State of Oregon
Department of Environmental Quality Memorandum

Date: Feb. 7, 2011

To: Environmental Quality Commission

From: Dick Pedersen, Director

Subject: Agenda item B, Informational and discussion item: DEQ's and Hermiston Foods' efforts to address neighbors' complaints about odors and overspray from Hermiston Foods' process wastewater land application
February 16-18, 2011, EQC meeting

Purpose of item

DEQ will update the commission on progress made towards reducing odors and overspray from Hermiston Foods' land application of process wastewater.

Why this is important

Neighbors near Hermiston Foods land application property report that strong odors are negatively affecting their quality of life, threatening property values and possibly contaminating their groundwater. Since June 2010, 15 neighbors have lodged multiple complaints about odors and overspray with the company. Several neighbors addressed the commission at the August 2010 and October 2010 EQC meetings expressing their concerns and frustrations with DEQ's and the company's responses to their complaints. The previous land application site, known as the Windblown Ranch, and the new site, Chowning and Koester, are located within the Lower Umatilla Basin Groundwater Management Area, which is designated a management area based on elevated groundwater nitrate concentrations.

Background

Hermiston Foods has operated a vegetable processing plant and an industrial wastewater treatment facility south of Hermiston since 1990. Unlike other vegetable processors in the area that operate year-round to process potatoes, the Hermiston Foods plant operates seasonally to process asparagus, peas, sugar snap peas, carrots and lima beans. Wastewater is generated from vegetable processing, washing, grading, and transporting. Hermiston Foods generates approximately 100 million gallons of wastewater annually, mostly between June and November. During the balance of the year, the plant is idle with equipment maintenance, testing and refinement of the processing operation. Sanitary sewage is discharged to the Hermiston sewage treatment plant. Hermiston Foods' wastewater contains nitrogen compounds that can be beneficially reused by irrigation on agricultural crops. Between 1990 and 2009, Hermiston Foods operated a land application program on the Windblown Ranch site. The site included a plastic-lined three million

gallon surge pond, a pump station, flow meters, two 125-acre center-pivot irrigation circles and 14.6 acres of hybrid poplar trees. Seven groundwater monitoring wells were used to monitor impacts to the shallow groundwater aquifer at the Windblown Ranch site.

On Jan. 8, 2009, Hermiston Foods notified DEQ that it intended to move its wastewater storage lagoon and land application activities from Windblown Ranch to the new site, which consisted of the Chowning and Koester Farms and totaled 511.33 acres, of which 476 acres are irrigated. Hermiston Foods proposed and DEQ approved plans to construct a 10 million gallon, polypropylene-lined wastewater pond at the new site. The plans included aeration to control odors. Twelve groundwater monitoring wells were installed at the new site to monitor impacts to the shallow groundwater aquifer.

Additional considerations: hydraulic loading

In order to prevent nitrate leaching below the root zone and adverse impact to groundwater, DEQ limits hydraulic loading from all sources including precipitation and supplemental water to the crop-specific evapotranspiration rate on a monthly basis. By matching hydraulic loading to the crop-specific evapotranspiration rate, the receiving crops get the water they need, when they need it, without overloading the soil and causing leaching to groundwater. This is important because of the already-elevated groundwater nitrate concentrations in the Lower Umatilla Basin.

Although the size of the pond and land application areas increased with the move to the new site, Hermiston Foods stated that the volume of wastewater will not increase and that nitrogen loading should be reduced because of the larger volume of the new site's wastewater pond. However, for a number of operational and crop management reasons, Hermiston Foods projected that it would exceed its wastewater system capacity before the end of the 2010 processing season.

In October 2010, the company and its irrigation engineering consultant, IRZ Consulting, proposed that DEQ allow Hermiston Foods to use the checkbook method of irrigation and limit hydraulic loading to the evapotranspiration rate on an annual, as opposed to monthly, basis. The permit currently requires a monthly basis. The company states that DEQ's hydraulic loading restrictions caused Hermiston Foods to store wastewater in the pond, resulting in odor complaints and stressing the crops.

Evapotranspiration decreases at the end of each growing season and in November 2010, Hermiston Foods requested permission to exceed the evapotranspiration rate on selected fields because they projected

wastewater flows until plant closure to exceed the remaining capacity in the pond. The company estimated that it would have about five million gallons in November that would need to be irrigated.

DEQ worked in earnest with the company to find a solution for more wastewater application during the end of the irrigation season. DEQ requested analyses of remaining soil moisture storage capacity, along with projected precipitation and evapotranspiration during the upcoming winter months. DEQ, however, determined that additional irrigation at that time would violate the permit's hydraulic loading limit that is designed to protect groundwater. DEQ had already issued the company a warning letter earlier in 2010 for exceeding its hydraulic loading permit provisions, and explained that a second such violation within a 36-month period would likely result in civil penalties.

The company stated that it had limited options to manage the anticipated remaining process wastewater, and that it might have to shut down the facility and sell the remaining carrot harvest if its pond storage capacity was reached. In the end, Hermiston Foods reached pond storage capacity, shut down early and rejected crop deliveries from growers who then had to find other buyers or absorb the loss.

During the winter months of December 2010 and January 2011, DEQ worked with Hermiston Foods and their consultants to find flexibility that will allow for a viable crop without knowingly increasing the potential for leaching to occur. A more flexible method that mixes the use of soil moisture and evapotranspiration has been agreed on and the details are being worked out in the company's Operations, Management and Maintenance Plan and their permit will be modified to allow these changes.

In the meantime, a special one-time allowance has been made to parse out the stored process water in the company's pond during February so that water levels will be reduced in time for processing to start up again in March. DEQ reviewed current moisture data for the soil on site and determined there is currently capacity to safely accept moisture in several crop circles. Unfortunately, immediately upon reactivation of the aerator and irrigation in the first week of February 2011, DEQ and Hermiston Foods have received odor complaints.

Report to EQC

At the August 2010 EQC meeting, the commissioners requested that DEQ provide a written summary of the history, permit activity, response to complaints, answers to the questions asked during the commission meeting and a path forward.

In summary, the following regulatory activities related to Hermiston Foods have occurred between December 1989 and January 2011:

- One permit issuance, three permit renewals, and three permit modifications
- No complaints received between June 1996 and 2009
- 154 complaints received by Hermiston Foods from June 14, 2010, to Nov. 17, 2010, of which 71 percent were from two residences
- Eight compliance inspections since permit issuance
- Six enforcement actions, including:
    - 11/8/96: Notice of noncompliance - Failure to land apply in accordance with permit conditions
    - 3/3/08: Warning letter - Nitrogen loading in excess of approved agronomic rate
    - 2/10/09: Warning letter - Nitrogen loading in excess of approved agronomic rate; failure to certify annual report
    - 11/24/09: Warning letter - Irrigating 35,000 gallons on a site not permitted for land application
    - 3/16/10: Warning letter - Hydraulic loading rate exceedance
    - 6/30/10: Warning letter - Allowing irrigation to leave permitted site (overspray on road)

A full report of the above items, including answers to questions posed by neighbors during the August 2010 EQC meeting, is provided in attachment A.

Public involvement

DEQ invited 35 neighbors, with contact information provided by Hermiston Foods' complaint log, DEQ's complaint log and the Umatilla County Land Use hearing records, to a Sept. 28, 2010, listening session at the Oregon State University Experimental Station in Hermiston. Eight neighbors attended. DEQ also invited Lisa Hanson, deputy director of Oregon Department of Agriculture, Jim Cramer, Oregon Department of Agriculture's Good Agricultural Practices program manager, Umatilla County Commissioner Larry Givens; Umatilla County Planning Director Tamra Mabbott and Umatilla County Code Enforcement Officer Gina Miller.

The agencies listened to concerns from the neighbors and answered

their questions. Most concerns pertained to odors, nitrates in groundwater, and overspray or wind drift of wastewater. A summary of the meeting can be found in attachments A and B. Answers to questions raised during the listening session can be found attachment C.

DEQ held a second listening session Nov. 4, 2010, and invited 35 neighbors and Hermiston Foods to the session at the Hermiston OSU Experimental Station. Again, eight neighbors attended; however, not all the same neighbors attended as did for the first listening session. DEQ invited Lisa Hanson, Daniel Cain, Department of Human Services Public Health Division, Umatilla County Commissioner Larry Givens Umatilla County Planning Director Tamra Mabbott, Umatilla County Code Enforcement Officer Gina Miller and Umatilla County Environmental Health Supervisor Melissa Newman. Seven Hermiston Foods/NORPAC representatives and one IRZ representative attended. In general, neighbors stated concerns of odors, groundwater contamination, overspray, concerns about bacteria and mold in the irrigation water, and reduced quality of life and property values.

Summary notes of this meeting can be found in attachment A and attachment D.

Analyzed odor complaints

Hermiston Foods analyzed information obtained from their odor complaint logs. Of the 154 complaints received this last season, 71 percent come from two nearby residences. Most complaints came in the evenings when wind speeds were low and from the south. Data shows complaints increased notably during summer months when the amount of process water in the pond increased.

Actions taken to reduce odors and overspray

To date, Hermiston Foods has taken the following actions to address odor issues and overspray:

- Replaced plant and wastewater pond screens with fine mesh (0.010") which reduces solid particles entering the system.
- Experimented with odor-masking agents and "Liquid-Live" beneficial bacteria for the pond.
- Lowered drop tubes on irrigation systems commensurate to crop height.
- Installed drag tubes on some center pivots.
- Reduced height of some pivot nozzles to four feet.
- Selected irrigation nozzles that produce larger water droplets that are less likely to cause wind drift.
- Reduced irrigation system operating pressure from 55 to 42 psi.

Next steps

Hermiston Foods has committed to:

Reduce wind drift and overspray

- Lower more of the sprinkler nozzles next to the perimeter areas, and/or use more drag tubes
- Manage irrigation according to wind velocity and direction

Reduce odors at the pond

- Continue to develop pH, dissolved oxygen and biochemical oxygen demand data from the wastewater system
- Plant trees around the pond and neighboring residences in spring 2011
- Research planting field S-1 with peppermint (borders neighboring residence)
- Continue to evaluate the need for an additional aerator in the pond

Reduce odors at irrigation systems

- Arrange future alfalfa harvests to assure that irrigation can continue on some parcels and that all alfalfa fields are not taken out of production simultaneously to prevent overloading the pond
- Conduct a trial on flushing irrigation systems with fresh water when they will be down for extended periods of time
- Discontinue up-wind irrigation, if possible, if the neighbors notify company in advance that they are having a special social event.
- Automate operation and data gathering on part of the irrigation system.
- Continue analysis of odor complaints and look for effective and efficient methods to minimize odors.

Other

- Continue to improve the accuracy of flow measurements to the spray fields

Actions DEQ will take:

- Require that a dissolved oxygen profile in the pond be repeated and daily measurements be continued with a properly calibrated meter. Dissolved oxygen is used as a measure to detect aerobic/anaerobic conditions in water. Unpleasant odors can increase when conditions are anaerobic.
- Based on dissolved oxygen monitoring results, discuss with

Hermiston Foods the feasibility of:
  - Additional aeration or construction of a secondary treatment facility to reduce biochemical oxygen demand.
  - Modifying the outlet pipe from the pond to allow for discharge from the pond at multiple levels
- Contact Troy Downing, an expert on covering dairy ponds at the Oregon Department of Agriculture, to discuss the feasibility of covering the pond (a joint site visit with Troy is scheduled for Feb. 9, 2011)
- Provide results of Department of Human Services literature search to neighbors.
- Provide neighbors with contact information for all government representatives at the listening session (completed)
- Continue working with the company and neighbors for a result that all can live with.

Actions DHS will take:
- Literature search on bio-aerosol assays (completed)

Actions ODA will take:
- Provide technical contacts for agricultural issues (completed)

EQC involvement

DEQ will provide informational updates on the progress of this effort at the pleasure of the commission.

Attachments

A. Report to EQC: Hermiston Foods
B. Meeting notes: Sept. 28, 2010, listening session
C. Questions and answers: Sept. 28, 2010, listening session
D. Meeting notes: Nov. 4, 2010, listening session

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HERMISTON FOODS

Submitted to: **Linda Hayes-Gorman**
Eastern Region Administrator

By: **Duane A. Smith**
Carl Nadler

State of Oregon
Department of
Environmental
Quality

Nov. 10, 2010

Updated Jan. 24, 2011

FACILITY DESCRIPTION and HISTORY

Since 1990, Hermiston Foods has operated a vegetable processing plant and an industrial wastewater treatment facility south of Hermiston. Unlike other vegetable processors in the area that operate year-round to process potatoes, the Hermiston Foods plant operates seasonally to process asparagus, peas, sugar snap peas, carrots and lima beans. Wastewater is generated from vegetable processing, washing, grading, and transporting. Boiler blow-down, condenser water and storm water are also discharged to the treatment facility. Hermiston Foods generates approximately 100 million gallons of wastewater annually, mostly between June and November. During the balance of the year, the plant is idle with equipment maintenance, testing and refinement of the processing operation. Sanitary sewage is discharged to the Hermiston sewage treatment plant.

Principal components of Hermiston Foods' wastewater treatment system include side hill screens, sediment basins, concrete lined gutter flush system, collection sump and pump station, an underground pipeline and land application system that includes a storage pond.

Process-related residual solids, or waste solids, consist of asparagus greens, pea pods, reject peas, carrot greenery, carrot reject scraps, rock, silt and tare dirt. Vegetable waste solids, including vegetable solids from the screens, are utilized offsite as livestock feed. Rock, silt, and tare dirt are returned on a pro rata basis to the individual growers who supply raw carrots to the plant.

Hermiston Foods' wastewater contains nitrogen compounds that can be beneficially reused by irrigation on agricultural crops. Between 1990 and 2009, Hermiston Foods operated a land application program on the Windblown Ranch. The site included an HDPE-lined three million gallon surge pond, a pump station, flow meters, two 125-acre center-pivot irrigation circles, and 14.6 acres of hybrid poplar trees. Seven groundwater monitoring wells were used to detect impacts to the shallow groundwater aquifer at the Windblown Ranch site.

On Jan. 8, 2009, Hermiston Foods notified DEQ that it intended to move its wastewater storage lagoon and land application activities from Windblown Ranch to the New Site, which consisted of the Chowning and Koester Farms and totaled 511.33 acres, of which 476 acres are irrigated. Hermiston Foods proposed, and DEQ approved, plans to construct a 10 million gallons, polypropylene-lined wastewater pond at the New Site. The plans included aeration to control odors. Twelve groundwater monitoring wells were installed at the New Site to detect impacts to the shallow groundwater aquifer.

Although the size of the pond and land application areas increased with the move to the New Site, Hermiston Foods has stated that the volume of wastewater will not increase. Hence, it should be easier for the company to comply with nitrogen loading limits at the New Site. This is significant because both Windblown Ranch and the New Site are located within the Lower Umatilla Basin Groundwater Management Area, which was designated as such based on elevated groundwater nitrate concentrations over a widespread area.

PERMIT HISTORY

Effective Date	Action
Dec. 22, 1989	Permit issuance. The permit prohibited discharge to surface waters and required the permittee to land apply wastewater in accordance with a DEQ-approved wastewater management plan. In addition, the permit limited objectionable odors, flies, mosquito breeding, other nuisance conditions and leaching of nitrogenous compounds. Groundwater contamination was prohibited. Wastewater facility and groundwater monitoring was required in accordance with the approved plans. Expiration date: Dec. 31, 1994.
June 18, 1996	Permit renewal. The permit prohibited nitrogen loading in excess of the maximum agronomic rates established by Oregon State University fertilizer guides and it prohibited leaching below the root zone. Provisions for storm water disposal in dry wells, or underground injection controls, were included in the permit. Specific groundwater monitoring requirements were included in the permit; however, wastewater facility monitoring was required to be in accordance with the approved operations, monitoring and management plan. The permit required submittal of revised operations, monitoring and management plans and groundwater monitoring plans, along with submittal of a water quality analysis report with proposed groundwater concentration limits. Expiration date: May 31, 2001
Sept. 5 and Sept. 17, 1996	Permit modifications. DEQ modified the permit on two occasions to extend compliance dates for submittal of revised operations, monitoring and management plans and groundwater monitoring plans.
Feb. 14, 1997	Permit modification. DEQ modified the permit to extend the compliance date for submittal of a water quality analysis report with proposed groundwater concentration limits for the Windblown Ranch site.
April 1, 2004	Permit renewal. The permit established groundwater concentration limits for total dissolved solids, nitrate-nitrogen and chloride in monitoring well MW-4. Specific facility monitoring requirements were included in the permit and the list of required groundwater monitoring parameters was increased. An additional groundwater monitoring well was required to be installed and a water quality analysis report with proposed groundwater concentration limits was required for the new monitoring well. Expiration date: March 31, 2009
Aug. 25, 2009	Permit renewal. Hydraulic loading was limited to the crop-specific evapotranspiration rate. Odor monitoring, control and complaint response procedures were required to be included in the operations, monitoring and management plan. The permit required closure of the wastewater pond at Windblown Ranch. Accumulated sediments were required to be removed and a characterization of the soil beneath the liner was required.

Expiration date: Dec. 31, 2015

March 5, 2010 — Permit modification. The permit was modified to allow land application of wastewater at the New Site. Comments that were made during Umatilla County's public hearings on land use and received during the last permit renewal were addressed in the modification.

- Ponding that lasts up to 24 hours after irrigation has stopped was allowed only if adverse or nuisance conditions do not occur as a result.
- Irrigation spray, including wind drift, was prohibited beyond lands described in the County-approved land use compatibility statement.
- Irrigation spray was prohibited on roads, irrigation ditches, and well heads that are not protected by well houses.
- Irrigation spray was prohibited within 400 feet of all downgradient domestic wells, unless otherwise approved in writing by DEQ.
- Groundwater monitoring and the establishment of groundwater concentration limits were required.
- Hermiston Foods' tenant's well was required to be monitored on a quarterly basis for nitrate-nitrogen for two years.
- Prior to irrigating, wells located in sprayfields were required to be abandoned or have well houses constructed over them.
- Prior to irrigating, all underground piping was required to be leak tested.
- Prior to irrigating, drop tubes with low-pressure nozzles were required to be installed on all pivot irrigation equipment.
- Prior to irrigating, a swing arm on Field K-3 was required to be removed. DEQ had observed ponded water in wheel ruts on that field. During the land use hearings, Hermiston Foods stated that the nozzles on the swing arm malfunctioned and did not shut off near Canal Road causing ponding. The company promised to remove the swing arm from the pivot and the condition was included in the permit modification.
- Prior to irrigating, a ponding problem in Field C-5 was required to be remedied.
- Prior to irrigating, eight new monitoring wells were required to be installed around the perimeter of the New Site bringing the total number of wells to twelve.

COMPLIANCE HISTORY

Complaints
Between June 1996 and June 2009, DEQ did not receive any complaints regarding the facility.

Inspections
DEQ conducted compliance inspections of the facility on Aug. 19, 1997, Oct. 12, 1998, June 6, 2001, June 28, 2002 and Jan. 8, 2009. No violations were documented during the inspections.

On June 23, 2010, DEQ inspected the new facility and documented two violations: Irrigation spray on the east boundary road and an end gun on Field K-3 pivot. Both violations were addressed in a June 30, 2010 warning letter. See enforcement actions section, below, for more detail.

On July 12, 2010, DEQ inspected the facility. No wind drift was observed leaving the property and the pivots appeared to have been modified to observe the 100-foot setback.

On Aug. 27, 2010, DEQ inspected the facility during seven mile per hour winds and observed irrigation spray blowing across a field, however it did not leave the property. An unpleasant wastewater smell was also noted at the irrigation field.

Enforcement actions
On Nov. 8, 1996, DEQ issued a Notice of Noncompliance to Hermiston Foods for failure to land-apply wastewater in accordance with permit requirements. The company had reported a weekend overflow of the surge pond and a release of approximately 36,000 gallons to an uncropped area. There was no discharge to waters of the state. The violation was a Class II violation of DEQ's enforcement rules. To ensure that the violation did not recur, Hermiston Foods was required to perform visual inspections of the surge pond every Saturday morning.

On March 3, 2008, DEQ issued a Warning Letter to Hermiston Foods for nitrogen loading in excess of the approved agronomic rate. It was a Class II violation of DEQ's enforcement rules. Hermiston Foods was required to ensure that wastewater was managed in accordance with permit requirements.

On Feb. 10, 2009, DEQ issued a Warning Letter to Hermiston Foods for nitrogen loading rate exceedances and for failing to certify its annual report. Nitrogen loading rate exceedances within groundwater management areas are Class I violations. Failure to certify the report is a Class II violation. To correct the nitrogen loading rate violation, the company was prohibited from land applying wastewater on the hybrid poplars, which were no longer viable and was required to ensure that nitrogen from all sources did not exceed the agronomic rates for the receiving crops. To correct the certification violation, the company was required to re-submit the annual report with a certification. In addition, as a result of the Class I violation, DEQ issued Hermiston Foods a Notice of Permit Violation and required to certify that the company was operating in compliance with its permit or to submit a proposal to bring the facility into compliance with the permit. On March 16, 2009, DEQ received Hermiston Foods certification that it was operating in compliance with its permit.

On Nov. 24, 2009, DEQ issued a Warning Letter to Hermiston Foods for irrigating approximately 35,000 gallons of wastewater on a site that was not permitted to receive

wastewater. The violation occurred following a break in the wastewater pipeline. In order to repair the break, the company drained the pipeline back to the plant and land applied the wastewater on an undeveloped field south of the plant. The violation was a Class II violation. Hermiston Foods was required to ensure that all wastewater management and disposal activities were in accordance with the permit and approved operations, maintenance and management plan.

On March 16, 2010 after reviewing Hermiston Foods 2009 Annual Report, DEQ issued a Warning Letter to the company for a hydraulic loading rate exceedance at the Windblown Ranch site. Exceedance of a hydraulic loading limitation is a Class II violation. The company was required to ensure that wastewater management and disposal activities are in accordance with the permit and approved operations, maintenance and management plan.

On June 30, 2010, DEQ issued a Warning Letter to Hermiston Foods for allowing irrigation spray on the east boundary road. The violation was a Class II violation. As a result, Hermiston Foods was required to observe a 100-foot setback from all access roads, public roadways and the irrigation ditch located on the northwest edge of field K-1. Irrigation of process wastewater was prohibited at wind speeds that cause wind drift beyond property boundaries. In addition, Hermiston Foods was required to prepare and submit detailed procedures designed to prevent irrigation spray, including wind drift, from affecting roads, irrigation ditches and adjacent properties. Plans and procedures were required to include provisions for preventing variable wind speed and direction from causing wind drift in violation of the permit. Lastly, Hermiston Foods was required to remove all impact-type end guns from all pivots. The setbacks and irrigation prohibition were required until such time DEQ approved procedures developed by Hermiston Foods to prevent violation of the permit. On Aug. 5, 2010, DEQ conditionally approved Hermiston Foods' proposal to install drag tubes on the outer 100 feet of pivot equipment affected by the setback. The approval letter provided that upon installation, the set-backs would be deemed removed and irrigation in the setback would be permitted.

Chronology of recent events and activities

Jan. 8, 2009. Carl Nadler and Rick Hill, from DEQ, met with Mark Steele, Craig Williams, Roy Stephens and Bill Burich, from Hermiston Foods, at the Hermiston Foods processing plant to discuss site authorization of the new Chowning and Koester land application sites. The contract at the old site (Windblown Farms) was to expire at the end of 2009.

Jan. 15, 2009. DEQ received Hermiston Foods' application for renewal of its water pollution control facility permit.

Feb. 10, 2009. DEQ issued a Warning Letter to Hermiston Foods for nitrogen loading rate exceedances and for failing to certify its annual report. The facility is located within the Lower Umatilla Basin Groundwater Management Area and nitrogen loading rate exceedances within groundwater management areas are Class I violations. As a result, DEQ issued Hermiston Foods a Notice of Permit Violation and required to certify that the company was operating in compliance with its permit or to submit a proposal to bring the facility into compliance with the permit. On March 16, 2009, DEQ received Hermiston Foods certification that it was operating in compliance with its permit.

May 6, 2009. DEQ issued a discussion draft of water pollution control facility renewal permit to Hermiston Foods.

June 2, 2009. Carl Nadler and Duane Smith, from DEQ, met with Mark Steele, Craig Williams, Roy Stephens and Bill Burich, from Hermiston Foods, in DEQ's The Dalles office to discuss the draft renewal permit.

July 2, 2009. DEQ issued a public notice request for comments on Hermiston Foods' draft renewal permit.

July 13, 2009. A neighbor of the proposed site called DEQ regarding concern that Hermiston Foods' proposed new land application sites would affect the water quality in his wells. Carl Nadler advised Craig Williams to locate all domestic wells by going door-to-door.

Aug. 3, 2009. The comment period closed on Hermiston Foods' draft water pollution control facility renewal permit for the Windblown site. DEQ received comments from eighteen individuals. However, during that time, Umatilla County Planning Department also invited public comment regarding land use to allow land application of wastewater at the Koester and Chowning sites. Because of the two comment periods overlapping, many of the comments received by DEQ pertained to the land use decision (e.g. whether land application of industrial wastewater should be allowed near residences, the effect that will have on property values and whether alternatives were considered). DEQ explained that comments pertaining to the land use decision must be directed to Umatilla County Planning Departmnent; and that if the land use decision is approved, the draft water pollution control facility permit will have to be modified to incorporate the Chowning and Koester sites. DEQ explained that, at that time, public comments would be accepted on those sites. The most common comments received pertained to concerns about odors or air pollution from the wastewater system and potential groundwater contamination from nitrates. Other comments were repeated less frequently. Similar types of comments (e.g. odor or groundwater contamination) were combined into single generic comments and DEQ drafted responses.

Aug. 25, 2009. DEQ issued Hermiston Foods' water pollution control facility permit renewal for the Windblown Ranch.

Sept. 3, 2009. DEQ approved Hermiston Foods' proposal to remove accumulated sediments from the old pond and land apply slurry of approximately two million gallons on 70 acres of fallow ground at the old site. DEQ warned Hermiston Foods that it had recently received odor complaints and that if odors become an issue during the pond sediment removal operation Hermiston Foods was expected to respond appropriately to them.

Sept. 24, 2009. The Umatilla County Planning Commission took public comments at a land use hearing and conditionally approved Hermiston Foods' request to apply wastewater on the Chowning and Koester sites.

Nov. 3, 2009. The Umatilla County Commission held a land use appeals hearing and upheld the Planning Commission's decision, but removed some of the conditions the Planning Commission had imposed. The county commissioners requested Planning Staff to prepare a letter to DEQ recommending that DEQ consider and address public comments that could not be addressed by the county. Most of the comments pertained to odor and groundwater nitrate concerns. There were also concerns about set backs or buffers. Mark Steele stated that Hermiston Foods was going to install drop tubes to control wind drift.

Nov. 24, 2009. DEQ issued a Warning Letter to Hermiston Foods for a plan violation. The company's wastewater pipeline broke between the plant and the Windblown Ranch site. The company drained the pipe back to the plant and land applied the wastewater on a field south of the plant that was not approved for land application. The violation was a Class II violation. The company expressed a plan to obtain land use approval and DEQ site authorization permitting as a precautionary measure for future emergency use.

Nov. 24, 2009. DEQ issued a site authorization letter to Hermiston Foods for the Chowning and Koester sites. The authorization required all wastewater storage and land application activities to be conducted in accordance with the water pollution control facility permit and DEQ-approved plans. It prohibited irrigation spray, including wind drift, beyond the lands described in the Land Use Compatibility Statement. It prohibited irrigation spray on roads, irrigation ditches, and well heads that are not protected with well houses. It prohibited irrigation spray within 400 feet of all downgradient domestic wells, unless otherwise approved in writing by DEQ. It also required that odor monitoring, control and complaint response procedures shall be included in the DEQ-approved plan and implemented by Hermiston Foods.

Nov. 24, 2009. DEQ modified Hermiston Foods' water pollution control facility permit to cover the Chowning and Koester land application sites and issued a discussion draft of the permit modification to Hermiston Foods. The permit modification required Hermiston Foods to drill four replacement groundwater monitoring wells, since original wells were screened too deep, two new groundwater monitoring wells between the spray fields and neighboring wells, and two new groundwater monitoring wells on the eastern downgradient side of the Koester site.

Dec.7, 2009. Carl Nadler and Duane Smith, from DEQ, met with Mark Steele, Craig Williams, Roy Stephens, Bill Burich and Steve Mueller, from Hermiston Foods, in DEQ's Pendleton office to discuss the draft permit modification.

Dec. 23, 2009. DEQ issued the formal applicant review draft of the permit modification to Hermiston Foods.

Dec. 24, 2009. DEQ issued a special permit to Hermiston Foods to temporarily operate the new pond until the permit modification is issued. The permit was necessary because the company needed the new pond for storage while in the process of abandoning the old pond.

Jan. 14, 2010. A neighbor told Carl Nadler that he has a domestic well for a migrant camp approximately 200 yards downgradient of field K-3. He said he would get the GPS coordinates to DEQ. Carl Nadler informed Hermiston Foods of the well. He did not provide the GPS coordinates to DEQ.

March 3, 2010. DEQ approved Hermiston Foods' February 2010 Monitoring Well Location and Construction Plan.

March 5, 2010. DEQ issued a modification of Hermiston Foods' water pollution control facility permit to cover wastewater land application at the Chowning and Koester sites. During the comment period, DEQ received written comments from fifteen people. In general, many comments pertained to odors, groundwater contamination and the impacts odors and groundwater contamination may have on quality of life. Additional comments pertained to facility and groundwater monitoring, loss of property value, records retention, new pond design and piping, permit violations, over-spray and wind drift, ponding, and crops. DEQ paraphrased and combined similar comments, and replied to all comments received during the comment period.

March 16, 2010. Based on review of Hermiston Foods' 2009 Annual Report, DEQ issued a Warning Letter to the company for hydraulic loading limit exceedances at the old site. The violation was a Class II violation.

March 18, 2010. DEQ issued a permit action letter to remove Field S-1 from the wastewater land application program. Hermiston Foods proposed to remove the field after the permit modification established a 400-foot setback from all domestic wells.

June 2010. Hermiston Foods began processing peas and sugar snaps.

June 14, 2010. DEQ received an odor complaint from neighbors at the New Site.

June 14 to August 2, 2010. Hermiston Foods received 44 odor complaints.

June 23, 2010. DEQ inspected Hermiston Foods' new wastewater pond and irrigation fields. Although the permit required installation of drop tubes with low-pressure nozzles on all pivot irrigation equipment by April 30, 2010, an end gun was observed on the pivot in Field K-3. The aerator was running at the time of the inspection. A pea odor was evident in the area around the pond and sump. DEQ visited the area between Fields C-3 and C-5, and with wind from the east the staff could smell odor from the pond.

June 30, 2010. DEQ issued a Warning Letter to Hermiston Foods for wind drift of wastewater irrigation spray on an adjacent access road. The violation was a Class II violation. The Warning

Letter required the company to submit detailed procedures designed to prevent irrigation spray from impacting roads, irrigation ditches and adjacent properties. Until DEQ approves the procedures, the Warning Letter also established 100-foot setbacks from all access roads, public roadways and the irrigation ditch located on the northwest edge of Field K-1. And it prohibited irrigation of process wastewater at wind speeds that cause wind drift beyond property boundaries and required removal of end guns from all pivots.

July 6, 2010. In response to the Warning Letter, Hermiston Foods proposed to install drag tubes on the last 100 feet of each pivot on Fields K-2, K-3 and K-5 and then modify all other pivots in the same manner if the tubes mitigate wind drift. The company also proposed to remove all impact-type end guns except a single low mount impact-type end gun, which will be turned off an acceptable distance from the east and west boundaries on Field K-3.

July 12, 2010. DEQ inspected Hermiston Foods' land application fields. The wind was strong out of the west at the time and the company was only using two small pivots on the western edge of their fields. No wind drift was leaving their property. The pivots appeared to have been modified to observe the 100-foot setback.

July 14, 2010. Telephone conference between DEQ and Hermiston Foods to discuss complaints and odor issues.

July 15, 2010. Email to all participants summarizing telephone conference of July 14, including an outline of suggested elements for a written report from Hermiston Foods.

July 15, 2010. DEQ approved installation and operation of drag tubes on Field K-3 and agreed to allow drag tubes on other fields and lift the set back restriction and irrigation prohibition if Hermiston Foods can show that the drag tubes are successful at eliminating overspray and wind drift over a range of wind speeds and directions. DEQ did not approve end guns on any pivot. During the county land use hearings, neighbors raised concerns regarding over-spray and wind drift of irrigated wastewater and Hermiston Foods promised to mitigate their concerns with drop tubes. However, since then, DEQ found that drop tubes are not entirely effective and Hermiston Foods has consequently proposed to install drag tubes to further mitigate the problem. Therefore, DEQ believes that installation and operation of end guns is not approvable.

July 27, 2010. Email from Duane Smith, DEQ, to Bill Burich, Hermiston Foods, requesting confirmation of preparation of a written report as described in DEQ's July 15, 2010, email.

July 28, 2010. Bill Burich, Hermiston Foods, proposed to submit three reports over the next three weeks. The first report would address overspray and odor action plans. The second report would cover analyses of odor complaints, aeration equipment and the complaint process. The third report would be analyses of the land application hydraulic budget/water balance and general analyses of the facility compliance.

Aug. 2, 2010. DEQ received Hermiston Foods' first report regarding overspray and odor action plans. The company promised to lower drop tubes further, and evaluate changing nozzles and adjusting pressures within the next 30 to 60 days to further control wind drift and overspray. For odors at the pond, Hermiston Foods promised to add chemicals, install tighter screens, develop and analyze pH, dissolved oxygen and biochemical oxygen data, and evaluate planting trees and adding

additional aeration. For odors in the spray fields, the company promised to install drag tubes, lower drop tubes and increase droplet size.

August 5, 2010. DEQ conditionally approved Hermiston Foods' operations, maintenance and management plan and written request to install drag tubes on the outer 100 feet of other pivot equipment affected by the Warning Letter-imposed setback. The approval letter provided that, upon installation, the set-backs would be deemed removed and irrigation in the setback would be permitted. DEQ also noted that odor-monitoring responsibilities had been removed from a table in the plan and that the plan appeared to be silent on the issue of odor monitoring, despite the fact that the permit required odor-monitoring procedures to be included in the plan. DEQ required Hermiston Foods to propose odor-monitoring procedures for DEQ approval by Aug. 31, 2010.

Aug. 5, 2010. A neighbor reported odor and overspray onto the road by her house during her walk at 8 am. Hermiston Foods responded at 9:45 a.m., within 15 minutes of receiving the complaint. However, the road was dry. The company noted that although the sprinklers on the pivot end were set to shutoff as it reached its northern and western directions, the irrigator found a bent switch that might have caused it to malfunction that morning. The irrigator fixed the switch. Hermiston Foods also noted that installation of drag tubes on the last 100 feet of pivot would limit wind drift and overspray.

Aug. 5, 2010. DEQ received Hermiston Foods' second report regarding analyses of odor complaints, aeration equipment and the complaint process. The report showed that Hermiston Foods received 44 odor complaints from seven different neighbors between June 14 and Aug. 2, 2010. Thirty-seven complaints came from two neighbors. The remaining seven complaints came from five other sources with none of those having more than two complaints. Of the seven different neighbors, four are located within one-quarter mile of the northern boundary of the spray fields. Thirty-six percent of the complaints were between 6 p.m. and 9 p.m.; 57 percent were between 6 p.m. and midnight. Fifty-nine percent of the complaints occurred when wind speeds were low, one to four miles per hour. Regarding aeration equipment, Hermiston Foods concluded that more data is needed to provide definitive analyses. Hermiston Foods committed to three actions following the report: When possible, the Hermiston Foods personnel responding to the complaints will attempt to personally contact with the complainant. When possible, information will be logged showing the irrigation systems operating at the time when the complaints are received. Wind sock directions at the holding pond and Canal Road locations will be recorded at the time of the odor complaint response.

Aug. 9, 2010. A neighbor sent an email to DEQ with a copy to Umatilla County Commissioner Larry Givens. She indicated that the odors were causing stress and that Hermiston Foods representatives had told her that it is not their wastewater, rather it is the irrigation ditch, a wheat field and her own lawn that she smells. Carl Nadler, DEQ, called the neighbor and explained some of the things Hermiston Foods is doing to control odors and overspray and wind drift. He encouraged her to ask the company to accompany her to the pond, so she could compare the odor there with the odor at her house and see the odor controls they have in place. He then contacted Hermiston Foods and told them to expect the request.

Aug. 16, 2010. DEQ received Hermiston Foods' third report regarding analyses of the land application hydraulic budget/water balance and general analyses of the facility compliance. The report showed 0.3inch over-irrigation on one field and 0.01 inch and 0.02 inch on two other fields in May. Another field was over-irrigated 0.28 inches in July. The company noted that although four

fields were over-irrigated, the soil moisture monitoring shows that only the top foot of soil ever reached field capacity. All other fields were deficit irrigated.

Aug. 23, 2010. DEQ received Hermiston Foods' report regarding pH in the company's wastewater and the effectiveness of its pond aeration. Hermiston Foods concluded that dissolved oxygen profiles have shown good mixing and adequate dissolved oxygen levels at the most remote corners. However, the company admits a problem with the dissolved oxygen meter and DEQ will require the study to be redone with accurate equipment.

Sept. 1, 2010. DEQ received Hermiston Foods' report on nozzle pressure. At lower nozzle pressures, droplet sizes are larger and there is less risk of irrigation spray blowing off the site. According to the report, irrigation uniformity is compromised if system pressure drops below 40 psi. Therefore, Hermiston Foods informed DEQ that pump pressure is set at 42 psi and the pressure at the nozzles is about 40 psi. DEQ is still working with Hermiston Foods to determine if pressure reducers at each nozzle will be effective. The company also reported that it moved one pivot 100 feet away from an irrigation ditch and installed new, finer screens to remove more carrot peel at the processing plant.

Sept. 3, 2010. Hermiston Foods agreed to cease irrigation when wind speeds exceed 15 miles per hour.

Sept. 9, 2010. DEQ received a report from Hermiston Foods entitled "Setback Distances for Domestic Wells near the New Land Application Site." The WPCF Permit requires a 400-foot setback from all domestic wells, unless approved in writing by DEQ. The company submitted the report in support of its request that the setbacks be removed.

Sept. 22, 2010. DEQ responded in writing to Hermiston Foods reports regarding odors, over spray and the complaint system. DEQ posed 21 follow-up questions and requested a response by Oct. 8, 2010.

Sept. 28, 2010. DEQ met with neighbors at the OSU Experiment Station in Hermiston to hear complaints regarding Hermiston Foods. DEQ invited 35 neighbors and eight attended. Also present were Umatilla County Commissioner Larry Givens, Umatilla County Planning Director Tamra Mabbott, Umatilla County Code Enforcement Officer Gina Miller, Oregon Dept. of Agriculture (ODA) Deputy Director Lisa Hanson, and ODA Good Agricultural Practices Program Manager Jim Cramer. In general, most complaints pertained to odors, nitrates in groundwater and overspray and wind drift of wastewater.

Neighbors stated that odors made it hard to breathe, caused sore throats, is worse in mornings and evenings and affects their social lives and families. They said that Hermiston Foods' responders are slow to respond to complaints, are offensive, deny that there are odors, blame other things such as the complainant's yard, wet hay and the irrigation ditch for the odors and stand too close to them when they converse. One neighbor said she does not want the responders to knock on her door when they respond. Neighbors said that the wastewater irrigation fields smell bad even after the irrigation has been turned off. They said the pond aerator does not run continuously and the company does not blend sufficient fresh water with the wastewater to control odors. One person suggested that Hermiston Foods cover the wastewater pond. Another said that it was impossible for Hermiston Foods to blend water without discharging fresh water to the pond.

One neighbor is buying bottled water because they have measured nitrates in their well water. Neighbors did not understand why there was so much variability in groundwater nitrate concentrations over the area. Commissioner Givens encouraged the neighbors to review the construction of their wells and to check their well logs to determine if their wells were shallow or basalt wells.

Neighbors expressed concerns about what is in Hermiston Foods wastewater and whether it could damage crops on adjacent fields, particularly in the case of one neighbor who raises produce in the Good Agricultural Processes program. Jim Cramer, ODA, explained that USDA created the GAP program for growers that wanted to produce certified high quality crops. The program is voluntary and ODA audits crops in the GAP program in Oregon. In order to meet certification criteria, participating growers must have real-time evidence of everything that goes on the crops. That means that this neighbor must have real-time evidence that chemical and bacterial concentrations in Hermiston Foods wastewater meet the certification criteria if the wastewater is over-sprayed on his crops. Absent that information, his crops would not meet GAP program requirements. The neighbor is concerned about bacteria and pesticide in Hermiston Foods wastewater. He said Hermiston Foods should be able to show the neighbors what is in the wastewater, such as pesticides and cleaning products. There was concern that DEQ is not enforcing on overspray andwind drift and that the 15 miles per hour wind speed shut-off was not conservative enough.

Planning Director Mabbott suggested that the county, state and Hermiston Foods work together on a creative solution such as a land trade to enable land application of wastewater elsewhere far away or grant support for construction of wastewater treatment facilities so the wastewater does not stink. In addition, Planning Director Mabbott suggested a third party check of crop-specific evapotranspiration rates.

Sept. 29, 2010. Linda Hayes-Gorman and Carl Nadler, DEQ, met with a neighbor at her home at 7:30 am to “smell what she smells in the morning.” On arrival, there was a noticeable odor outside and inside the home. After about 20 minutes, a breeze picked-up outside and the outside odor decreased. However, the odor inside the home remained.

Sept. 29, 2010. Linda Hayes-Gorman and Carl Nadler, DEQ, met with Hermiston Foods staff and toured the wastewater facility. According to Hermiston Foods, the pond aerator operates continuously. In addition, the company showed that, based on complaint records, complaint response time is less than 30 minutes, typically seven to 10 minutes.

During the tour, drag tubes on Field K-2 were turned off, although the spray nozzles were on. When the drag tubes were on, some did not work. Further investigation revealed that the orifices were plugged with carrot pieces. After removing the carrots, the water that came out had a strong offensive odor. Hermiston Foods explained that carrots got through the system due to a failure in the solids elevator conveyor at the plant. DEQ advised the company that it expected the company to maintain its equipment in order to comply with its permit.

In order to minimize odors, DEQ discussed the possibility of flushing the irrigation lines with fresh water prior to each shut down cycle. Hermiston Foods pointed out that it could lead to greater inaccuracy in hydraulic and nutrient calculations. DEQ will continue to explore this possibility with Hermiston Foods.

At the time of the visit, Hermiston Foods was irrigating with 100 percent effluent. The company explained that if it blended fresh water with wastewater to irrigate, then more wastewater would need to be stored in the pond. The company also explained the blending equipment and it was clear that fresh water could be blended without mixing in the pond.

Regarding crop-specific evapotranspiration rates, Hermiston Foods stated that the rates provided by AgriMet did not fit their wheat and corn crops because Hermiston Foods planted their crops after the assumed crop start date that AgriMet uses. DEQ will continue discussions with the company regarding appropriate crop specific evapotranspiration rates.

Oct. 3, 2010. A neighbor reported that wind speeds were between 16 and 22 miles per hour yet Hermiston Foods continued to irrigate. She said that she did not observe any overspray off Hermiston Foods' property. DEQ contacted Roy Stephens, Hermiston Foods, who said that it was his understanding that the 15 miles per hour shut-off was only for the duration of a wind storm in early September and that it was not extended.

Oct. 4, 2010. DEQ requested Hermiston Foods to agree to extend the 15 miles per hour shut-off agreement.

Oct. 6, 2010. Hermiston Foods declined DEQ's request to extend the 15 miles per hour shut-off agreement. The company promised to turn off any individual pivot or system that would risk overspray. They said they did not want to be in a situation of shutting off all systems and diverting the entire wastewater flow to the pond, where odors could develop, when wastewater could be irrigated safely without overspray issues. The company promised to complete an assessment of wind speed and irrigation aerosol drift distance.

Oct. 8, 2010. DEQ received a letter from IRZ Consulting, Hermiston Foods' consultant,) opining that DEQ's hydraulic loading restrictions forced Hermiston Foods to store wastewater in the pond, causing odor complaints and stressing the crops. In order to prevent nitrate leaching below the root zone and adverse impact to groundwater, DEQ limits hydraulic loading from all sources including precipitation and supplemental water to the crop-specific evapotranspiration rate on a monthly basis.

In the letter, IRZ explained that, on a daily basis, the total month-to-date net irrigation amount is subtracted from the total month-to-date hydraulic loading rate to determine the amount of irrigation that can be applied to each spray field. IRZ reported that Hermiston Foods has not irrigated up to the permitted hydraulic loading rate because Hermiston Foods does not irrigate until the evapotranspiration has occurred, farming operations on the fields prevent irrigation and Hermiston Foods enacted a plan not to irrigate when wind speed is high. IRZ stated that limiting irrigation until evapotranspiration occurs causes problems at the start of each month. Tthe irrigation system is not capable of catching up to the evapotranspiration limit at the end of each month. IRZ says the result is that wastewater is stored in the pond and that leads to odor complaints. To note, DEQ limits hydraulic loading to the evapotranspiration rate on a monthly basis. It does not require Hermiston Foods to match evapotranspiration on a daily basis within each month. In order to be able to irrigate more water, IRZ proposed that DEQ allow Hermiston Foods to use the checkbook method of irrigation and limit hydraulic loading to the evapotranspiration rate on an annual basis.

Oct. 8, 2010. DEQ received Hermiston Foods' response to its September 22 letter. In its response, Hermiston Foods proposed to submit its updated odor complaint analyses by October 18. The company reported that all sprinkler drop tubes had been lowered to reflect crop height, that the addition of live bacteria and nitrate compounds to the wastewater system did not result in fewer odor complaints, that the dissolved oxygen meter is properly calibrated, that dissolved oxygen concentrations are never below 0.5 mg/l in the system, that the company will plant trees around the pond in spring 2011, that the evaluation of the need for an additional aerator is still ongoing, that the use of vanilla and mint masking agents did not result in fewer odor complaints, and that reducing the line pressure did not result in larger droplets and less misting.

Hermiston Foods reported that during the second alfalfa harvest, too many acres were cut at one time and it took too long for the crop to dry, be baled and removed. The company promised that future hay harvests will be arranged to assure that irrigation can continue on some parcels and that all alfalfa fields are not taken out of production simultaneously to prevent overloading the pond.

The company stated that it would add drag tubes to the outer sections of C-1, C-3, C-5, K4A and K-5. K-2, K-3 and C-2 are already equipped with drag tubes on the outer section. Hermiston Foods reported that data do not support expansion of drag tubes on the full length of pivots for odor control. They said the effect from drag tubes on odor reduction efforts is difficult to evaluate. Moreover, they noted that drag tubes water the crops imperfectly and do not distribute the water adequately to achieve proper crop germination. The permit requires wastewater to be distributed as evenly as practicable within each field in order to prevent overloading and impact to groundwater. DEQ staff is cautiously concerned about the use of drag tubes compromising our efforts to prevent groundwater impacts.

Hermiston Foods stated that it is making improvement in the accuracy of its flow measuring. Rather than metering the amount of water and wastewater to each field, Hermiston Foods multiplies the run time of each pivot by the flow rate for that pivot, sums the volume irrigated by each pivot for the month and multiplies it by a flow correction factor to equal the total flow measured at the irrigation sump. Between April and July, the flow correction factor varied between 0.87 and 1.27. In its October 8 letter, the company said that the correction factor for August would be 1.02.

Hermiston Foods stated that the pond aerator had been on continuously since the start of taking dissolved oxygen measurements. Dissolved oxygen measurements were started on July 21. According to data submitted by the company on October 29, the aerator was off for 14 days during that period.

The company explained its method of doing a dissolved oxygen profile of the pond only at the shallow end of the pond by saying that the area at the deep end is rather limited. The outlet from the pond to irrigation is at the bottom of the deep end and DEQ is concerned about the ability of the aerator to affect the water in the deep end. DEQ will continue to work with Hermiston Foods to get a dissolved oxygen profile of the deep end.

Oct. 14, 2010. DEQ received a letter from IRZ Consulting that outlined the checkbook method of irrigation that was proposed in IRZ's October 8 letter.

Oct. 14, 2010. DEQ had a telephone conference with Hermiston Foods. Linda Hayes-Gorman, Cheryll Hutchens-Woods, Duane Smith and Carl Nadler represented DEQ and Bill Burich, Mark Steele, Roy Stephens and Mark Croeni, along with Bill Hutchison from Roberts Kaplan and Gina Gray from IRZ Consulting, represented Hermiston Foods. During the discussion, IRZ Consulting presented the checkbook method and requested that DEQ approve it and extend the period for evapotranspiration compliance from a monthly basis to an annual basis. DEQ requested Hermiston Foods' soil moisture monitoring results and asked the company to submit the request in writing for DEQ review.

Oct. 18, 2010. Hermiston Foods submitted its updated analyses of odor complaints. The report showed that Hermiston Foods received 116 odor complaints from 16 different neighbors between the time vegetable processing started in 2010 and October 6, 2010. Eighty-nine complaints came from two neighbors. Not including those who refused to give a name, the remaining 23 complaints came from 13 other sources with none of those having more than three complaints. Of the 16 different neighbors, four are located within one quarter-mile of the northern boundary of the spray fields. Forty-three percent of the complaints were between 6 and 9 p.m.; 61 percent were between 6 p.m. and midnight. Seventy-seven percent of the complaints occurred when wind speeds were low, one to four miles per hour. Sixty-eight percent of the complaints occurred when wind was out of the south, southeast and southwest blowing toward neighbors. However, 28 percent of the complaints occurred when the wind was out of the west, northwest and north blowing away from neighbors. The number of complaints per day increased as the percent of wastewater being irrigated increased and as the amount of wastewater being stored in the pond increased.

Oct. 19, 2010. DEQ received Hermiston Foods' revised operations, maintenance and management plan, which incorporated the checkbook method and proposed that Hermiston Foods meet the evapotranspiration rate on an annual basis.

Oct. 29, 2010. DEQ received Hermiston Foods' soil moisture monitoring results.

Nov. 1, 2010. DEQ conditionally approved Hermiston Foods' revised operations, maintenance and management plan incorporating the checkbook method. However, rather than modifying the water pollution control facility permit, which prohibits hydraulic loading in excess of the evapotranspiration rate on a monthly basis, DEQ agreed to allow Hermiston Foods to demonstrate, during a trial period over the next year, that environmental impacts to groundwater can be avoided with the compliance period extended to two months at a time. During the trial period, Hermiston Foods must continue to report evapotranspiration and hydraulic loading on a monthly basis. DEQ prefers not to extend the compliance period to a year due to the risk of over-irrigation and leaching in the late season when evapotranspiration is low. DEQ limited irrigation line pressure to 42 psi, prohibited irrigation at wind speeds greater than 30 miles per hour and during any condition that may cause overspray or wind drift to occur. That prohibition had been included in the previously approved operations, maintenance and management plan and was removed from the recently revised plan. DEQ also required recording wind direction at two locations when investigating complaints..

Nov. 2, 2010. Hermiston Foods submitted a written request to reconsider allowing hydraulic loading up to the evapotranspiration rate on an annual basis, to require a wind direction reading from only one wind sock during complaint investigation and to allow Hermiston Foods' discretion to irrigate at any wind speed.

Nov. 4, 2010. DEQ held a meeting at its Hermiston office to talk about creative ways of addressing the odors issue. At the meeting were Lisa Hanson (ODA Deputy Director), Linda Hayes-Gorman (DEQ Regional Administrator), Scott Fairley (Governor's Economic Revitalization Team), Tamra Mabbott (Umatilla County Planning Director), Gina Gray (IRZ Consulting), Mark Croeni (Hermiston Foods), Roy Stephen (Hermiston Foods), Bill Burich (Hermiston Foods) and Bill Hutchison (Roberts Kaplan, attorney for Hermiston Foods). The company presented background and historical information on their business in Hermiston. Discussions covered many topics including land use, measures taken to reduce odors and overspray, the checkbook method for irrigation, nitrate concerns in the Lower Umatilla Groundwater Management Area, and measures already taken and planned to address odors.

Nov. 4, 2010. DEQ held a second listening session at the OSU Experiment Station in Hermiston, and invited 35 neighbors, eight of whom attended. DEQ also invited Larry Givens (Umatilla County Commissioner), Tamra Mabbott (Umatilla County Planning Director), Gina Miller (Umatilla County Code Enforcement), Melissa Newman (Umatilla County Public Health), Lisa Hanson (ODA Deputy Director), Dan Cain (DHS Public Health), Rick Hill and Phil Richerson (DEQ Hydrogeologists), six representatives from Hermiston Foods (Bill Burich, Mark Steele, Roy Stephen, Craig Williams, Cyd Bothum and Mark Sather) and Gina Gray (Hermiston Foods' consultant from IRZ Consulting).

During the session, Hermiston Foods presented an update of recent and planned improvements to control odors. The company said the ideal situation would be to irrigate wastewater as quickly as possible, but that they had to divert wastewater to the pond because of permit restrictions. They reported that there were two to three times more odor complaints when wastewater was stored in the pond in the summer. Hermiston Foods has pointed to the hydraulic loading limit, which limits hydraulic loading from all sources to the evapotranspiration rate on a monthly basis, as the reason for storing wastewater instead of land applying it. However, analysis of irrigation data showed that Hermiston Foods had actually failed to use all available evapotranspiration. Moreover, Hermiston Foods proposed to use the unused evapotranspiration from last summer to justify irrigation in November when evapotranspiration is lower and the risk of leaching during winter storm events is higher. Hermiston Foods said that they planned to install automation and telemetry on K-3, which would allow for quicker response to odor complaints and changing atmospheric conditions.

Dan Cain from DHS explained that odors may cause subjective, objective and emotional symptoms and that, unless an odor is toxic, symptoms end when exposure to the odor ends. He said there are many variations in reactions to odors and that reactions are affected by individual stress and sensitivity. Women are generally more affected than men are. A neighbor stated that it is also a quality of life issue, that Hermiston Foods' odors produce stress and social disruption. A neighbor asked if the effects of bacteria and mold in wastewater aerosols were known and Mr. Cain said that, according to Public Health Division's toxicologist, there are no known problems with bacteria in aerosols. He said that mold spores are ubiquitous and would be present even if Hermiston Foods wastewater were not there. Mr. Cain said he would do further literature search on bio-aerosol assays.

Hermiston Foods reviewed its analyses of odor complaint records. They reported that most complaints occurred in the evening and that 77 percent occurred in still winds. They said there were fewer complaints than expected when the wind was blowing toward neighbors out of the

southwest, south and southeast. They received 28 percent of the complaints when the wind was blowing away from neighbors out of the west, northwest and north. A neighbor noted that southwest winds would be carrying odors into uninhabited areas and Hermiston Foods said the company would review the data again. Hermiston Foods apologized to the neighbors for the odors and offered to change irrigation scheduling for special events if neighbors called in advance. A neighbor asked if Hermiston Foods could cover the pond to prevent odors from escaping and Hermiston Foods noted that covering the pond might counteract aeration efforts. Lisa Hanson from ODA suggested contacting Troy Downing, an expert on covering dairy ponds at ODA.

A neighbor asked how they can be sure Hermiston Foods will not cause nitrates in groundwater to increase. Rick Hill, DEQ, explained the groundwater monitoring program at Hermiston Foods site and he and Phil Richerson, DEQ, answered questions pertaining to nitrate contamination in groundwater and the Groundwater Management Area. Rick Hill noted that groundwater nitrate concentrations ranged from 1.8 to 70 mg/L in the area. He identified Hermiston Foods' monitoring well locations on a poster-size site map and explained groundwater flow directions. Hill stated that DEQ did not allow Hermiston Foods to begin irrigating until the monitoring well network was installed. Duane Smith, DEQ, explained that the purpose of the permit is to protect groundwater by establishing limits on irrigation. Umatilla County Commission Larry Givens asked if it was possible for deep basalt wells to contaminate the alluvial aquifer and Hill explained that it was unlikely for the basalt wells to contribute anything but cleaner water. Hill explained that it would take several years of monitoring to establish groundwater quality trends. A neighbor suggested monthly groundwater monitoring during the land application and growing season and Hill explained that monthly water levels may be useful in order to understand fluctuations in groundwater flow direction; but, that monthly groundwater quality monitoring would not useful because the groundwater is not moving fast enough to see a change in groundwater quality from month to month.

A neighbor asked whether Hermiston Foods could be held to a statement it made in a land use hearing regarding blending wastewater with fresh water in a 25/75 percent ratio. According to Umatilla County Planning Director Tamra Mabbot, the statement could not be enforced because it was not made a condition of land use approval and it is not part of the findings to show compliance with the applicable land use standard.

A neighbor noted that Hermiston Foods' odor complaint responders are rude, deny that odors exist and attribute odors to other sources. Hermiston Foods replied that their responders are not coached and are instructed to truthfully characterize odors. A neighbor noted that dealing with the responders is stressful and that some neighbors refuse to deal with them. Hermiston Foods countered that the company has and will honor requests to not send responders to visit complainants that do not want to be visited.

A neighbor asked to see data on health effects of spray and odor. Another asked that the neighbors be given contact information for all government representatives at the listening session.

Nov. 5, 2010. Hermiston Foods requested permission to exceed the evapotranspiration rate on selected fields because the company projects wastewater flows until plant closure to exceed the remaining capacity in the pond. The company estimates that it will need to irrigate about five million gallons in November. In trying to work with the company and ensure groundwater

protection, DEQ requested analyses of remaining soil storage capacity, along with projected precipitation and evapotranspiration during the winter months.

Nov. 9, 2010. Linda Hayes-Gorman explained to Bill Burich at Hermiston Foods that, for the protection of groundwater, DEQ would not be able to allow the company to exceed the evapotranspiration rate and violate its permit in order to dispose of the five million gallons.

Nov. 17, 2010. Hermiston Foods ended its irrigation season.

Nov. 18, 2010. The last odor complaint of the season was received.

Nov. 18, 2010. Neighbors complained that they could not reach Hermiston Foods after hours. Roy Stephens explained that the plant was done processing for the year and therefore not running 24/7 anymore. He said that calls that come in after normal business hours would be recorded and that the company would respond to them when they are heard.

Nov. 22, 2010. Bill Hutchison, on behalf of Hermiston Foods, proposed that Hermiston Foods meet with Hayes-Gorman and other DEQ staff during the second week of January 2011 to discuss water pollution control facility permit provisions, the current operations, monitoring and management plan and Hermiston Foods' optimization concepts.

Nov. 23, 2010. Lisa Hanson, ODA, recommended that DEQ contact Don Hornick at the OSU Hermiston Research Station to assist in evaluating the checkbook method.

Nov. 23, 2010. DEQ received a follow-up email from Dan Cain, DHS Public Health, regarding his literature search on bio-aerosol assays. He reported that there is not much to be found in the literature. However, he reiterated that he did not see much risk of pathogens getting aerosolized from the pond or the aerator. He said that he spoke with Troy Downing of OSU Extension's dairy farm in Tillamook, who agreed with him. While he does not have any actual data to back this up, others at the Public Health Division believe the same. Public Health Division staff feels that the true pathogenic risk of Hermiston Foods' wastewater pond is via direct contact with the water. Downing and Cain also agreed that reducing the amount of overspray, by using drag tubes and larger aerosol sizes, should limit the amount of pathogens in the air. Cain does not believe that airborne testing would be overly useful in this case. His opinion is that nearby residents would not be very satisfied with a detailed chemical/biological report if the odor was still present.

Nov. 30, 2010. Hayes-Gorman's planned discussion with the EQC at the December 2010 meeting was postponed until the Feb. 16-18 EQC meeting.

Dec. 2, 2010. Hermiston Foods requested copies of wastewater permits for other food processors in the area.

Dec. 9, 2010. DEQ received an inquiry from a paralegal from the law office of Justin J. Burns regarding a copy of the Hermiston Foods file. DEQ forwarded the Public Records Request Form to the law office and suggested they may want to review the file at DEQ before copying it in its entirety.

Dec. 9, 2010. DEQ initiated an internal review of the Hermiston Foods project.

Dec. 13, 2010. DEQ responded with comments to Hermiston Foods' report on reducing setback distances from domestic wells. DEQ believes the company used incorrect information in its calculations and requested that it reevaluate its findings.

Dec. 13, 2010. Lisa Hanson, ODA, requested a list of crops on which Hermiston Foods' wastewater could be applied.

Dec. 15, 2010. DEQ received two pond dissolved oxygen profiles from Hermiston Foods that were developed on November 19 and December 2, 2010. Based on the data, the company concluded that the single aerator is adequate and that mixing is good. However, the company noted that the aerator cannot handle the plant's peak day biochemical oxygen demand load, which occurs at the same time that irrigation requirements exceed the process water flow rate.

Jan. 7, 2011. The meeting between Hermiston Foods and DEQ that was scheduled for the second week of January 2011 was postponed pending completion of a DEQ internal review of the Hermiston Foods project.

Jan. 10, 2011. Hermiston Foods notified DEQ that it plans to construct an emergency surge basin near the plant to hold wastewater during pipeline repairs. DEQ requested plans and specifications be submitted for review and approval.

RESPONSES TO QUESTIONS RAISED AT THE AUG. 19, 2010, EQC MEETING

1. Does parking lot storm water and boiler blowdown enter the wastewater system and should that be split to send to the City's wastewater treatment plant to deal with heavy metals?
Stormwater from employee parking and product receiving areas, boiler blowdown and condenser water are discharged to the industrial wastewater system. Based on knowledge of process, DEQ does not expect those waste streams to contain significant concentrations of heavy metals or oil and grease. For the most part, the company's wastewater is derived from processing fresh vegetables. Stormwater from employee parking is actually exempt from federal permitting requirements and may be discharged to waters of the state without a permit.

How are DEQ and Hermiston Foods handling the pesticides going to the lagoon and sprayfields?
The Oregon Department of Agriculture regulates pesticide use and only approved chemicals can be put on crops. When Hermiston Foods receives a crop, they also receive a pesticide sheet from the grower that shows all of the chemicals that have been applied to the crop and the dates and times of application. Growers are required to follow label directions, which limit the amount of pesticide applied and time between application and harvest applications prior to harvest. Hermiston Foods also has a staff that are responsible for crop quality. They track the crops from seed selection through to harvest. Their approval is required for every chemical application, as well as the dwell times between application and harvest.

Why was Hermiston Foods not required to select an alternative to land application?
It is not the role of the DEQ or the county to prescribe what process is best for Hermiston Foods, only that whatever process they choose complies with applicable, adopted laws.

What is DEQ doing about overspray and wind drift?

The permit prohibits irrigation spray on roads and irrigation ditches. It also prohibits irrigation spray, including wind drift, beyond those lands that have been approved by Umatilla County for land application of Hermiston Foods' wastewater. On June 30, 2010, DEQ issued a Warning Letter in response to an overspray complaint from a neighbor. The Warning Letter required Hermiston Foods to observe a 100-foot setback from all access roads, public roadways and an irrigation ditch located on the northwest edge of field K-1 until DEQ approves procedures developed by Hermiston Foods to prevent overspray. Since the Warning Letter was issued, DEQ has received only one complaint of overspray. Hermiston Foods responded by sending a person into the field but they did not observe any overspray.

Why has DEQ not pulled the permit yet?
DEQ's enforcement rules are codified at Oregon Administrative Rule Chapter 340, Division 12. The rules require DEQ to use increasing levels of enforcement action and to base penalties on the class and magnitude of violation, aggravating and mitigating factors, and the economic benefit realized. To date, there have been no violations that would justify pulling the permit.

Terry Rowan: Mr. Rowan called Carl Nadler in June or July after Hermiston Foods began irrigating on the New Site. Mr. Rowan represented that he was acting in his official capacity in the Sheriff's office to complain about odors from Hermiston Foods. Mr. Rowan was complaining in general about the odors. Mr. Nadler explained the permit requirements and Hermiston Foods odor management procedures. Mr. Rowan said that he could also do an investigation through the Sheriff's office.

Why does DEQ not require setbacks?
In order to establish setbacks or buffer zones for wastewater irrigation, DEQ must identify a human health hazard or an environmental impact. For instance, recycled municipal wastewater that is irrigated may contain human pathogens, depending on the level of disinfection. When permitting irrigation of recycled municipal water, DEQ establishes appropriate setbacks to prevent human contact with the pathogens. In Hermiston Foods' case, the wastewater is not known to contain human pathogens or any other contaminant, other than nitrate, in concentrations that may be harmful to humans. Because nitrate is harmful when consumed at concentrations greater than 10 mg/l, DEQ established a 400 foot setback from down-gradient domestic wells. Four hundred feet is the distance groundwater at the site is expected to travel in two years.

The New Site (Chowning & Koester) is a poorly picked site.
From an environmental perspective, the New Site is suitable for land application of food processor wastewater as long as groundwater is protected and nuisance conditions are not created. The permit includes provisions to protect groundwater and prohibit nuisance conditions, as well as prohibiting run-off and overspray. Given the proximity to residential neighbors and the odor generated from wastewater irrigation, the New Site may not be suitable from a land use perspective. However, DEQ is not a land use authority and can only include conditions in permits that comport with the scope of its authority as it pertains to human health and the environment.

There is a concern about food safety with respect to Hermiston Foods' wastewater.
Hermiston Foods wastewater contains nitrogen compounds. At concentrations greater than 10 mg/l, orally ingested nitrate can be hazardous to infants. On the other hand, nitrogen is a plant nutrient and land application on food crops is a feasible way to reuse the wastewater, so long as

it is done in a manner that is protective of human health and the environment. DEQ knows of no human health risk from consuming crops fertilized with nitrate fertilizer or from consuming livestock that consumed crops fertilized with nitrate fertilizer. In general, DEQ allows the permittee to select the crops, but then limits the amount of nitrogen that can be applied to the agronomic rate required to grow the crop. In that way, the crops will use nitrogen that is applied and groundwater is protected.

Why does DEQ rely on Hermiston Foods for self monitoring?
DEQ relies on self-monitoring at all permitted facilities because of the costs involved with sampling and analysis. It should be noted that failure to monitor is a Class I violation of the DEQ's enforcement rules and submittal of false reports is a crime.

It appears that something in the wastewater killed the poplar trees.
Hermiston Foods planted hybrid poplars at Windblown Ranch several years ago. During the Jan. 8, 2009 inspection, the company informed DEQ that an insect killed some of the clones. Hermiston Foods' wastewater is not expected to have caused the mortality because it has been used successfully to grow crops for twenty years. When DEQ learned the trees were no longer viable, it prohibited the company from land applying wastewater on them. As a result, the rest of them died.

Phil Richerson says that Hermiston Foods is obviously affecting groundwater.
Phil Richerson, DEQ, performed trend analyses on groundwater conditions at the Windblown Ranch site. He concluded that facility operations affected groundwater quality there because down-gradient nitrate concentrations exceeded up-gradient nitrate concentrations. Richerson also concluded that water quality is beginning to improve beneath the Windblown Ranch site because down-gradient trends have recently began decreasing or are less steeply increasing. There is not enough data at the New Site to make conclusions regarding groundwater nitrate trends.

Why would DEQ write a Warning Letter on transfer of the permit to the New Site?
The Warning Letter was not issued on the transfer of the permit. To facilitate the move to the New Site, DEQ modified the permit specifically to address conditions at the New Site. Shortly after DEQ issued the permit modification, and after reviewing Hermiston Foods 2009 Annual Report, DEQ issued a Warning Letter to the company for a hydraulic loading rate exceedance at the Windblown Ranch site.

NEXT STEPS

Hermiston Foods will:

Reduce wind drift and overspray

- Complete an assessment of wind speed and irrigation aerosol drift distance
- Add drag tubes to the outer sections of C-1, C-3, C-5, K4A and K-5

Reduce odors at the pond

- Continue to develop pH, dissolved oxygen and biochemical oxygen demand data from the wastewater system
- Plant trees around the pond in the spring 2011
- Continue to evaluate the need for an additional aerator in the pond

- Arrange future hay harvests to assure that irrigation can continue on some parcels and that all alfalfa fields are not taken out of production simultaneously to prevent overloading the pond

Reduce odors at irrigation systems

- Review complaint database to confirm the number of complaints when wind is out of the southwest
- Change irrigation scheduling for special events if neighbors call in advance
- Honor complainants' requests to not send responders to visit complainants that do not want to be visited

Other

- Continue to improve the accuracy of flow measurements to the spray fields

DEQ will:

- Require that a dissolved oxygen profile in the pond be repeated and daily measurements be continued with a properly calibrated meter
- Based on dissolved oxygen monitoring results, discuss with Hermiston Foods the feasibility of:
    - Additional aeration or construction of a secondary treatment facility to reduce biochemical oxygen demand
    - Modifying the outlet pipe from the pond to allow for discharge from the pond at multiple levels
- Contact Troy Downing, an expert on covering dairy ponds at ODA, to discuss the feasibility of covering the pond
- Provide results of DHS literature search to neighbors
- Provide neighbors with contact information for all government representatives at the listening session

DHS will:

- Perform a literature search on bio-aerosol assays

ODA will:

- Provide technical contacts for agricultural issues

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Summary

DEQ met with neighbors and representatives of other government agencies at the OSU Experiment Station in Hermiston to hear their complaints regarding Hermiston Foods. In general, most complaints pertained to odors, nitrates in groundwater and overspray/wind drift of wastewater.

Attendance

Invitations were made to 35 neighbors. Eight neighbors attended.

Also present were:

- Larry Givens, Umatilla County Commissioner
- Tamra Mabbott, Umatilla County Planning Director
- Gina Miller, Umatilla County Code Enforcement Officer
- Lisa Hanson, Deputy Director, Oregon Department of Agriculture (ODA)
- Jim Cramer, Good Agricultural Practices Program Manager, ODA
- Linda Hayes-Gorman, DEQ Eastern Region Administrator
- Cheryll Hutchens-Woods, DEQ Water Quality Manager
- Duane Smith, Waste Water DEQ Permitting Manager
- Carl Nadler, Waste Water DEQ Permit Writer
- William Knight DEQ Office of Communications and Outreach

Concerns

Odor Problems

Neighbors stated that odors from the facility:

- made it hard to breathe
- caused sore throats
- is worse in mornings and evenings
- affects their social lives and families.

Company Response Issues

Neighbors said that Hermiston Foods' responders are:

- slow to respond to complaints
- are offensive
- deny that there are odors
- blame other things such as the complainant's yard, wet hay and the irrigation ditch for the odors
- stand too close to them when they converse

One neighbor said she does not want the responders to knock on her door when they respond.

Groundwater concerns

Neighbors voiced concerns that wastewater leached nitrates into groundwater. One neighbor is buying bottled water because they have measured nitrates in their well water. Neighbors inquired as to why there was so much variability in groundwater nitrate concentrations over the area. DEQ staff provided an overview of ground water contamination and its variability in the Lower Umatilla Basin Ground Water Management Area. DEQ offered to bring back a specialist to address this issue for a next listening session if it was desired.

Commissioner Givens encouraged the neighbors to review the construction of their wells and to check their well logs to determine whether their wells were shallow or basalt wells. This was suggested so that people are familiar with their well's construction.

Potential overspray

There was concern about what is in Hermiston Foods wastewater and whether it could damage crops on adjacent fields through overspray and/or wind drift.

Don Walchli, a neighbor, raises produce in the GAP program. Jim Cramer, from ODA, explained that the US Dept. of Agriculture created the GAP program for growers that wanted to produce certified high-quality crops. The program is voluntary and ODA audits crops in the GAP program in Oregon. In order to meet certification criteria, participating growers must have real-time evidence of everything that goes on the crops. That means that Mr. Walchli must have real-time evidence that chemical and bacterial concentrations in Hermiston Foods wastewater meet the certification criteria if the wastewater is over-sprayed on Mr. Walchli's crops. Absent that information, Mr. Walchli's crops would not meet GAP program requirements.

Mr. Walchli is concerned about bacteria and pesticide in Hermiston Foods wastewater. He said Hermiston Foods should be able to show the neighbors what is in the wastewater, such as pesticides and cleaning products. There was concern that DEQ is not enforcing on overspray/wind drift and that the 15 mph wind speed shut-off was not conservative enough.

Other comments and suggestions

Neighbors said that the wastewater irrigation fields smell bad even after the irrigation has been turned off. They said the pond aerator does not run continuously and the company does not blend sufficient fresh water with the wastewater to control odors.

In general, the level of trust is down because of the recent history.

Next steps

Planning Director Mabbott suggested that the County, State and Hermiston Foods work together on a creative solution such as a land trade to enable land application of wastewater elsewhere far away or grant support for construction of wastewater treatment facilities so the wastewater does not stink. In addition, Planning Director Mabbott suggested a third party check of crop-specific ET rates.

The meeting produced a list of actions that all involved parties could take to help resolve the situation:

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Proposed action items

Action	Owner	Status
Keep aerator on	HF	Aerators are always on unless pond level drops too low
Use consistent 50/50 wastewater/freshwater mix	HF	Water mix varies w/timing of fresh water availability, processing volumes, weather and irrigation needs
Test pond and prove proper aeration in accordance with permit	HF	Testing daily Dissolved Oxygen (DO) content
Reduce solids in waste water	HF	300% smaller screens installed at plant and pond. Using 10/1000" opening
Identify supplemental water source	DEQ, HF	Ditch water and groundwater from wells K-3, C-1 used for blending with wastewater
Characterize contents of wastewater	DEQ, HF	Performed twice monthly for nutrient content
Look into whether covering the ponds is a possibility	DEQ, HF	Possible, but not proposed
Examine creative alternatives such as: GERT, grants, land trade and/or better water treatment	DEQ, Umatilla County	Meeting held with HF, state and local agencies, and representative from Governor's office to discuss options
Look into third party check for ET rates	DEQ, Umatilla County	Using IRZ and Agrimet
Review reports of data/records of land application	DEQ	Reviewed soil moisture
Verify mixing system	DEQ	Done; mixing system in place
Look into reducing 15mph wind cutoff	HF	Assessment in progress for adaptive management model that will shut down areas affected by winds, not whole system
Obtain historic data on nitrate levels in groundwater	Citizens	
Obtain well logs; check wells for construction, depth and water quality history	Citizens	

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Questions and answers from Sept. 28, 2010, listening session

1. Hermiston Foods promised to aerate the wastewater pond to prevent odors; however, we do not hear the aerator running.

Hermiston Foods' records indicate that the aerator was off for 14 days between July 20 and Oct. 24, 2010. Based on company records, Hermiston Foods did not run the aerator on:

- July 21,
- July 25 to July 30,
- Aug. 28 to Sept. 3.

Aerator operational status was not reported on July 20 and July31.

2. Hermiston Foods promised to blend fresh water with wastewater at a rate of 10:1, why are they not doing that?

Hermiston Foods proposed an annual ratio of 80% fresh water, 20% wastewater for irrigation. However, irrigation needs and wastewater flow vary daily. On any given day, the ratio of fresh water to wastewater may be different than the annual loading ratio.

3. Why do nitrate concentrations vary between wells in the area?

Nitrate concentrations in area ground water vary for a number of reasons. One of the primary factors is pollution migrating into the water table from the surface. This commonly results in higher concentrations at the surface of the water table. As groundwater moves, small amounts of contaminants are pulled into deeper portions of the aquifer. Pumping wells located near contamination also tend to pull contaminants deeper into the aquifer. These factors result in uneven mixing in the aquifer. Because of the uneven mixing, neighboring wells frequently have different concentrations. This is especially true for wells screened at different depths.

4. What are the piles east of the wastewater pond?

The piles east of the pond are soil left over from construction of the wastewater pond.

5. Which water supply wells are used for blending?

Groundwater from Wells K-3 and C-1, along with Stanfield Ditch water, is used for blending with wastewater.

6. Can the wastewater pond be covered?

Although it is possible to cover the pond, Hermiston Foods has not proposed to do so. Covering the pond would not eliminate odors from irrigation

Odors from the wastewater pond should be controlled with adequate aeration.

7. How can Hermiston Foods blend fresh water with wastewater without the two streams going through the pond?

Wastewater and fresh water can be mixed in the irrigation sump before irrigation.

8. Are there pesticides and cleaning products in Hermiston Foods' wastewater? If so, how much?

According to Hermiston Foods, the company does not add any pesticides to the process water at the plant. Cleaning chemicals used at the plant are registered and approved for use in food production facilities, and the company verifies that these chemicals are used at the approved concentrations. Any chemicals used by growers in the production of the Hermiston Foods crops are registered and approved by EPA for use. The plant verifies proper adherence to chemical label use before accepting crops from growers.

9. How much nitrate is in Hermiston Foods' wastewater?

The wastewater contains approximately 1.3 mg/L of nitrate. However that could increase to 35 mg/L as wastewater breaks down in the soil. Irrigation with supplemental fresh water reduces the concentrations.

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10. Does Hermiston Foods test its raw products for pesticide residues?

No. Existing regulations do not require the company to test its raw products for pesticide residues. Hermiston Foods states that it requires its growers to apply any chemicals strictly in accordance with the label.

11. Why does Hermiston Foods wastewater stink while wastewater from other food processors does not?

According to Hermiston Foods, all wastewater has an odor. These odors are associated with the type of food being processed (peas, corn, green beans, carrots, potatoes, onions, etc.). Certain conditions may cause stronger odors from process water. For example, diverting a large load of wastewater to a holding pond and storing it for too long in the summer months will cause stronger odors than quickly applying wastewater quickly.

12. Why doesn't Hermiston Foods discharge wastewater to the city sanitary sewer?

Hermiston's city sewers cannot handle the volume of wastewater produced at Hermiston Foods.

13. Why doesn't Hermiston Foods discharge wastewater to the Simplot system?

Hermiston Foods has decided not to discharge their wastewater to the Simplot system because it was being used by another user. DEQ cannot prescribe what process is best for Hermiston Foods. DEQ's role is to ensure that whatever process the company chooses complies with all applicable, adopted environmental laws.

14. Where can neighbors find well logs for their private drinking water wells?

Well logs for private drinking water wells can be obtained from the Department of Water Resources website: http://apps.wrd.state.or.us/apps/gw/well_log/Default.aspx. You will need your tax lot, section, township and range numbers to find the log for your well. Well logs should include information on the depth of your well, whether it is a basalt well or an alluvial well, the depth of the casing and surface seal, and the perforated interval. You should also be able to see the name of the driller, the year the well was drilled, how it was drilled and possibly whether any repairs or modifications have been made.

15. How does DEQ decide how to handle violations and take enforcement action?

DEQ determines the level of enforcement action to take by following statewide guidance found in Oregon Administrative Rule (OAR) 340-012-0045. (e.g. warning letter, monetary penalty or order), based on the likely impact of the violation on human health or the environment. It then adjusts the penalty based on the duration of the violation, the violator's compliance history, their mental state and cooperativeness in achieving compliance, and the economic benefit gained by being in violation.

16. Has Hermiston Foods over-saturated the soil?

Hermiston Foods' permit prohibits irrigating the soil to the point that it creates run-off from the site and leaching below the root zone. The permit requires the company to monitor soil moisture through the root zone. Based on review of soil moisture logs, there was only one instance when the soil was saturated beyond the limits of the permit: K-3NW, a four-acre field exceeded the limit. The company said this occurred because a sprinkler on the field broke.

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Summary
DEQ met with neighbors, managers from Hermiston Foods and representatives of other government agencies at the OSU Experiment Station in Hermiston to facilitate direct dialogue between neighbors and the company. The company outlined measures it has taken and plans to take to reduce odors at the plant. Neighbors voiced concerns regarding odors and health risks. A representative from Oregon's Department of Human services made a presentation on the known effects of odors on people, and DEQ provided background information on nitrates in the area and groundwater monitoring practices.

Attendance
Invitations were made to 35 neighbors. Eight neighbors attended.

Also present were:

- Larry Givens, Umatilla County Commissioner
- Tamra Mabbott, Umatilla County Planning Director
- Gina Miller, Umatilla County Code Enforcement Officer
- Melissa Newman, Umatilla County Environmental Health Supervisor
- Lisa Hanson, Deputy Director, Oregon Department of Agriculture (ODA)
- Linda Hayes-Gorman, DEQ Eastern Region Administrator
- Duane Smith, Waste Water DEQ Permitting Manager
- Carl Nadler, Waste Water DEQ Permit Writer
- Brian Mannion, DEQ Office of Communications and Outreach
- Rick Hill, DEQ Hydrogeologist
- Phil Richerson, DEQ Hydrogeologist
- Daniel Cain, Oregon Department of Human Services, Public Health Division
- Cyd Bothum, Hermiston Foods
- Roy Stephen, Hermiston Foods
- Mark Sather, Hermiston Foods
- Craig Williams, Hermiston Foods
- Gina Gray, IRZ Consulting
- Mark Steel, NORPAC Foods
- Bill Burich, NORPAC Foods

Hermiston Foods Presentation
Odor reduction measures taken:
The company began the meeting with an update of recent and planned improvements to address odor issues at site. According to the presentation, Hermiston Foods took the following actions:

- Replaced screens with fine mesh, both at plant and at wastewater pond
- Installed drop tubes on pivots
- Dropped height of some pivot nozzles to four feet
- Changed some nozzles to make larger water droplets (less likely to cause drift)
- Reduced irrigation pressure from 55 psi to 42 psi
- Experimented with odor-masking agents and "liquid-live" beneficial bacteria for the pond

Planned odor-reduction measures:
Company representatives said Hermiston Foods is considering the following actions in 2011:

- Plant fast-growing hybrid trees around pond to create physical wind barrier
- Apply only fresh water on field S1
- Flush lines to C1 and C2 before harvest
- Explore flushing system with fresh water to lessen time when water stands in tubes
- Test for need for more aeration
- Assume more direct involvement in irrigation (currently handled by contractor)
- Install a new automation system for K-3 pivot
    - Includes wind monitoring and automated stop/start
    - Could allow faster response to odor incidents

Complaint data:
Hermiston Foods said it has logged all complaints it receives including the name of complainant, time of complaint and weather conditions at the time of complaint. Their analysis found that 77 percent occurred in still weather, most complaints occurred in the evening, complaints are correlated to wind direction and twice to three times as many complaints were filed when wastewater was stored in the pond during summer months. The company said it was still looking at the numbers to identify trends and relationships between weather patterns, irrigation practices and complaints.

Other comments, responses:
Throughout their presentation, Hermiston Foods answered questions from neighbors and presented company views on a range of subjects. The company maintained that the best solution to reduce odors is to apply the waste water directly to fields without storing it, but that DEQ regulations limited the amount of water they could apply and required storage of waste water.
In response to questions, Hermiston Foods said that they investigated the possibility of using the Simplot system, but found that it was being used by another user. The company has not looked into onsite purification measures for financial reasons, and Hermiston Foods will continue to work to reduce odors and with what is proposed for 2011, they would expect odors to be reduced.

When asked about covering the storage pond to reduce odors, the company said that covering might counteract the positive effects of aeration.

Hermiston Food representatives asked neighbors to call the company and give them advanced notice of social events and gatherings so that they can regulate irrigation activities to minimize the potential of odors reaching neighbors.

DHS Odor Presentation
DHS Industrial Hygiene Specialist Dan Cain presented information regarding the effects of odors. This presentation included the following information:

- Odors may cause subjective, objective and emotional symptoms
    - Subjective: nausea, headache

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    - Objective: watery eyes, cough, increased heart rate
    - Emotional: stress, depression
- Unless material is toxic, symptoms end when exposure to the odor ends
- Reactions to odors vary greatly; reactions are affected by other factors including response to stress and sensitivity; women are generally more affected than men

Neighbors asked if there is any risk from airborne bacteria or mold from the spray. Cain said that DHS toxicologists say there is no known risk from this type of land application, but that he would perform a literature search to see if any studies address the issues specifically.

DEQ groundwater information

Neighbors asked how they can be sure Hermiston Foods' activities were not contributing nitrates to their groundwater. In response, DEQ staff provided the following information:

- The entire area is situated in a water quality management area, so it is not uncommon to see higher nitrate levels in management area.
- Base data for area shows wide range of nitrate levels (1.95 - 71 mg/liter); higher levels this year cannot be attributed to Hermiston Foods activities at the site because not enough time has passed for irrigation water to travel into ground water.
- DEQ showed location of 11 test wells on map and explained groundwater movement patterns.
- DEQ explained that test well data was a baseline (obtained before irrigation) because the agency did not let Hermiston foods apply wastewater before installing test wells; three samples taken before land application began.
- The purpose of the permit is to protect groundwater by limiting irrigation.
- It is unlikely that basalt/confined aquifers contributed anything but clean water to test wells.
- Testing has not detected significant drift of nitrates.
- Years of testing data still needed to identify any trends.

Neighbors suggested monthly groundwater monitoring through growing season. DEQ staff explained that groundwater moves at a slower pace, so monthly monitoring would not allow enough time to detect changes in the groundwater attributable to Hermiston Foods' actions. They suggested continuing quarterly monitoring and explained that it would take years of data to identify any groundwater trends.

Neighbor concerns

Neighbors reiterated a number of concerns that they expressed in the September 28 meeting:

- Odor Problems
- Company Response Issues
- Groundwater Concerns
- Potential Overspray
- Affects quality of life and property values

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The neighbors also asked about the potential risk of airborne bacteria and mold from using waste water in irrigation.

Other comments and suggestions
Neighbors asked for a contact list containing information for all government representatives who attended the meeting. They also asked that the complaint and frequency of complaints be plotted on a map of the area.

Next steps
DEQ, DHS and Hermiston foods all agreed to some type of action to address neighbors' concerns, as seen in the table below.

Action	By	Status
Include wind data for all days in complaint data	Hermiston Foods	To be done
Plot complaints (number and type) on full area map	Hermiston Foods	To be done
Notify Hermiston Foods of upcoming events/gatherings at nearby homes	Neighbors	Ongoing
Modify irrigation schedule where possible to accommodate neighbor's social events as requested.	Hermiston Foods	Ongoing
Make test well data available	DEQ	Data is public record. Residents may contact DEQ for more information (see contact information for Carl Nadler on front page)
Contact Troy Downing to discuss how dairy farms deal with odors; report back to group	DEQ/ Hermiston Foods	To be done
Send neighbors contact info for all specialists/government reps involved in meeting	DEQ	Done via email 11/5/10
Perform literature search regarding effects/risk of bacteria and mold in water mist; report findings to neighbors	DHS	To be done

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