sq ft per acre}$ .

Step 7) Determining Area of Spread.

The "area of spread" is the length and width of the ground covered with one load of manure. The area of spread is affected by speed and equipment settings. Spreaders discharge manure at varying rates depending on travel and PTO speed, gear box settings, and discharge openings. It is important to adjust the spreader so the pattern is as uniform as possible. Accurately measuring the length and width of this area is essential. To determine width, measure two adjacent spreads and divide by two to find the "effective" spread width. This accounts for overlap, which is often needed for a more uniform application. The length of spread is determined using the following three values:

Desired manure application rate based on soil and manure tests,

Width of the manure spread, and

Manure spreader holding capacity (weight and/or volume).

From these values, calculate the distance or lengths of spread using these formulas:

Formula: Solid Manure Equals Feet/Load

(Average Load Weight (lbs) x 21.81) divided by (Spread Width (ft) x App. Rate (tons/ac))

Formula: Liquid Manure Equals Feet/Load

(Tank Volume (gal) x 43,560) divided by (Spread Width (ft) x Desired App. Rate (gal/ac))

Step 8) Spread a load. If the distance traveled does not equal the calculated distance, adjust the speed or equipment settings.

#### **AMOUNT OF MANURE TO APPLY FOR CROPS GROWN**

The formulas for determining the total nutrient application rate per unit yield for each crop shown in the table below are as follows:

Total N to apply in pounds = N in pounds per yield unit from the table for the crop grown X Yield Units per Acre X actual percent (%) dry matter (DM) of harvested crop/percent (%) dry matter (DM) from table

Total  $P_2O_5$  to apply in pounds = P in pounds per yield unit from the table for the crop grown X Yield Units per Acre X  $2.291 P_2O_5/P$  X actual percent (%) dry matter (DM) of harvested crop/percent (%) dry matter (DM) from table

Total  $K_2O$  to apply in pounds = K in pounds per yield unit from the table for the crop grown X Yield Units per Acre X  $1.205 K_2O/K$  X actual percent (%) dry matter (DM) of harvested crop/percent (%) dry matter (DM) from table

Example- for a field with 5 tons per acre of grass/legume hay harvested at 90% dry matter:

Total N to apply in pounds per acre =  $(33.92 \text{ lb N / ton}) \times (5 \text{ tons / acre}) \times (90\% \text{ DM} / 100\% \text{ DM}) = 153 \text{ lbs N / acre}$

### SECTION 3 - UTILIZATION AREA

The following tables show the crops that may be grown on this farm:

FRUIT OR VEGETABLES				Nutrient Removal (lb/yield unit)		
	Yield Unit	lb/Unit	% DM	N	P	K
Beans, dry edible	cwt	100	100	3.13	0.45	0.85
Blueberries	ton	2000	100	13.93	1.30	11.57
Caneberries	ton	2000	100	11.43	7.42	11.43
Corn, Sweet	ton	2000	100	20.67	5.60	13.66
Grapes	ton	2000	100	11.39	1.07	20.43
Mixed Vegetables & Fruit	ton	2000	100	8.33	2.08	10.20
Onions	cwt	100	100	0.18	0.04	0.13
Orchard, Fruit	ton	2000	100	13.00	2.00	16.00
Pea, edible	ton	2000	100	73.60	8.00	18.00
Potatoes	ton	2000	100	30.0	5.45	47.27
Squash	ton	2000	100	21.33	6.80	11.40
GRAIN, SEED OR OIL CROPS				Nutrient Removal (lb/yield unit)		
	Yield Unit	lb/Unit	% DM	N	P	K
Barley	bushels	48	100	0.87	0.16	0.21
Beets, sugar	ton	2000	100	4.00	0.60	2.78
Bluegrass, Seed	cwt	100	100	2.88	0.43	1.98
Canola	ton	2000	100	70.00	12.00	18.00
Corn, grain shelled	bushels	56	100	0.90	0.16	0.22
Crimson Clover seed	lb	1	100	0.05	0.01	0.02
Fescue Seed, Straw Removed	cwt	100	100	1.97	0.20	2.00
Fescue, seed (Fine or Tall)	lb	1	100	1.47	0.31	1.67
Oats, grain	bushels	32	100	0.62	0.11	0.16
Orchardgrass seed	lb	1	100	0.016	0.002	0.004
Peppermint for Oil	ton	2000	100	4.20	1.80	2.80
Peppermint for Oil, Leaves & Stems Removed	ton	2000	100	87.23	36.80	57.80
Pumpkins	ton	2000	100	4.00	1.40	6.60
Rapeseed	bushels	50	100	1.38	0.30	0.30
Red Clover seed	cwt	100	100	4.55	1.00	2.00
Ryegrass seed	cwt	100	100	1.67	0.27	1.42
Ryegrass Seed, Straw Removed	ton	2000	100	30.00	18.80	37.60
Ryegrass, Perennial seed	lb	1	100	0.02	0.002	0.004
Wheat, Soft White for grain	bushels	60	100	1.00	0.24	0.21
Wheat, Soft White, Straw Removed	ton	2000	100	43.40	8.90	20.90
Wheat, Hard Red for grain	bushels	60	100	1.60	0.37	0.31
Wheat, Hard Red, Straw Removed	ton	2000	100	53.36	10.96	23.76



## SECTION 3 - UTILIZATION AREA

### HAY AND PASTURE CROPS

	Yield Unit	lb/Unit	% DM	Nutrient Removal (lb/yield unit)		
				N	P	K
Alfalfa, Hay	ton	2000	100	54.40	6.83	35.70
Alfalfa, Seed	cwt	100	100	6.12	0.70	2.34
Alta Fescue Hay/Pasture	ton	2000	100	32.98	6.88	37.60
Grass Legume Hay/Pasture	ton	2000	100	33.92	5.30	7.56
Meadow Fescue Hay/Pasture	ton	2000	100	41.56	8.70	47.43
Oats Hay/Pasture	ton	2000	100	26.01	10.20	14.79
Orchardgrass Hay/Pasture	ton	2000	100	53.21	8.58	18.62
Perennial Grass Hay/Pasture	ton	2000	100	58.00	8.00	40.00
Reed Canary Grass	ton	2000	100	27.00	3.57	41.57
Ryegrass Hay	ton	2000	100	33.41	5.44	28.39
Ryegrass, Perennial Pasture	ton	2000	100	58.00	8.00	48.00
Sorghum-Sudan Haylage	ton	2000	100	54.40	6.40	58.00
Tall Fescue Hay/Pasture	ton	2000	100	39.40	4.00	40.00
Vetch Hay	ton	2000	100	51.93	7.20	44.76

### SILAGE AND HAYLAGE CROPS

	Yield Unit	lb/Unit	% DM	Nutrient Removal (lb/yield unit)		
				N	P	K
Alfalfa/Grass Haylage	ton	2000	100	15.60	1.02	6.84
Corn for Silage	ton	2000	100	25.00	4.00	20.00
Crimson Clover forage	ton	2000	100	40.00	4.48	33.28
Field Pea, Forage	ton	2000	100	73.60	8.00	18.00
Mustard, White	ton	2000	100	38.55	0.0	0.0
Oat haylage	ton	2000	100	26.0	10.2	14.8
Oats & Peas/ Green Beans	ton	2000	100	32.03	5.58	18.65
Perennial Grass Haylage	ton	2000	100	15.00	2.40	12.78
Red Clover forage	ton	2000	100	40.00	4.41	32.98
Ryegrass Haylage	ton	2000	100	15.00	2.40	12.78
Sorghum-Sudan Haylage	ton	2000	100	16.32	1.92	17.40
Triticale Haylage	ton	2000	100	49.00	6.80	11.40
Vetch Haylage	ton	2000	100	59.67	6.57	50.00
Wheat Haylage	ton	2000	100	41.30	5.00	57.30
Wheatgrass Hay/Pasture	ton	2000	100	49.59	6.21	68.76

### OTHER CROPS

	Yield Unit	lb/Unit	% DM	Nutrient Removal (lb/yield unit)		
				N	P	K
Filberts	ton	2000	100	41.70	7.30	39.29
Hops, Cones	bale	200	100	9.00	0.96	5.00
Natural Area (Trees & Grass)	ton	2000	100	10.52	1.56	9.20
Nursery Stock	ton	2000	100	8.33	2.08	10.20
Poplars, Pulpwood	ton	2000	100	0.30	0.09	0.12
Hemp/Cannabis	ton	2000	100	31.09	3.37	36.23

Note: Nutrient uptake values are taken from the NRCS National Agricultural Waste Management Field Handbook and updated with more current information from the Extension Service when available.

When nutrient uptake values are not available from NRCS or Extension references, then nutrient uptake data from the NRCS Plant Database or other approved data sources is used.

## SECTION 3 - UTILIZATION AREA

### Nutrient Applications



## Nutrient Applications Report

Columbia River Ranch Inc

Culver

#### CRR1

Date	Source	Equipment Used	% of Field	Amount Applied	N lbs/ac	P <sub>2</sub> O <sub>5</sub> lbs/ac	K <sub>2</sub> O lbs/ac
03/01/2021	Grazing activity	Finishing Cattle	100	81 CF	12	8	5
04/01/2021	Grazing activity	Finishing Cattle	100	81 CF	12	8	5
05/01/2021	Grazing activity	Finishing Cattle	100	162 CF	24	16	11
06/01/2021	Grazing activity	Finishing Cattle	100	162 CF	24	16	11
07/01/2021	Grazing activity	Finishing Cattle	100	162 CF	24	16	11
08/01/2021	Grazing activity	Finishing Cattle	100	81 CF	12	8	5
09/01/2021	Grazing activity	Finishing Cattle	100	81 CF	12	8	5
10/01/2021	Grazing activity	Finishing Cattle	100	81 CF	12	8	5
CRR1 Totals:					133	85	59

#### CRR2

Date	Source	Equipment Used	% of Field	Amount Applied	N lbs/ac	P <sub>2</sub> O <sub>5</sub> lbs/ac	K <sub>2</sub> O lbs/ac
03/01/2021	Grazing activity	Finishing Cattle	100	10 CF	13	8	6
04/01/2021	Grazing activity	Finishing Cattle	100	10 CF	13	8	6
05/01/2021	Grazing activity	Finishing Cattle	100	21 CF	26	16	11
06/01/2021	Grazing activity	Finishing Cattle	100	21 CF	26	16	11
07/01/2021	Grazing activity	Finishing Cattle	100	21 CF	26	16	11
08/01/2021	Grazing activity	Finishing Cattle	100	10 CF	13	8	6
09/01/2021	Grazing activity	Finishing Cattle	100	10 CF	13	8	6
10/01/2021	Grazing activity	Finishing Cattle	100	10 CF	13	8	6
CRR2 Totals:					141	90	63

#### CRR3

Date	Source	Equipment Used	% of Field	Amount Applied	N lbs/ac	P <sub>2</sub> O <sub>5</sub> lbs/ac	K <sub>2</sub> O lbs/ac
03/01/2021	Grazing activity	Finishing Cattle	100	16 CF	15	9	6
04/01/2021	Grazing activity	Finishing Cattle	100	16 CF	15	9	6
05/01/2021	Grazing activity	Finishing Cattle	100	32 CF	29	19	13
06/01/2021	Grazing activity	Finishing Cattle	100	32 CF	29	19	13
07/01/2021	Grazing activity	Finishing Cattle	100	32 CF	29	19	13
08/01/2021	Grazing activity	Finishing Cattle	100	16 CF	15	9	6
09/01/2021	Grazing activity	Finishing Cattle	100	16 CF	15	9	6
10/01/2021	Grazing activity	Finishing Cattle	100	16 CF	15	9	6
CRR3 Totals:					160	103	71



## Nutrient Applications Report - Columbia River Ranch Inc

### CRR4

Date	Source	Equipment Used	% of Field	Amount Applied	N lbs/ac	P <sub>2</sub> O <sub>5</sub> lbs/ac	K <sub>2</sub> O lbs/ac
03/01/2021	Grazing activity	Finishing Cattle	100	8 CF	4	2	2
04/01/2021	Grazing activity	Finishing Cattle	100	8 CF	4	2	2
05/01/2021	Grazing activity	Finishing Cattle	100	8 CF	4	2	2
06/01/2021	Grazing activity	Finishing Cattle	100	8 CF	4	2	2
07/01/2021	Grazing activity	Finishing Cattle	100	8 CF	4	2	2
08/01/2021	Grazing activity	Finishing Cattle	100	8 CF	4	2	2
09/01/2021	Grazing activity	Finishing Cattle	100	8 CF	4	2	2
10/01/2021	Grazing activity	Finishing Cattle	100	8 CF	4	2	2
CRR4 Totals:					29	19	13

## SECTION 3 - UTILIZATION AREA

### Sampling Guidance

#### Manure and Soil Sampling Frequency

For large concentrated animal feeding operations, sample liquids and solids containing manure during applications in early spring annually and have each sample analyzed for Total Nitrogen (TKN), Ammonium Nitrogen ( $\text{NH}_4\text{-N}$ ), Phosphorus ( $\text{P}_2\text{O}_5$ ) and Potassium ( $\text{K}_2\text{O}$ ) plus percent moisture. Ask the lab to report results in pounds per ton for the solids containing manure and in pounds per thousand gallons for liquids containing manure. Analyses of solids and liquids containing manure should be performed by a laboratory that meets the requirements and performance standards of the Manure Testing Laboratory Certification Program

(MTLCP), <http://www2.mda.state.mn.us/webapp/lis/manurelabs.jsp>.

For small and medium animal feeding operations, if no samples of liquids and solids containing manure have been taken, take a sample of liquids and solids during applications in early spring once a year for three consecutive years to develop a cumulative manure analysis history as a basis for nutrient allocation to the fields. If there is a sampling history of liquids and solids containing manure, take a sample of liquids and solids during applications in early spring once every 5 years or whenever a significant change in animal numbers or in the manure handling system occurs. Have each sample analyzed for Total Nitrogen (TKN), Ammonium Nitrogen ( $\text{NH}_4\text{-N}$ ), Phosphorus ( $\text{P}_2\text{O}_5$ ) and Potassium ( $\text{K}_2\text{O}$ ) plus percent moisture. Ask the lab to report results in pounds per ton for the solids containing manure and in pounds per thousand gallons for liquids containing manure. Analyses of solids and liquids containing manure should be performed by a laboratory that meets the requirements and performance standards of the Manure Testing Laboratory Certification Program

Large CAFO's are required to test a minimum of 20 percent of their fields annually which would result in all of the fields being tested once every 5 years. Small and Medium CAFO's are only required to test all of their fields once every 5 years. However, from a management standpoint, more frequent soil testing offers good information on the nutrient status of your soils.

Collect soil samples from 20 percent of the fields receiving solids or liquids containing manure **annually** in the fall after harvest or before rains begin (typically September 15-October 15) in accordance with **Pacific Northwest (PNW) Extension publication 570-E, "Monitoring Soil Nutrients Using a Management Unit Approach"**, <https://catalog.extension.oregonstate.edu/pnw570>. Have the soil samples analyzed for Total Nitrogen (TKN) and Phosphorus (P) and ask the lab to report results in parts per million (ppm). Soil test analyses should be performed by laboratories that meet the requirements and performance standards of the North American Proficiency Testing Program (NAPT) Proficiency Assessment Program (PAP); <http://www.naptprogram.org/pap/>.

#### How to Sample Liquid Manure

Obtain a composite following one of the procedures listed below and thoroughly mix. Using a plunger, an up-and-down action works well for mixing liquid manure in a five-gallon bucket. Fill a one-quart plastic bottle not more than three-quarters full with the composite sample. Store sample in freezer if not delivered to the lab immediately.

**Procedure 1.** Sampling from storage- Agitate storage facility thoroughly before sampling. Collect at least five samples from the storage facility or during loading using a five-gallon bucket. Place a sub sample of the composite sample in a one-quart plastic container. Sampling a liquid manure storage facility without proper agitation (2-4 hrs. minimum) is not recommended due to nutrient stratification, which occurs in liquid systems. If manure is sampled from a lagoon that was not properly agitated, typically the nitrogen and potassium will be more concentrated in the top liquid, while the phosphorus will be more concentrated in the bottom solids.

**Procedure 2.** Sampling during application- Place buckets around field to catch manure from spreader or irrigation equipment. Combine and mix samples into one composite sub sample in a one-quart plastic container.



### **How to Sample Solid Manure**

Collect a composite sample by following one of the procedures listed below. A method for mixing a composite sample is to pile the manure and then shovel from the outside to the inside of the pile until well mixed. Fill a one-gallon plastic heavy-duty zip lock bag approximately one-half full with the composite sample, squeeze out excess air, close and seal. Store sample in freezer if not delivered to the laboratory immediately.

**Procedure 1.** Sampling while loading - Recommended method for sampling from a stack or bedded pack. Take at least ten samples while loading several spreader loads and combine to form one composite sample. Thoroughly mix the composite sample and take an approximately one pound sub sample using a one-gallon plastic bag. Sampling directly from a stack or bedded pack is not recommended.

**Procedure 2.** Sampling during spreading - Spread a tarp in field and catch the manure from one pass. Sample from several locations and create a composite sample. Thoroughly mix the composite sample together and take a one-pound sub sample using a one-gallon plastic bag.

**Procedure 3.** Sampling daily haul - Place a five-gallon bucket under the barn cleaner 4-5 times while loading a spreader. Thoroughly mix the composite sample together and take a one-pound sub sample using a one-gallon plastic bag. Repeat sampling 2-3 times over a period of time and test separately to determine variability.

**Procedure 4.** Sampling poultry in-house - Collect 8-10 samples from throughout the house to the depth the litter will be removed. Samples near feeders and waterers may not be indicative of the entire house and sub samples taken near here should be proportionate to their space occupied in the whole house. Mix the samples well in a five-gallon pail and take a one-pound sub sample, place it in a one-gallon zip lock bag.

**Procedure 5.** Sampling stockpiled litter - Take ten sub samples from different locations around the pile at least 18 inches below the surface. Mix in a five-gallon pail and place a one-pound composite sample in a gallon zip lock bag.

### **Sample Identification and Delivery**

Identify the sample container with information regarding the farm, animal species and date. This information should also be included on the sample information sheet along with application method, which is important in determining first year availability of nitrogen.

Keep all manure samples frozen until shipped or delivered to a laboratory. Ship early in the week (Mon.-Wed.) and avoid holidays and weekends.

### **How to Sample Soils**

Current soil tests must be used in the development and editing of nutrient management plans. A current soil test is one that is no older than 5 years that is used to represent the nutrient status of the entire field. Soil analysis must be performed by laboratories successfully meeting the requirements and performance standards of the North American Proficiency Testing Program-Performance Assessment Program (NAPT-PAP). Results of these analysis will be used to determine application rates for manure, litter, and process wastewater. Guidance for soil sampling can be found in the **Pacific Northwest (PNW) Extension publication 570-E, "Monitoring Soil Nutrients Using a Management Unit Approach"**, <https://catalog.extension.oregonstate.edu/pnw570>. **Oregon State University Extension publication EC1478, "Soil Test Interpretation**

**Guide"**, <https://catalog.extension.oregonstate.edu/ec1478> provides guidance on how to determine soil nutrient concentrations and how to adjust soil pH to improve nutrient availability.

**Field Area.** A composite soil sample should represent a uniform field area. Each area should have similar crop and fertility history. Soil characteristics (color, slope, texture, drainage) should be similar. Exclude small areas within a field that are obviously different. The field area represented by a single composite sample should represent no more than 40 irrigated acres or 100 dry land acres.

**Sampling Depth.** Laboratory tests are calibrated to specific depths. It is vital to collect samples from appropriate depths. Sampling depth for most soils is the rooting depth in 6-inch intervals. In Oregon, as a minimum, soil samples should be collected from the 0-12" depth. The 0-6" surface soil samples are normally used for conventional tests of organic matter, nitrogen, phosphorus, potassium, pH and salt levels. Additionally, subsurface samples from the 6-24" depth are needed to estimate nitrogen availability for crops grown in dry land areas.

**Post Harvest Soil Testing for Evaluating Nutrient Applications.** Refer to **Pacific Northwest (PNW) Extension publication 570-E, "Monitoring Soil Nutrients Using a Management Unit Approach"**, <https://catalog.extension.oregonstate.edu/pnw570>, for guidance on how to evaluate nutrient applications and crop uptake of nutrients.



## SECTION 3 - UTILIZATION AREA

### Manure Tests



## Nutrient Analysis Report

Columbia River Ranch Inc

Culver

Sample Date	Storage Name	Units	Total N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	NH <sub>4</sub> -N	NO <sub>3</sub> -N	Org N	Density Lbs/CF
12/10/2020	Feedlot	lbs/Ton	7.4	10.2	19.8	3.5	0.0	3.9	36.0

## SECTION 3 - UTILIZATION AREA

### Soil Tests



### Soils Testing Report

Columbia River Ranch Inc  
8700 SW Green Dr., Culver

#### Soils Testing Report - Columbia River Ranch Inc

Test Date	Lab #	Sample ID	Depth	pH	BpH	SS (ppm)	OM %	Ex Carb	Bray P	Olsen P	K (ppm)	Mg	Ca	Na	NO3-N	NH4-N	S (ppm)	B (ppm)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	Al (ppm)	Cl (ppm)
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#### CRR1

1/12/2021	35137	Green Drive	12.0	5.8	6.5	0.44	4.5			29.0	304.0	362.0 ppm	1197.0 ppm	47.0 ppm	25.0 ppm	4.0 ppm	13.0	0.2	0.8	6.0	1.3	43.0		
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#### CRR2

1/12/2021	35137	Green Drive	12.0	5.8	6.5	0.44	4.5			29.0	304.0	362.0 ppm	1197.0 ppm	47.0 ppm	25.0 ppm	4.0 ppm	13.0	0.2	0.8	6.0	1.3	43.0		
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#### CRR3

1/12/2021	35137	Green Drive	12.0	5.8	6.5	0.44	4.5			29.0	304.0	362.0 ppm	1197.0 ppm	47.0 ppm	25.0 ppm	4.0 ppm	13.0	0.2	0.8	6.0	1.3	43.0		
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Soil test analyses should be performed by laboratories that meet the requirements and performance standards of the North American Proficiency Testing Program (NAPT) Proficiency Assessment Program (PAP);  
<http://www.naptprogram.org/pap/>



## SECTION 3 - UTILIZATION AREA

### Nutrient Balances



### Nutrient Balances Report

Columbia River Ranch Inc

Culver

Field	Acres	Crop	Yield	Nutrient Uptake (lbs/ac)			Nutrient Applied (lbs/ac)			Nutrient Balance (lbs/ac)		
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
CRR1	46.8	Grass Hay/Pasture	4.9 Ton	280	85	228	133	85	59	(-146)	0	(-169)
CRR2	5.9	Grass Hay/Pasture	4.7 Ton	273	86	227	141	90	63	(-132)	4	(-164)
CRR3	7.8	Grass Hay/Pasture	5 Ton	289	91	240	160	103	71	(-129)	11	(-169)
CRR4	15.5	Grass Hay/Pasture	0.6 Ton	36	11	30	29	19	13	(-7)	7	(-17)

## SECTION 3 - UTILIZATION AREA

### Transferred Nutrients



### Transfers Report

Columbia River Ranch Inc  
Culver

Exported from	Date Transferred	Quantity	Analysis Available	Total N lbs	P <sub>2</sub> O <sub>5</sub> lbs	K <sub>2</sub> O lbs	Exported to
Feedlot	05/05/2021	3,228 Ton	Yes	23,887.2	14,371.72	53,041	Surrounding Farms
Feedlot	06/09/2021	3,228 Ton	Yes	23,887.2	14,371.72	53,041	Surrounding Farms
Feedlot	07/14/2021	3,228 Ton	Yes	23,887.2	14,371.72	53,041	Surrounding Farms
Feedlot	08/11/2021	3,228 Ton	Yes	23,887.2	14,371.72	53,041	Surrounding Farms
Feedlot	09/15/2021	3,228 Ton	Yes	23,887.2	14,371.72	53,041	Surrounding Farms
Feedlot	10/13/2021	3,229 Ton	Yes	23,894.45	14,376.08	53,057.1	Surrounding Farms
Sub Totals:		1,076,054 CF		143,330.45	86,234.66	318,262.08	

Imported from	Date Transferred	Quantity	Analysis Available	Total N lbs	P <sub>2</sub> O <sub>5</sub> lbs	K <sub>2</sub> O lbs	Imported to
No Imports.				0	0	0	
Sub Totals:		CF		0	0	0	

Totals:	1,076,054 CF	143,330	86,235	318,262
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## SECTION 3 - UTILIZATION AREA

### Grazing History



### Grazing Report

Columbia River Ranch Inc - 2021  
Culver

NMPT  
02/14/2025

Date	Field	Crop	Animals	Count	Grazing Time	Forage Removed (lbs)	Nutrient Removed (lbs/ac)		
							N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
10/01/2021	CRR2	Grass Hay/Pasture	Finishing Cattle	20	15.0 Days	1,410	7	1	5
	CRR2 Totals:			20	360.0 Hours	1,410	7	1	5
10/01/2021	CRR3	Grass Hay/Pasture	Finishing Cattle	30	15.0 Days	2,115	8	1	5
	CRR3 Totals:			30	360.0 Hours	2,115	8	1	5
10/01/2021	CRR4	Grass Hay/Pasture	Finishing Cattle	15	15.0 Days	2,400	4	1	3
	CRR4 Totals:			15	360.0 Hours	2,400	4	1	3
10/01/2021	CRR1	Alfalfa Hay	Finishing Cattle	150	15.0 Days	16,538	10	1	6
	CRR1 Totals:			150	360.0 Hours	16,538	10	1	6
09/01/2021	CRR2	Grass Hay/Pasture	Finishing Cattle	20	15.0 Days	1,410	7	1	5
	CRR2 Totals:			20	360.0 Hours	1,410	7	1	5
09/01/2021	CRR3	Grass Hay/Pasture	Finishing Cattle	30	15.0 Days	2,115	8	1	5
	CRR3 Totals:			30	360.0 Hours	2,115	8	1	5
09/01/2021	CRR4	Grass Hay/Pasture	Finishing Cattle	15	15.0 Days	2,400	4	1	3





Date	Field	Crop	Animals	Count	Grazing Time	Forage Removed (lbs)	Nutrient Removed (lbs/ac)		
							N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
07/01/2021	CRR1	Alfalfa Hay	Finishing Cattle	150	30.0 Days	33,075	19	2	13
	CRR1 Totals:			150	720.0 Hours	33,075	19	2	13
06/01/2021	CRR2	Grass Hay/Pasture	Finishing Cattle	20	30.0 Days	2,410	12	2	8
	CRR2 Totals:			20	720.0 Hours	2,410	12	2	8
06/01/2021	CRR3	Grass Hay/Pasture	Finishing Cattle	30	30.0 Days	4,200	16	2	11
	CRR3 Totals:			30	720.0 Hours	4,200	16	2	11
06/01/2021	CRR4	Grass Hay/Pasture	Finishing Cattle	15	15.0 Days	2,400	4	1	3
	CRR4 Totals:			15	360.0 Hours	2,400	4	1	3
06/01/2021	CRR1	Alfalfa Hay	Finishing Cattle	150	30.0 Days	33,075	19	2	13
	CRR1 Totals:			150	720.0 Hours	33,075	19	2	13
05/01/2021	CRR2	Grass Hay/Pasture	Finishing Cattle	20	30.0 Days	2,410	12	2	8
	CRR2 Totals:			20	720.0 Hours	2,410	12	2	8
05/01/2021	CRR3	Grass Hay/Pasture	Finishing Cattle	30	30.0 Days	4,200	16	2	11
	CRR3 Totals:			30	720.0 Hours	4,200	16	2	11
05/01/2021	CRR4	Grass Hay/Pasture	Finishing Cattle	15	15.0 Days	2,400	4	1	3
	CRR4 Totals:			15	360.0 Hours	2,400	4	1	3
05/01/2021	CRR1	Alfalfa Hay	Finishing Cattle	150	30.0 Days	33,075	19	2	13





## SECTION 3 - UTILIZATION AREA

### Cropping History



### Cropping Report

Columbia River Ranch Inc  
Culver

Planted	Field	Acres	Crop	Yield	Nutrient Uptake (lbs/ac)		
					N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
01/01/2021	CRR1	46.8	Grass Hay/Pasture	3 Ton	58	18	48
	CRR1 Totals:				58	18	48
01/01/2021	CRR2	5.9	Grass Hay/Pasture	3.5 Ton	58	18	48
	CRR2 Totals:				58	18	48
01/01/2021	CRR3	7.8	Grass Hay/Pasture	3.5 Ton	58	18	48
	CRR3 Totals:				58	18	48
01/01/2021	CRR4	14.5	Grass Hay/Pasture	0 Ton	58	18	48
	CRR4 Totals:				58	18	48

## SECTION 3 - UTILIZATION AREA

### **Irrigation Water Management**

The application of Irrigation Water Management to the irrigated fields as shown on the Field Map will manage soil moisture to promote the desired crop response, optimize the available water supplies, minimize irrigation induced erosion, decrease non-point source pollution of surface and groundwater sources, manage salts in the crop root zone and manage the crop micro climate.

**Permits:** Under Oregon law all water is publicly owned, and anyone planning to store or divert surface or groundwater for the purpose of irrigation must obtain a permit or water right from the Oregon Water Resources Department. These permits or water rights must be obtained prior to the use of the water. It is the responsibility of the Farmer to file for the necessary permits or water rights. More information about Oregon water rights can be found at <http://www.oregon.gov/owrd/Pages/wr/index.aspx>.

The irrigation system used to irrigate crops should be adapted for site conditions (soil, slope, crop grown, climate, water quantity and quality, etc.) and capable of applying water and wastewater to meet the consumptive use of the crop. The following table shows the estimated Available Water Holding Capacity (AWHC) and sprinkler intake rates by soil texture that should be considered in the design of the irrigation system.<sup>1/</sup>

Symbol	Soil Texture	AWHC Range	Sprinkler Intake Rate
		(in/in)	Range (in/hour)
COS	Coarse Sand	0.01-0.03	1.0+
S	Sand	0.01-0.03	0.5+
FS	Fine Sand	0.05-0.07	0.5+
VFS	Very Fine Sand	0.05-0.07	0.5+
LCOS	Loamy Coarse Sand	0.06-0.08	1.0+
LS	Loamy Sand	0.06-0.08	0.4-1.5
LFS	Loamy Fine Sand	0.09-0.11	0.4-1.5
LVFS	Loamy Very Fine Sand	0.10-0.12	0.3-1.25
COSL	Coarse Sandy Loam	0.10-0.12	0.3-1.25
SL	Sandy Loam	0.11-0.13	0.3-1.25
FSL	Fine Sandy Loam	0.13-0.15	0.3-1.0
VFSL	Very Fine Sandy Loam	0.15-0.17	0.3-1.0
L	Loam	0.16-0.18	0.6-0.7
SIL	Silt Loam	0.19-0.21	0.5-0.7
SI	Silt Loam	0.16-0.18	0.5-0.7
SCL	Sandy Clay Loam	0.14-0.16	0.1-0.5
CL	Clay Loam	0.19-0.21	0.1-0.5
SICL	Silty Clay Loam	0.19-0.21	0.1-0.4
SC	Sandy Clay	0.15-0.17	0.1-0.4
SIC	Silty Clay	0.15-0.17	0.1-0.2
C	Clay	0.14-0.16	0.1-0.2

<sup>1/</sup> Values in this table are taken from the Natural Resources Conservation Service National Engineering Handbook, Part 652, Irrigation Guide and are estimates based on soil texture and should only be used where local data is unavailable.

Irrigation water management requires knowledge, skills, and desire to determine when irrigation water should be applied. The main factors influencing IWM are irrigation interval (time between irrigations), irrigation set time (time water is applied), and application rate (rate at which water is applied). These parameters define the timing and duration of irrigation and the amount of water applied. System design and maintenance are also important factors influencing irrigation water management.



### ***SECTION 3 -***

Guidance given in the irrigation water requirements worksheets was developed based on Oregon State University Extension Miscellaneous 8530, Oregon Crop Water Use and Irrigation Requirements publication. For additional information on irrigation water management contact a professional with the required knowledge and skill. The following average monthly evapotranspiration and precipitation graphs can be used to estimate when to irrigate and how much to apply:

## SECTION 3 - UTILIZATION AREA

### Irrigation Water Flows, Volumes, and Relationships

Equation 1 -

$$Q \times T = D \times A$$

where

Q = flow rate (acre-in/hr or cfs)

T = time (hr)

D = gross depth applied (in)

A = area (acres)

Equation 2 -

$$Q = \frac{453 \times A \times}{F \times H}$$

where

Q = flow rate (acre-in/hr or cfs)

A = area (acres)

D = gross depth applied (in)

F = irrigation period (days)

H = Hours of operation per

#### Water Flow

1 cubic foot per second (cfs)

= 448.8 gallons per minute

1 cfs for 1 hour = 0.99 acre-inch

1 cfs for 24 hr = 1.98 acre-ft

1,000 gpm = 2.23 cfs

1,000 gpm for 24 hr = 4.42 ac-ft

1 gpm/acre = 0.053 ac-in/ac/day

1 cfs = 40 miner's inches in OR, No CA

1 cfs = 50 miner's inches in ID, WA

1 miner's inch = 11.22 gpm in OR

1 miner's inch = 9 gpm in ID, WA

1 cfs = 28.32 liters/sec

1 cubic meter/sec = 35.3 cfs

1 liter/sec = 15.85 gpm

**Q x T = D x** where:

Q = cfs, T = hr, D = inches depth; A =

#### Gpm for 5 ft/s velocity in PVC pipe:

6"	8"	10"	12"	14"
480	800	125	175	215

#### Water Volumes & Weights:

1 cubic foot = 7.48 gallons

= 62.4 lbs = 28.3 liters

1 acre-foot = 43,560 cubic feet

(1 acre covered 1 ft deep)

12 acre-in = 1 acre-ft = 325,829 gal

1 million gallons = 3.07 acre-ft

1 acre-ft = 1,234 cubic meters

1 cu meter = 1,000 liters = 35.3 cu ft

#### Pressure and Pressure Head:

1 psi = 2.31 ft of pressure head

1 atmosphere (sea level)

= 14.7 psi = 33.9 ft of head

#### Lengths and Areas:

1 mile = 5,280 ft = 1.61 km

1 meter = 3.28 ft = 39.37 inches

1 acre = 43,560 square ft

1 hectare = 2.47 acres

#### Pump Power Requirement

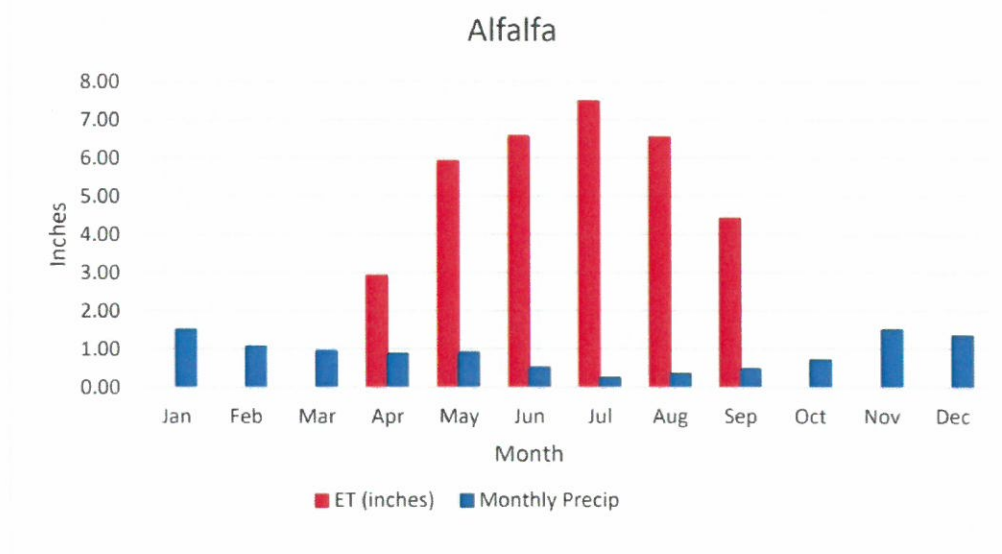
$$\text{Horsepower} = \frac{\text{Pump Head in ft} \times \text{gpm}}{39.6 \times \% \text{ Pump Efficiency}}$$



### SECTION 3 - UTILIZATION AREA

Crop- Alfalfa  
Region- North Central

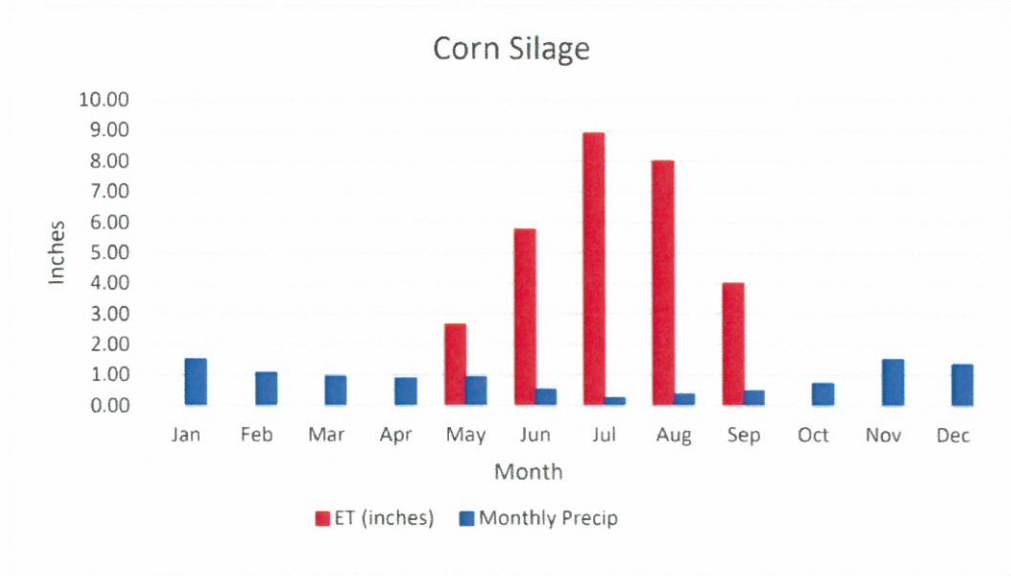
Total Seasonal Evapotranspiration-	33.82 Inches
Peak Evapotranspiration Rate-	0.25 Inches/Day
Maximum Allowed Depletion-	50 %
Critical Moisture Deficit Period-	Jul



**SECTION 3 - UTILIZATION AREA**

Crop- Corn Silage  
Region- North Central

Total Seasonal Evapotranspiration-	29.26 Inches
Peak Evapotranspiration Rate-	0.30 Inches/Day
Maximum Allowed Depletion-	50 %
Critical Moisture Deficit Period-	Jul





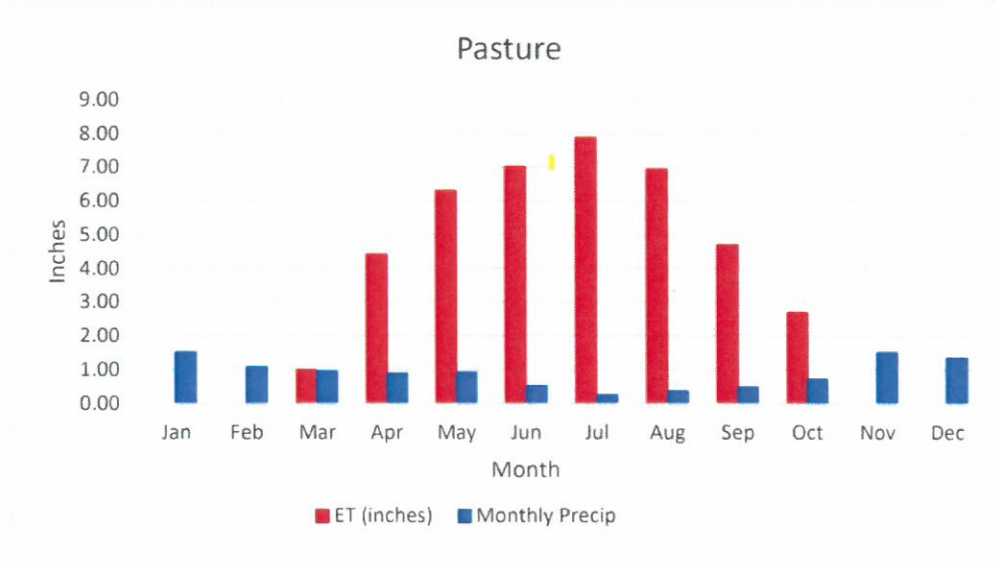
### SECTION 3 - UTILIZATION AREA

Crop- Pasture  
Region- North Central

---

Total Seasonal Evapotranspiration-	40.87 Inches
Peak Evapotranspiration Rate-	0.26 Inches/Day
Maximum Allowed Depletion-	50 %
Critical Moisture Deficit Period-	Jul

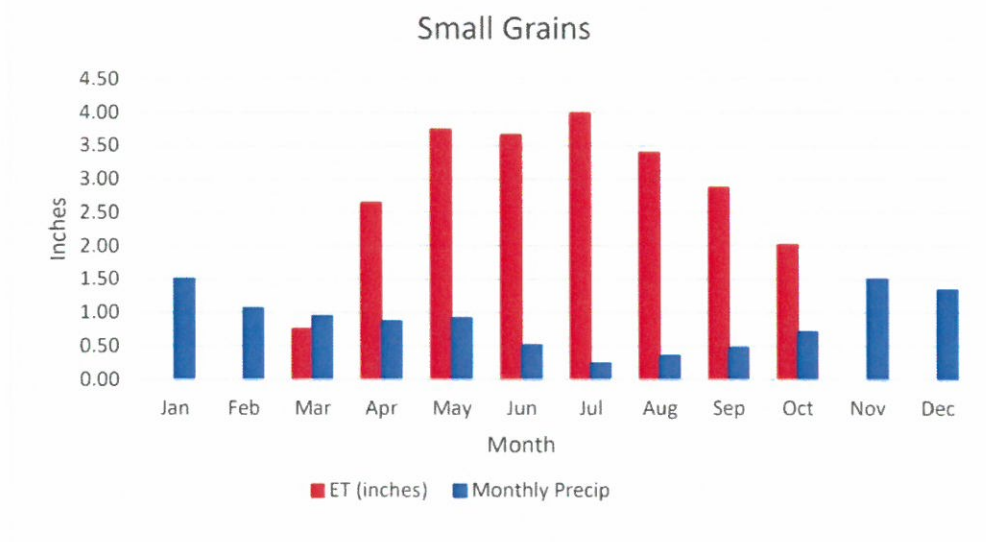
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### SECTION 3 - UTILIZATION AREA

Crop- Small Grains  
Region- North Central

Total Seasonal Evapotranspiration-	23.04 Inches
Peak Evapotranspiration Rate-	0.13 Inches/Day
Maximum Allowed Depletion-	50 %
Critical Moisture Deficit Period-	Jul





## SECTION 4 - SOIL AND RISK ASSESSMENT

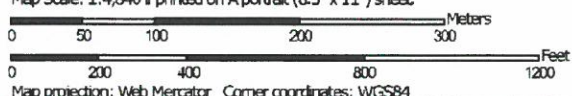
### Soil Maps for Columbia River Ranch Inc

#### Soils Map #1

Soil Map—Upper Deschutes River Area, Oregon, Parts of Deschutes, Jefferson, and Klamath Counties  
(Columbia River Ranch Inc- Culver Farm)



Map Scale: 1:4,840 if printed on A portrait (8.5" x 11") sheet



Map projection: Web Mercator Corner coordinates: WGS84



## **SECTION 4 - SOIL AND RISK ASSESSMENT**

### **Soil Reports**

#### **Map Unit Description**

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named, soils that are similar to the named components, and some minor components that differ in use and management from the major soils.

Most of the soils similar to the major components have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Some minor components, however, have properties and behavior characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a soil series. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into soil phases. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A complex consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An association is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern



## **SECTION 4 - SOIL AND RISK ASSESSMENT**

and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example

An undifferentiated group is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example. Some surveys include miscellaneous areas. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

### **Report—Map Unit Description**

#### **Upper Deschutes River Area, Oregon, Parts of Deschutes, Jefferson, and Klamath Counties**

##### **2B—Agency loam, 3 to 8 percent slopes**

###### **Map Unit Setting**

National map unit symbol: 245d

Elevation: 2,000 to 3,200 feet

Mean annual precipitation: 8 to 10 inches

Mean annual air temperature: 47 to 50 degrees F

Frost-free period: 120 to 140 days

Farmland classification: Prime farmland if irrigated

###### **Map Unit Composition**

Agency and similar soils: 85 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

###### **Description of Agency**

###### **Setting**

Landform: Lava plains

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Interfluvium

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loess over residuum weathered from volcaniclastic sediments of the Deschutes formation

###### **Typical profile**

H1 - 0 to 8 inches: loam

H2 - 8 to 24 inches: loam

H3 - 24 to 29 inches: cobbly loam

H4 - 29 to 33 inches: weathered bedrock

H5 - 33 to 43 inches: unweathered bedrock

###### **Properties and qualities**

Slope: 3 to 8 percent

Depth to restrictive feature: 22 to 40 inches to paralithic bedrock; 26 to 44 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Low (about 4.7 inches)

###### **Interpretive groups**

Land capability classification (irrigated): 3e

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: C

Ecological site: R010XA001OR - LOAMY 8-10 PZ

Hydric soil rating: No

### **Data Source Information**

Soil Survey Area: Upper Deschutes River Area, Oregon, Parts of Deschutes, Jefferson, and Klamath Counties

## ***SECTION 4 - SOIL AND RISK ASSESSMENT***

Survey Area Data: Version 17, Sep 14, 2020



## SECTION 4 - SOIL AND RISK ASSESSMENT



### Phosphorus Index Report

Columbia River Ranch Inc - 2021

Culver

Phosphorus Index is included for advisement puposes and is not (yet) currently a regulary tool.

Field	Acres	Soil	Soil Test Date	Bray P (ppm)	Olsen (ppm)	K (ppm)	pH	TFS	SFS	Score	Rating
CRR4	15.5	2B, Agency	-none-					5.5	8.375	N/A	N/A
CRR3	7.8	2B, Agency	01/12/2021		29.0	304.0	5.8	4.75	10.95	52.02	Low
CRR2	5.9	2B, Agency	01/12/2021		29.0	304.0	5.8	4.75	10.70	50.86	Low
CRR1	46.8	2B, Agency	01/12/2021		29.0	304.0	5.8	4.75	10.60	50.4	Low

## **SECTION 4 - SOIL AND RISK ASSESSMENT**

### **PI Interpretations**

<b><u>P-Index Rating</u></b>	<b><u>Interpretation for Oregon</u></b>	<b><u>Recommended Nutrient Limitation</u></b>
West PI Score <=25 or East PI Score <=100	The site has a LOW potential for P movement from the site. If farming practices are maintained at current levels, the probability of an adverse impact to surface water resources from P losses from this site are low. Phosphorus can be applied at rates greater than crop requirement	Nitrogen
West PI Score 25.1 to 50 or East PI Score 100.1 to 400	The site has a MEDIUM potential for P movement from the site. The probability for an adverse impact to surface water resources is greater than that from a LOW vulnerability rated site. Some remedial action should be taken to lessen the probability of P movement. Phosphorus can be applied not to exceed the crop requirement rate for phosphorus.	Phosphorus
West PI Score 50.1 to 75 or East PI Score 400.1 to 600	The site has a HIGH potential for P movement from the site. There is a high probability for an adverse impact to surface water resources unless action is taken to reduce the risk of P movement and probable water quality degradation. Phosphorus can be applied not to exceed the crop removal rate of phosphorus if the following requirements are met: A soil phosphorus drawdown strategy has been implemented, and a site assessment for nutrients and soil loss has been conducted to determine if mitigation practices are required to protect water quality.	Phosphorus
West PI Score >75 or East PI Score >600	ZERO OUT- The environmental threshold above which the risk of P loss from a field is too great to warrant the application of phosphorus for plant production.	No Manure

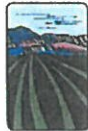


## ***SECTION 5 - SUPPLEMENTAL DOCUMENTS***

### **Supplemental Documents**

CAFO WPCF General Permit #01-2015  
Issuance Date: October 1, 2015  
Effective Date: October 21, 2015  
Expiration Date: September 30, 2025

OREGON CONFINED ANIMAL FEEDING OPERATION  
WATER POLLUTION CONTROL FACILITIES  
GENERAL PERMIT NUMBER 01-2015



**Oregon**  
Department  
of Agriculture



**DEQ**  
State of Oregon  
Department of  
Environmental  
Quality

State of Oregon  
Department of Agriculture  
Confined Animal Feeding Operation Program  
and  
Department of Environmental Quality  
Water Quality Division

In compliance with the provisions of Oregon Revised Statutes (ORS) Chapter 468B,  
and Oregon Administrative Rules (OAR) Chapter 340, Divisions 40, 45 and 51 and Chapter 603, Division 74.

Until this permit expires or is modified or revoked, permit registrants who have properly obtained coverage under this permit are authorized to discharge to groundwater of the state in accordance with the special and general conditions that follow.

Ray Jaundt, Director  
Natural Resources and Pesticides  
Oregon Department of Agriculture

Lydia Emer  
Operations Division Administrator  
Oregon Department of Environmental Quality

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## SPECIAL CONDITIONS

### DEFINITIONS

1. "25-year, 24-hour rainfall event" means an event with a probable recurrence interval of once in twenty-five years as defined by the National Weather Service in Technical Paper Number 40, "Rainfall Frequency Atlas of the United States," May 1961, or equivalent regional or state rainfall probability information developed from this source.
2. "Agency" means Oregon Department of Environmental Quality or Oregon Department of Agriculture.
3. "Agronomic application rate" means the rate or amount of nutrients applied to the soil for utilization by growing or planned crops such that the crops remove the same or greater amount of nutrients provided by the agronomic application.
4. "Animal waste management plan" or "AWMP" or "waste management plan" means a written document containing the minimum elements necessary to manage manure, litter, and process wastewater from operations covered by this permit in accordance with the terms and conditions of this permit.
5. "Bedding" means any absorbent material that is used to provide animal cleanliness and comfort in a confinement system. Bedding materials include but are not limited to: straw; sawdust; wood shavings; grass seed cleanings; recycled, composted, or dried manure solids; and recycled paper products. Bedding that comes into contact with animals, manure, litter or process wastewater is determined to be manure, litter or process wastewater for purposes of this permit.
6. "Confined animal feeding operation" or "CAFO" means an operation sized according to Table 1, p. 5 of this permit and defined in [OAR 340-051-0010\(2\)](#) and [OAR 603-074-0010\(3\)](#) as:
  - (a) The concentrated confined feeding or holding of animals or poultry, including but not limited to horse, cattle, sheep, or swine feeding areas, dairy confinement areas, slaughterhouse or shipping terminal holding pens, poultry and egg production facilities and fur farms:
    - (i) In buildings or in pens or lots where the surface has been prepared with concrete, rock or fibrous material to support animals in wet weather; or
    - (ii) That have wastewater treatment works; or
    - (iii) That discharge any wastes into waters of the state; or
  - (b) An animal feeding operation that is subject to regulation as a concentrated animal feeding operation pursuant to 40 CFR § 122.23.
7. "Director" means the director of the State of Oregon Department of Environmental Quality or the director of the State of Oregon Department of Agriculture or their authorized designee(s).
8. "Discharge" or "disposal" is defined at [OAR 340-45-0010\(5\)](#) and means the placement of wastes into public waters, on land, or otherwise into the environment in a manner that affects or may tend to affect the quality of public waters. Public waters are waters of the state as defined in [ORS 468B.005\(10\)](#) and [OAR 340-045-0010\(20\)](#).
9. "Dry waste" means any solid manure, litter, bedding, or waste feed that cannot be transferred or applied with a pump or pipe system. Precipitation that comes into contact with dry waste does not change dry waste into wet waste. Dry waste may contain urine, manure leachate or incidental process wastewater that has been absorbed into the feces, and used bedding materials in amounts that allow the waste to retain the dry characteristic so that the material cannot be transferred or applied with a pump or through a pipe.
10. "Dry waste treatment works" means any plant or other works used for the purpose of treating, stabilizing or holding wastes as a dry, solid substance. Dry waste treatment works for purposes of this permit do not utilize pumps or pipes to transfer or apply dry waste and typically do not need any added water or liquid to transfer or apply dry waste. Dry waste treatment works include but are not limited to manure piles and covered dry manure stack storage facilities.
11. "Dry-weather discharge" means a discharge of manure, litter or process wastewater from a land application area that is not defined as Agricultural Stormwater (40 CFR 122.23(e)) and where the land application of manure, litter, or process wastewater has not met all the site-specific nutrient management practices contained in the department-approved Animal Waste Management Plan and specified in 40 CFR 122.42(e)(1)(vi)-(xi). Dry weather discharges include but are not limited to: discharges through tile drains, discharges combined with irrigation water, infiltration of nutrients below the crop root zone, discharges due to failure of manure application or irrigation equipment.
12. "Frozen soil" means soil that has a soil temperature of 32° F (or 0° C) or less in any 3 continuous inches of the top 12 inches of soil.

13. "Groundwater" means water in a saturated zone or stratum beneath the surface of land or below a surface water body.
14. "Manure" means solids or liquids excreted from an animal or other material (for example, bedding, compost, litter, feed waste, silage leachate, raw materials such as feed or silage) that comes into contact with solid or liquid excreted from an animal.
15. "OAR" means Oregon Administrative Rule.
16. "ORS" means Oregon Revised Statute.
17. "Overflow" means the discharge of manure or process wastewater resulting from the filling of wastewater or manure storage structures beyond the point at which no more manure, process wastewater, or stormwater can be contained by the structure.
18. "Person" is defined at ORS 468.005.
19. "Pollution" or "water pollution" is defined at ORS 468B.005(5).
20. "Process wastewater" or "process wastes" means water directly or indirectly used in the operation of the CAFO for any or all of the following: spillage or overflow from animal or poultry watering systems; washing, cleaning or flushing pens, barns, manure pits, or other CAFO facilities; direct contact swimming, washing, or spray cooling of animals; or dust control. Process wastewater or process wastes also includes any water that comes into contact with any raw materials, products, or byproducts including manure, litter, feed, milk, eggs, or bedding. OAR 340-051-0010(5) and OAR 603-074-0010(17)
21. "Production area" means that part of a CAFO that includes the animal confinement area, the manure storage area, the raw materials storage area, and the waste containment areas. The animal confinement area includes but is not limited to open lots, housed lots, feedlots, confinement houses, stall barns, free stall barns, milkrooms, milking centers, cowyards, barnyards, medication pens, walkers, animal walkways, and stables. The manure storage area includes but is not limited to lagoons, runoff ponds, storage sheds, stockpiles, under house or pit storages, liquid impoundments, static piles, and composting piles. The raw materials storage area includes but is not limited to feed silos, silage bunkers, and bedding materials. The waste containment areas include but are not limited to settling basins, and areas within berms and diversions that separate uncontaminated stormwater. Also included in the definition of production area is any egg washing or egg processing facility, and any area used in the storage, handling, treatment, or disposal of animal mortalities. OAR 340-051-0010(6) and OAR 603-074-0010(18)
22. "Saturated soil" means soil with all available pore space filled that has reached its maximum retentive capacity as defined in "Qualitative Description of Soil Wetness" (Brady, N. and Weil, R., p. 201, 2007).
23. "Setback" means a specified distance from surface water or potential conduits to surface water where manure, litter, and process wastewater may not be land applied. Examples of conduits to surface water include but are not limited to: Open tile line intake structures, sinkholes, and agricultural well heads.
24. "Treatment works" means any plant or other works used for the purpose of treating, stabilizing or holding wastes. ORS 468B.005(8)
25. "Vegetative buffer" means a narrow, permanent strip of dense perennial vegetation established parallel to the contours of and perpendicular to the dominant slope of the field for the purposes of slowing water runoff, enhancing water infiltration, and minimizing the risk of any potential nutrients or pollutants from leaving the field and reaching surface water.
26. "Waste storage facilities" means the physical system used for the isolation and retention of process wastes on the confined animal feeding operation until their ultimate utilization.
27. "Wastes" is defined at ORS 468B.005(9).
28. "Water" or "waters of the state" is defined at ORS 468B.005(10).
29. "Wet waste" means any liquid manure, contaminated stormwater, process wastewater, liquid feed waste and silage or manure leachate. Wet waste may include solid material particles that are suspended or dissolved in the liquid.
30. "Wet waste treatment works" means any plant or other works used for the purpose of treating, stabilizing or holding wet wastes. Wet waste treatment works for purposes of this permit include, but are not limited to: tanks or lagoons to store wet waste; pumps, pipes, curbs, gutters, and collection sumps to direct, collect, transfer, or apply wet wastes; and any system that separates dry waste from wet waste.



## S1. PERMIT COVERAGE

### S1.A. When is a permit required and which CAFOs are covered by this permit?

- Any person who owns or operates a confined animal feeding operation (CAFO) that discharges to groundwater of the state or operates a disposal system is required to obtain WPCF permit coverage. This permit provides coverage for any person who owns or operates a CAFO listed in Table 1 below.
- Any person not wishing to be covered by this permit may apply for a WPCF individual permit in accordance with OAR 340-045-0030 or elect coverage under NPDES General Permit #01.

### S1.B. Can I elect coverage under this permit?

Any person who owns or operates a CAFO that is not required to obtain WPCF permit coverage may voluntarily elect to be covered by this permit. Any person making such an election is subject to all terms and conditions of this permit unless and until permit coverage is cancelled.

**Table 1: Classification of CAFOs that require coverage by WPCF General Permit #01-2015**

Type of CAFO	<i>Small</i>	<i>Medium</i>	<i>Large</i>
	<ul style="list-style-type: none"> <li>Confines for more than 120 days in any 12 month period with a wet waste treatment works, or</li> <li>Discharging to groundwater of the state.</li> </ul>	<ul style="list-style-type: none"> <li>Confines for more than 120 days in any 12 month period, or</li> <li>With a wet or dry waste treatment works, or</li> <li>Discharging to groundwater of the state.</li> </ul>	<ul style="list-style-type: none"> <li>Confines for more than 120 days in any 12 month period, or</li> <li>With a wet or dry waste treatment works, or</li> <li>Discharging to groundwater of the state.</li> </ul>
mature dairy cows <sup>1</sup>	<200	200-699	≥700
veal calves	<300	300-999	≥1,000
cattle <sup>2</sup>	<300	300-999	≥1,000
swine ≥ 55 lbs	<750	750-2,499	≥2,500
swine < 55 lbs	<3,000	3,000-9,999	≥10,000
horses	<150	150-499	≥500
sheep or lambs	<3,000	3,000-9,999	≥10,000
turkeys	<16,500	16,500-54,999	≥55,000
chickens, including laying hens or broilers	<9,000	9,000-29,999 (wet waste treatment works)	≥30,000 (wet waste treatment works)
laying hens		25,000-81,999 (layers, dry waste treatment works)	≥82,000 (layers, dry waste treatment works)
broiler chickens		37,500-124,999 (broilers, dry waste treatment works)	≥125,000 (broilers, dry waste treatment works)
ducks	<1,500	1,500-4,999 (wet waste treatment works)	≥5,000 (wet waste treatment works)
		10,000-29,999 (dry waste treatment works)	≥30,000 (dry waste treatment works)
other animal type <sup>3</sup>	Determined by director.	Determined by director.	Determined by director.

<sup>1</sup> Whether milked or dry.

<sup>2</sup> Other than mature dairy cows or veal calves; cattle includes but is not limited to heifers, steers, bulls and cow/calf pairs.

<sup>3</sup> To determine the number of animals that require permit coverage, ODA will compare the operation to the most similar animal type in the table.



**S1.C. How do I apply for permit coverage?**

1. New Application

To obtain permit coverage for the first time, a person must submit to ODA an ODA *Application to Register (ATR)*, Land Use Compatibility Statement (LUCS), and Animal Waste Management Plan (AWMP), and application fee. The application, LUCS, and AWMP and fee must be submitted to ODA at least 180 days prior to the time permit coverage is needed or as specified by ODA in writing. For information on AWMP requirements, see S3, p. 11.

2. Renewal of Permit Coverage

To renew permit coverage, the permit registrant must submit an ODA renewal application by the date specified by ODA in the renewal notice but no later than the expiration date of this permit. Applicants must certify on their renewal application whether an AWMP is new, updated or current and on file. New and updated animal waste management plans must be submitted with the application.

3. Notification of Permit Coverage

ODA will review the application and notify the applicant in writing when permit coverage is approved or denied. Permit coverage does not begin until this written notice is issued by ODA to the applicant. Written notification will include a *Notice of Registration* that will include the following information:

- (a) The owner and operator's legal name;
- (b) Facility name and location;
- (c) Contact information, including mailing address and telephone number;
- (d) Effective date of permit coverage;
- (e) Maximum number of animals allowed at the facility; and
- (f) Regulatory status of the operation (for example, Large CAFO).

**S1.D. How do I transfer permit coverage to a new owner or operator?**

The permit registrant must complete an ODA transfer form and submit it to ODA at least 30 days before the transfer occurs or as specified by ODA. The form must be signed by the previous owner or operator as well as the new owner or operator.

**S1.E. What activities are covered by this permit?**

- 1. This permit covers the discharge of pollutants resulting from processes, wastes, and operations that are properly identified by the registrant through its AWMP approved by ODA.
- 2. This permit does not cover disposal of human wastes or treatment works that mix human and animal wastes. Any person owning or operating such a system must apply to DEQ for coverage under an individual or general permit issued pursuant to ORS 468B.050. This permit may be used in addition to an individual or general permit issued by DEQ pursuant to ORS 468B.050 that covers some other type of wastewater at this same facility, for example, a permit for a septic system.
- 3. This permit does not cover a discharge to surface water.

**S1.F. How do I cancel permit coverage?**

- 1. Any permit registrant may request in writing to ODA that coverage under this permit be cancelled if any one of the following applies:
  - (a) Conditions or standards have changed so that the CAFO no longer qualifies for or is required to have coverage under this permit.
  - (b) The permit registrant elected permit coverage and no longer wishes to be covered by this permit.
  - (c) The permit registrant no longer has animals on site and all waste storage and control facilities have been cleaned and re-purposed or decommissioned in accordance with the following requirements:
    - (i) Cleaning/Re-purposing Requirements
      - (1) All liquid and solid manure, litter and process wastewater must be removed from the structure(s) and either land applied according to the ODA-approved AWMP or exported according to S2.K, p. 10,
      - (2) All liquid storage facilities that could fill with rain water must be flushed with clean water, the flush water land applied or exported according to S2.K, p. 10 and the remaining liquid in the structure tested to confirm the *E. coli* level is at or below the water quality standard of

406 Colony Forming Units/100ml of sample.

- (3) All liquid transfer systems are cleaned and modified so that they are not a conduit for any waste to enter surface water or groundwater.
- (ii) Decommissioning Requirements
  - (1) All liquid and solid manure, litter and process wastewater must be removed from the structure(s) and either land applied according to the approved AWMP or exported according to S2.K, p. 10.
  - (2) If the structure has a synthetic liner, the liner must be removed and disposed of or recycled in a lawful manner.
  - (3) After completion of [(ii)(1)] above, any earthen structure must be filled with soil and returned to the grade matching the surrounding area. All soil fill and remaining exposed soil must be seeded to site-appropriate grass or ground cover to prevent erosion.
2. The permit registrant must also certify that it will not commence operation of a CAFO at the same location until the appropriate NPDES or WPCF permit coverage is obtained.
3. ODA will respond to the request for cancellation by conducting a site inspection and a review of the permit file. ODA will notify the permit registrant in writing of termination of coverage under this permit or deny the request with an explanation of why the request was denied.

**S1.G. Will my information be kept confidential?**

Trade secrets will be kept confidential to the extent authorized by ORS 468.095(1) and (2).

**S1.H. What are the public notice requirements for Large CAFOs not currently covered by NPDES General Permit #01 or other NPDES or WPCF individual permit?**

Upon submittal to ODA, the ATR, AWMP, and LUCS for a *large* CAFO are subject to public notice and a minimum 35-day public review period if the *large* CAFO is not currently covered by NPDES General Permit #01 or other NPDES or WPCF individual permit. Prior to approving permit coverage, ODA will provide for public notice as follows:

1. Notice will be made in an appropriate regional newspaper and by email to interested parties who subscribe to the ODA interested parties email notice system. The notice will describe the operation and opportunity for public comment and hearing. ODA may batch multiple ATRs or AWMPs as regionally appropriate.
2. Copies of ATRs, LUCS (when required) and AWMPs will be available for public review at ODA headquarters and field offices. If available, electronic copies of documents will be provided upon request.
3. ODA will schedule public hearings if written requests for public hearing are received during the comment period from at least ten persons or from an organization or organizations representing at least ten persons. If a hearing is scheduled, ODA will provide at least 30 days notice before the hearing is held. The public comment period will remain open for additional comments for at least seven (7) days after the public hearing.
4. ODA will develop a written response to relevant comments that will be made available to interested parties.



## **S2. DISCHARGE LIMITATIONS AND OPERATING REQUIREMENTS**

### **S2.A. Prohibitions and Discharge Limitations**

1. The permit registrant must not discharge manure, litter or process wastewater to surface water of the state.
2. The permit registrant must not discharge manure, litter or process wastewater to groundwater of the state, except as allowed in S2.B and S2.C and provided these discharges do not cause or contribute to a violation of state groundwater quality protection standards.

Types of discharge that are prohibited include but are not limited to: contaminated runoff from confinement or waste accumulation areas; overflow or discharges from waste storage facilities; discharges due to improper land application activities from surface drainages, field tile outlets, or seepage below the root zone, dry-weather discharges; discharges due to equipment failure; leakage or seepage from facilities in the production area in excess of approved designs; and discharges to underground injection control (UIC) systems.

### **S2.B. Production Area Limitations**

1. The permit registrant must ensure that the production area is designed, constructed, operated, and maintained to prevent the discharge of manure, litter, process wastewater including contaminated stormwater to surface water of the state. At a minimum, the production area must be designed, constructed, operated, and maintained to contain all manure, litter, and process wastewater including contaminated stormwater generated during the storage period established in the ODA-approved AWMP.
2. The permit registrant must properly land apply manure, litter, and wastewater from the production area in a manner consistent with S2.C. All other authorized manure, litter, and process wastewater from the production area must be managed to minimize impacts on groundwater.
3. The permit registrant must not exceed the seepage design rates approved by ODA for waste storage or animal confinement facilities in the production area, and seepage to groundwater from these facilities must not violate state groundwater quality protection standards.

### **S2.C. Land Application Limitations**

1. To prevent discharges to waters of the state, the permit registrant must apply manure, litter, or process wastewater to land application areas at agronomic rates in accordance with the permit registrant's ODA-approved AWMP. Land application areas include land under the control of the permit registrant, to which manure, litter, or process wastewater from the production area is or may be applied.
2. The permit registrant's discharges to groundwater due to seepage below the root zone of the crop or by other means must not violate state groundwater quality protection standards.
3. The permit registrant is allowed to apply manure, litter, or process wastewater to frozen soil provided:
  - (a) The AWMP addresses such applications [see S3.C.2(k), p. 12];
  - (b) The application does not result in a discharge to surface water; and
  - (c) Discharge to groundwater will not occur, except as allowed in S2.B and S2.C above.
4. The permit registrant must not apply manure, litter, or process wastewater to saturated soils immediately before or during rainfall events that are expected to result in surface runoff. If the permit registrant makes such an application because it is a desired alternative to allowing waste storage or treatment works to overflow (for example, land application to saturated soils to pond wastewater onsite provides for greater protection of surface water than a direct overflow of a waste storage tank to surface water), the application will be considered a violation of this permit; however, enforcement penalties may be avoided if the discharge is an upset condition as defined in G7, p. 16 and the permit registrant complies with the reporting requirements in S4.D, p. 15.

### **S2.D. Direct Access by Animals to Surface Water of the State in the Production Area Prohibited**

The permit registrant must prevent direct animal contact with surface water of the state, in the production area of its CAFO. Direct animal contact means any situation where animals in the production area have free access and



are allowed to loiter or drop waste in surface water. Direct contact with surface water of the state by animals on pasture or rangeland is not, by itself, a violation of this permit.

**S2.E. Waste Storage Facilities**

1. The permit registrant must provide adequate storage capacity for solid and liquid wastes at all times so that land application occurs only during periods when soil and weather conditions allow for agronomic application in compliance with the Land Application Limitations S2.C, p. 8 of this permit.
2. The permit registrant must site, design, construct, operate, and maintain all waste storage facilities to contain all manure, litter, process wastewater, and stormwater runoff and direct precipitation from a 25-year, 24-hour rainfall event for the storage period established in the ODA-approved AWMP. New and modified construction of waste facilities must be approved in advance and prior to construction by ODA in conformance with ORS 468B.055, OAR 340-051 and 603-074.
3. Permit registrants with a *large* CAFO must also have depth markers in all surface liquid impoundments (for example, lagoons, ponds, tanks) designed to clearly indicate the:
  - (a) Maximum design volume.
  - (b) Depth of manure and process wastewater.
  - (c) Minimum capacity necessary to contain the quantity applicable to the storage period in the ODA-approved AWMP.

**S2.F. Prevention of System Overloading**

1. The permit registrant must not increase the number of animals over 10% or 25 animals, whichever is greater, of the maximum number assigned by ODA in the *Notice of Registration and General Permit Summary* until an updated plan is approved in writing by ODA (see S3.B AWMP Submittal, p. 11, and S3.D Requirements for AWMP Updates and Changes, p. 12).
2. The permit registrant must ensure that animal numbers do not exceed the capacity of the waste storage facilities described in the ODA-approved AWMP.

**S2.G. Handling of Animal Mortalities**

The permit registrant must not dispose of animal mortalities in liquid manure or treatment works. Animal mortality composting is allowed and must be described in the Animal Waste Management Plan. The permit registrant must handle animal mortalities in such a way as to prevent discharge of wastes to waters of the state (surface water and groundwater).

**S2.H. Proper Operation and Maintenance**

The permit registrant must at all times properly operate and maintain all facilities and systems used for process wastewater collection, storage and utilization, and correct any deficiencies found as soon as possible.

**S2.I. Maintaining Compliance if System Fails**

The permit registrant must control all applications and discharges upon reduction, loss or failure of the waste storage or utilization facilities until the facilities are restored or an alternative method of storage or utilization is provided. This requirement also applies when the primary source of power is reduced, lost, or fails.

**S2.J. Setback Requirement**

The permit registrant must develop and maintain setbacks or vegetated buffers when manure, litter, or process wastewater application occur adjacent to any surface water, open tile intake structures, sinkholes, well heads, or other conduits to surface water or groundwater. The permit registrant must also include descriptions of setbacks, vegetated buffers, and/or equivalent measures in its AWMP. Compliant setbacks, vegetated buffers, or equivalent measures include the following:

1. 100 ft. setbacks (non-vegetated, non-managed buffers).
2. 35 ft. vegetated, managed buffers.
3. If approved by ODA, variable-width, seasonal setbacks determined by the type of manure, litter or process wastewater and application method used.
4. If approved by ODA, a demonstration that a setback or vegetated buffer is not necessary or may be reduced in size because implementation of alternative conservation practices or field-specific conditions will provide equivalent or better environmental protection than [1., 2. and 3.] above.

**S2.K. Manure, Litter, or Process Wastewater Transfers**

1. The permit registrant retains responsibility of the manure, litter, or process wastewater until the transfer or export is completed with the required documentation.
2. The permit registrant must maintain manure, litter, or process wastewater transfer or export records as required by S4.C, p. 14.
3. Prior to transferring manure, litter, or process wastewater to other persons, the permit registrant with a *large* CAFO must provide the recipient of manure, litter, or process wastewater with a manure nutrient analysis conducted within the previous 12 months.

**S2.L. Proper Disposal of Other Wastes**

The permit registrant must dispose of any chemicals, or other wastes in accordance with applicable state regulation. The permit registrant must manage chemicals or other wastes to prevent their disposal in any manure, litter, process wastewater or stormwater storage or treatment system unless specifically designed to treat these wastes and the wastes and treatment systems are identified in the AWMP. The permit registrant must not dispose of chemicals or other wastes to any system used for the control of uncontaminated stormwater.

### S3. ANIMAL WASTE MANAGEMENT PLAN

#### S3.A. Animal Waste Management Plan (AWMP) Implementation and Compliance

1. Upon registration to this permit, the permit registrant must implement its current ODA-approved AWMP.
2. The permit registrant's ODA-approved AWMP is incorporated into this permit by reference. The permit registrant must comply with all terms and conditions of its ODA-approved AWMP. Failure to comply with the ODA-approved AWMP constitutes a violation of the terms and conditions of this permit.

#### S3.B. AWMP Submittal and Public Notice

1. The applicant applying for permit coverage for the first time must submit its AWMP with the *Application to Register* to ODA for review and approval according to the schedule provided in S1.C, p. 6.
2. The existing permit registrant with coverage under NPDES General Permit #01 or another permit may submit its AWMP previously approved by ODA with the *Application to Register* for review and approval according to requirements in S1.C, p. 6.
3. AWMPs for *large* CAFOs not previously covered by this permit or other WPCF or NPDES permit are subject to public notice requirements detailed in condition S1.H, p. 7.

#### S3.C. AWMP Elements

1. The permit registrant must ensure that its AWMP is adequate for the proposed or existing population of animals, reflective of the proposed or existing facility operation, and prepared in accordance with the terms and conditions of this permit, OAR 340-051, and OAR 603-074.
2. The AWMP must to the extent applicable include the following:
  - (a) Procedures to ensure collection, handling, and storage of contaminated stormwater runoff from the production area, manure, litter, and process wastewater in compliance with the requirements of S2. Discharge Limitation and Operating Requirements. Calculations used to determine the storage period and storage capacity for this period must be provided. Storage capacity must include the volume of one (1), 25-year, 24-hour rainfall event.
  - (b) Procedures to ensure proper operation and maintenance of the storage facilities.
  - (c) Procedures for proper management of animal mortalities. The procedures must ensure that animal mortalities are disposed of legally and are not disposed of in any storage or treatment system that is not specifically designed to treat animal mortalities.
  - (d) Procedures to ensure that clean water is diverted, as appropriate, from the production area.
  - (e) Procedures to prevent direct contact of confined animals with surface water of the state.
  - (f) Identification of appropriate site-specific conservation practices to be implemented, including buffers, setback areas, or equivalent practices, to control runoff of wastes to surface water and groundwater.
  - (g) Protocols to land apply manure, litter, or process wastewater in accordance with site-specific nutrient management practices that ensure: 1) appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater, and 2) application of nutrient at rates not to exceed the maximum agronomic application rate included in the ODA-approved AWMP. The protocols must include the following:
    - (i) The NRCS Phosphorous Index, USDA/NRCS Oregon Agronomy Technical Note #26, revised October 2008 or equivalent calculation must be completed for all fields or management units that receive manure, litter or process wastewater to determine if nitrogen or phosphorous is the most limiting nutrient. The maximum nutrient application rate must be calculated for the most limiting nutrient and must account for all other nitrogen and phosphorus sources.
    - (ii) Expected crop yields.
    - (iii) Calculations showing the total nitrogen and phosphorus to be applied annually to each field from manure, litter, process wastewater, and other sources.
    - (iv) Annual manure application rates and an explanation of the basis for determining these rates. For *large* CAFO, these rates must be based on actual test data. For other operations, data or "book values" from established reference sources (for example, Oregon Animal Waste Management program) may be used instead of actual testing.
    - (v) Method(s) used to apply manure, litter, or process wastewater
    - (vi) Timing of manure, litter, and process wastewater applications.



- (h) For all operations, protocols for soil testing. For *large* CAFOs, protocols for testing of manure, litter, and process wastewater. For other operations that are not required to test manure, litter, or process wastewater, test protocols are not required but the references that are used to characterize manure, litter, or process wastewater must be included.
- (i) If applicable, an Agricultural Compost Management Plan must be included as required by OAR 340-096 for composting activities.
- (j) If applicable, a Solid Waste Conversion Technology Plan must be included as required by OAR 340-096.
- (k) Frozen soil application procedures if applications of manure, litter, or process wastewater will be made to frozen soil. At a minimum, the following must be included:
  - (i) Description of the potential receiving field(s), estimates of waste amounts and types, and estimated timing of applications.
  - (ii) Aerial photo(s) identifying all areas and surface water bodies within 1,000 ft. of the boundaries of the receiving field(s).
  - (iii) Soil maps(s) identifying soil types for receiving field(s)
  - (iv) Topographic map(s) for receiving field(s).
  - (v) Description of the structural practices in place to ensure that no discharges to surface water occur during application and after the soil thaws.
  - (vi) Description of the method used to determine when soil is frozen and management practices to be followed when planning an application and during and after an application to frozen soil.
  - (vii) Description of monitoring and reporting requirements to ensure that the permit registrant is in compliance with frozen soil application procedures. Procedures for transfer or export of manure, litter, or process wastewater.
  - (viii) Procedures for transfer or export of manure, litter, or process wastewater.
  - (ix) Identification of specific records that will be maintained to document the implementation and management of the minimum elements described above.

**S3.D. Requirements for AWMP Updates and Changes**

1. The permit registrant must update the waste management plan when facility expansions, production increases, or process modifications will:
  - (a) Result in new or increased generation of waste, litter, or process wastewater beyond the scope of the current waste management plan, or
  - (b) Violate the terms and conditions of this permit.
2. The permit registrant must submit AWMP updates to ODA for approval at least 60 days before implementation unless a different schedule is allowed by ODA in writing.
3. The permit registrant must not increase the number of animals over 10% or 25 animals, whichever is greater, of the maximum number assigned by ODA in the *Notice of Registration and General Permit Summary* until an updated plan is approved in writing by ODA.

## S4. MONITORING, INSPECTION, RECORDKEEPING, AND REPORTING REQUIREMENTS

### S4.A. Monitoring Requirements

#### 1. Prohibited Discharges

If a prohibited discharge to waters of the state occurs, the permit registrant must record the following information and notify ODA within 24 hours (see S4.D, p. 15 for written reporting requirements):

- (a) A description and cause of the discharge;
- (b) The period of discharge including exact dates, times and duration of discharge;
- (c) An estimate of discharge volume;
- (d) Name or location of receiving water; and
- (e) Corrective steps taken, if appropriate, to reduce, eliminate or prevent reoccurrence of the discharge.
- (f) For any unauthorized discharge that may have come in contact with a drinking water intake, confirmation that Oregon Emergency Response System (OERS) was notified.

#### 2. Soil, Manure, Litter, and Process Wastewater Monitoring for Large CAFOs

The permit registrant with a *large* CAFO must conduct the following sampling and analyses:

Sample Type	Analytical Parameter	Minimum Frequency	Sample Method
<ul style="list-style-type: none"> <li>• Liquid manure</li> <li>• Process wastewater (if handled separately from liquid manure)</li> <li>• Solid manure</li> </ul>	Total nitrogen Total phosphorus	Annually	Sample according to guidance contained in PNW 0533 and PNW 505.
Exported manure, litter, and process wastewater	Total nitrogen Total phosphorus	Annually	Sample according to guidance contained in PNW 0533 and PNW 505.
Soil from land application area(s)	Total nitrogen Total phosphorus Nitrate-nitrogen	Annually on a minimum of 20% of the fields or management units that receive manure, litter or process wastewater applications each year. All fields or management units must be sampled at least once every 5 years.	Sample according to guidance contained in PNW 570-E, EM 8832-E for post-harvest nitrate-nitrogen.

#### 3. Soil, Manure, Litter, and Process Wastewater Monitoring for all Other Operations

The permit registrant must conduct the following sampling and analyses:

Sample Type	Analytical Parameter	Minimum Frequency	Sample Method
Soil from land application area(s)	Total nitrogen Total phosphorus	Once every 5 years from all fields or management units where manure, litter, or process wastewater is applied.	Sample according to guidance contained in PNW 570-E, EM 8832-E.

**S4.B. Inspection Requirements**

1. The permit registrant must conduct the following inspections:

Item	Large CAFO	All Other Operations
(a) Stormwater diversion devices, runoff diversion structures, animal waste storage structures, and devices channeling contaminated stormwater to wastewater and manure storage and containment structures	Weekly and record results	At least once every six months
(b) Water lines, including drinking water or cooling water lines	Daily and record results	At least once every six months
(c) Equipment used for land application of manure, litter, or process wastewater	Daily when equipment is in use and record results	At least once every six months when equipment is in use
(d) Liquid impoundments for manure and process wastewater	Weekly and record depth of manure and process wastewater according to depth marker required by S2.E.3, p. 9	At least once every six months

2. The permit registrant must correct any deficiencies found as a result of these inspections as soon as possible. The permit registrant with a *large* CAFO must record any actions taken to correct these deficiencies and, if deficiencies are not corrected within 30 days, provide an explanation of the factors preventing immediate correction.

**S4.C. Recordkeeping and Availability Requirements**

1. The permit registrant must maintain all information required by this permit at the facility for at least five (5) years and make this information available to ODA upon request.
2. Upon obtaining permit coverage, the permit registrant must begin recording the following information. The permit registrant must maintain this information at the facility for at least five years and make this information available to ODA upon request.

Item or Parameter	Large CAFO	All Other Operations
(a) Date, amount, and nutrient loading of manure, litter, or process wastewater applied to each field.	Required	Required
(b) Weather conditions at the time of application and 24 hours before and after application.	Required	Not required
(c) Total amount of nitrogen and phosphorus actually applied annually to each field, including documentation of calculations of the total amount applied.	Required	Required
(d) Total amount of manure or wastewater transferred or exported to other persons.	Required. Also include: (i) Date and amount of each transfer or export (ii) Name and address of each recipient (iii) Copy of the manure nutrient analysis conducted provided to the recipient (See S2.K.3, p. 10)	Required
(e) Description of actions taken to correct deficiencies discovered during inspections.	Required (See S4.B.2, p. 14)	Not required



**S4.D. Reporting Requirements**

1. If a discharge to groundwater occurs that is not allowed by S2.B and S2.C, p. 8, or a discharge to surface water occurs, the permit registrant must notify ODA within 24 hours of the discharge. The permit registrant must also submit a written report within five (5) days to ODA. The information to be submitted is listed in the monitoring requirements (See S4.A, p. 13) of this permit.
2. The permit registrant must notify ODA within 24 hours of becoming aware of any significant physical failure at any time of treatment works required under this permit.
3. The permit registrant must notify ODA within 24 hours of any permit noncompliance that may endanger health or the environment.
4. In addition to complying with [ 3. ] above, the permit registrant must notify Oregon Emergency Response System (OERS) of any unauthorized discharge that may come in contact with a surface water or groundwater drinking water system intake within 24 hours. Notification must be made by calling OERS at 1-800-452-0311

**S4.E. Additional Monitoring**

1. ODA may establish specific monitoring requirements in addition to those contained in this permit by administrative order. An administrative order is an agency action expressed in writing directed to a named person or named persons (ORS 183.310).
2. If a permit registrant experiences two or more prohibited discharges to groundwater of the state within a 24-month period, ODA may require the permit registrant to obtain an individual permit. Additional groundwater monitoring may be required for Total Kjeldahl Nitrogen, total phosphorus, and other nutrient indicators. If ODA waives the additional monitoring requirements because such monitoring would be impracticable or not likely to produce useful information, ODA will set out the basis for the decision in writing and make the decision available to interested parties.

## GENERAL CONDITIONS

The general conditions in this schedule apply only to the extent they do not conflict with the requirements contained in special conditions S1 through S4. If the permit requirements in special conditions S1 through S4 conflict with these general conditions, the permit requirements in special conditions S1 through S4 will control.

**G1. Compliance with other laws and statutes**

Nothing in the permit will be construed as excusing the permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

**G2. Property rights**

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws, or regulations.

**G3. Permit actions**

After notice by ODA, permit registration may be modified, suspended, or revoked in whole or in part during its term for cause including but not limited to the following:

1. Violation of any term or condition of this permit, or any applicable rule or statute.
2. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts.

**G4. Permit fees**

The permit registrant must pay the required fees to obtain and maintain permit coverage.

**G5. Inspection and entry**

Pursuant to ORS 468B.095 and 468B.217(2)(b), the permittee must allow an agency authorized representative to enter onto and inspect, at any reasonable time, a confined animal feeding operation or appurtenant land for the purpose of investigating a source of water pollution or to ascertain compliance with a statute, rule, standard or permit condition relating to the control or prevention of water pollution from the operation. The permittee must also allow an agency authorized representative access to review records required by this permit for the confined animal feeding operation including but not limited to a blueprint, design drawing and specification, maintenance record or log, or an operating rule, procedure or plan.

**G6. Signatory requirements**

All applications, reports or information submitted to ODA must be signed and certified by the official applicant of record (owner or operator) or authorized designee with the following statement: *I certify that the information is true and accurate to the best of my knowledge.*

**G7. Additional reporting requirements**

1. *Anticipated noncompliance.* The permit registrant must give advance notice to ODA of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements.
2. *Other noncompliance.* The permit registrant must record all instances of noncompliance not reported under S4.D Reporting Requirements, p. 15 as required by S4.C Recordkeeping and Availability Requirements, p. 14.
3. *Other information.* Where the permit registrant becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to ODA, it must promptly submit such facts or information.

**G8. Bypass**

1. *Definitions.*
  - (a) *Bypass* means the intentional diversion of waste streams from any portion of a treatment facility.
  - (b) *Severe property damage* means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
2. *Bypass not exceeding limitations.* The permit registrant may allow any bypass to occur that does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of 3 and 4 of this paragraph.

3. *Notice*
  - (a) *Anticipated bypass.* If the permit registrant knows in advance of the need for a bypass, it must submit prior notice, if possible at least 10 days before the date of the bypass.
  - (b) *Unanticipated bypass.* The permit registrant must submit notice of an unanticipated bypass as required in S4.D, p. 15.
4. *Prohibition of bypass.*
  - (a) Bypass is prohibited, and the director may take enforcement action against a permittee for bypass, unless:
    - (i) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
    - (ii) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
    - (iii) The permittee submitted notices as required under 3(a) of this paragraph or S4.D, p. 15 as applicable.
  - (b) The director may approve an anticipated bypass, after considering its adverse effects, if the director determines that it will meet the three conditions listed above 4(a) above.

**G9. Upset**

1. *Definition.* *Upset* means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
2. *Effect of an upset.* An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
3. *Conditions necessary for a demonstration of upset.* A permit registrant who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
  - (a) An upset occurred and that the permit registrant can identify the cause(s) of the upset;
  - (b) The permitted CAFO was at the time being properly operated; and
  - (c) The permit registrant submitted notice of the upset as required in S4.D, p. 15.
  - (d) The permit registrant took reasonable steps to minimize or prevent any discharge in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.
4. *Burden of proof.* In any enforcement proceeding, the permit registrant seeking to establish the occurrence of an upset has the burden of proof.