

FACT SHEET FOR STATE WASTE DISCHARGE PERMIT ST-5309

ConAgra Foods Lamb Weston - Pasco

SUMMARY

PURPOSE of this Fact Sheet

This fact sheet explains and documents the decisions that Ecology made in drafting the proposed State Waste Discharge permit for ConAgra Foods Lamb Weston Pasco that will allow the discharge of process wastewater to approximately 3,000 acres of crop lands via spray irrigation.

State law requires any industrial facility to obtain a permit before discharging waste or chemicals to waters of the state which includes groundwater.

A State Waste Discharge permit limits the types and amounts of pollution the facility may discharge. Ecology bases those limits either on (1) the pollution control or wastewater treatment technology available to the industry, or on (2) the effects of the pollutants on the groundwater.

SUMMARY

ConAgra Foods Lamb Weston Pasco owns and operates a potato processing facility that has land applied its processes wastewater to sprayfields since 1965. The current sprayfield system is approximately 3,100 acres of predominately center-pivot systems. The processing facility operates year around and spray irrigates throughout the year; it does not store process wastewater during the winter.

Effluent limits for flow from the processing facility, sprayfield operational controls and best management practices in the proposed permit remain unchanged from the current permit. Ecology will also continue the existing requirements for irrigated wastewater, ground water and vadose zone monitoring. ConAgra will continue to submit annual irrigation and crop plan reports to demonstrate compliance with the agronomic rate discharge limitation. The proposed permit requires the facility to take steps to eliminate the earthen lined pond it uses for the dewatering of mud water associated with the raw receiving area of the processing facility.

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I. INTRODUCTION

The legislature defined Ecology's authority and obligations for the wastewater discharge permit program in the Water Pollution Control law, Chapter 90.48 RCW (Revised Code of Washington).

Ecology adopted rules describing how it exercises its authority:

- State Waste Discharge Program (Chapter 173-216 WAC)
- Water Quality Standards For Ground Waters Of The State Of Washington (Chapter 173-200 WAC)
- Submission of Plans and Reports for Construction of Wastewater Facilities (Chapter 173-240 WAC)

These rules require any industrial facility operator to obtain a State Waste Discharge permit before discharging wastewater to state waters. They also help define the basis for limits on each discharge and for performance requirements imposed by the permit.

Under the State Waste Discharge permit program and in response to a complete and accepted permit application Ecology must prepare a draft permit and accompanying fact sheet, and make them available for public review before final issuance. Ecology must also publish an announcement (public notice) telling people where they can read the draft permit, and where to send their comments, during a period of thirty days. (See **Appendix A--Public Involvement** for more detail about the Public Notice and Comment procedures). After the Public Comment Period ends, Ecology may make changes to the draft State Waste Discharge permit in response to comment. Ecology will summarize the responses to comments and any changes to the permit in **Appendix D**.

Table 1 - General Facility Information

Applicant:	ConAgra Foods Lamb Weston, Inc.
Facility Name and Address:	ConAgra Foods Lamb Weston Pasco P.O. Box 2324 960 Glade Road North Pasco, WA 99302
Type of Facility:	Potato processing (frozen french fries and formed products), onion and appetizer products
Type of Treatment:	Screening, settling, and land treatment via spray irrigation
Facility Location:	SW ¼ Sec. 7, T.9 N., R. 30E Latitude: 46° 17' 17" N Longitude: 119° 06' 48" W

Legal Description of Application Area:	Approximately 3100 acres; Sections 1,3,12,13, T.9N, R. 29E; Sections 13,24,25,26,35, T.10N, R. 29E; Sections 6,7, T. 9N, R. 30E; portions of Gov't Lot 6&7 lying W. of BNRR right-of-way Latitude: 46° 17' 23" N Longitude: 119° 07' 04" W
Contact at Facility	Name: Cliff Stevens, Engineering Mngr. Telephone #: (509) 547-8851 (ext. 68700) FAX#: (509) 544-2715
Responsible Official	Name: John Blair, Operations Mngr.

II. BACKGROUND INFORMATION

A. Facility Description

History

The ConAgra Lamb Weston Foods potato processing facility is located approximately one-half mile north of the Tri-Cities airport and along Glade Road; Fig. 1. The processing facility has operated at this site since 1965. Freshly harvested and stored potatoes are trucked to the facility year around to be processed into frozen french fries and formed potato products. Other production runs (e.g., onions, appetizer products) are done as the market allows. Wastewater from the processing facility is screened, settled, and land applied via spray irrigation for final treatment. The facility currently discharges the process wastewater via spray irrigation under permit No. ST-5309.

The processing facility is located in an agriculture-rich semi-arid region of the state that receives less than ten inches of precipitation per year. The annual average temperature is 54°F and the pan evaporation rate is approximately 41"/year.

Industrial Process

The raw potatoes that are off-loaded are washed to remove dirt, rocks and other solid debris. The wash/silt water is recycled but is eventually sent to an unlined earthen settling pond. This pond is dewatered every year and the soil is mechanically removed and land applied. Vines and cull potatoes that are removed during washing and transported off-site for disposal according to a solid waste management plan and permit.

The washed potatoes are flumed to the processing area where they are steam peeled, preheated and cut into french fries, which are then blanched, dried, batter coated (optional), fried, cooled, frozen, and finally packaged. Formed potato products are produced by shredding the smaller, shorter fries.

According to information presented in the permit application, ConAgra processes approximately 800-1,600 tons of raw product each day. Except for scheduled downtimes for O&M and sanitation, the facility operates year around, 24hrs/day.

Fresh water is supplied to the processing facility by ConAgra's onsite wells.

Wastewater Treatment (Prior to Land Treatment)

Process wastewater is collected in a floor open-gutter drain system and gravity flows to a central collection basin. The water is pumped from the basin to vibrating screens and then to a clarifier. Settled water from the clarifier gravity flows approximately one-half mile to a central pumphouse near the sprayfields; Fig. 2.

Settled solids collected in the clarifier are sent to a centrifuge for dewatering. The liquid from the centrifuge is sent back to the clarifier and the solids are sent to a hopper where it is loaded in trucks for transport off-site for cattle feed. Edible oil removed from the surface of the clarifier is added to the solids for cattle feed.

In case of an emergency, ConAgra can bypass the mechanical treatment system and send the process water to a 40-mil PVC lined 19 million gallon surge/mixing basin located near the central pumphouse; Fig. 1.

Land Treatment and Distribution System

Most of the land treatment sprayfields have historically been used by private land owners for production agriculture prior to being lease-used for wastewater treatment. The site is surrounded all or in part by irrigated production fields operated by private land owners; Fig. 1.

The central pumphouse that receives the wastewater from the clarifier sends the process wastewater via 8 to 12 inch PVC underground distribution lines to the sprayfield system. At full capacity the pumphouse can supply wastewater to three farm fields simultaneously.

With the exception of some emergency storage in the nearby 19 MG surge/mixing basin, wastewater is not stored during the winter season but is applied year around. During the growing season the surge/mix basin stores supplemental irrigation water that is supplied by a ConAgra well. The basin is generally emptied during the non-growing season to allow for emergency storage.

ConAgra can supply process wastewater full strength or can mix it with supplemental water from the surge/mix basin. The supplemental water is available from ConAgra wells or from each field's supply well that are provided with backflow preventers.

Sprayfield

The facility has irrigated year around process wastewater since 1967. The sprayfield site has progressively expanded from the first acreage (fields LW9, 10, 11) to its current size of approximately 2,800 acres; Fig. 2. ConAgra added the most recent fields (R-27, -70, -3) in November 2007. The center pivot fields are generally cropped in alfalfa, corn, and winter wheat. Other crops are grown depending on the market.

The fields are owned by five separate entities: Lamb Weston (LW fields), Tomlinson Farms (G fields), LC Farms (J fields), Roundy Farms (R fields), and the Port of Pasco (A fields). Additional fields are available that could bring the total to 3,100 acres.

Hydraulic and Nutrient Loading

Ecology reviewed the water and nutrient loading to the sprayfields as presented in the annual farm system operations summary for 2004 through 2007 (CES, 2005; 2006; 2007; 2008).

Water loading

The total annual volume of process wastewater ranged from 493 MG to 549 MG and the average daily process wastewater flow from the facility was 1.35 to 1.5 MGD. These values compare to the design values of 803 MG and 2.2 MGD.

Information presented for the annual water balance for the site showed the amount of process wastewater applied to the fields was well below the crop requirement. The facility needed to supplement with fresh irrigation water to meet the crop demand for each year. Process wastewater accounted for approximately 18 percent of the total net water load to the site. The average leaching fraction (percentage of water that percolated beyond the root zone) for each of the reporting years was less than the leaching requirement (the amount of excess water that is required to manage the accumulation of salts in the soils to avoid crop toxicity).

Nitrogen loading

The total net annual process wastewater nitrogen load to the sprayfield site ranged from 648,000 to 774,000 pounds (net load accounts for nitrogen losses via denitrification and volatilization). These values compare to estimated treatment capacities of 993,000 to 1.02 million pounds of nitrogen, depending on the crops grown at the sprayfield site. Supplemental fertilizer was sometimes added to specific fields to meet the crop demand.

The nitrogen balance for each year resulted in an average negative balance for the entire sprayfield site; i.e., the crop used more nitrogen than was applied.

Salt loading

ConAgra determined their salt loading to the sprayfields based on the total dissolved inorganic solids concentration of the wastewater and irrigation flow rate. The average process wastewater salt loading ranged from an average of approximately 3,200 lbs/acre to 6,900 lbs/acre. The total salt load (wastewater + supplemental water + fertilizer) resulted in a positive salt load (more salt added than used by the crops) to the sprayfield site for every year. Because the salt (cation/anion) requirement for most crops is very low, the facility manages excessive salt load by soil monitoring and periodic leaching to control the level of soil salinity. Best management practices for salt management include using fresh supplemental water and/or precipitation for leaching, and leaching only during the non-growing season.

As previously stated, the average leaching fraction for the site, for each reporting year, was less than the leaching requirement.

Soil Testing

The current permit requires ConAgra to annually report a continuous 3-year trend analysis of the end-of-cropping year soil nitrate concentration at the five foot depth for all fields. A flat or downward trend suggests good irrigation and nitrogen management practices. The most recent trend analysis indicates only eight of the 27 fields shows a stable or decreasing trend; CES, 2008. ConAgra’s response to the low number of fields having a stable or declining nitrate trend is to grow alfalfa in many of the fields that show an increasing trend.

Groundwater

ConAgra evaluated and reported the hydrogeology of the sprayfield site; CES, 1995; 2000. Ground water flows in a north to south direction but with a three-sided bowl configuration; Fig. 3. The depth to ground water increases from approximately 7ft below ground surface (bgs) in the northern end to 165ft in the southern end. The ground water flow gradient correspondingly flattens from north to south from approximately 60ft/year in the northeast to 15 ft/year in the southwest.

The seepage of water from two seasonal surface waters influences the depth of the ground water in the northern end of the sprayfield site; Esquatzel diversion canal and the Esquatzel coulee (Fig. 2 and 3). Seepage from the coulee is aided by a dam structure that raises the water level and increases the hydraulic head of the impounded water; Fig. 3.

There are two aquifer systems beneath the sprayfield site: a confined water bearing zone that is located between basalt flows; an unconfined zone located in the coarse-textured alluvium over the basalt. Irrigation production wells generally draw from the deeper confined aquifer. Seasonal irrigation pumping contributes to the 2 – 6 foot fluctuation in the ground water that occurs annually.

ConAgra has installed thirty (30) monitoring wells throughout the sprayfield site (Fig. 2) and has sampled monthly for many years. The first series of wells (MW1 – 8) were installed in 1991 and the most recent (MW24 – 27) were installed in 2000. ConAgra expanded the monitoring well system as it added sprayfield acreage.

The hydrogeologic report identified wells that represent the upgradient (background) and downgradient ground water quality relative to the location of the sprayfields, CES, 2003:

	Upgradient	Downgradient
G-fields	MW-10S, 11, 12	MW-14 and -15
R-fields (RR1, RR26)	MW-13S	MW-14 and -15
R-fields (R70, R27)	MW-14	MW-15
Fields J8 – 10, R3	MW-13S	MW-16
Fields J11 - 15	MW26, 27	MW-17 and -24

LW Fields (except LW8) & field A-5	MW1, 2	MW-4, -5, -6, and -19
Field LW-8 and A-fields (except A-5)	MW7	MW-8, -20, -21, -22, -23

(See Response to Comments, Comment #9 for changes to the table of up- and down gradient wells)

ConAgra has modeled the vadose zone beneath the site at Ecology’s request to estimate the time of travel for percolate from the root zone to reach the ground water beneath the site. This was done in an attempt to estimate the time the ground water quality in the downgradient wells would be affected by management practices of the sprayfields; i.e., year around spray application. Based on a numerical model for the site it takes approximately 6.63 years for root zone percolate to reach the ground water at a depth of 50 feet; CES, 2000. The model used an average monthly wastewater flow of 2.2 MGD, precipitation at a 10-year-return high value, and a specific crop mix. Given that the average wastewater flow is approx 1.6 MGD the model results are for high flow conditions.

Groundwater Quality

Ecology compiled and evaluated the ground water data submitted by ConAgra during the current permit cycle; June 2004 – December 2008. Refer to the figures in the Addendum for the following discussion.

G-fields Nitrate and Total Dissolved Solids

The nitrate concentrations at two of the three upgradient wells (MW-10S, -12S) were higher than the ground water criteria throughout the reporting period; Fig. 4. The average value for these two wells was 15.3 and 12.5 mg/L, respectively. Nitrate values at the remaining upgradient well (MW-11) were generally less than the criteria and the average value is 6.1 mg/L.

Nitrate values at both downgradient wells (MW-14 and -15) were consistently greater than the nitrate criteria; 10 mg/L.

Total dissolved solids values at all upgradient wells were generally below or near the ground water criteria of 500 mg/L; Fig. 5. The average values for MW-10S, -11, and -12S was 503, 381, and 457 mg/L, respectively. Values at downgradient MW-15 were consistently greater than the criteria, while values at MW-14 were near the criteria.

R-fields Nitrate and Total Dissolved Solids

The addition of fields R-70, -27, and -3 in November 2007 caused a slight change in the field groupings relative to their respective up- and downgradient wells. The R-fields are now distributed between three different field groups, and therefore have different up- and downgradient wells. More importantly, one of the monitoring wells (MW-14) represents both up- and downgradient groundwater quality depending on the R-fields being discussed.

Nitrate concentrations at all of the downgradient wells for the R-fields (MW-14, -15, and -16) were consistently greater than the ground water criteria; Fig. 6 and 8. The average concentrations were 20.7, 24.2, and 25.4 mg/L respectively. Concentrations at one of the upgradient wells (MW-13S) appeared to steadily decline throughout the reporting period with most values being less than the criteria; Fig. 6; average = 5.47 mg/L. As discussed previously, nitrate values at the other upgradient well (MW-14) were consistently higher than the groundwater criteria; Fig. 6.

The total dissolved solids concentrations at the up- and downgradient wells were similar and were generally at or slightly greater than the ground water criteria; Fig. 7 and 9. The average TDS values for MW-13S (upgradient) was 562 mg/L and for MW-14 (up- and downgradient) was 518 mg/L, while the average values for the down gradient wells MW-15 and -16 were 576 and 636 mg/L, respectively. The concentrations at each of the wells were somewhat constant throughout the reporting period.

(See Response to Comments, Comment #9 for changes to the R-field narrative)

J-8 through J-10 fields and R3 Nitrate and Total Dissolved Solids

The nitrate concentrations at the downgradient well (MW-16) was consistently greater than the ground water criteria while concentrations at the upgradient well (MW-13S) were generally less than the criteria; Fig. 8. The average concentrations were 25.4 and 5.47 mg/L, respectively.

The values for TDS at the up- and downgradient wells were consistently higher than the ground water criteria; Fig. 9. The average concentration for the up- and downgradient wells was 562 and 636 mg/L, respectively.

(See Response to Comments, Comment #9 for changes to the J-8 through J-10 field narrative)

J-11 through J-15 fields Nitrate and Total Dissolved Solids

Nitrate concentrations at all wells were greater than the ground water criteria; Fig. 10. The lowest values occurred at MW-27 (upgradient) and the highest at MW-17 (downgradient). The average concentration for the upgradient wells (MW-26 and -27) was 25.3 and 17 mg/L, respectively, and the values for the downgradient wells (MW-17 and -24) was 34.6 and 26.9 mg/L, respectively.

Ground water concentrations of TDS in the upgradient wells were either below (MW-27) or above (MW-26) the ground water criteria; Fig. 11. The average concentrations were 440 and 664 mg/L, respectively. Concentrations at both downgradient wells were consistently greater than the criteria.

LW Fields (except LW8) & field A-5 Nitrate and Total Dissolved Solids

The nitrate concentrations at all of the up- and downgradient wells exceeded the ground water criteria throughout the reporting period; Fig. 12. Average values ranged from 17.8 to 30.8 mg/L.

Concentrations of TDS at the upgradient wells were generally near the ground water criteria; Fig. 13. The average concentration for MW-1 and -2 was 509 and 517 mg/L, respectively.

Values for the downgradient wells were generally above the criteria. Average concentrations ranged from 554 to 769 mg/L.

Field LW-8 and A-fields (except A-5) Nitrate and Total Dissolved Solids

Nitrate concentrations at the upgradient (MW-7) and all downgradient wells exceeded the ground water criteria; Fig. 14. The average value for MW-7 was 21.6 mg/L and average values ranged from 12.3 to 28.4 mg/L for the downgradient wells.

Similarly, the TDS concentrations at all wells exceeded the ground water criteria; Fig. 15. The average value for the upgradient well was 560 mg/L and the average values for the downgradient wells ranged from 586 to 762 mg/L.

Groundwater pH

During Ecology's review of the ground water data, it noted a visible change in the pH at all wells. An example is given in Fig. 16 for MW-1, -13S, -11, and -26. Starting October/November 2007 pH values decreased at all wells by approximately 2 standard units. A smaller increase was also noted in October/November 2005. No explanation is offered for either change.

Ecology also noted that for most of 2006 and 2007 the ground water pH exceeded the ground water criteria value of 8.5 standard units.

Estimated nitrate loss

The current permit requires ConAgra to report annually the estimated percent nitrate leaching loss for the site and for each ground water monitoring sub-area, and present the information as a continuous five-year trend analysis. A threshold value of 24% \pm 12 percent was used which is based on the design of the entire sprayfield site; CES, 2003. Exceedance of the threshold value would cause ConAgra to re-evaluate their sprayfield operations or Ecology to take enforcement action.

Estimated nitrate loss values submitted by ConAgra for the most recent years of operation (2004-2007; CES, 2008) shows the estimated nitrate leach loss for the entire sprayfield site has been less than the threshold value; Fig. 17. The LW-fields/A-5 sub-area exceeded the threshold value in 2005 and 2007. The other sub-areas had estimated nitrate loss values less than the threshold value.

The recent addition of three center pivots to the sprayfield system in 2007 (320 acres; field R-3, R-27, R-70) should help to bring the nitrate loss values down in the LW-fields/A-5 sub-basin.

Vadose Zone Monitoring

To comply with the requirement in the current discharge permit, ConAgra submitted a vadose zone (VZ) monitoring plan to Ecology for the sprayfield site; CES, 2004. Ecology required ConAgra to submit the VZ monitoring plan and install a vadose monitoring system in lieu of conditioning the current permit with ground water enforcement limits for nitrate and TDS. The current permit requires ConAgra to compare the concentration of nitrate and TDS in samples collected by the vadose zone system to Early Warning Values (EWV) that are equal to the background ground water quality for the two L-W sprayfield areas.

Ecology would use the EWW's not as permit limits but rather as 'trigger' values that when exceeded would require ConAgra to evaluate and/or change irrigation practices to improve soil percolate quality and lessen the potential for impacts to the ground water.

The VZ monitoring system supplements the ground water monitoring system to monitor the operations of the sprayfield system and its impact on the ground water by providing an early warning system. ConAgra can measure and test percolate loss from the root zone and compare it to estimated values; CES, 2003.

ConAgra has implemented the VZ plan in two phases: Phase I is a pilot study that would evaluate two types of passive capillary lysimeters and standard suction samplers, and three soil moisture measuring methods. After two full growing seasons of data collection ConAgra will choose and install a system for the site; Phase II. ConAgra installed the pilot systems in October/November 2005 and began data collection in January 2006.

Debugging and troubleshooting of the system occurred through most of 2006; CES, 2006. Data collection through the winter/Spring 2007 and summer 2007 was successful; CES, 2007. ConAgra submitted the final design report for Phase II after this Fact Sheet was drafted and was not reviewed to be included in this narrative.

(See Response to Comments, Comment #8 for changes to vadose zone monitoring narrative)

Groundwater Management Area

The processing facility and sprayfields are located within the Columbia Basin Groundwater Management Area; GWMA. Ecology formed the GWMA in 1998, in part, to develop a plan to reduce nitrate levels in the ground water. The GWMA includes Adams, Grant, Franklin, and Lincoln county; 8,300 sq. miles. Baseline ground water data for the Pasco area of Franklin County showed 55% of the shallow wells (<200 ft; n = 11) exceeded the ground water criteria of 10 mg/L; USGS, 2000. Nitrate concentrations in wells throughout Franklin County have been high and well above the ground water criteria.

Solid Wastes

Information presented in the most recent solid waste plan (November 2008) shows solids removed from the process wastewater is sent off-site for cattle feed. Tare dirt material (dirt, vines, cull potatoes) is land applied. Ecology reviewed the plan and submitted comments in a letter dated January 22, 2009. Ecology's acceptance of the completed solid waste plan will occur outside of the proposed permit.

B. Permit Status

ConAgra Foods Lamb Weston, Inc submitted an application for permit renewal on November 25, 2008. Ecology accepted it as complete on December 31, 2008.

C. Summary of Compliance with Previous Permit Issued

ConAgra has complied with the effluent limits and permit conditions throughout the duration of the permit issued on May 27, 2004. Ecology assessed facility compliance based on its review of the facility’s Discharge Monitoring Reports (DMRs) and Ecology’s permit compliance tracking system.

D. Wastewater Characterization

ConAgra reported the concentration of pollutants in the State Waste Discharge application and in discharge monitoring reports. The tabulated data represents the quality of the effluent irrigated during the 2007-08 processing year.

Table 2: Wastewater Characterization

Parameter	Average Concentration	Maximum Concentration
COD	3887 mg/L	5750 mg/L
Total Dissolved Fixed Solids	1653 mg/L	2054 mg/L
Conductivity	2583 umhos/cm	3210 umhos/cm
TKN (as N)	130 mg/L	184 mg/L
Ammonia (as N)	36.3 mg/L	47 mg/L
pH	6.1 standard units	6.6 standard units
Total Phosphate (as P)	35.8 mg/L	38.4 mg/L
Calcium	86.1 mg/L	101 mg/L
Chloride	442 mg/L	719 mg/L
Magnesium	80.7 mg/L	117 mg/L
Potassium	280 mg/L	328 mg/L
Sodium	198 mg/L	276 mg/L
Sulfate	116 mg/L	150 mg/L

Ecology compared the average values to values from the monthly data reported by ConAgra in discharge monitoring reports for the period June 2004 through December 2008. All values were similar. The composition of the wastewater is similar to the quality for other potato processors.

III. PROPOSED PERMIT CONDITIONS

State regulations require that Ecology base permit discharge limits on the:

- Technology and treatment methods available to treat specific pollutants (technology-based). Dischargers must treat wastewater using all known, available, reasonable methods of prevention, control, and treatment (AKART).
- Conditions necessary to meet applicable water quality standards to preserve or protect beneficial uses for ground waters.

- Applicable requirements of other local, state and federal laws.

Ecology applies the most stringent of these limits to each parameter of concern and further describes the proposed limits below.

The limits in this permit reflect information received in the application and from supporting reports (engineering, hydrogeology, monitoring, and irrigation/crop management). Ecology evaluated the permit application and determined the limits needed to comply with the rules adopted by the State of Washington. Ecology does not develop effluent limits for all reported pollutants. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, and are not listed in regulation.

Ecology does not usually develop permit limits for pollutants that were not reported in the permit application but that may be present in the discharge. The permit does not authorize the discharge of the non-reported pollutants. During the proposed four-year permit term, the facility's effluent discharge conditions may change from those conditions reported in the permit application. The facility must notify Ecology if significant changes occur in any constituent. Industries may be in violation of their permit until the permit is modified to reflect additional discharge of pollutants.

A. Technology-Based Effluent Limits and Performance Standards

All waste discharge permits issued by Ecology must specify conditions requiring the facility to use AKART before discharging to waters of the state (RCW 90.48).

ConAgra has submitted several engineering reports for the sprayfield site; CES, 2001; 2003. Each has concluded the current irrigation practices and crop management of the site (i.e, year around application with no winter storage) is protective of the ground water, and is therefore AKART for this site. Ecology is not yet convinced that the current system is AKART for this site location, and therefore has not approved the engineering.

In lieu of approving the engineering, Ecology has allowed ConAgra to continue to use the sprayfields, but in addition required it to monitor the site (ground water; vadose zone; wastewater), and submit annual irrigation and crop plans to determine compliance with the agronomic rate permit limit to demonstrate AKART for this site. This is consistent with Ecology's guidance for land treatment systems that do not provide winter storage; Ecology, 2004.

In addition, the current permit requires ConAgra to meet several "performance standards". These include:

1. ConAgra must add more sprayfield acreage when the wastewater flow reaches 85% of the design.
2. The leaching fraction must not exceed 11.2%.
3. The facility may only use fresh water or precipitation to leach the fields and may only add freshwater in the late winter.
4. Nitrogen loading must not exceed the estimated treatment capacity of the site.

5. ConAgra must achieve a stable or declining trend for the end-of-year soil profile nitrate for a progressive three year period for each sprayfield.

Ecology has decided to extend these requirements into the proposed permit, but the 85% trigger value will be changed to 90%. This is in response to a request by ConAgra and in recognition of their recent addition of 300 acres to the sprayfield system in November 2007.

Land Treatment Requirements

ConAgra must also meet the following permit limits to satisfy the requirement for AKART:

1. Land apply wastewater via spray irrigation not to exceed agronomic rates (as defined in Ecology's ground water implementation guidance) for total nitrogen and water, and at rates for other wastewater constituents that protect the background ground water quality.
2. Apply total nitrogen and water to the sprayfields as determined by a current irrigation and crop plan.
3. Operate the system to protect the existing and future beneficial uses of the ground water and not cause a violation of the ground water standards.

B. Groundwater Quality Based Effluent Limits

In order to protect existing water quality and preserve the designated beneficial uses of Washington's ground waters including the protection of human health, WAC 173-200-100 states that waste discharge permits shall be conditioned in such a manner as to authorize only activities that will not cause violations of the Ground Water Quality Standards.

The goal of the ground water quality standards is to maintain the highest quality of the State's ground waters and to protect existing and future beneficial uses of the ground water through the reduction or elimination of the discharge of contaminants to ground water [WAC 173-200-010(4)]. Ecology achieves this goal by:

1. Applying AKART to any discharge.
2. Applying the antidegradation policy of the ground water standards.
3. Establishing numeric and narrative criteria for the protection of human health and the environment in the ground water quality standards.

Antidegradation

The antidegradation policy within the State of Washington's Ground Water Quality Standards requires that beneficial uses of ground water be preserved. When contaminant concentrations in existing ground water are less than the criteria values, Ecology considers the background concentrations as the water quality criteria. In this situation, discharges to ground water must not degrade the existing water quality. When contaminant concentrations in the existing ground water are higher than the criteria, Ecology must protect the existing water quality. You can obtain more information on Ecology's implementation of the antidegradation policy by referring to Ecology Publication #96-02 (available at <http://www.ecy.wa.gov/biblio/9602.html>).

Background Water Quality

Ecology uses the procedures for estimating background water quality in the *Implementation Guidance for the Ground Water Quality Standards* (Ecology, Revised October 2005).

Ecology defines background water quality as the quality of groundwater which represents conditions without the impacts of the proposed activity. Accordingly, background water quality is described statistically as the 95 percent upper tolerance interval.

This means that Ecology is 95% confident that 95% of future measurements will be less than the upper tolerance interval. Applicable ground water criteria as defined in Chapter 173-200 WAC and in RCW 90.48.520 for this discharge include the following:

Table 3: Ground Water Quality Criteria

Parameter	Units
Total Dissolved Solids	500 mg/L
Nitrate (as nitrogen)	10 mg/L
pH	6.5 to 8.5 standard units

Ecology has reviewed existing records for the facility's land treatment site and determined sufficient data exists to update the background ground water quality as defined in Chapter 173-200 WAC and described in the *Implementation Guidance for the Ground Water Quality Standards*; Ecology, Revised October 2005. Appendix C includes Ecology's calculations to update the background ground water quality.

Ecology determined the background (upgradient) ground water quality for nitrate and TDS for each sprayfield sub-area based on water quality data submitted in monthly DMRs for June 2004 – December 2008. Each sub-area has received process wastewater longer than the estimated time of travel for soil percolate to reach the ground water; 6.63 years; CES, 2000. As explained previously this time of travel value represents high wastewater flow conditions compared to actual discharge values. Ecology updated the background values for the LW/A-5 fields and the LW-8/A-fields sub-areas that were based on data collected from April 1, 1999 through September 1, 2003.

A description of the upgradient (background) data analysis for each sub-area is given in Appendix C.

G-fields

Ecology used data from MW-10S, -11, and -12 to determine the background values for nitrate and total dissolved solids (TDS) for this sub-area. After Ecology reviewed the data for each well (outliers; seasonality; trend analysis), it conducted an Analysis of Variance (ANOVA) to determine if the data sets could be combined to determine a single background value for either parameter for the sub-area.

The results of the non-parametric analysis showed a significant variation (5% level) in the median nitrate and TDS concentrations of the three upgradient wells. Therefore Ecology concluded that it could not combine the water quality data from the three upgradient wells.

Ecology decided to use MW-11 as the representative upgradient well for this sub-area because the ground water elevation at MW-11 is the highest (i.e., shallowest ground water) of the three upgradient wells. Ecology is aware that MW-11 is located near the Esquatzel diversion canal and it may receive seepage water; Fig. 2. Well MW-10S is also located near the canal and could also receive seepage, but the ground water at MW-10S is deeper than at MW-11. The ground water at MW-12S is at the lowest elevation (deepest ground water) and should be 'downgradient' of MW-11 and -10S.

Based on the ground water data at MW-11, the background concentrations are:

Nitrate = 10.1 mg/L
TDS = 416 mg/L

The concentrations of nitrate and TDS at the downgradient wells during the current permit cycle were compared to the background values; Fig. 18 and 19. The downgradient concentrations for both parameters exceeded the background values at both downgradient wells throughout the entire reporting period.

R-fields (RR1, RR26)

Ecology used ground water data for MW-13S (June 2004 – December 2008) to determine the background water quality for this sub-area.

Nitrate = 7.02 mg/L
TDS = 587 mg/L

Figure 20 and 21 compares the background values to the monthly values at both down gradient wells; MW-14 and -15. The nitrate concentrations at both downgradient wells greatly exceeded the background value throughout the entire reporting period. Concentration values for TDS at MW-14 were generally less than the background, while values at MW-15 were near or greater than the background value.

R-fields (R70, R27)

Ecology used ground water data for MW-14 (June 2004 – December 2008) to determine the background water quality for these fields.

Nitrate = 24.8 mg/L
TDS = 562 mg/L

Figure 22 and 23 compares the background values to the monthly values at the down gradient well; MW-15.

The nitrate concentrations at the downgradient well varied closely above and below the background value throughout the entire reporting period. Concentration values for TDS at MW-15 were generally greater than the background value for the entire reporting period.

(See Response to Comments, Comment #9 for changes to the R-field narrative)

Fields J8 – J10, R3

Ecology used ground water data for MW-13S (June 2004 – December 2008) to determine the background water quality for this sub-area.

Nitrate = 7.05 mg/L

TDS = 587 mg/L

Figure 24 and 25 compares the background values to the monthly values at the single downgradient well for this sub-area; MW-16. The values for nitrate and TDS at the downgradient well consistently exceeded the background value throughout the reporting period for both parameters.

(See Response to Comments, Comment #9 for changes to the J8-10 narrative)

Fields J11 – J15

Ecology used data from MW-26 and -27 to determine the background values for nitrate and total dissolved solids (TDS) for this sub-area. After Ecology reviewed the data for each well (outliers; seasonality; trend analysis), it conducted an Analysis of Variance (ANOVA) to determine if it could combine the data sets to determine a single background value for either parameter for the sub-area. The results of the ANOVA analysis showed a significant variation (5% level) in the average and median nitrate and TDS concentrations of the two upgradient wells. Therefore Ecology concluded it could not combine the water quality data from the upgradient wells.

Ecology decided to use MW-27 as the representative upgradient well for this sub-area. This was based on the location of the well relative to the J11 – J15 sprayfields, and estimated ground water contours for the sub-area.

Based on the ground water data at MW-27, the background concentrations are:

Nitrate = 23.5 mg/L

TDS = 538 mg/L

A comparison of the downgradient nitrate and TDS concentrations reported for the current permit cycle (MW-17, and -24) to the background values shows most values exceeded their respective background value most every month during the reporting period; Fig. 26 and 27. In addition, the background values exceeded their respective ground water criteria; nitrate, 10 mg/L; TDS, 500 mg/L.

LW and A-5 fields

Ecology used data from MW-1 and -2 to determine the background values for nitrate and total dissolved solids (TDS) for this sub-area. After it reviewed the data for each well (outliers; seasonality; trend analysis), Ecology conducted an Analysis of Variance (ANOVA) to determine if it could combine the data sets to determine a single background value for each parameter for the sub-area. The results of the parametric ANOVA did not show a significant variation (5% level) in the average nitrate and TDS concentrations of the two upgradient wells. Therefore Ecology combined the nitrate and TDS data from the upgradient wells.

Based on the combined ground water data at MW-1 and -2, the background concentrations are:

Nitrate = 21.7 mg/L

TDS = 591 mg/L

Both values exceed their respective ground water criteria; 10 and 500 mg/L. Concentrations reported for nitrate and TDS for the downgradient wells during the current permit cycle were compared to their respective background value; Fig. 28 and 29. Concentration values at MW-5, -6, and -19 exceeded both background values consistently throughout the reporting period. Concentrations at MW-4 were generally at or less than the criteria values.

The background values determined from the most recent data base are very similar to the values Ecology determined from a previous data set in preparation for drafting the current permit; April 1999 – Sept. 2003. Those values are:

Nitrate = 20.5 mg/L

TDS = 600 mg/L

LW-8 and A-fields

Ecology used ground water data for MW-7 (June 2004 – December 2008) to determine the background water quality for this sub-area.

Nitrate = 25.4 mg/L

TDS = 649 mg/L

Both values exceeded their respective ground water criteria value; 10 and 500 mg/L. The downgradient nitrate concentrations for the current permit cycle were compared to the background value; Fig. 30. Concentrations at MW-21, -22, and -23 exceeded the background value. Concentrations at MW-8 were the lowest of all downgradient wells.

Concentrations of TDS at MW-21, -22, and -23 also exceeded the background value; Fig. 31. The concentration at MW-8 and -20 were similar and were generally below or near the background value.

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The background values based on the current data set are very similar to the values that Ecology determined on a previous data set in preparation for drafting the current permit; April 1999 – Sept. 2003. Those values are:

Nitrate = 24.3 mg/L

TDS = 657 mg/L

A summary of the background values for each sub-area, the average downgradient concentrations, and the ground water criteria is presented. The high nitrate background values for most of the sub-areas generally agree with high nitrate values found by the Columbia Basin GWAMA that are due, in part, to irrigation and fertilizer practices associated with production agriculture throughout the area.

Table 4: Sprayfield Sub-Area Background and Downgradient Ground Water Quality

Sub-Area	Background	Average down gradient	Criteria
G-Fields –Nitrate	10.1 mg/L	MW-14: 20.7 mg/L MW-15: 24.2 mg/L	10 mg/L
G-Fields - TDS	416 mg/L	MW-14: 576 mg/L MW-15: 636 mg/L	500 mg/L
R-Fields (RR1, R26) - Nitrate	7.02 mg/L	MW-14: 20.7 mg/L MW-15: 24.2 mg/L	10 mg/L
R-Fields (RR1, R26) – TDS	587 mg/L	MW-14: 576 mg/L MW-15: 636 mg/L	500 mg/L
R-Fields (R70, R27) - Nitrate	24.8 mg/L	MW-15: 24.2 mg/L	10 mg/L
R-Fields (R70, R27) – TDS	562 mg/L	MW-15: 636 mg/L	500 mg/L
Fields J8–J10, R3 – Nitrate	7.05 mg/L	MW-16: 25.4 mg/L	10 mg/L
Fields J8-J10, R3 - TDS	587 mg/L	MW-16: 636 mg/L	500 mg/L
Fields J11-J15 - Nitrate	23.5 mg/L	MW-17: 34.6 mg/L	10 mg/L
Fields J11-J15 – TDS	538 mg/L	MW-17: 776 mg/L	500 mg/L
LW fields & A-5 - Nitrate	21.7 mg/L	MW-4: 19.7 mg/L MW-5: 22.9 mg/L MW-6: 30.8 mg/L MW-19: 22.3 mg/L	10 mg/L
LW fields & A-5 - TDS	591 mg/L	MW-4: 554 mg/L MW-5: 769 mg/L MW-6: 769 mg/L MW-19: 605 mg/L	500 mg/L

LW8 and A Fields - Nitrate	25.4 mg/L	MW-8: 12.3 mg/L MW-20: 21.7 mg/L MW-21: 22.6 mg/L MW-22: 27.3 mg/L MW-23: 28.4 mg/L	10 mg/L
LW8 and A Fields - TDS	649 mg/L	MW-8: 610 mg/L MW-20: 586 mg/L MW-21: 616 mg/L MW-22: 707 mg/L MW-23: 762 mg/L	500 mg/L

(Please see Response to Comments, Comment #9 for changes made to Table 4)

Enforcement Limits

The downgradient ground water quality for nitrate and TDS for all sprayfield sub-areas generally exceeded their respective background value. If Ecology included enforcement limits in the proposed permit based on the background values ConAgra could not comply with the limits for nitrate and TDS. Ecology made this finding when it evaluated the previous ground water data set (April 1999 – Sept. 2003) for the current permit.

Instead of enforcement limits for sprayfield sub-areas in the current permit, Ecology conditioned the current permit requiring ConAgra to install a vadose zone (VZ) monitoring system. Ecology planned to compare the nitrate and TDS concentrations from the VZ system to Early Warning Values (EWV) for selected sprayfield sub-areas. Ecology set the EWV's to equal the background values. In addition, ConAgra was required to develop and report a three year trend analysis for nitrate and TDS in the vadose zone.

As explained previously, ConAgra is evaluating the vadose zone monitoring system for the sprayfield and has not yet installed a final system. Therefore Ecology has not yet compared soil percolate nitrate and TDS to the Early Warning Values.

Ecology decided to keep the same Early Warning Value/vadose zone comparison language in the proposed permit for the LW and A-5 fields and LW-8 and A-fields sub-areas , but to update the EWV's to equal their respective background values based on the most recent data set; June 2004 – December 2008.

The proposed permit does not include EWVs for the other sub-areas because the vadose zone monitoring system does not extend to the other areas. Instead, ConAgra must report in the annual irrigation and crop plan a continuous five year trend analysis of downgradient nitrate and TDS concentrations relative to their respective sub-basin background value.

In addition to continuing the vadose zone/EWV comparison and the five year trend analysis, Ecology proposes to require ConAgra to continue to meet the technology-based limitations and sprayfield performance standards and sprayfield BMPs that are in the current permit.

(Please See Response to Comments, Comment #8 for changes to the enforcement narrative and requirements in the permit)

C. Comparison of Effluent Limits with Limits of the Previous Permit Issued On May 27, 2004

Table 5: Comparison of Previous and New Limits

Parameter	Existing Limits	Proposed Limits
Maximum average monthly flow from the processing facility	2.2 MGD	2.2 MGD
Daily maximum flow from the processing facility	2.7 MGD	2.7 MGD
	Early Warning Values in the Vadose Zone	
	Existing	Proposed
LW-fields (except LW-8) and field A-5	Nitrate = 20.5 mg/L TDS = 600 mg/L	None
LW-8 and A-fields (except A-5)	Nitrate = 24.3 mg/L TDS = 657 mg/L	None

(See Response to Comments, Comment #8 for changes made to Table 5)

D. Design Criteria

Under WAC 173-216-110 (4), neither flows nor waste loadings may exceed approved design criteria. Although the 2001 engineering report for this facility has not been approved, Ecology included the design criteria contained in the engineering report dated September 2000 and updated June 12, 2001 prepared by CES. Ecology may change these values pending the results of the vadose zone and continued ground water monitoring data.

Parameter	Design Quantity
Average Daily Flow from the processing facility	2.2 MGD
Total annual flow from processing facility	803 MG
Total annual gross nitrogen load from wastewater	957,674 lbs
Acreage	3119 acres

IV. MONITORING REQUIREMENTS

Ecology requires monitoring, recording, and reporting (WAC 173-216-110) to verify that the treatment process functions correctly, the discharge meets ground water criteria and that the discharge complies with the permit's effluent limits.

A. Process Facility Wastewater Monitoring

Ecology details the proposed monitoring schedule under Condition S2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

The flow monitoring requirement for the processing facility in the proposed permit remains unchanged from the current permit.

B. Irrigated Process Wastewater Monitoring

The proposed permit includes the same list of test parameters as in the current permit. Ecology eliminated the 4/year sampling requirement for the cations and anions since the facility has generated a sufficient data base for these parameters.

ConAgra must also conduct some limited amount of soluble COD testing of the irrigated wastewater. Under saturated soil and anaerobic conditions, the soluble organic portion of the COD has the potential to be fermented to organic acids and carbonic acid. This can cause the soils to weather and release salts such as calcium and magnesium which can potentially leach and add to the TDS concentration in the ground water. The proposed permit requires the facility to measure soluble COD six times per year for 2 years. The facility must report the results along with the total COD values, and the soluble COD: total COD ratio values.

Ecology understands that there is no standard test procedure for soluble COD. An acceptable method is to pre-filter the irrigated wastewater through at least a 1.2 um filter before conducting a standard COD test.

C. Supplemental Water Monitoring

Information presented in the annual irrigation and crop plan shows ConAgra samples and tests the supplemental irrigation water sources for nitrate, TDS, and conductivity. Ecology will rely on ConAgra's continued monitoring of the supplemental water and not add it as a permit requirement.

D. Crop Monitoring

The testing frequency and sampling composite requirements remain unchanged from the current permit. Ecology eliminated the list of specific cations and anions and replaced it with 'ash weight'. This value will give a collective measurement of the quantity of cations and anions in the plant tissue that ConAgra can use to develop the salt budget for the site.

(See Response to Comments, Comment #1 for changes made to crop monitoring in the permit)

E. Soil Monitoring

The soil sampling and testing requirements in the proposed permit in general remain unchanged from the current permit. Ecology eliminated the measurement and reporting of the moisture content. Soil moisture is extremely variable depending on a wide variety of different factors and single samples, taken twice per year, do not provide any useful long-term information.

F. Vadose Zone Monitoring

ConAgra has developed and submitted a vadose zone monitoring plan to Ecology; CES, 2004. The current permit requires ConAgra to monitor the soil water percolate according to the schedule and list of parameters contained in the plan. Until ConAgra submits the final report that defines the system that will be used, Ecology has no basis to change the vadose zone monitoring language from that in the current permit.

(See Response to Comments, Comment #8 for changes to the vadose zone narrative and the requirements in the permit)

G. Groundwater Monitoring

Ecology requires ground water monitoring at the site in accordance with the Ground Water Quality Standards, Chapter 173-200 WAC. Ecology has determined that this discharge has a potential to pollute the ground water. Therefore, the Facility must evaluate the impacts on ground water quality. Ecology considers monitoring of the ground water at the site boundaries and within the site an integral component of such an evaluation.

The ground water monitoring schedule in the current permit remains unchanged in the proposed permit. This information is required, in part, to comply with the permit requirement of comparing downgradient ground water quality to background values.

(See Response to Comments, Comment #9 for changes to the groundwater data reporting and the requirements in the permit)

H. Nitrogen Load Monitoring

The current permit requires the annual submittal (May) of the ‘total annual net nitrogen load’ and ‘total annual net nitrogen load capacity’. Ecology reviewed the May DMRs (2005-08) and found that the facility had not submitted these values, but had instead reported these values in the annual irrigation and crop plans.

Ecology has decided to change this reporting requirement in the proposed permit to require ConAgra report the total annual flow and total annual gross nitrogen load. These values are necessary to determine compliance with the design criteria limits in the permit.

V. OTHER PERMIT CONDITIONS

A. Reporting and Recordkeeping

Ecology based permit condition S3 on our authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-216-110).

The current and past permits have allowed ConAgra to report the monthly test results on a quarterly basis. This was based, in part, on the large number of ground water monitoring wells.

The growing number of discharge permits issued by Ecology and the associated growth in monitoring data entry by Ecology into its data tracking system has made the quarterly submittal problematic. In addition, the form design used for the data submittal is difficult to navigate for data entry purposes.

Ecology has decided to change the quarterly submittal of monitoring data to monthly. Each monthly submittal will be due no later than the 25th of the following month. Ecology will also re-design the current discharge monitoring report (DMR) form into an Excel spreadsheet that is easier to navigate and read, and will automatically calculate averages, maximums, etc. The later due date and new form should make monthly reporting 'doable'.

B. Irrigation and Crop Management Plans

Ecology requires the irrigation and crop management plan to support the engineering reports and operations and maintenance manual. This plan must include a consideration of wastewater application at agronomic rates and should describe and evaluate various irrigation controls.

The reporting requirements for the irrigation and crop plans in the current permit will be continued into the proposed permit.

(See Response to Comments, Comment #7 and #8 for changes to these requirements in the permit)

C. Mud Settling Pond Replacement

Raw potatoes that are brought to the facility are cleaned and transported into the processing facility by a recycling/recirculating water system that is separate from the process wastewater system. As the potatoes are transported they are washed of any dirt and debris. A portion of this dirt/debris laden recycled water is periodically removed and replaced with clean water. The dirt/debris water is sent to an earthen lined depression area along the northern edge of the facility site to allow for settling.

The periodic removal of the solids from the settling area likely results in a disruption of the integrity of the earthen bottom. This most likely increases the potential for the leaching/percolation of water and dissolved solutes from the pond and potentially to the ground water.

To reduce the potential of residual dissolved fertilizer nutrients and herbicides/pesticides in the mud water from potentially entering the ground water, the proposed permit requires ConAgra to submit to Ecology engineering, and plans and specifications for a lined structure(s) to replace the earthen lined settling area.

(See Response to Comments, Comment #6 for changes to the mud pond narrative and to the permit requirements)

D. Operations and Maintenance

Ecology requires dischargers to take all reasonable steps to properly operate and maintain their wastewater treatment system in accordance with state regulations (WAC 173-240-080 and WAC 173-216-110). ConAgra has prepared and submitted an update of its operation and maintenance manual for the wastewater facility; CES, 2008.

Implementation of the procedures in the Operation and Maintenance Manual ensures the facility's compliance with the terms and limits in the permit and ensures the facility provides AKART to the waste stream.

E. Solid Waste Control Plan

ConAgra could cause pollution of the waters of the state through inappropriate disposal of solid waste or through the release of leachate from solid waste.

A plan was submitted by ConAgra with its permit application. The proposed permit requires the Permittee to periodically review the plan and submit updates to Ecology.

F. Spill Plan

This facility stores a quantity of chemicals on-site that have the potential to cause an upset of the treatment system (e.g., crop death or impairment) if accidentally released. Ecology can require a facility to develop best management plans to prevent this accidental release [section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080].

ConAgra developed and submitted a plan with its permit application for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. The proposed permit requires the facility to annually review the plan and submit updates to Ecology.

G. Best Management Practices

The current permit has several BMPs regarding the operations of the sprayfields to protect the ground water. The proposed permit includes these BMPs and adds a new one:

1. 'The Permittee may only spray irrigate wastewater onto fields with a viable growing crop'.

H. General Conditions

Ecology bases the standardized General Conditions on state and federal law and regulations. They are included in all State Waste Discharge permits issued by Ecology.

VI. PERMIT ISSUANCE PROCEDURES

A. Permit Modifications

Ecology may modify this permit to impose numerical limits, if necessary to comply with water quality standards for ground waters, based on new information from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

Ecology may modify this permit to comply with new or amended state regulations.

B. Proposed Permit Issuance

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limits and conditions believed necessary to control toxics, and to protect human health and the beneficial uses of waters of the State of Washington. Ecology proposes that the permit be issued for four years. This is one year less than what is allowed and generally done by Ecology. The shorter term will help distribute the permit re-issuance workload for the general Pasco area and allow a better use of Ecology staff resources to re-issue permits in a timely manner.

VII. REFERENCES FOR TEXT AND APPENDICES

CES, 2008. 2007 Farm System Operations Summary and 2008 Irrigation and Crop Management Plan. April

CES, 2008. Updates to the 2001 Operations and Maintenance Manual for ConAgra Foods Package Foods Company, Inc., Pasco, Washington. February.

CES, 2007. Vadose Zone Monitoring Pilot Study Fall 2007 Status Report. October.

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CES, 2001. Lamb-Weston, Pasco (SWDP#5309) Engineering Report – Update. June.

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Laws and Regulations

(<http://www.ecy.wa.gov/laws-rules/index.html>)

Permit and Wastewater Related Information

(<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

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Washington State Department of Ecology, 2005. Implementation Guidance for the Ground Water Quality Standards, Ecology Publication # 96-02. Revised October.

Washington State Department of Ecology, 2007. Focus Sheet on Solid Waste Control Plan, Developing a Solid Waste Control Plan for Industrial Wastewater Discharge Permittees. February. Ecology publication # 07-10-024.

APPENDICES

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

Ecology proposes to reissue a permit to ConAgra Foods Lamb Weston, Inc. The permit prescribes operating conditions and wastewater discharge limits. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology placed a Public Notice of Application on January 9, 2009 and January 16, 2009 in the Tri-City Herald to inform the public about the submitted application and to invite comment on the reissuance of this permit.

Ecology placed a Public Notice of Draft on April 6, 2009 in the Tri-City Herald to inform the public and to invite comment on the proposed reissuance of this State Waste Discharge permit as drafted.

The permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below.

Water Quality Permit Coordinator
Department of Ecology
Eastern Regional Office
4601 North Monroe Street
Spokane, WA 99205-1295

You may obtain further information from Ecology by telephone at (509) 329-3524 or by writing to the permit manager at the address listed below.

The primary author of this permit and fact sheet is Don Nichols.

APPENDIX B--GLOSSARY

AKART - The acronym for “all known, available, and reasonable methods of prevention, control and treatment.” AKART is a technology-based approach to limiting pollutants from wastewater discharges which requires an engineering judgment and an economic judgment. AKART must be applied to all wastes and contaminants prior to entry into waters of the state in accordance with RCW 90.48.010 and 520, WAC 173-200-030(2)(c)(ii), and WAC 173-216-110(1)(a).

Alternate Point of Compliance - An alternative location in the ground water from the point of compliance where compliance with the ground water standards is measured. It may be established in the ground water at locations some distance from the discharge source, up to, but not exceeding the property boundary and is determined on a site specific basis following an AKART analysis. An “early warning value” must be used when an alternate point is established. An alternate point of compliance must be determined and approved in accordance with WAC 173-200-060(2).

Ambient Water Quality - The existing environmental condition of the water in a receiving water body.

Ammonia - Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Annual Average Design Flow (AADF) - The average of the daily flow volumes anticipated to occur over a calendar year.

Average Monthly Discharge Limit - The average of the measured values obtained over a calendar month's time.

Background water quality - The concentrations of chemical, physical, biological or radiological constituents or other characteristics in or of ground water at a particular point in time upgradient of an activity that has not been affected by that activity, [WAC 173-200-020(3)]. Background water quality for any parameter is statistically defined as the 95% upper tolerance interval with a 95% confidence based on at least eight hydraulically upgradient water quality samples. The eight samples are collected over a period of at least one year, with no more than one sample collected during any month in a single calendar year.

Best Management Practices (BMPs) - Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

Bypass - The intentional diversion of waste streams from any portion of the collection or treatment facility.

Composite Sample - A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Continuous Monitoring - Uninterrupted, unless otherwise noted in the permit.

Distribution Uniformity--The uniformity of infiltration (or application in the case of sprinkle or trickle irrigation) throughout the field expressed as a percent relating to the average depth infiltrated in the lowest one-quarter of the area to the average depth of water infiltrated.

Early Warning Value - The concentration of a pollutant set in accordance with WAC 173-200-070 that is a percentage of an enforcement limit. It may be established in the effluent, ground water, surface water, the vadose zone or within the treatment process. This value acts as a trigger to detect and respond to increasing contaminant concentrations prior to the degradation of a beneficial use.

Enforcement limit - The concentration assigned to a contaminant in the ground water at the point of compliance for the purpose of regulation, [WAC 173-200-020(11)]. This limit assures that a ground water criterion will not be exceeded and that background water quality will be protected.

Engineering Report - A document, signed by a professional licensed engineer, which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Ground Water - Water in a saturated zone or stratum beneath the surface of land or below a surface water body.

Industrial Wastewater - Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Interference - A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

- Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and
- Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations):

Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Maximum Daily Discharge Limit - The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL) - The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

pH - The pH of a liquid measures its acidity or alkalinity. It is the negative logarithm of the hydrogen ion concentration. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Point of Compliance - The location in the ground water where the enforcement limit shall not be exceeded and a facility must be in compliance with the Ground Water Quality Standards. It is determined on a site specific basis and approved or designated by Ecology. It should be located in the ground water as near and directly downgradient from the pollutant source as technically, hydrogeologically, and geographically feasible, unless an alternative point of compliance is approved.

Quantitation Level (QL) - A calculated value five times the MDL (method detection level).

Soil Scientist - An individual who is registered as a Certified or Registered Professional Soil Scientist or as a Certified Professional Soil Specialist by the American Registry of Certified Professionals in Agronomy, Crops, and Soils or by the National Society of Consulting Scientists or who has the credentials for membership. Minimum requirements for eligibility are: possession of a baccalaureate, masters, or doctorate degree from a U.S. or Canadian institution with a minimum of 30 semester hours or 45 quarter hours professional core courses in agronomy, crops or soils, and have 5,3,or 1 years, respectively, of professional experience working in the area of agronomy, crops, or soils.

Solid waste - All putrescible and non-putrescible solid and semisolid wastes including, but not limited to, garbage, rubbish, ashes, industrial wastes, swill, sewage sludge, demolition and construction wastes, abandoned vehicles or parts thereof, contaminated soils and contaminated dredged material, and recyclable materials.

State Waters - Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater - That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit - A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Dissolved Solids - That portion of total solids in water or wastewater that passes through a specific filter.

Water Quality-based Effluent Limit - A limit on the concentration of an effluent parameter that is intended to prevent pollution of the receiving water.

APPENDIX C--TECHNICAL CALCULATIONS

Ecology used the Sanitas statistical software program (v. 8.6) to determine the background ground water quality for nitrate and TDS by calculating the upper tolerance level of the data submitted by ConAgra in discharge monitoring reports for the period June 2004 – December 2008. Ecology completed the following step procedures for every upgradient well:

1. Test for seasonality: If seasonality was found for a data set the values, Ecology de-seasonalized the values and used the alternate values for the remainder of the analyses.
2. Test for Outliers: All outliers were removed from the data set.
3. Test for Trend: A Sens Slope test was done to determine the presence of a trend within the data; increasing or decreasing. If a significant trend was found, data values were sequentially removed from the data set, beginning with the earliest value, until no significant trend was found. Ecology used the non-trending data set for the upper tolerance limit.
4. Analysis of Variance (ANOVA): Ecology conducted this test to determine if it could combine data sets from several upgradient wells to determine background ground water quality.

G-fields

Upgradient wells MW-10S, -11, and -12

Nitrate:

- Seasonality: none found in all wells
- Outliers: removed the 12/04 data point at MW-12
- Trend:
 - MW-10S: significant decreasing trend for all data; the data set 10/06 – 12/08 had no trend.
 - MW-11: no trend in all of the data
 - MW-12: signif. Decreasing trend for all data; 2/05 – 12/08 had no trend
- ANOVA: a significant difference in the median values for MW-10S, -11, and -12.

TDS:

- Seasonality: found in all wells
- Outliers: none found
- Trend:

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- MW-10S: significant decreasing trend for all data; the data set 8/04 – 12/08 had no trend.
- MW-11: significant increasing trend in all data; 7/05 – 12/08 had no trend
- MW-12: no trend for all data

ANOVA: a significant difference in the median values for MW-10S, -11, and -12

Upper tolerance limit for nitrate, MW-11: 10.13 mg/L

Upper tolerance limit for TDS, MW-11: 416 mg/L

R-fields (RR1, -26)

Upgradient well MW-13S

Nitrate:

- Seasonality: found in the well data; all values de-seasonalized
- Outliers: none found
- Trend: significant decreasing trend for all data; the data set 11/06 – 12/08 had no trend.

TDS:

- Seasonality: found in the well data; all values de-seasonalized
- Outliers: none found
- Trend: significant decreasing trend for all data; the data set 7/07 – 12/08 had no trend.

Upper tolerance limit for nitrate, MW-13S: 7.02 mg/L

Upper tolerance limit for TDS, MW-13S: 587 mg/L

R-fields (R70, -27)

Upgradient well MW-14

Nitrate:

- Seasonality: found in the well data; all values de-seasonalized
- Outliers: yes; removed Jan 07 and Sept 08 values
- Trend: no significant trend for all data.

TDS:

- Seasonality: found in the well data; all values de-seasonalized
- Outliers: yes; removed Aug 04, Oct 04, and Dec 05.
- Trend: no significant decreasing trend for all data.

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Upper tolerance limit for nitrate, MW-14: 24.8 mg/L

Upper tolerance limit for TDS, MW-14: 562 mg/L

J8 – J10 fields, R3

Upgradient well MW-13S

Used all of the analyses and data changes done for the R-fields

Upper tolerance limit for nitrate, MW-13S: 7.05 mg/L

Upper tolerance limit for TDS, MW-13S: 587 mg/L

J11 – J15 fields

Upgradient wells MW-26 and -27

Nitrate:

- Seasonality: none found in all wells
- Outliers: none found in all wells
- Trend:
 - MW-26: significant decreasing trend for all data; the data set 5/06 – 12/08 had no trend.
 - MW-27: significant increasing trend for all data; 6/06 – 12/08 had no trend
- ANOVA: a significant difference in the mean values for MW-26 and -27.

TDS:

- Seasonality: found in MW-26
- Outliers: none found
- Trend:
 - MW-26: no trend for all data
 - MW-27: significant trend in all data; 7/05 – 12/08 had no trend

ANOVA: a significant difference in the median values for MW-26 and -27

Upper tolerance limit for nitrate, MW-27: 23.5 mg/L

Upper tolerance limit for TDS, MW-27: 538 mg/L

LW and A-5 fields

Upgradient wells MW-1 and -2

Nitrate:

- Seasonality: found in all wells; all values de-seasonalized
- Outliers: none found in all wells
- Trend:
 - MW-1: no significant trend for all data
 - MW-2: no significant trend for all data
- ANOVA: no significant difference in the mean values for MW-1 and -2.

TDS:

- Seasonality: none found for both wells
- Outliers: none found
- Trend:
 - MW-1: no trend for all data
 - MW-2: no significant trend in all data

ANOVA: no significant difference in the mean values for MW-1 and -2

Upper tolerance limit for nitrate, MW-1 and MW-2 combined data sets: 21.7 mg/L
Upper tolerance limit for TDS, MW-1 and MW-2 combined data sets: 591 mg/L

LW-8 and A fields

Upgradient well MW-7

Nitrate:

- Seasonality: none found in the well data
- Outliers: outliers found; removed 2/05, 8/06, 10/06, 11/06 data values
- Trend: significant decreasing trend for all data; the data set 11/04 – 12/08 had no trend.

TDS:

- Seasonality: none found in the well data
- Outliers: outlier found; removed 12/07 data value

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- Trend: no significant trend for all data.

Upper tolerance limit for nitrate, MW-7: 25.4 mg/L

Upper tolerance limit for TDS, MW-7: 649 mg/L

APPENDIX D--RESPONSE TO COMMENTS

The public notice that informed the public that a draft permit was available for review was published in the Tri-City Herald on April 6, 2009. Ecology received the following comments during the 30-day public comment period.

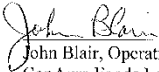
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COMMENTS TO SWDP ST-5309, CONAGRA PASCO	RESPONSES
<p style="text-align: right;"> ConAgra Foods Lamb Weston, Inc. Pasco Plant 960 Glade Road North Pasco, Washington 99302 TEL: 509-547-8851 FAX: 509-545-8971 </p> <p>May 5, 2009</p> <p>Mr. Don Nichols Department of Ecology 4601 N Monroe Spokane, WA 99205-1295</p> <p>SUBJECT: Review of DRAFT State Waste Discharge Permit No. ST 5309 ConAgra Foods Lamb Weston Inc., Pasco, Washington</p> <p>Dear Mr. Nichols:</p> <p>ConAgra Foods Lamb Weston Inc., (ConAgra-LW) has reviewed the DRAFT State Waste Discharge Permit No. ST 5309 and has provided comments on suggested changes. ConAgra-LW respectfully submits the following comments and corrections. Text from the proposed Permit and Fact Sheet are quoted in <i>"italics"</i>. Recommended changes are <u>underlined</u> to indicate additions.</p> <p><u>DRAFT PERMIT</u></p> <p>Comment #1: Page 9, S2.E Crop Monitoring.</p> <p>Condition S2E requires crop testing but the monitoring requirements in this section require testing from each field for each harvest. This is not consistent with the testing promoted in the Condition S10 Irrigation and Crop Management Plan. They should be consistent.</p> <p>Comment #2: Pages 11-14, S3. Recordkeeping and Reporting Requirements.</p> <p>Many of the detailed bypass procedures in S4B do not apply because there is no treatment plant with surface water discharge at ConAgra-LW.</p> <p>Comment #3: Page 10, S2.H Sampling and Analytical Procedures, 4th Paragraph.</p> <p>This paragraph specifies that the soil testing and reporting must be <i>"...in accordance with the Western States Laboratory Plant, Soil and Water Analysis Manual, 2nd Edition, 2003 available at http://cropandsoil.oregonstate.edu/wera103/Soil_Methods.htm".</i></p> <p>The link needs to remove the "/Soil Methods.htm" because that portion of the website isn't available via the link. In addition, it should be noted that selected</p>	<p>Response #1: Ecology will edit the language in S2.E of the permit to read: "Monitor the <u>grass/grain</u> crops for the parameters listed below on each field once per harvest."</p> <p>Response #2: The language in S4.B is standard boilerplate language and is based on a surface water discharge permit. After a review of the language, most of Section S4.B(3) will be eliminated. The language that requires ConAgra to notify Ecology of a planned bypass, its description, and start and end dates will be retained.</p> <p>Response #3: Thank you for pointing this out. This is relatively new permit language and is Ecology's attempt to standardize soil testing requirements, somewhat like that in Standard Methods for water samples.</p>

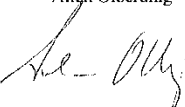
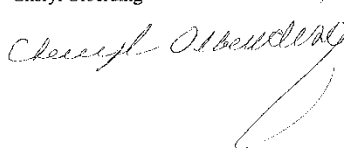
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<p>Public Review Comments to DRAFT State Waste Discharge Permit No. ST 5309 Mr. Don Nichols May 5, 2009 Page 2 of 4</p> <p>methods are available from Oregon State University, The complete manual is actually available for purchase from Colorado State University via a link at this website.</p> <p>Comment #4: Page 19, S4.D, Best Management Practices\Pollution Prevention Program, Item 3. <i>"3. Only spray irrigate wastewater onto fields with a viable growing crop."</i> Should be changed to: <i>"3. Only spray irrigate wastewater within the agronomic capacity of the soil and the existing or upcoming crop for water and nutrients."</i></p> <p>This correction is necessary to clarify that irrigation is allowed year round within the agronomic capacity of the soil-crop system and not just when a crop is actively growing. In addition, the treatment processes that occur within the soil must be recognized in the wording.</p> <p>Comment #5: Page 19, S4.D, Best Management Practices\Pollution Prevention Program, Items 4 and 5. <i>"Maintain an estimated percent soil nitrate leach loss value of 24% +/- 12% for each sprayfield sub-area"</i></p> <p>Should be changed to: <i>"Maintain an average estimated percent soil nitrate leach loss value of 24% +/- 12% each sprayfield sub-area for the entire land treatment site"</i></p> <p>The average estimated nitrate loss computed by Engineering Report Addendum (CES, 2003) was specific to the modeling effort for comparison purposes and was an average for the entire farm. The requirement in the permit implies that the Engineering Report Addendum average nitrate loss was computed for comparison between groundwater monitoring sub-areas. It is neither factual nor valid to use the model results in this manner. The 24% +/- 12% average nitrate loss value is only applicable to the whole farm average and not to any one sub-area. The requested change will also make Item 4. consistent with the requirement in Item 5. to report on steps to be taken to reduce leaching losses when average estimated leaching loss exceeds 24% +/- 12% for the entire sprayfield area.</p> <p>Comment #6: Page 20, S8. Mud Settling Pond</p> <p>Condition S8 is a new and unexpected requirement with a short deadline. ConAgra-LW does not understand the need for this new requirement. Test data collected under previous permits was ceased in recent permits because it showed low potential for harm to groundwater. It, therefore, seems unreasonable to require lining of settling pond without review and discussion of the issue first. ConAgra-LW would be willing to discuss implementing a monitoring program for the silt and wash water as an alternative.</p>	<p>Response #4: Ecology agrees to change the wording in Section S4.D(3) with ConAgra's understanding that this wording does not represent Ecology's approval of the year around application at this site as AKART. Ecology agrees to change the wording to allow ConAgra to continue to operate the site for this permit cycle to collect sprayfield operational data including vadose zone and groundwater monitoring data.</p> <p>The changes will be:</p> <p>3. Only spray irrigate wastewater within the agronomic capacity of <i>the soil and the existing or upcoming</i> crop for water and nutrients.</p> <p>Response #5: Ecology revisited the 2003 engineering report addendum and agrees the modeling was for the entire site. The language in S4.D(4) will be changed.</p> <p>4. Maintain an <i>average</i> estimated percent soil nitrate-N leach loss of 24% \pm 12% for each sprayfield sub-area <i>for the entire land treatment site.</i></p> <p>Response #6: Ecology discussed with ConAgra the proposed requirements in Section S8 to submit plans and spec's for a lined pond to replace the earthen lined pond during this permit cycle. It was agreed that in lieu of replacing the pond, some sampling should be done to characterize the settling pond water and sediment to help determine the potential for groundwater impact. The requirement to line the pond will be removed from the draft permit and replaced with a sampling and testing of the mud pond solids and water for an agreed upon list of herbicides and pesticides generally used on potato crops. This list was developed for the unlined mud settling ponds at the ConAgra – Connell facility.</p>

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	<p>Section S8 of the permit will be retitled to ‘MUD SETTLING POND SAMPLING AND MONITORING’</p> <p>And, S8 will be reworded from:</p> <p style="padding-left: 40px;">No later than February 1, 2010, the Permittee must submit to Ecology plans and specifications, and an engineering report addendum for a lined structure(s) to replace the current earthen lined area used to settle and evaporate the raw receiving water. The addendum report must include a timeline for the construction of the new structure(s).</p> <p>To: “No later than February 1, 2010, the Permittee shall submit to Ecology specific sampling protocols for the influent and sediment for the testing of the mud settling pond(s) required by Section S2.F of this permit.”</p> <p>A list of mud pond influent and sediment test parameters will be added to Section S2.</p> <p>A new section will be added to S3 to report the test results with the December DMR annually.</p>

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<p>Public Review Comments to DRAFT State Waste Discharge Permit No. ST 5309 Mr. Don Nichols May 5, 2009 Page 3 of 4</p> <hr/> <p>Comment #7: Page 22, S10.A. Annual Summary of Farm Operations for Previous Year, Item 8 "...a five year continuous trend analysis for each sub-area must compare these values with the value of 24% +/- 12%" Should be changed to: "...a five year continuous trend analysis for each sub-area must be prepared" The average estimated nitrate loss computed by Engineering Report Addendum (CES, 2003) was specific to the modeling effort for comparison purposes and was an average for the entire farm. The requirement in the permit implies that the Engineering Report Addendum average nitrate loss was computed for comparison between groundwater monitoring sub-areas. It is neither factual nor valid to use the model results in this manner. The 24% +/- 12% average nitrate loss value is only applicable to the whole farm average. A comparison of each sub-area to the whole farm average is not appropriate.</p> <p>Comment #8: Page 22, S10.B. Vadose Zone Monitoring and Early Warning Values The data analysis and conclusions in the Vadose Zone Monitoring Pilot Study (CES, 2009), provide clear evidence that the early warning values in S10B are not appropriate or valid for determining risk to groundwater. Even percolate concentrations in fields not irrigated with process water will also exceed these values. In addition, the sporadic nature of the percolate loss at the site, as demonstrated by the pilot study makes trend analysis poorly suited for evaluation. This permit condition should be removed in favor of an alternate strategy with a valid basis. It is important that Ecology and ConAgra -LW meet to discuss the results of the vadose zone monitoring pilot study to determine the best course of action for vadose zone monitoring and reporting.</p> <p>Comment #9: Pages 22 and 23, S10.C. Groundwater Trend Analysis. The required trend analysis comparisons are defined by a table identifying the upgradient and downgradient monitoring wells for each set of fields. We believe that this table does not adequately represent the upgradient and downgradient wells identified in the Engineering Report Addendum prepared by CES in 2003. The Engineering Report Addendum identified multiple wells that serve as upgradient and downgradient of specific field groups (sub-areas), therefore we ask you to review the selection of wells representing upgradient and downgradient conditions again. For example, CES identified that MW-14 was potentially a downgradient well for the G-Fields but, more importantly, an upgradient well for the R-Fields. In fact, a review of the groundwater flow maps displayed in the fact sheet clearly shows that MW-14 is upgradient of the currently connected R-fields and J-Fields. Although MW13S is upgradient also, it is only in position to be a legitimate upgradient well for fields RR and R-26 but not fields R-70, R-27, and R-3,</p>	<p>Response #7: Understanding the average estimated percent soil nitrate leach loss is for the entire sprayfield site, Ecology agrees to the proposed language change for Section S10A(8).</p> <p>8. The percent nitrate-N leached must be estimated for each sprayfield sub-area (G-, R-, J-, Section 3 J-, L-W, and A-fields) as described in the 2003 engineering report addendum. A five year continuous trend analysis for each sub-area shall be <i>prepared</i>. compared with the value of 24% +/- 12%.</p> <p>Response #8: Ecology read the final vadose zone monitoring system report, dated March 12, 2009, and recognizes the conclusion of the report that comparing the nitrate content in the VZ percolate to that in the groundwater on a concentration basis is not valid; a mass-based approach should be used.</p> <p>Ecology and ConAgra agreed to report the VZ monitoring data in the following manner:</p> <p>Avg. est'd soil NO₃ leach loss vs. $\left(\frac{\text{percolate NO}_3 \text{ loss}}{\text{net TN applied} + \text{initial soil NO}_3} \right) \times 100$</p> <p>The 'Avg est'd soil NO₃ leach loss' value is from the site model and is based on the water budget; water-based.</p> <p>The '(percolate NO₃ loss) / (net TN applied + initial soil NO₃)' value is measured via sampling and is mass-based.</p> <p>Section S10.B of the permit will be changed to remove the comparison of the VZ monitoring data to the groundwater Early Warning Values</p>

COMMENTS TO SWDP ST-5309, CONAGRA PASCO	RESPONSES															
<p>Public Review Comments to DRAFT State Waste Discharge Permit No. ST 5309 Mr. Don Nichols May 5, 2009 Page 4 of 4</p> <hr/> <p>recently connected to the system. MW-14 is the appropriate upgradient well for fields R-70, R-27, and R-3.</p> <p>This is one example, however, ConAgra-LW would like Ecology to consider revising the statistical trend discussion to include all the upgradient wells identified by CES in the Engineering Report Addendum. This request would allow the reporting to accurately represent groundwater quality trends upgradient and downgradient at the site given the existing groundwater flow. The table from the 2003 Engineering Report Addendum (CES, 2003) has been attached to this letter for reference.</p> <p>Thank you for the opportunity to provide these comments. ConAgra-LW would like to meet with Ecology to discuss these comments. If you have any questions or concerns regarding this letter please feel free to call me (509) 547-8851 ext. 68200 or Todd Goodman at (509) 547-8851 ext. 68215.</p> <p>Thank you.</p> <p> John Blair, Operations Manager ConAgra Foods Lamb Weston, Inc.</p> <p>JB/sjr c: Todd Goodman, - ConAgra -LW, Pasco Paul Halberstadt, Ruth Dollar - ConAgra -LW (Corporate) Dan Burgard, Keri Pritchett - Cascade Earth Sciences Doe: LWP Draft Permit Public Comments 5-4-2009.docx Att: Table 6 Ref: CES, 2003. Addendum to Process Water Land Application Engineering Report, Lamb-Weston, Inc., Pasco, Washington. Prepared by Cascade Earth Sciences, Spokane, WA. Submitted to Washington Department of Ecology Eastern Region Office, October 31, 2003. CES, 2009. Vadose Zone Monitoring Pilot Study Final Report, ConAgra Foods Lamb Weston, Inc., Pasco, Washington. Prepared by Cascade Earth Sciences, Spokane, WA. Submitted to Washington Department of Ecology Eastern Region Office, March, 2009.</p>	<p><u>Response #9:</u> Ecology discussed this comment with ConAgra and Ecology has agreed to revise the up- and downgradient wells for some of the fields. These changes are made in response to the recently added R-fields; R70, 27, and 3.</p> <p>The table in the ‘Groundwater’ section of the Fact Sheet that identifies the up- and downgradient wells will be changed:</p> <table border="1" data-bbox="968 688 1976 847"> <thead> <tr> <th></th> <th>Upgradient</th> <th>Downgradient</th> </tr> </thead> <tbody> <tr> <td>G-fields</td> <td>MW-10S, 11, 12</td> <td>MW-14 and -15</td> </tr> <tr> <td>R-fields (<i>RR1, R26</i>)</td> <td>MW-13S</td> <td>MW-14 and -15</td> </tr> <tr> <td><i>R-fields (R70, R27)</i></td> <td><i>MW-14</i></td> <td><i>MW-15</i></td> </tr> <tr> <td>Fields J8 – 10, <i>R3</i></td> <td>MW-13S</td> <td>MW-16</td> </tr> </tbody> </table> <p>Background nitrate and TDS values will be determined for the R70, -27 fields. A narrative will be added to the “Background Water Quality” section in the Fact Sheet and the background values will be put into Table 4 of the Fact Sheet, and in the table in Section S10.C of the permit</p>		Upgradient	Downgradient	G-fields	MW-10S, 11, 12	MW-14 and -15	R-fields (<i>RR1, R26</i>)	MW-13S	MW-14 and -15	<i>R-fields (R70, R27)</i>	<i>MW-14</i>	<i>MW-15</i>	Fields J8 – 10, <i>R3</i>	MW-13S	MW-16
	Upgradient	Downgradient														
G-fields	MW-10S, 11, 12	MW-14 and -15														
R-fields (<i>RR1, R26</i>)	MW-13S	MW-14 and -15														
<i>R-fields (R70, R27)</i>	<i>MW-14</i>	<i>MW-15</i>														
Fields J8 – 10, <i>R3</i>	MW-13S	MW-16														

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COMMENTS TO SWDP ST-5309, CONAGRA PASCO	RESPONSES
<p>Allen and Cheryl Olberding 5 Lavendar Court Pasco, WA 99301</p> <p>Mr. Don Nichols Department of Ecology 4601 N. Monroe Spokane, WA 99205</p> <p>May 4, 2009</p> <p>Mr. Nichols,</p> <p>We are writing in response to your Announcement of Availability of Draft Permit No: ST- 5309 posted in the <i>Tri-City Herald</i> April 6, 2009.</p> <p>We are fifty percent partners in LC Farming in Pasco and have two waste water application leases with Lamb Weston Con Agra. One lease for approximately 382 acres has a term of 7 years remaining. The other lease for 552 acres expired March 30, 2009. At this point we do not have an agreement with Lamb Weston Con Agra for the 552 acres and want the Department of Ecology to know that those acres should not be, at this time, included in the 3100 acres as stated in the Announcement cited above.</p> <p>Please feel free to contact us with any questions at 509-727-2504 or 509-545-5412. <i>(we would like to request a hearing.)</i></p> <p>Sincerely,</p> <p>Allen Olberding  Cheryl Olberding </p>	<p><u>Response:</u> The comment submitted by the Olberdings was discussed with ConAgra. Ecology was informed that the current contract for the LC Farm fields has three, one-year auto-renewal clauses. According to ConAgra's legal interpretation, the expired contract has been auto-extended until March 2010.</p> <p>Ecology was also informed that ConAgra has negotiated a new contract with the other fifty-percent owner of the LC Farm fields. A draft contract has been given to these owners for acceptance. ConAgra expressed confidence the new contract will be signed soon. The draft contract is for seven years.</p> <p>The fields in question are those in Section 3 (J11 – 15).</p> <p>The permit will continue to allow the use of the LC Farm fields. ConAgra is aware of the need to renew the contract. The permit allows the application of wastewater based, in part, on engineering design, hydrogeology, and irrigation and crop management. The actual application of wastewater onto the fields is viewed as a separate legal issue</p>

