IN THE COURT OF APPEALS
OF THE STATE OF WASHINGTON
DIVISION II

NO. 31618-8-II

SWINOMISH INDIAN TRIBAL COMMUNITY, et al.,

Petitioners,

v.

WESTERN WASHINGTON GROWTH
MANAGEMENT HEARINGS BOARD, et al.,

Respondents.

BRIEF OF SWINOMISH INDIAN TRIBAL COMMUNITY

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I. ASSIGNMENTS OF ERROR

1. The Western Washington Growth Management Hearings Board erred in entering its Compliance Order on December 8, 2003 and its order denying reconsideration on January 14, 2004. AR[1] 4571-4630 and 3424-36 respectively (App. A).

2. The Board erred in entering Finding of Fact No. 4.

3. The Board erred in entering Finding of Fact No. 8.

4. The Board erred by entering Finding of Fact No. 9.

5. The Board erred by entering Finding of Fact No. 12.

6. The Board erred by entering Finding of Fact No. 14.

7. The Board erred by entering Finding of Fact No. 15.

8. The Board erred by entering Finding of Fact No. 16.

9. The Board erred by entering Finding of Fact No. 18.

10. The Board erred by entering Finding of Fact No. 22.

11. The Board erred by entering Finding of Fact No. 24.

12. The Board erred by entering Finding of Fact No. 29.

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[1] AR stands for "administrative record." The Board has forwarded the record to the Court. For the Court's convenience, we submit with this brief copies of most of the documents from the record cited herein. We note when a cited document is <u>not</u> attached.

II. ISSUES PRESENTED

A. Do the Growth Management Act's ("GMA"[2] or "Act") goals and requirements to protect the functions and values of critical areas require the protection of all functions and values, do those goals and requirements apply to recurring activities that continue to damage critical areas, and, under the facts of this case, do they require buffers for salmon streams and their tributaries? (Assignments of Error Nos. 1-10.)

B. As a matter of law, may the Act's goals related to conserving agriculture be used to justify critical area ordinances that do not protect critical areas and, if so, is there substantial evidence to support that outcome here? (Assignments of Error Nos. 1, 3 and 4.)

C. Is the Ordinance's definition of "no harm" to salmon habitat consistent with the GMA's goals and requirements to protect that habitat? (Assignments of Error Nos. 1, 2, 4, and 5-8.)

D. Do the Ordinance's watercourse protection measures fail to comply with the Act's salmon habitat protection goals and requirements? (Assignments of Error Nos. 1, 2, 4, 7 and 8.)

E. Was the Board's decision internally inconsistent and thus arbitrary and capricious in violation of the Administrative Procedures Act (APA), RCW 34.05.570(3)(i)? (Assignment of Error No. 1.)

F. Was the Board's decision that Skagit County's (County) ordinance complied with the GMA's requirements to protect critical areas and include best available science supported by substantial evidence in the record? (Assignments of Error Nos. 1, 2, and 4-9.)

G. Does the GMA require a local government to regulate activities harmful to critical areas only when the local government can show that an individual landowner's activity caused harm to a critical area function and value? (Assignments of Error Nos. 1 and 2)

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[2] A list of acronyms and abbreviations follows the appendices at the end of this brief.

III. STATEMENT OF THE CASE

This case arises under the GMA, RCW 36.70A.010 *et seq.*, which requires counties to adopt ordinances to protect critical areas, including salmon habitat. RCW 36.70A.060(2), .170(1)(d).[3] The Legislature set a September 1, 1991 deadline for adoption of critical areas ordinances. *Id.* Today, more than thirteen years later, Skagit County has yet to adopt an ordinance that complies with that mandate while salmon remain imperiled.

A. Effective Protection of Salmon Habitat in Skagit County is of Paramount Importance to Regional Salmon Recovery Efforts and the Swinomish Indian Tribal Community

Skagit County is home to the Skagit and Samish Rivers, their tributaries (including the Cascade, Sauk, and Suiattle Rivers), and the large deltas at their mouths. Once teeming with fish, these watersheds now are home to species listed as threatened with extinction under the Endangered Species Act (ESA).[4] Two Skagit chinook runs are forecast to be extinct within eight to 15 years. AR 4054-59.[5] Yet, just a generation ago, lucrative

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[3] Appendix B contains this and other state statutes cited in this brief.

[4] 64 Fed. Reg. 14,308 (1999) (Puget Sound Chinook). 64 Fed. Reg. 58,910 (1999) (Coastal-Puget Sound Bull Trout).

[5] Evidence of slight run increases in a recent year or two do not undermine this basic finding. AR 4075-82. Indeed, the County itself acknowledges this in its environmental review. AR 1877-78 (After noting recent gains due to temporary improvement in ocean survival rates: "The failure to address other factors that negatively affect salmon populations

commercial, sport, and tribal fisheries harvested Chinook salmon from these waters. Today, these fisheries are severely limited by the reductions in fish returning to these waters. AR 4051-53.

While Skagit salmon runs have declined precipitously, all is not lost. The State has identified the Skagit as the "most significant watershed in the Puget Sound" for salmon recovery. AR 4073-74. "[E]ffective protection of salmon stocks in Skagit County, including its agricultural lands, is of paramount importance to regional salmon recovery." AR 4074. Recognizing its importance, the Legislature required, and the people endorsed,[6] the development of a Skagit salmon recovery plan – prior to the ESA listing.

Virtually all salmon using the Skagit and Samish watersheds must pass through the agricultural lowlands on their way to and from the sea. *See* AR 1129 (map showing agricultural and rural resource lands in these watersheds). Thus, the protection afforded salmon in these lower reaches is critical to salmon recovery efforts. Habitat protection measures upriver are compromised by ineffective regulation in these lowland reaches. AR 632

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before the next inevitable reversal in ocean survival rates could lead to key stocks slipping below the extinction threshold."). *See also* AR 603 (Independent MultiDisciplinary Science Panel (IMST)) ("Without improvement of the condition of these habitats, the return to poor ocean conditions in the future will be more devastating to salmonids than what was experienced in the early 1990s.").

[6] Referendum Bill 45, § 41, approved Nov. 7, 1995 (codified at RCW 77.95.140).

("Preservation of only sections of a watershed or basin may not be sufficient to maintain connectivity between habitats essential to the . . . [completion of] complex salmonid life histories"). *See also* AR 710 (numerous studies recognize importance of protection and restoration of entire watershed); AR 3906 (importance of all waters from spawning grounds to ocean).

Skagit County is home to three Indian Tribes (including petitioner Swinomish Indian Tribal Community (Tribe)) which hold rights[7] under the Treaty of Point Elliott, 12 Stat. 927 -- in particular, the right to fish at all "usual and accustomed places outside of reservation boundaries." *U.S. v. Washington*, 384 F. Supp. 312, 375-76, 379 (W.D. Wash. 1974), *aff'd* 520 F.2d 676 (9th Cir. 1975), *cert. denied*, 423 U.S. 1086 (1979). That right was "not much less necessary to the existence of the Indians than the atmosphere they breathed . . ." *Id.*, 384 F. Supp. at 331, *citing U.S. v. Winans*, 198 U.S. 371, 381 (1905). Salmon remain a life-sustaining force of the Tribe.

B. A Vegetated Upland Strip Along Streams is Vital for Salmon Survival

Salmon need clean, cold water with appropriate nutrients and physical structure in the stream for spawning, rearing, and migrating. The strip of land adjacent to streams, referred to as a "riparian buffer," plays a vital role in

[7] The Tribe's treaty rights are not before the Court in this appeal.

assuring the presence of these in-stream characteristics. This strip, where vegetated, serves seven distinct functions:

- Traps sediment and pollutants;
- Limits bank erosion;
- Shades the stream for temperature moderation;
- Provides habitat for terrestrial insects (which fall into the water providing a vital food source);
- Provides a source of logs and sticks (which create pools, riffles, hiding, feeding, and resting places);
- Provides a source of organic debris and nutrients; and
- Moderates water flow into streams during storms and re-charges flows in dry periods.

See, e.g., AR 3804; AR 4385, 4418-19(Board recognition of these functions); WAC 365-195-925(3).

When resource agencies (and the GMA) refer to the "functions and values" of riparian habitat, they are referring to the myriad, interconnected functions of this upland strip. *See, e.g.*, AR 3844 (Washington Department of Fish and Wildlife ("WDFW") *Priority Habitats Report-Riparian* ("PHS") report); AR 3894-3906 (federal agencies' ManTech report). Salmon cannot thrive in a stream stripped of its upland buffer any more than humans can live on an earth stripped of its atmosphere. The riparian buffer is an integral part of the salmon's ecosystem and protecting it is vital to survival of salmon.

C. Agricultural Practices Undertaken Too Close to Salmon Streams and Their Tributaries Can Damage and Destroy Salmon Habitat

Agricultural practices common to the Skagit Valley (and elsewhere) are detrimental to and can destroy the functions and values of salmon habitat.[8] The ubiquitous agricultural use of herbicides, pesticides and fertilizers pollutes streams. Cattle erode stream banks and pollute water both with excrement and dislodged sediment. Clearing trees along stream banks removes shade, causing elevated water temperatures.[9] Without trees on banks, there is no opportunity for logs to fall into streams to create pools (places to rest, forage, and hide) and riffles (places to forage and spawn).[10] Trees and brush along a stream harbor small insects that form a critical part of the food chain. If that vegetation along with the insects is wiped out, salmon are left starved for essential nutrients. Indeed, while there has been much attention on the deleterious effects of logging too close to salmon streams, agricultural

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[8] *See generally, e.g.*, AR 3894-3921 (ManTech); AR 3929a, 3931-34 (Johnson & Ryba) (the page cited as AR 3929a is the first page of the Johnson & Ryba report, following AR 3929 and preceding AR 3930, but is not bate-stamped in the record); AR 3799-800 (PHS); AR 2693-96 (Army Corps study).

The reverse is not true. The fishing industry does no harm to farmlands or farmers.

[9] *See, e.g.*, AR 4779 (WDOE, Washington's Nonpoint Source Management Plan (April 2000)) (most common sources of surface water pollution from agriculture in Washington are livestock manure, sediment, and loss of trees in riparian areas that results in increased surface water temperature). *See also id.* (groundwater polluted from manure applied to fields, application of commercial fertilizers, pesticides, and fungicides). *See also* AR 4419 (Board finding that agriculture affects fish habitat by creating nonpoint source pollution and causing loss of riparian habitat due to conversion; erosion from croplands accounts for 40-50% of sediment in American waterways).

[10] *See, e.g.*, AR 3931-32; 3904-05 (importance of large woody debris).

activities too close to streams can cause even greater harm:

> In general, the effects of agriculture on the land surface are more severe than logging or grazing because vegetation removal is permanent and disturbances to soil often occur several times per year. In addition, much agriculture takes place on the historical floodplains of river systems, where it has a direct impact on stream channels and riparian functions.

AR 4782. *See also*, AR 616 (IMST)("land use, especially agriculture, can result in long-term changes and reductions in aquatic diversity. Other authors have concluded that the extent of agriculture in a basin may be the best predictor of local stream conditions"). The record is replete with evidence of adverse impacts to Skagit watercourses, both fish-bearing and currently non-fish bearing tributaries. *See* App. C (partial list of citations addressing this issue).

D. Extensive Studies by the Resource Agencies Document the Need to Protect the Riparian Buffer

The record contains several major studies from expert resource agencies documenting the importance of an adequate riparian buffer. The federal government funded an extensive, peer-reviewed literature review of hundreds of scientific articles addressing salmon conservation. AR 3875-3929, 4780-88 (ManTech).[11] This report reviews the deleterious effects of

[11] The National Marine Fisheries Service, the U.S. Environmental Protection Agency, and the U.S. Fish and Wildlife Service retained ManTech Environmental Research Services Corp., Corvallis, Oregon to conduct a review of the scientific literature pertaining

agricultural practices, AR 4782-88, recognizes the inter-relationships between the functions and values of fish habitat,[12] and recommends that "[r]iparian buffers should be established for all land-use types and should be designed to maintain the full array of ecological processes (*i.e.*, shading, organic debris inputs, bank stability, sediment control, and nutrient regulation) needed to create and maintain favorable conditions through time." Separately, the National Marine Fisheries Service (NMFS) (and its scientists at the Northwest Fisheries Science Center (NWFSC) recognizes:

- ". . . agricultural activities place an additional suite of burdens or needed functions on riparian buffers. For example, agricultural activities often include the application of numerous pesticides, herbicides, and chemical fertilizers, many of which can degrade instream habitat or have direct toxic impacts to salmon and other instream biota (Hunt et al. 2003). Similarly, agricultural practices also can result in sheet erosion because of tilling activities, something not seen in forested landscapes. * * * There have been a number of studies suggesting buffer widths needed to protect streams from agricultural practices that cause substantial erosion, and also numerous studies demonstrating buffer widths needed to prevent

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to salmon recovery. Agency representatives participated in and coordinated the project design. Document drafts were critically reviewed by both independent and government scientists. The well-documented and well-received final report is entitled "An Ecosystem Approach to Salmonid Conservation" (Dec. 1996).

[12] *See, e.g.*, AR 3885-86, 3896 (food affected by temperature, dissolved oxygen, sediment, organic litter, turbidity and velocity); 3886-87 (reproduction affected by temperature, water quality, stream flow and physical structure of stream redds); AR 3887 (breathing affected by temperature, water velocity, sediment); *id.* (smoltification affected by temperature, hydrologic patterns, structure (*i.e.*, LWD)). *See also* AR 5198 (State Wild Salmonid Policy) (discussing inter-relationships between habitat functions).

contamination of streams from fertilizer (e.g., nitrates and phosphorus) run-off...." AR 5021.

- Narrow buffers are not "sufficient for protecting low-elevation streams in agricultural lands from impacts specific to farming (sediment, pollutants, nutrients)" in part because they are "not consistent with the criteria presented in the Report using all the best available science." AR 5018.
- "... available science indicates that [narrow buffers] will not provide habitat conditions in the agricultural setting that provide for survival and recovery of listed salmon." AR 4133.

In like manner, the Department of Ecology (DOE) explained:

- "We understand the balancing act that occurs when natural resource protection potentially impacts the economic livelihood of individuals. ... Best Available Science, published in the Washington Department of Fish and Wildlife Riparian management Recommendations for Washington's Priority Habitats document, indicates that 100 feet is the minimum necessary to provide water quality functions, and greater widths are necessary, for other riparian functions." AR 5203 (comments on prior ordinance).
- "Small streams and drainage ditches in agricultural fields provide large quantities of sediment to downstream, salmon-bearing waters. Ecology suggests that establishing smaller buffers along the drainage ditches and streams would alleviate much of the sediment loading from these drainages. These buffers could consist of grass strips (that could be mowed for hay) with narrow bands of overhanging shrub vegetation. The grass strips would help trap sediment, and the woody vegetation would provide shade to inhibit the growth of grasses such as reed canary grass that tend to clog the drainage way, necessitating periodic drainage." *Id.*

A recent DOE study, specific to farms in the Skagit delta, found an increase in turbidity as vegetation is removed along streams in agricultural lands. AR 4790-4803. (Turbidity is a measure of sediment in streams which

makes the water cloudy and unfit for fish by, for instance, clogging fish gills and disrupting their homing mechanism. AR 684.[13])

WDFW also conducted an exhaustive literature review, which was used to develop recommendations to aid counties and cities adopting critical area regulations. AR 3793-3874 (PHS report).

> Nearly 1,500 pieces of literature on the importance of riparian areas to fish and wildlife were evaluated, and the land use recommendations designed to accommodate riparian-associated fish and wildlife were developed. These recommendations consolidate existing scientific literature and provide information on the relationship of riparian habitat to fish and wildlife and to adjacent aquatic and upland ecosystems. These recommendations have been subject to numerous review processes.

AR 3795. The PHS report is the epitome of a best available science inquiry. It is a synthesis of the pertinent scientific literature[14] that itself endured exhaustive peer review:

> In 1996, WDFW provided a full draft of the document to a 49-member technical review committee; to 51 individuals with riparian expertise employed by federal, state, or county agencies; to all 39 county planning offices in Washington; to 124 city planning offices in Washington; to all Indian Tribes in Washington; and to several

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[13] Similarly, the U.S. Army Corps of Engineers has found high turbidity levels in the freshwater sloughs in the Skagit and Samish deltas. AR 2672, 2678, 2682, 2686-89, 2701. The Corps study cites two additional water quality studies in 2000 pertinent to the Skagit and Samish delta: one by DOE, AR 2687, and one by the Skagit Stream Team, AR 2688, both of which found high turbidity levels in some of the delta sloughs.

[14] The PHS report also sets out the recommendations of other literature reviews conducted by federal and state agency and independent scientists. AR 3839-40, 3870-73.

> universities, private consulting companies, and timber companies. The criticisms of the peer reviewers were addressed by WDFW, as is evident from a side-by-side comparison of the final document with the draft that was distributed in 1996.

Copsey, *Including Best Available Science in the Designation and Protection of Critical Areas Under the Growth Management Act*, 23 Seattle U. L. Rev. 97, 120 (1999) ("Copsey, *BAS*") (footnotes omitted). The technical committee that reviewed the PHS report determined:

> Every conclusion was documented by reference to cited scientific studies. The studies cited in the WDFW document were primarily the products of academic research and government research. The majority of the studies cited were published in peer reviewed scientific journals, and most of the rest of the studies were published by state or federal agencies with analogous procedures to ensure peer review. Based both on the sheer number of scientific studies reviewed in the WDFW document and on the nature of the review that preceded their publication, the WDFW appears to have assembled virtually all of the pertinent scientific literature published to date, and has derived conclusions and recommendations based expressly on an analysis of those studies. The authors of the WDFW document derived their conclusions and recommendations explicitly and transparently from the cited scientific studies. When there were inconsistencies among the cited studies, the authors acknowledged them and explained their reasons for giving more weight to some studies than others.

Id. at 120-21. This committee concluded that WDFW's literature review:

> should be considered reliable and valid scientific information and because its analysis and recommendations are tailored explicitly for riparian habitats in Washington . . .

and that the PHS report:

> must be considered particularly pertinent to the designation and protection of fish and wildlife habitat conservation areas in this state that include riparian areas.

Id. at 121 (emphasis added).

The PHS report concludes that riparian buffers are crucial to the survival of salmon both in forested and agricultural lands. It details agriculture's adverse impacts:

- increased erosion and sedimentation (which clogs fish gills, decreases dissolved oxygen levels, inhibits fish feeding and growth, and suppresses food sources);
- water pollution from pesticides and fertilizers (decreasing juvenile fish survival and altering reproduction);
- water pollution from animal wastes ("[h]eavily used or improperly managed pastures and rangelands may become major sources of pollution by the sheer volume of urine and feces deposited in or near a stream");[15] and
- the direct conversion of riparian habitat to agricultural land which removes riparian vegetation (which otherwise moderates water temperature, serves as food sources, and provides logs which create pools and riffles).

AR 3820-24. The PHS report's resulting recommendations for Western Washington lowlands (including Skagit County) call for mandatory buffers (a minimum 200 foot buffer in agricultural lands). AR 3850.

Several other recent scientific literature reviews in the record have

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[15] Studies in Western Washington documented these impacts from both large- and small-scale operations. *See, e.g.*, AR 3933; AR 2672, 2674, 2681, 2687, 2691, 2701 (Skagit specific study).

evaluated these riparian processes or functions:

- Castelle *et al.* (1992) conducted a literature review of riparian zone functions in Western Washington for DOE and concluded that riparian widths approximating 30 meters (98 feet) appear to be the minimum needed to maintain biological elements of streams. (AR 3770-92.)
- Johnson and Ryba (1992) summarized the technical literature for King County and found that available information supported a minimum 30-meter riparian management zone for salmonid protection. (AR 3930-42).
- The Independent Multidisciplinary Science Team (IMST) created by the Oregon Legislature to advise that state on scientific matters related to salmon recovery, AR 601, published a scientific peer reviewed document entitled "Recovery of Wild Salmonids in Western Oregon Lowlands," which focused on impacts from rural and agricultural uses and found "[r]iparian vegetation is of fundamental importance in helping to regulate stream temperature, maintain cool stream temperature by potentially blocking incoming solar radiation, reduce stream heating, and maintain channel morphology." AR 689.

Because of such studies, it is uncontroverted in the scientific community that maintaining functional riparian buffers is essential to protect salmon habitat.

E. Skagit County Recognizes the Importance of Buffers

Skagit County itself recognizes the need to provide a substantial buffer to protect salmon streams. The County's critical areas ordinance requires protection of a sizable buffer along salmon streams (and tributaries to salmon streams) everywhere else in the County. Where salmon streams pass through industrial, commercial, or residential lands, buffers 100 to 200 feet wide are required. AR 2906 (SCC 14.24.530). Smaller streams lacking

salmon but tributary to salmon streams are protected by 50-foot buffers. *Id.* When the County adopted these buffers everywhere else in the County, it recognized that they are "consistent with the recommendations given by the WDFW and RCW 36.70A.172 [best available science]." AR 2845 (Planning Comm'n Finding 39). *See also* AR 2836 (BOCC Finding 10) (same).

The County's 2001 draft Baseline Monitoring Strategy recognizes that "[many] studies have demonstrated that functioning riparian buffers will affect water quality by reducing runoff, sediments, and nutrients, and by maintaining stable flows, water temperature, and channel morphology." AR 2819. Most recently, in its environmental review for this Ordinance, the County stated:

> While there is a range of buffer sizes recommended to achieve a fully functioning riparian area, <u>the scientific literature is almost unanimous in the conclusion that there is a direct correlation between functional riparian buffers and anadromous fish habitat.</u>

AR 1877 (FEIS) (emphasis supplied).

F. <u>The Ecosystem Needs of Fish Do Not Change Depending on the Type of Land Use Adjacent to the Stream</u>

Salmon streams need riparian vegetation (for shade, filtration, nutrients, stream structure, etc.) regardless of whether the adjacent land use is residential, industrial, or agricultural. *See* AR 627, 729; AR 5020; AR 5185 (Table 3). There is no scientific justification that ties the needs of

anadromous fish to the type or condition of adjacent land use.[16] Salmon using the Skagit and Samish Rivers and their tributaries require adequate riparian habitat whether the adjacent parcel is zoned or used for agriculture or forestry or whether the habitat has been altered from its historic condition. Indeed, where damage has been done to previously high quality habitat, the benefit provided by additional protection now is even greater.[17]

G. Skagit County's Earlier Attempts to Comply with the Act

Skagit County adopted a series of ordinances in response to GMA's critical area protection requirements.[18] These ordinances shared two traits: 1) less protection for streams flowing through agricultural lands than for streams flowing through other lands in the County[19] and 2) less protection for streams in agricultural areas than that recommended by the expert resource

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[16] A County "scientific" report found that the functions provided by large woody debris (*i.e.*, stream structure) and litter input (*i.e.*, nutrients) are not important in agricultural lands. The Northwest Fisheries Science Center reviewed that report and determined it was not supported by the scientific literature. AR 5026.

[17] AR 5020 ("Providing adequate riparian protection along lowland streams and associated riparian habitats is especially important for salmon populations, as these areas were historically the most productive ....").

[18] A more complete procedural history was recited by the Tribe in its Motion before the Board. *See* AR 4700-09.

[19] *See* AR 2242-43 (SCC 14.24.530 -- establishing 50 to 200 foot buffers around salmon streams on all non-agricultural land).

agencies.[20] The early ordinances exempted agriculture from all regulatory requirements. The later ordinances mandated buffers smaller and less restrictive than elsewhere in the County. None of the ordinances were found by the Board (or the superior court) to comply with the Act. Appeals were ultimately dismissed as moot when subsequent ordinances were adopted.

H. The County's Current Ordinance

The County responded to the Board's 2001 order (and a superior court order affirming it, AR 5287), not by strengthening buffer requirements, but by jettisoning its mandatory buffer plan and reverting to a voluntary approach (much like its previously rejected 1997 program). It is this new approach, adopted in Ordinance 20030020 and Resolution 20030210 (AR 2132-50, 2039-46 (attached as App. D), that is at issue in this appeal.

Buffers are not required by the new scheme. Instead, farmers determine themselves what actions to take to protect salmon habitat. SCC 14.24.120(3)(c). Each farmer decides for each field whether to provide a buffer at all and, if so, its width and the farming activities that will occur on it. These so-called "best management practices" are not subject to review to assure they will protect salmon. Unless there is a "credible" Request for

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[20] *See supra* at § III.C.-F.

Investigation alleging violation of the Ordinance, the County has no obligation to assess whether protective measures are being implemented.[21] *See* SCC 14.24.120(5)(b). (This contrasts starkly with the prior ordinance which required non-exempt farmers to either sign up for one of four buffer options or be subject to the County's standard buffers. AR 4844, 4854).

Farm practices must meet a "no harm" standard. SCC 14.24.120(3). The title of the standard is a misnomer. The definition of "no harm" accepts, as a given, current harmful farm practices. The definition only precludes actions that will cause even more damage than that which has already occurred. Further, any farm plan approved by certain non-county agencies prior to the date of the Ordinance is presumed to be in compliance with the "no harm"standard, regardless of whether the plan is based upon best available science or was developed to protect fish. SCC 14.24.120(5).

The Ordinance includes a few prescriptions (referred to as "water-course protection measures") regarding management of cows, pesticides, erosion and drainage maintenance. Those prescriptions are too few, too vague, and too lax to protect salmon habitat and to a large extent simply

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[21] The County does require Dike and Drainage Districts to submit maintenance checklists reflecting the Districts' intent to follow the guidelines contained in SCC 14.24.120(4)(d) before it authorizes the Districts to implement maintenance activities, SCC 14.24.120(4)(d)(v)-(v)(A), but there is no requirement that the County follow-up to see that the checklists are followed.

require compliance with existing state law. *See infra* at § IV.D.4.

The new approach also involves monitoring. But the County will not review farm practices to see if they include buffers and other agricultural practices consistent with the best available science. Instead, the County will monitor streams, purportedly to determine whether the farmers' voluntary efforts are causing additional harm and then respond - in unspecified ways - after the additional harm is identified. Res. R20030210 at §§ 3(a)(iv), 3(b)(iii) (App. D). This approach contains two fundamental flaws. One, allowing harm to occur and then responding after the fact is inconsistent with the Act's mandate to protect salmon from harm in the first place.

Two, the monitoring program itself is fatally flawed. Remedies are required only if harm can be tied to a specific farm, *id.* at §§ (3)(a),(b),(d). Habitat degradation that cannot be tied to any single farm and instead results from the cumulative impacts of multiple farms requires no response. Yet the County does not provide for a system (or funding) to monitor individual farms to identify "farm-specific" problems. Only area-wide monitoring of some streams is required, and only at five year intervals. *See, e.g., id.* at § 2a.

I. <u>The State Agency Decision</u>

The County filed its new ordinance and resolution with the Board and asserted that those actions brought the County into compliance with the Act.

AR 67-171 (not attached hereto). The Tribe, the Washington Environmental Council (WEC) and the WDFW filed memoranda explaining the numerous deficiencies of the County's action.[22] The Board split (2-1) on whether the Ordinance and Resolution complied with the Act's requirements to protect critical areas. The majority found the County complied with regard to all but two issues raised by the Tribe and WEC. AR 4573.[23]

The dissent concurred with the Tribe's (and WEC's) principal argument that the Ordinance was fundamentally flawed because its definition of "no harm" utilized current practices as the baseline and did not require modification of those practices even if they were continuing to cause demonstrable harm to salmon habitat. AR 4561-64 (App. A). The dissent rejected the majority's rationale that requiring termination or modification of a damaging practice somehow goes beyond the GMA mandate to "protect" salmon habitat and instead constitutes non-mandated "enhancement." *Id.*

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[22] AR 4682-5307, 5342-43, 792-820, 2558-3135, 3218-23, 3249-3253, (Tribe); AR 305-369, 821-852, 5308-5341 (WEC); AR 291-304, 777-785, 2534-39 (WDFW) (not attached hereto).

[23] The two deficiencies identified by the Board related to enforcement, adaptive management and monitoring. The Board directed the County to amend the ordinance to make clear that failure to comply with certain prescriptions "shall" result in enforcement upon complaint. AR 4628. It also directed the County, as it had done before, to specify how its monitoring and adaptive management programs would be conducted, what processes would be used to take corrective action when problems were identified by the monitoring program, and how quickly those corrective actions would be taken. *Id.*

Various motions for reconsideration were denied by the Board majority. AR 3424-3436. This appeal followed. CP 3-109, 119-201.

IV. STANDARDS OF REVIEW

Pursuant to the Administrative Procedures Act, RCW 34.05.570(3), this Court:

> reviews the Board's legal conclusions *de novo,* giving substantial weight to the Board's interpretation of the statute it administers. In reviewing the agency's findings of fact under RCW 34.05.570(3)(e), the test of substantial evidence is a sufficient quantity of evidence to persuade a fair minded person of the truth or correctness of the order.

King County v. CPSGMHB (King County), 142 Wn.2d 543, 553, 14 P.3d 133 (2000) (internal quotation omitted). An agency decision may also be reversed if it is arbitrary or capricious. RCW 34.05.570(3)(i). "Arbitrary and capricious" refers to "willful and unreasoning action, taken without regard to or consideration of the facts and circumstances." *Whidbey Environmental Action Network v. Island Cy.,* (*WEAN*), 122 Wn. App. 156, 164, 93 P.3d 885 (2004) . A remand may be ordered where an agency has failed to resolve all issues. RCW 34.05.570(3)(f); RCW 34.05.574.

The Board is charged with determining compliance with the GMA and, when necessary, invalidating noncomplying comprehensive plans and development regulations. *King County*, 142 Wn.2d at 552, *citing* RCW 36.70A.280, -.302. It "shall find compliance unless it determines that the

action by the state agency, county, or city is clearly erroneous in view of the entire record before the board and in light of the goals and requirements of [the GMA]." RCW 36.70A.320(3). To find an action "clearly erroneous," the Board must be "left with the firm and definite conviction that a mistake has been committed." *King County*, 142 Wn. 2d at 552 (internal citation omitted).

The Board's mandate is to determine whether the County has complied both with the Act's goals (RCW 36.70A.020) and its requirements (*e.g.*, RCW 36.70A.060 (adopt regulations to "protect" salmon)). RCW 36.70A.280(1). While the Board is to give deference to the County, RCW 36.70A.3201, the County's actions still must be consistent with the goals and requirements of the GMA. *King County,* 142 Wn.2d at 561. Thus, while the County may "balance priorities and options for action in full consideration of local circumstances," *id.*, in the end the County's discretion is "limited by the requirement that the final [ordinance] be 'consistent with the requirements and goals' of the GMA." *Diehl v. Mason Cy.*, 94 Wn. App. 645, 651, 972 P. 2d 543 (1999); *King County*, 142 Wn. 2d at 561. As discussed in the next section, the Act's critical areas requirements impose significant limits on a county's discretion. *See generally,* Copsey, *BAS*, *supra* at 138.

V. ARGUMENT

A. The Growth Management Act's Critical Area Provisions[24]

1. The Growth Management Act's goals seek to increase regulatory protection to enhance fisheries, conserve fish habitat, and protect water quality

GMA's enactment in 1990 caused a "sea change with respect to land use regulation." *Erickson v. McLerran*, 123 Wn.2d 864, 875, 872 P.2d 1090 (1994). Concerned with "rising threats to Washington's environmental quality resulting from uncoordinated and unplanned growth,"[25] the Legislature "imposed substantial new requirements on local governments" and mandated "that localities act quickly, placing strict compliance deadlines for each requirement." *Id.* at 876. Along with the State Environmental Policy Act, the GMA "reflects public recognition that the influences of population growth, industrialization, and urbanization require us to place greater emphasis on natural resource protection and urban planning." *Id.* These findings "demonstrate the Legislature's understanding that greater regulation of property use is necessary to accomplish the goals set forth in both acts." *Id.* at 876 (emphasis supplied).

The Legislature identified thirteen goals which "shall be used

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[24] A copy of the pertinent provisions of the GMA can be found in Appendix B.

[25] Copsey, *The Protection of Wildlife Under Washington's Growth Management Act*, 16 U. Puget Sound L. Rev. 1101, 1103 (1993).

exclusively for the purpose of guiding the development of comprehensive plans and development regulations." RCW 36.70A.020. Those goals have substantive authority and must be considered and incorporated into all GMA actions. *See King County*, 142 Wn.2d at 556 (counties have duty to implement goals which "mandate specific, direct action").

The goals also are important because all portions of a statute should be construed together. *See Kilian v. Atkinson*, 147 Wn.2d 16, 21, 50 P.3d 638 (2002) ("in construing a statute, courts should read it in its entirety") (footnote omitted)); *State v. Thorne*, 129 Wn.2d 736, 761, 921 P.2d 514 (1996) ("each provision must be viewed in relation to the other provisions and harmonized . . ."). The GMA's goals and requirements should be read together to give full meaning to both. *See, e.g., Redmond v. CPSGMHB,* 136 Wn.2d 38, 53, 959 P.2d 1091 (1998) (construing GMA's agricultural land conservation requirements in light of GMA's agricultural land conservation goals, court "decline[s] to interpret the GMA definition in a way that vitiates the stated intent of the statute"); *Low Income Housing Institute v. Lakewood*, 119 Wn. App. 110, 115-116, 77 P.3d 653 (2003) (Board erred in addressing only Act's requirements and ignoring its goals).

Three natural resource and environmental goals have particular significance for the protection of salmon habitat.

- Goal 8: "Maintain and enhance natural resource-based industries, including productive ... agricultural, and fisheries industries. . . ."
- Goal 9: ". . . [C]onserve fish and wildlife habitat . . ."
- Goal 10: "protect the environment and enhance the State's high quality of life, including ... water quality. . . ."

RCW 36.70A.020(8)-(10).

2. The GMA mandates adoption of regulations to protect critical areas, including salmon habitat

The GMA requires counties and municipalities to identify "critical areas," and "shall adopt development regulations that protect critical areas." *See* RCW 36.70A.060; .170. Critical areas include fish and wildlife habitat generally, RCW 36.70A.030(5)(c), and salmon habitat in particular, RCW 36.70A.172(1). The Act defines "development regulations" to mean "controls placed on . . . land use activities." RCW 36.70A.030(7).[26]

3. Protecting critical area requires protecting all their "functions and values"

RCW 36.70A.172(1) specifies that protecting critical areas means to protect "the functions and values" of those critical areas. This command's significance has been recognized by the Board and Division I:

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[26] The majority found that the County had a "strategy" to protect salmon habitat by using both regulatory and non-regulatory methods. AR 4622 (FF 11); AR 4626 (FF 29) (App. A). The Tribe encourages non-regulatory approaches to supplement regulatory efforts, but the test of whether a county has adopted "development regulations" to "protect" critical areas must be judged by reference to the "controls placed on . . . land use activities."

> The function and values component direction from the Legislature does add more requirements than the sterile designation and protection language found under Sections .170 and .060. Under the function and values component, a local government must go beyond mere designation and protection mechanisms and ensure that the real reason for identification and protection of critical areas (their functions and values) is being accomplished.

Clark County Natural Resources Council v. Clark Cy. (Clark), WWGMHB 96-2-0017 (Final Dec., Dec. 6, 1996) at 7-8 (emphasis added).

> [T]he GMA requires that the regulations for critical areas must protect the "functions and values" of those designated areas. This means all functions and values.

WEAN, 122 Wn. App. at 174-75, 93 P.3d 885 (emphasis added). Moreover, because all functions and values must be protected, "the most sensitive function or the one with the largest buffer requirement will decide the buffer width for the stream." AR 3942 (Johnson & Ryba). *See also* AR 3928 (ManTech) (buffer width depends upon function being protected).

4. Local governments must include the best available science when protecting critical areas

Enactment of the GMA acknowledged the need for "greater regulation" to accomplish the Act's goals, *Erickson*, 123 Wn.2d at 876, but by 1994 the need was evident for clearer substantive direction unique to critical areas:

> The GMA requires all local governments to provide for the protection of certain critical areas. Because of the state's interest in these areas, the Legislature must establish clear direction on the state's goals and

> policies for the protection of these areas. This direction should be given by requiring local governments to use the best available science when designating and protecting critical areas. Special consideration should be given to efforts to protect anadromous fish resources.

Governor's Task Force on Regulatory Reform, Final Report 37 (Dec. 20, 1994), *reprinted in* Copsey, *BAS*, *supra* at 102, n.15.

Consistent with this recommendation, in 1995 the Legislature amended the Act to require that local governments "include the best available science in developing policies and development regulations to protect the functions and values of critical areas." RCW 36.70A.172(1). This amendment mandates that the best available science (BAS) be reflected in the substance of the regulations:

> While the balancing of the [GMA's] many factors and goals could mean the scientific evidence does not play a major role in the final policy and some GMA contexts, it is hard to imagine in the context of critical areas. The policies at issue here deal with critical areas, which are deemed "critical" because they may be more susceptible to damage from development. The nature and extent of this susceptibility is a uniquely scientific inquiry. It is one in which the <u>best available science is essential to an accurate decision</u> about what policies and regulations are necessary to mitigate and will in fact mitigate environmental effects of new development.

HEAL v. CPSGMHB, (*HEAL*), 96 Wn. App. 522, 533, 979 P.2d 864 (1999) (emphasis added).

The BAS requirement limits the discretion of local governments:

> The science the legislative body relies on must in fact be the best available to support its policy decisions. Under the cases and statutes cited above, it cannot ignore the best available science in favor of the science it prefers simply because the latter supports the decision it wants to make.

Id. at 534. "[S]cience-based recommendations can no longer simply be disregarded in favor of competing considerations."[27]

5. State guidelines flesh out the best available science requirement

The GMA requires the Department of Community, Trade, and Economic Development to adopt rules to assist local governments in complying with GMA goals and requirements. RCW 36.70A.190(4)(b). The Department's BAS guidelines provide a road map that local governments should use to properly exercise their discretion in the complex territory of water quality and fish habitat protection. *See* WAC 365-195-900, *et seq.* (App. E). These guidelines explain that non-scientific (*e.g.*, anecdotal) information, while sometimes useful, "is not an adequate substitute for scientific information." WAC 365-195-905(5)(c). The guidelines recognize that including BAS "is especially important to salmon recovery efforts, and to other decision making affecting threatened or endangered species." WAC

[27] Copsey, *BAS, supra* at 139. The article includes a worthwhile discussion of various "competing considerations" that previously resulted in lesser levels of protection for critical areas. *Id.* at 139-40.

365-195-900(3) (emphasis added).

A cornerstone of the BAS guidelines is WAC 365-195-905. This section identifies six factors for evaluating the reliability of scientific information. The Western Board has recognized the utility of several of these factors, *e.g.*, replication and peer review. AR 4367.

The BAS guidelines also address the circumstance of incomplete scientific information. Local governments are encouraged to both:

> 1) take a "'precautionary or no risk approach,' in which development and land use activities are strictly limited until the uncertainty is sufficiently resolved;" <u>and</u>
> 2) adopt, on an interim basis, a feedback loop, *i.e.*, "an effective adaptive management program that relies on scientific methods to evaluate how well regulatory and non-regulatory actions achieve their objectives" and to timely make changes in the programs in response to that feedback.

WAC 365-195-920(1), (2). An effective adaptive management program requires: (1) adequate funding for the research component; (2) willingness to change course based upon new information; and (3) an appropriate time frame. WAC 365-195-920(2)(i)-(iii).

6. <u>Local governments must give "special consideration" to the conservation of anadromous fisheries</u>

The 1995 GMA amendment also requires local governments to give "special consideration to conservation or protection measures necessary to

preserve or enhance anadromous fisheries." RCW 36.70A.172(1). This provision operates to further limit a local government's discretion:

> This part of the statute directs measures for both preservation and enhancement. It therefore limits the discretion available to local governments when dealing with anadromous fish. In balancing the scientific evidence against issues of practicality and economics the result must be more heavily weighed towards science when dealing with anadromous fish. The "special consideration" language directs that local governments must go beyond what might otherwise be done in designating and protecting other kinds of critical areas.

AR 4365, *quoting Clark, supra* (emphasis added).[28] Copsey notes that:

> Not only does the provision require a special effort to obtain valid and reliable scientific information about the conservation and protection measures necessary to preserve or enhance anadromous fisheries, it also imposes a heightened duty to develop science-based and scientifically defensible policies and regulations that give the best possible opportunity for the survival and recovery of anadromous fisheries in Washington.

Copsey, *BAS, supra* at 142.

The "special consideration" mandate adds to the "best available science" mandate and requires regulations that "protect habitat important for all life stages of anadromous fish." WAC 365-195-925(2).[29] The rule identifies habitat protection measures based upon BAS and relevant to the

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[28] This statement is from an earlier Board order that is not the subject of this appeal.

[29] The majority notes that this guideline contemplates both regulatory and non-regulatory measures. AR 4596. But while non-regulatory approaches may be used to complement regulatory requirements, that does not undermine the mandate to give "special consideration" to anadromous fish when crafting protective regulations.

previously identified functions and values. WAC 365-195-925(3).

7. The GMA creates a conservation imperative for salmon habitat

In *King County*, the Supreme Court found that the GMA's "agricultural conservation mandate" trumped the Act's more precatory sections addressing recreation and open space. 142 Wn.2d at 588. The Court determined that "[w]hen read together, RCW 36.70A.020(8), .060(1), and .170 evidence a legislative mandate for the conservation of agricultural lands." 142 Wn.2d at 588. The analysis in *King County* applies more strongly to the conservation of critical areas and stronger yet with regard to protecting anadromous fisheries.

At first glance, it may seem like farms and fish are on equal footing. There are goals to maintain and enhance both "agricultural and fisheries industries." RCW 36.70A.020(8),[30] and to "conserve" both agricultural lands and critical areas, RCW 36.70A.020(8), (9), complemented by requirements to designate and then conserve or protect both agricultural lands and critical

[30] When the County frames the issue as "fish against farmers," it ignores the people dependent upon the fish. Indigenous people and the commercial and sports fishing industries already have reduced their harvests dramatically to lessen the impacts to the fish. AR 4051-53. To ask them to shoulder even more of the burden may force them to give up their ability to harvest salmon altogether, contrary to GMA's requirements to "maintain and enhance" the fisheries industry. RCW 36.70A.020(8).

areas. RCW 36.70A.060(1), (2); -.170(1)(a), (d).[31] But whereas conservation of agricultural lands in GMA Goal 8 is couched in terms of "encourage," no such modifier appears in Goal 9's unequivocal call to conserve fish habitat. Further, Goal 10 calls for protecting the environment and enhancing water quality (a prerequisite for properly functioning fish habitat). RCW 36.70A.020(9); (10). There is no counterpart for agriculture.

Strikingly, the GMA mandates local governments to include the "best available science" in critical areas regulations and to give "special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries." These provisions evince a legislative purpose more focused on protection of critical areas generally and endangered salmon habitat, in particular. There are no parallels in GMA's agricultural provisions.

The Legislature's intent to assure local compliance with the State's interest in protecting critical areas is also evidenced by GMA authorization of Boards to "retain scientific or other expert advice to assist in reviewing a petition . . . that involves critical areas." RCW 36.70A.172(2). The Boards

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[31] Inexplicably, the majority asserted that the mandate in RCW 36.70A.060 to conserve agricultural lands is not matched by a requirement to protect "fisheries." AR 4591. The majority ignored that while the section does not call for the protection of "fisheries," it does require protection of "critical areas" which are defined to include "fish and wildlife habitat," RCW 36.70A.030(5).

do not enjoy this broader authority when they review ordinances to preserve agricultural lands or to comply with any of the GMA's other requirements.

Additionally, the mandate to adopt development regulations to conserve farm and other natural resource lands is limited by the proviso that those regulations "may not prohibit uses legally existing on any parcel prior to their adoption." RCW 36.70A.060(1). There is no similar limitation in the mandate to adopt critical area regulations. *Id.* at -.060(2). Thus, the GMA contemplates that critical area regulations may require change or termination of existing uses.

The unique importance of critical areas is underscored by the GMA requirement that <u>all</u> counties and cities adopt critical area regulations, RCW 36.70A.060(2), but that only select counties adopt regulations to conserve natural resource lands, including agricultural lands, RCW 36.70A.060(1).

In sum, while the Act's agricultural conservation provisions can trump the Act's more precatory recreation provisions, *see King County, supra,* the agricultural mandate is not omnipotent, *see, e.g., City of Redmond v. CPSGMHB*, 116 Wn. App. 48, 65 P.3d 337 (2003) (approving municipality's decision to allow farmlands to be converted to soccer field use consistent with Act's urban growth objectives). Some impact on agricultural

lands may be tolerated to meet the GMA's exceptionally strong and precise mandate to protect critical areas, especially imperiled anadromous fish habitat.[32] The mandate to protect critical areas occupies a truly unique niche in the Act. The majority erroneously failed to recognize this, treating the Legislature's disparate commands as co-equal. *See* AR 4590.

B. The Ordinance is Fundamentally Flawed Because it Does Not Require Buffers to Protect Salmon

In its current ordinance, Skagit County has reverted to a program that primarily relies on farmers to utilize "best management practices" (supplemented by vague, unproven "watercourse protection measures"), rather than require buffers along salmon streams and their tributaries as required everywhere else in the County and as called for by the best available science.

Fundamentally, the County's approach is flawed because it does not require the establishment of riparian buffers. Mandatory buffers are the only known method for providing the required protection. *See supra* at § III.D. *See also,* AR 1537 (". . . protective buffers for streams provide the most reliable method of allowing streams to perform their natural functions, and

[32] *See also* WAC 365-190-020 ("It is the intent of these guidelines that critical areas designations overlay other land uses including designated natural resource lands . . . . Future operations or expansion of existing operations should be done in consideration of protecting critical areas").

thereby provide suitable habitat for fish and wildlife"); AR 5019 (NWFSC) ("Fully functioning riparian zones are critical to properly functioning stream ecosystems"). Instead, a riparian buffer will be implemented only if the farmer voluntarily utilizes one. Because of this defect alone, the Ordinance does not include the BAS, does not "protect" all functions and values of critical salmon habitat, and is not guided by the Act's goals to protect and restore salmon habitat or its mandate to "give special consideration" to the needs of anadromous fish. As detailed next, the majority misconstrued these legal requirements, the facts, or both, in upholding the Ordinance.

C. The Majority Committed Numerous Errors in Concluding That a System Without Buffers Comports With the Best Available Science

After summarizing the parties' contentions, AR 4579-91, and quoting various legal provisions and prior Board cases pertaining to critical area protection, AR 4591-94, the majority offered several rationales for its conclusion that buffers are not required for salmon streams and agricultural lands. The various rationales suffer a number of legal and factual flaws.

1. The majority incorrectly used "existing conditions" as the benchmark for salmon protection

The Ordinance is shaped to protect only "existing" functions and values of salmon habitat. The key term "no harm or degradation" uses

"present" conditions as the baseline for measuring harm. SCC 14.24.120(3)(a). Various prescriptive measures are tied to that definition, too. *See, e.g.*, SCC 14.24.120(3)(c)(i-iv); (4) (App D). The Watercourse Protection Measures are required only if necessary to protect "existing" functions and values. SCC 14.24.120(4). Thus, activities which in the past have degraded salmon habitat may continue in the future as long as they do not cause the present degraded condition to worsen.

Allowing damaging activities to continue unabated does not "protect" salmon habitat or meet the Act's related goals and requirements. The County argued and the majority concurred that the mandate to protect salmon habitat allows regulations that permit continuation of historic, damaging activities so long as there is no increase in harm. Thus, the majority repeatedly refers to the Act's "protect" mandate in terms of protecting"existing" functions and values of critical areas. *See, e.g.*, AR 4576, 4579, 4592, 4594, 4597, 4621. By using "existing" functions and values as the base line, the majority effectively exempted all pre-existing damaging activities from the Act's mandate to protect salmon habitat. Yet the current "existing" conditions reflect damage wrought by the absence of mandatory buffers. The Ordinance's protection of only "existing" conditions permits farming to continue

without buffers and allows historic damaging activities to continue unabated.

The majority committed an error of law in concluding that the statute requires protection of only "the *existing* functions and values of" salmon habitat. As detailed below, when the Act commands counties to adopt regulations to protect the functions and values of salmon habitat, the Legislature did not intend to allow pre-existing activities that are harmful to salmon to continue unabated.

Local governments historically have had the power to impose new regulatory requirements on the activities of ongoing, lawful businesses. *See Rhod-a-Zalea and 35th Inc. v. Snohomish County*, 136 Wn.2d 1, 9, 959 P.2d 1024 (1998). The GMA goes beyond merely echoing this well-established authorization; it imposes a mandate: counties "shall adopt development regulations that protect critical areas" including fish habitat. RCW 36.70A.060(2). In developing those regulations, counties must include the BAS "to protect the functions and values" of those areas. RCW 36.70A.172(1). Conspicuously absent from either mandate is the adjective "existing." The Act contains no such limitation. In the guise of "construing" the statute, the majority committed an error of law by adding a term that the Legislature chose not to include. *State v. Delgado*, 148 Wn.2d 723, 727, 63

P.3d 792 (2004) (courts "cannot add words to unambiguous statute when the legislature has chosen not to include that language"). The majority's construction of "protect" to allow maintenance of degraded, *status quo* conditions nullifies the Legislature's direction to "protect the functions and values of critical areas."

The Legislature's intent is made clear by the disparate commands to adopt regulations to conserve natural resource lands and to protect critical areas. The Legislature directed local governments not to limit pre-existing activities when adopting regulations to conserve resource lands. RCW 36.70A.060(1). No such limitation was included by the Legislature in the very next subsection of the Act, containing the mandate to adopt regulations to protect critical areas. *Id.* at -.060(2). Clearly the Legislature recognized that critical area protection would require limiting historic activities that continue to damage those critical areas.

Furthermore, statutes should be construed to effect their purpose and to avoid unlikely, absurd or strained consequences. *State v. Stannard,* 109 Wash.2d 29, 742 P.2d 1244 (1987). Common sense makes clear that allowing damaging practices to persist does not "protect" a critical resource.

The majority erred by setting up a false distinction between the terms

"protect" and "enhance" when it reasoned that if damaging activities were stopped, the result might be an improvement in the critical areas; that this would constitute "enhancement;" and that "enhancement" went beyond the requirement to "protect" critical areas. AR 4592-97.

The dissent did an excellent job of exposing this and other fallacies of the majority's reasoning. Because the word "protect" is not defined in the GMA, the dissent appropriately referred to the common dictionary definition, *HJS Dev., Inc. v. Pierce County*, 148 Wn.2d 451, 479, 61 P.3d 1141 (2003), and then drew an apt analogy:

> The dictionary definition of the word "protect" is not "to preserve the status quo." Instead, Webster's defines "protect" as "to shield from injury, danger, or loss." *Webster's New World Dictionary of the American Language (College Edition 1966).* To "protect" implies actions that will improve an existing situation if the situation is presently dangerous or bad. For example, we would never conclude, in the ordinary meaning of the word, that the police had "protected" a battered woman or an abused child by allowing a continued practice of battery and abuse. While that would preserve the status quo, it would not protect the victim. "Protect," in that context, would require intervention and change.

AR 4562-63. As the dissent demonstrated, the majority's reasoning is based on a false premise -- that "protect" and "enhance" are mutually exclusive. They are not. *Id.* Protecting a resource (*i.e.*, shielding from harm) can result in its enhancement. *Id.* Natural systems are dynamic. Given time, a damaged

resource can restore itself if protected from additional harm. The Act requires counties to "protect" critical areas. If, in a given situation, protection allows the system to recover (*i.e.*, be "enhanced"), the regulation is not beyond the scope of the mandate to "protect." AR 4563-64.

The Board and County recognized this earlier. In a 1997 decision involving an earlier version of the ordinance, the Board stated:

> . . . citizens must also understand that if damaged, buffers must be allowed to rehabilitate naturally <u>to their pre-damaged purpose and function</u>. The Ordinance [an earlier ordinance] is not clear in these regards.

AR 4291 (emphasis supplied). The County then complied and amended the offending provision of its ordinance to explicitly state:

> Low impact uses and activities which are consistent with the purpose and function of the habitat buffer and do not detract from its integrity may be permitted within the buffer depending on the sensitivity of the habitat involved <u>provided that such activity shall not prevent or inhibit the buffer's recovery to at least pre-altered condition or function</u>.

AR 4001(emphasis supplied). *See also* AR 2795 (County defends an earlier buffer program on grounds that it would "contribute directly to protecting <u>and</u> enhancing salmon habitat" (emphasis supplied)). The Board's current decision conflicts with its earlier decision (and the County's earlier position) and ignores the plain meaning of the word "protect."

The dissent identified another fallacy in the majority's (and County's) reasoning. If "protect" means only maintain the *status quo*, then it becomes necessary to determine the date upon which this "*status quo*" was fixed. AR 4563. Under the County's reasoning, does the duty to protect critical areas refer to the status of the critical areas in 1990 when the Act was adopted, in 1991 (by which date interim critical area ordinances were to be adopted), in 1995 (by which date final critical area ordinances were to be adopted), in 2003 (the year in which the County adopted the subject ordinance), or in any other year of the County's choosing? The County acknowledged that the Legislature did not set such a date in the GMA. *Id.* As the dissent explains, *if* the Legislature intended to require only protection of the "existing" state of critical areas, it would have defined the date at which that determination was to be made.[33] Its failure to specify such a date "militates *against* the idea that a protection standard should be read to mean leaving things in a state they were in at a particular time. . . ." *Id* (emphasis in original).

The majority's (and County's) construction of the word "protect" also is contrary to the requirement that a statute be read as a whole. *See supra* at

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[33] When the Legislature intends to utilize the *status quo* as the basis for imposing substantive GMA standards, it has clearly established the date at which the *status quo* is measured. *Id.* (*citing* RCW 36.70A.070(5)).

26. The critical area development regulations mandated by RCW 36.70A.060(2) must be "guided by" the goals in RCW 36.70A.020. Those goals call for counties and cities to "maintain *and enhance*" fisheries and to "enhance" water quality. RCW 36.70A.020(8) and (10). *See also* RCW 36.70A.172(1) (counties and cities "shall give special consideration to conservation or protection measures necessary to preserve or *enhance* anadromous fisheries")(emphasis supplied). This legislative guidance clearly militates against a reading of the word "protect" that would accept degraded *status quo* conditions as the standard for future performance and which would exclude from the "protect" mandate measures which both "protect" and "enhance." The Board erred in construing the statute otherwise.

2. The majority's finding that buffers are not needed to protect salmon if a stream bank already is degraded is not supported by substantial evidence

By erroneously limiting the "protect" mandate to existing conditions, the majority avoided delving into the scientific evidence that overwhelmingly demonstrated the need for buffers and avoided *HEAL's* admonition that the best available science inquiry is a "uniquely scientific inquiry." *HEAL*, 96 Wn. App. at 533. The majority should have reviewed the scientific literature to determine the biological needs of fish. To conclude, as the majority did,

that the Act does not require buffers without discussing the scientific record represents another fundamental legal and factual error in the decision.

The majority may have briefly touched on the evidentiary issue when it stated that buffers are not necessary "where current stream conditions do not meet all those functions and values, and where the functions and values in that location are not necessary to preserve anadromous fish. . . ." AR 4597. This statement is not followed by any citation to the abundant scientific record -- and for good reason. The record contains no evidence demonstrating that a buffer is "not necessary to preserve anadromous fish." To the contrary, the scientific evidence overwhelmingly points to riparian buffers as the mechanism to protect the functions and values of fish habitat. *See supra* § III.B.-F. Given that the Ordinance exempts <u>all</u> streams in agricultural areas from the County's otherwise mandatory buffer requirements, AR 2243 (SCC 14.24.530), there should be substantial evidence to support the majority's determination that, in effect, buffers "are not necessary" along <u>any</u> stream in the County's agricultural areas "to preserve anadromous fish." There is no such evidence in this record.

3. <u>The majority misconstrued the Ordinance</u>

The majority also misconstrued the Ordinance, stating that the GMA

does "not require buffers on every stretch of every water course containing or contributing to a water course bearing anadromous fish"[34] -- as if the Ordinance requires buffers on most streams. But the reality is that (contrary to a prior ordinance), the current ordinance does not require buffers along any water course in agricultural lands. The majority evidently misunderstood the Ordinance, which led it to the wrong result.

4. The Ordinance's provision for a remedial response only after documentation of additional harm is based on a flawed definition of "harm," is not consistent with the best available science, and is unworkable

The majority next justifies its decision by claiming that:

> [t]he County's "do no harm" approach, in fact, requires that a buffer or a BMP [best management practice] will be required if a farming practice is shown "doing harm to [fish habitat]" and is needed to protect the function necessary for that life stage of anadromous fish.

AR 4595 (emphasis added). This rationale suffers from multiple defects, too. First, this provision does not require buffers. As the majority acknowledges, even if harm to the critical area is demonstrated, the landowner can use a buffer or implement a BMP. SCC 14.44.085(4)(d), (5)(c) (App. D).

Second, as discussed above, the Ordinance defines harm by reference to "existing" functions and values. SCC 14.24.120(3)(a). An activity meets

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[34] AR 4594 (emphasis supplied).

the "no harm" definition if it causes or maintains the same level of harm that occurred in the past. These harmful activities will pass the inaptly named "no harm" test and not trigger any response (buffer or BMP).

Third, no regulatory requirement can be "required" until after the harm has occurred. But the Act requires ordinances to protect critical areas from harm, not expose them to harm and take corrective action later. As the dissent explained, the Ordinance fails to protect critical areas and instead relies on "an enforcement process to catch offenders *after* the harm has occurred." AR 4570 (emphasis in original). There is no scientific basis for relying on voluntary measures in the meantime. As Washington's Independent Science Panel found, "reliance on historically ineffective voluntary measures . . . is likely to result in false expectations and is not based in science"; reliance on voluntary measures has "little chance for success" in reversing salmon decline. AR 4908. [35]

Fourth, this conditional buffer or BMP "requirement" is unworkable. It requires pinpoint monitoring to identify individual farming practices that

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[35] *See also,* AR 738 (IMST) ("The poor condition of lowland systems demonstrates that land use practices and management have been ineffective in maintaining healthy streams and anadromous fish populations. An example may be the use of complaint-driven processes by state natural resource agencies.")

are causing additional harm to salmon streams, but pinpoint monitoring is not available. The Ordinance provides:

> An owner or operator is responsible only for those conditions caused by agricultural activities conducted by the owner or operator and is not responsible for conditions that do not meet the requirements of this subsection resulting from the actions of others or from natural conditions not relate to the agricultural operations. . . .

SCC 14.24.120(3)(d). *See also, id.* at (3)(a)(v) (defining "harm" in terms of degradation "that can be directly attributed to" specific agricultural activities).

These provisions create a standard that puts the County (or more to the point, a concerned citizen[36]), in the virtually impossible position of attempting to isolate a cause and effect relationship between a single farm's operations and deleterious impacts to fish habitat. Yet, the County's monitoring program only tracks general trends and conditions and only in some streams. R20030210 at § 1(a); (2) (App. D).[37] It does not begin to put in place the elaborate and costly monitoring apparatus necessary to identify

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[36] The County's enforcement system is complaint driven. *See, e.g.*, SCC 14.24.120(3)(d); -(5)(b); -(6); 14.44.085(2) and (3) (App. D).

[37] The Resolution requires monitoring only in <u>representative</u> salmon-bearing watercourses county-wide at five year intervals for the purpose of identifying changes and trends. R20030210, § 2(a). Because monitoring of all watercourses is not required, the "no significant degradation" provision can only be enforced in those watercourses selected as "representative" for the County's habitat inventory. And because the "representative" watercourses will only be inventoried every five years, even at those locations, it will be virtually impossible to determine whether a given activity is responsible for the habitat conditions measured. As for the "non-representative" watercourses, there is no means to identify a cause and effect relationship between farm practices and harm to salmon habitat.

an individual farm's contributions to stream impacts. Nor does the monitoring allow for timely response, R20030210 § 2(a) (five year intervals).

Even with unlimited funding, it would be difficult, at best, to establish a monitoring program to identify harm caused by the practices of an individual farm. These streams flow past property owned or managed by numerous landowners. Water flowing through the Skagit Delta may be overheated (because of lack of shade) and dirty (because of lack of sediment control and input of pesticides), but documenting which individual farm (or farms) contributed a particular quantum would require a monitoring program of great complexity and expense. Monitoring stations would have to be established for each farm where a stream enters and exits the farm property to determine the impact a farm has had on the stream. Similar stations would have to be set up for each farm along the stream. Each stream (and ditch feeding a stream) would require monitoring stations. Moreover, these stations would have to collect data continuously to pick up variations such as periodic applications of pesticides and increased sediment flows after heavy rains.

While the majority recognized some deficiencies in the monitoring program, AR 4617-19, it erred in not recognizing their full significance. Because the monitoring program is not capable of identifying harm caused

by individual farms, the conditional BMP or buffer requirement will rarely be triggered. The harm caused by the cumulative impact of many relatively small adverse impacts will continue unabated.[38]

Moreover, this defect is not cured by reference to the County's enforcement program; the same defect recurs there. The enforcement program is initiated by a "credible Request for Investigation" (RFI). SCC § 14.44.010. But site-specific monitoring by the County occurs only occurs after an RFI has been filed and a violation is found. *See, e.g.,* SCC 14.44.085(4)(c) (requiring monitoring after a violation is found); 14.44.085(5)(d) (same). This creates a perfect "Catch-22." No site specific monitoring is available until after a violation has been found, yet a violation cannot be found until site-specific monitoring is undertaken. Thus the majority's finding (FF 24) that the County included "necessary" enforcement provisions is wrong as a matter of law and is not supported by substantial evidence.

For each of these reasons, the majority erred as a matter of law in construing SCC 14.24.120(3)(a) to provide a timely and adequate trigger for buffer requirements sufficient to meet the Act's salmon protection goals and

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[38] For many salmon streams, it has been "death by a thousand cuts." *See* AR 5192-93 ("Current land use activities in the Skagit Basin are more likely to affect side channels than main stem habitats, primarily as a result of cumulative impacts of many small, unrelated and poorly regulated actions").

requirements.

5. The majority's reference to local environmental conditions is not based on substantial evidence and/or is based on an error of law regarding the types of local environmental conditions that can influence the best available science determination

The majority rationalized that buffers are not required because the "best available science" standard is imprecise and provides counties with "flexibility to craft regulations that reflect local conditions." AR 4599. The majority focused on one local condition: past alterations of riparian habitat in County agricultural areas, AR 4622 (FF 10), and concluded this "altered" condition warranted elimination of buffer requirements. AR 4627 (CL 1).

We agree that the "best available science" standard in isolation may be imprecise and regulations should reflect significantly different, local environmental conditions. But the standard is fleshed out considerably in the legislatively-mandated guidelines. WAC 365-195-900-925 (App. E). Moreover, and dispositively, the record is devoid of any evidence of local environmental conditions that would eliminate the need for buffers only on streams in agricultural lands in Skagit County (or other similar areas in western Washington where much of the research has focused). While a

county may have knowledge of some local circumstances,[39] *see* AR 4575, the scientific literature uniformly identifies buffers as a requisite part of salmon habitat protection in lowlands west of the Cascades whether streams are flowing through lands devoted to agriculture, residential, or any other land use and regardless of whether the landscape has been altered from historic times. *See, e.g.*, AR 729 (IMST) ("no scientific basis for current differences between management activities in riparian areas" across land uses); AR 3018, 3933 (Johnson & Ryba) ("While land use may vary, the resulting environmental alterations generally affect riparian systems in similar ways").

In virtually all the BAS studies, the landscape studied was not pristine and had been altered, yet buffers were uniformly recommended. *See, e.g.*, AR 634-37, 702-03 (IMST); 3770-73 (Castelle); 3849-50 (PHS); 3934 (Johnson & Ryba). Moreover, as the IMST found, "land uses and fish management strategies resulting in non-historical ecological conditions may support productive salmonid populations, but the evidence for recovery of

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[39] The majority's statement that the County has the "best knowledge" regarding unspecified "local circumstances" should not be read to include the status and needs of salmon in the County. The record shows the Skagit System Cooperative (a consortium of Skagit River Tribes) possesses by far the greatest technical expertise on local fishery management and research issues. AR 627, 2921; 3943, 4805-35. The Cooperative is well-respected for its fisheries research in the Skagit Basin. AR 2845 (Planning Comm'n FF 38). In 1995, the Cooperative won a national award from the American Fisheries Society for its article on land use impacts on Skagit coho. AR 5180-94. If the "best knowledge" finding is read to cover technical fish habitat issues, it is not supported by substantial evidence.

wild salmonids under these circumstances is neither extensive nor compelling." AR 603-04. The County cannot point to one study showing that salmon habitat is adequately protected in the absence of a riparian buffer. Thus, the majority's conclusion that historic degradation of habitat in this locale justifies relaxed protection standards is not supported by substantial evidence.

6. The majority's conclusion regarding the precautionary nature of the ordinance is inconsistent and flawed

The BAS rules recognize that there may be "uncertainty" or "incomplete scientific information" about the risk of harm to critical areas. WAC 365-195-920. In such situations, counties are to adopt a "'precautionary or no risk approach,' in which development and land use activities are strictly limited until the uncertainty is sufficiently resolved. . ." *Id.* at sub§(1).

Here, in lieu of proven buffers, Skagit County has embarked on an experimental program that has no scientific validation. Instead, the County relies on farmers to voluntarily modify their practices (despite evidence that, historically, voluntary measures have failed);[40] on incomplete monitoring to see how things work; and on adding further requirements later, after harm occurs (but only if the harm can be linked to an individual farm by the spotty,

[40] Moreover, given that farmers dispute the evidence in the record as to the harmful effects of many agricultural practices, AR 4580, the County lacks convincing evidence for its claim that farmers will adopt more protective practices voluntarily.

inadequate monitoring program) and even then will not require buffers. The County has no scientific studies that validate the efficacy of this scheme. The Ordinance is not consistent with a precautionary approach.

An area through which all salmon must pass is the worst place for an experiment. Because many agricultural lands are at or near the mouth of the Skagit river,[41] adverse impacts will affect the entire Skagit salmon population[42] -- a population the State and citizens identified as most important to regional salmon recovery efforts. AR 4074; RCW 77.95.140.

A "strategy" of experimenting with less regulation of streams in the County's agricultural lowlands by pointing to more stringent measures elsewhere (*see* AR 4622) ignores the biological needs of fish. An experiment like this, if it is to be tried at all, should be limited in geographic scope, perhaps affecting a few streams not critical to the salmon resource overall (as WDFW has repeatedly suggested). AR 1486. It should not be permitted across all agricultural lands, particularly where those lands contain some of the most valuable salmon habitat. AR 1157 (current and historic salmon

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[41] *See* AR 1129, Fig. 1-1 (showing agricultural and rural resource lands in County).

[42] *See supra* at 405; AR 738 ("Based on our scientific review, recovery of wild salmonids requires habitat that is functional across the landscape. For example, management of upland riparian zones in conjunction with those on adjacent lowlands is needed to maintain the dynamics of riparian structure and function across the landscape").

waters deemed essential fish habitat under the Magnuson-Stevens Fishery Conservation and Management Act of 1996, 16 USC 1855(b)); AR 1406.

The majority found that because "information about existing fish habitat at this time is incomplete, it is not clear that" the County's approach is too risky and not precautionary. AR 4599.[43] This statement turns the precautionary principle upside down. The finding that information about existing fish habitat is "incomplete" underscores the necessity for taking a precautionary approach. With salmon hanging on the brink and the Ordinance's novel approach to protection untried, best available science requires a conservative, precautionary approach that does not unfurl the experiment across the Skagit and Samish deltas and up the rivers, too.

Later in its opinion, the majority concludes the opposite, namely "that the County has not chosen a precautionary approach." AR 4617. But rather than striking down the County's risky experiment, the Board required only that the County adjust its monitoring program to provide "more detail and specificity." AR 4619. A monitoring and adaptive management program in this situation provides too little protection, too late. The BAS guidelines

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[43] The County claimed, AR 4582, that the BAS relied upon by the resource agencies and the Tribe was not relevant to agricultural lands since "[much] of this scientific literature assesses impacts and habitat conditions from different physical contexts, . . ." AR 1131. But this criticism has been roundly rejected by the scientists. *See* AR 729, 5019.

require both an effective adaptive management program and a "precautionary or no risk approach" when confronted with inadequate scientific information. WAC 365-195-920(1) and (2). The County's approach has neither.

The statutory mandates to "protect critical areas" and to "give special consideration" to anadromous fisheries; the regulatory focus on a "precautionary or no risk approach;" and *HEAL*'s recognition that the GMA mandates regulations that "will in fact mitigate" impacts, individually and collectively preclude Skagit County from opting for experimental measures that impact virtually all county watersheds so critical to salmon. The Ordinance is not consistent with the required precautionary approach. The majority's decision upholding the Ordinance should be reversed.

7. The majority erred in excusing mandatory buffers because of concerns about the impact on farmers' eligibility for a federal farm program

A federal program known by the acronym CREP (Conservation Reserve Enhancement Program) provides financial assistance to farmers to conserve habitat by taking measures beyond those required by law. The County contended that mandatory buffers should not be required because, once mandated, farmers would be ineligible for CREP assistance to implement the buffers. The majority agreed and found that mandatory

buffers "would jeopardize eligibility for federal farm programs, including the CREP program which provides substantial resources and incentives to establish riparian buffers." AR 4622 (FF 12) (citations omitted). Though not stated explicitly, the majority apparently relied on this finding in concluding that the Ordinance met the Act's requirements.

The Board's finding is not supported by substantial evidence for three reasons. First, farmers have not been enticed by the offer of federal dollars.. *See* AR 2722 (CREP enrollment figures for the County). Second, despite the County's four extensions of the deadline for that program, farmers still did not sign up, and worse, they inactivated their prior applications. *Id.* While CREP may, in theory, provide opportunities for "substantial resources and incentives," in fact, that has not been the case. Third, the County could simply adopt a mandatory buffer program with a deferred implementation date that would allow farmers sufficient time to sign up and have their CREP applications approved before the mandatory buffer requirement took effect.

8. The failure to require buffers is not excused because of concerns of the economic impacts on farmers

While the majority did not base its decision on the economic impact of buffers on agricultural productivity, it cited this impact when explaining why the County was reluctant to impose mandatory buffers. AR 4597. *See*

also AR 4621-22 (summarizing economic data in EIS). Contrary to the County claim that farm economics constitutes a unique local circumstance justifying a departure from the Act's requirements, there is no evidence that Skagit farmers stand in a different economic position than farmers in other jurisdictions.[44] Moreover, that data is of limited legal significance because of the Act's conservation imperative for salmon habitat. *See* V.A.7, *supra.*

Nor is the majority's finding that these economic impacts were "documented" supported by substantial evidence. AR 4597. The economic data cited in Finding 9 does not constitute substantial evidence, as shown by a peer review of that data.[45] AR 4930-46. Fundamentally, the County's economic analysis was severely criticized for considering only the adverse impact to farmers if buffers are imposed and not the adverse economic impact to fishers if buffers are not imposed. AR 4931-36. This flaw indirectly implicates GMA goal 5 which requires the County to "encourage economic development . . ., promote economic opportunity for <u>all</u> citizens of this state,

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[44] *RIDGE v. Kittitas Cy.*, EWGMHB No. 94-1-0017 (Order on Non-Compl., 4/3/1995) (RIDGE) (economic analysis deficient where County failed to show liability costs unique to land excluded from designation).

[45] The review was undertaken by independent economists retained by the Tribe. Their qualifications were exemplary. *See* AR 4976-5015. They have won numerous awards. *Id.* Their clients include numerous Fortune 500 companies, foreign governments, the federal government, States, and Tribes. *Id.* In contrast, the record is devoid of any qualifications for the County's consultants.

especially for unemployed and for disadvantaged persons, and encourage growth in areas experiencing insufficient economic growth. . . . ." RCW 36.70A .020(5) (emphasis added). Even if an economic analysis is relevant to a BAS inquiry for critical area protection, the County's one-sided analysis would not qualify as BAS. It was based on speculation regarding impacts to farmers, suffered from "numerous methodological defects that bias the results in favor of" the County's chosen option, AR 4940, and otherwise suffered numerous other flaws, *see* AR 4940-44. Consequently, the independent peer reviewers concluded that the analysis is "unfit for a public policy analysis that requires balancing effects on agriculture and salmon" AR 4944. Because the County's economic data is not substantial evidence, it cannot support the County's failure to require riparian buffers.[46]

9. The majority erred in finding that the County's statement of support for other salmon projects helps to satisfy its duty to protect salmon habitat

The majority found that "the County's commitment to participate in ongoing habitat restoration and salmon recovery efforts" undertaken by other agencies "helps to satisfy the GMA's requirements for protection of" salmon

[46] *See RIDGE, supra* (county out of compliance where it failed to provide sufficient economic analysis to support its assumption that the designation of certain lands as timber lands of long term commercial significance threatened the economic viability of forest production on these lands).

habitat. AR 4626. While this statement is contained in a finding of fact, the flaw is an error of law. Under the GMA, the County has the duty to "protect" critical areas by adopting "development regulations." RCW 36.70A.060(2). "Development regulations"are defined to mean "*controls* placed on development or land use activities . . ." RCW 36.70A.030(7) (emphasis supplied). The majority erred as matter of law in finding that County support of salmon restoration projects by other entities "helps to satisfy" the County's duty to "adopt development regulations" to "protect" salmon habitat.

D. The Majority Erred in Approving an Ordinance Based on a Definition of Harm That Does Not Cover All of the Necessary Functions and Values

The County's definition of "no harm" suffers additional flaws, detailed below, which allow damage to salmon habitat. In addition, there is no substantial evidence to support the majority's finding that the Ordinance will protect even the existing functions and values of fish habitat. AR 4621 (FF 4). As described earlier, *supra* at § III.B., the BAS identifies seven habitat functions that must be provided to protect fish. Because all seven functions must be fulfilled for fish to survive, AR 4385-86, defining "harm" for only some functions does not meet the Act's requirements. *WEAN, supra.*

1. The "no harm" standard does not address food supply

A critical riparian function is food supply. "Riparian areas are the dominant contributor to the aquatic food web." AR 3815. Riparian vegetation harbors insects and provides leaf litter, both of which form a critical part of the food chain for salmon. Thus, the absence of riparian vegetation in County farmlands reduces essential nutrients for salmon. AR 3780; AR 3896.

Despite the importance of the riparian corridor's nutrient function, the "no harm" standard fails to address it -- let alone protect it -- at all. This critical omission alone renders invalid the majority's implicit finding that the Ordinance's "no harm" standard satisfies the GMA mandate to "protect" salmon habitat. That implicit finding either was based on an error of law (regarding the requirements of the Ordinance, the GMA, or both) and/or is a finding not based on substantial evidence in the record.

2. Three components provide virtually no coverage

a. The Ordinance's mandate to comply with TMDL "requirements" is a nullity

Part 2 of the "no harm" standard calls for "meeting the requirements of any [Total Maximum Daily Load ("TMDL")] requirements established by the Department of Ecology." But under the TMDL program, while States are provided incentives to implement corrective measures to reduce pollution, there are no "requirements." *Pronsolino v. Nastri*, 291 F.3d 1123, 1140 (9th

Cir. 2002). *See also* AR 5058-60 (*citing and quoting* WDOE, Guidance Document for Developing TMDLs (June 2002)). Therefore, the definition's incorporation of TMDL "requirements" is a nullity.

Further, the majority's conclusion that "the scientific community" has recognized TMDLs as "the only effective method" to address "nonpoint" pollution of larger water bodies, AR 4623 (FF 15), is not supported by substantial evidence. The scientific literature is replete with recommendations to adopt buffers for agriculture's nonpoint pollution. *See supra* at § III.D.-F.

b. Compliance with the Hydraulic Code does not fill the protection gap

The "no harm" standard also requires compliance with the applicable requirements of the Hydraulic Code (RCW 77.55). SCC 14.24.120(3)(a)(iii). But the Hydraulic Code only applies to actions occurring within the stream itself (*i.e.*, within the ordinary high water mark). RCW 77.55.100(2)(b). It does not apply to farm activities within drainage ditches that are artificial watercourses, RCW 77.55.100(8), and thus, those activities are exempt from the Act. RCW 77.55.100(1). The Code provides no protection from the vast majority of agricultural activities that occur on the lands adjacent to streams.

c. Meeting the qualified no "significant degradation" standard will not protect fish habitat

A third component of the County's "no harm" standard calls for:

> no evidence of significant degradation to the existing fish habitat characteristics of the watercourse from those characteristics identified in the baseline inventory described in Resolution No. R2003210 that can be directly attributed to the agricultural activities that are described in this ordinance.

SCC 14.24.120(3)(a)(v) (emphasis added). This provision of the "no harm" standard suffers four disabling defects. One, this standard is flawed because it uses "existing" habitat as the benchmark. *See supra* at § V.C.1.

Two, on its face, this provision permits degradation of existing fish habitat characteristics -- so long as it is not deemed "significant." This provision is inconsistent with even the County's interpretation of GMA requirements because it allows additional gradual degradation of fish habitat characteristics below the level of even the "existing" functions and values.

Three, this standard is deficient because it relates only to those parameters "identified in the baseline inventory in Resolution R2003210." SCC 14.24.120(3)(a)(v). But the baseline monitoring does not cover all of the seven necessary functions and values of salmon habitat, does not cover all streams, and is to be conducted too infrequently to make the "directly attributable" determination. *See supra* § V.C.4.

3. Incorporation of State Water Quality Standards provides inadequate protection for salmon habitat

The "no harm" definition prohibits activities that result in violation of state water quality standards. But this incorporation by reference suffers many problems. One, the incorporation is flawed because it is tied to "existing" habitat conditions. *See supra* at V.C.1. Two, the standards do not address several important riparian functions, *i.e.*, nutrients, physical structure and stream flow functions. Three, the standards ignore cumulative impacts; a violation occurs only when an individual farm's actions can be documented to cause a violation of the standards. Four, the few functions addressed by the standards are addressed only incompletely. For instance, the standards address only sediment suspended in the water column (turbidity), WAC 173-201A-200(1)(e), not sediment which settles out. The latter (bedload sediment), as described *infra* at V.D.4.b, is more harmful to salmon than sediment suspended in the water column, AR 3898. Finding 14 is not supported by substantial evidence to the extent it suggests that the majority (not just DOE) found that the water quality standards are appropriate for measuring impacts to salmon habitat.

4. <u>The County's watercourse protection measures are tied to the flawed "existing" conditions baseline, exempt some farmers, and contain many other flaws</u>

While relying primarily on farmers to devise their own programs to

protect salmon streams, the Ordinance imposes a small number of prescriptive measures, referred to "watercourse protection measures" (WPMs), relating to livestock and dairies; nutrients and pesticides; erosion control; and drainage maintenance. SCC 14.24.120(4). Each category contains distinct measures purporting to protect salmon. While these measures do not provide the protection provided by a riparian buffer, the County points to them to support its claim that is has complied with the Act. The Board failed to consider the flaws and limitations in the WPMs in concluding that the WPMs satisfied GMA's mandate to "protect" salmon habitat.

a. The WPMs are tied to the flawed "existing" functions and values standard

The Ordinance states that the WPMs are required only for an agricultural practice "which adversely impacts existing functions and values ..." SCC 14.24.120(4) (emphasis added). But a standard tied to "existing" functions does not "protect" critical areas. *See supra* at § V.C.1. The same flaw infects the WPMs, with the result that they too do not satisfy the Act's mandate to "protect" critical areas. For that reason, Finding 8 is wrong as a matter of law. The Ordinance does not require BMPs (or any other response) if "harm" is occurring. A response is required only if the harm causes greater degradation than that caused by pre-existing activities.

b. The WPMs do not control bedload sediment which is harmful to salmon

Bedload sediment from livestock pens and pastures, from V-ditches, and from the dredging of agricultural drainage ditches[47] washes into streams where, among other things, it smothers salmon eggs, decreases food sources for salmon, and eliminates hiding and resting places for juvenile salmon and aquatic insects. AR 3813-14 (discussing eleven different impacts caused by sediment), AR 3896-3904 (same). The importance of reducing this sediment in Skagit waters was recognized as a top priority by the Skagit Watershed Council and the County. AR 4113. The WPMs for dairies, erosion control and drainage systems[48] ignore this problem. These WPMs essentially require farmers to meet state water quality standards. SCC 14.24.120(3)(c); (4)(a), (c), and (d). But state water quality standards do not address bedload sediment, *see supra* at V.D.3. Consequently, these WPMs do not "protect" salmon eggs, their food supply or their resting and hiding places.

c. The WPM governing cattle access to water-courses does not "protect" salmon

The record is replete with evidence of damage to Skagit streams

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[47] We address other problems with the WPMs for V-ditches and drainage maintenance below.

[48] SCC 14.24.120(3)(c); (4)(a)(iii) and (iv), (c)(i-iv), (d)(i-iv).

caused by livestock.[49] The scientific evidence in the record overwhelmingly supports fencing livestock from streams to protect banks from being trampled and water quality from being impaired. *See, e.g.,* AR 2701. But rather than excluding livestock from these watercourses, as did a prior County ordinance, AR 4848, the livestock and dairy management WPM nebulously limits access to watercourses to "the amount of time necessary for watering and/or crossing a Watercourse." SCC 14.24.120(4)(a)(i). Although the County required "watering facilities or access [to] be constructed consistent with applicable NRCS conservation practice standards," *id.*, DOE found that this WPM would not meet a real "no harm" standard:

> Watering animals within a stream, if only for limited times, will not meet the NHDS [no harm or degradation standard] because bacteria and sediments can still repeatedly enter a waterway and cause violations of water quality standards and RCW 90.48. Allowing animals' limited access to a specific area of a stream or ditch only focuses the pollution to a specific area in the stream or ditch. Two dairy farms within Skagit County have been issued Notices of Violation for allowing this limited watering practice because this practice is not protective of water quality.

AR 1477-78.

d. The Manure Application WPM fails to protect fish habitat

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[49] *See* AR 2670, 2672, 2674, 2682, 2687, 2701, 2737-45, 5347-63 (identifying livestock impacts); *see also*, AR 2935, 2950, 2965 (County monitoring data shows greater impacts to waters exiting farm lands for dissolved oxygen, temperature and fecal coliform).

The Ordinance limits spreading manure within 50' feet of any watercourse, but the limits are subject to crippling exceptions. First, the limits do not apply between March 1 and October 31. SCC 14.24.120(4)(b)(i). This exception fails to recognize that fish need clean water throughout the year and that rain (which washes manure into the streams) is common in Skagit County in March, April, May and October.

Second, even during the wetter months, manure spreading to the edge of salmon streams is permitted if done consistent with a plan approved under the Dairy Nutrient Management Act (DNMA) or with NRCS Field Office Technical Guides ("FOTGs" or "Guidelines"). *Id.* at § 14.24.120(4)(b)(i)(A)-(B).[50] But as WDFW advised the County,

> [t]he NRCS standards are certainly not designed to protect salmonids or other fish and wildlife species using riparian and aquatic habitats. They are agricultural standards designed for entirely different purposes. Thus, they cannot be counted on to protect riparian habitats.

AR 5207. This is consistent with the BAS in the record which supports buffers of at least 100 feet to filter sediment and nutrients (in contrast to the

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[50] Animal waste decomposes more slowly when the weather is cooler and more overcast, and thus has a greater likelihood of affecting water quality. AR 4888-91. Given that the months on either side of the window are often cool and overcast, not to mention rainy, applying manure within 50 feet of watercourses at those times of the year has a greater likelihood of making its way into the waterway and adversely impacting salmon habitat - in violation of the GMA. RCW 36.70A.060(2); .172(1).

FOTGs which appear to allow manure spreading to the edge of streams, AR 965-67 and the DNMA which includes no standards at all). The FOTGs and DNMA also provide no protection for other functions and values, *e.g.*, maintenance of buffer vegetation for shade and nutrient sources.

Third, manure spreading to the edge of streams is permitted during the wetter months if the County lifts the ban based upon weather, soil, or fish run characteristics for that year. SCC 14.24.120(4)(b)(i)(c), (b)(ii). The Ordinance contains no criteria to determine if "fish run characteristics" or the weather will permit manure spreading next to a watercourse during these months. This vagueness renders the Ordinance unenforceable. *Burien Bark Supply v. King County*, 106 Wn. 2d 868, 871-72, 725 P.2d 994 (1996).

e. The controls on erosion and sediment impacts from V-ditches are not adequate to protect salmon habitat

Significant sediment impacts from crop lands occur when farmers use "V-ditches" to drain fields in the winter months. V-ditches are temporary ditches cut into fields in the fall and plowed under in the spring. AR 2140. Unless these ditches are bordered by a vegetated strip or the field is planted with a green cover crop, the ditches serve to transport not just water but also sediment, pesticides, and fertilizers into nearby salmon waters and their

tributaries. *See, e.g.*, AR 4786. As DOE explained:

> Waters in V-ditches and other temporary field drainage facilities should meet water quality standards (temp, [dissolved oxygen], turbidity, bacteria, etc.) to the extent feasible in order to prevent impairment of larger ditches and streams where these field conveyances coalesce. Ecology has found that cumulative discharges from dairy farms and agricultural fields can be significant sources of water pollution to streams and lakes and can therefore impair beneficial uses of those waters.

AR 5043 (emphasis added). Not surprisingly, V-ditches are not a "best management practice" approved by the NRCS, *see* AR 5088; AR 4841, nor accepted in the state mediated "Ag-Fish-Wildlife" process, AR 5088.

Nevertheless, V-ditches are allowed under the Soil Erosion and Sediment Control Management WPM. SCC 14.24.120(4)(c). DOE called attention to the WPM's failure to address polluted runoff from barren crop lands into V-ditches, explaining that significant reductions in sediment delivery could be achieved if cover crops are planted in fields where V-ditches are used. AR 1478, *citing* D. Bulthuis, Suspended Solids in Seasonal V-Ditches on Annual Crop Fields in Skagit Valley, Washington: Effects on Various Agricultural Trials (Padilla Bay National Estuary Reserve) (June 2001). DOE recommended that the County adopt the sediment reduction practices identified in that report, *id.*, and/or the cover crop requirements

adopted by Whatcom County, AR 5040-41.[51] The County did neither.

The Ordinance does not "regulate" V-ditches even where they empty directly into salmon-bearing waters. It provides only that farmers "should" adopt "appropriate BMPs...to avoid contributing excess amounts of sediment to the Watercourse." SCC 14.24.120(4)(c)(iv). The County has not stated that "should" means "shall." The Ordinance never identifies which BMPs are "appropriate" or how much sediment is "excess[ive]." This provision is too vague and precatory to be enforceable, *see, e.g., Burien Bark, supra,* and, therefore, does not meet GMA's mandate to adopt "development regulations" which "control" land use activities. RCW 36.70A.060(2); -.030(7).

The majority did address the vagueness flaw, albeit generally. It did not focus on the vagueness of this particular WPM, but rather reviewed the WPMs *in toto* and found that they were "sufficiently detailed" to be enforceable. AR 4607. The majority erred as a matter of law in concluding (apparently) that a general reference to "appropriate" BMPs and "excess" sediment was "sufficiently detailed" to be enforceable.

Additionally, the Board found that V-ditch sediments "are typically

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[51] Whatcom County requires a 50-100 foot no-touch buffer (depending upon stream type and fish presence) planted with perennial vegetation that a farmer can reduce only in the context of a farm plan developed in consultation with NRCS. AR 5044.

deposited within a few feet of where the V-ditch enters the drainage ditch, and do not end up downstream in the fish habitat." AR 4623. There are two problems with this finding. One, the majority's finding regarding the "typical" situation is not supported by substantial evidence. The finding was based on personal observations made by the County Planning Commission during a site visit. *See* AR 4604 (*citing* Ex. 286 [AR 114-115]). Those observations do not constitute BAS; rather, they are classic "anecdotal" evidence which should have been given little weight[52] in this "uniquely scientific inquiry." *HEAL*, 96 Wn. App. at 533. The scientific evidence in the record demonstrated that drainage ditches fed by runoff from farm fields regularly serves as a significant source of pollution. *See, e.g..*, AR 5088 ("V-ditches degrade water quality in downstream ditches and other surface waters of the state;" "State and Federal agencies are unwilling to provide an open-ended approval to continued V-ditch use because this practice has been documented to contribute to water quality degradation").

Two, there was evidence of significant V-ditch pollution which extended far more than "a few feet." AR 5088 ("Recent studies by DOE (Bulthuis, June 2001) and NRCS (V-Ditch Evaluation, Skagit County, WA,

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[52] WAC 365-195-905(5)(c) (BAS Guidelines: anecdotal information "is not an adequate substitute for scientific information").

March 2001) of the V-ditch practice ... in northwest Washington documented that run off from V-ditches degrades water quality in downstream ditches and other surface waters of the State.") Regardless of whether these impacts are "typical," they damage salmon habitat and must be addressed.

f. The WPMs addressing operation and maintenance of drainage infrastructure do not protect critical areas and are inconsistent with the County's "no harm" standard

Drainage ways criss-cross the Skagit and Samish deltas, both artificial watercourses (ditches) and natural watercourses that have been straightened and expropriated by farmers. AR 2198. Salmon can be found in some. *E.g.*, AR 2671-72, 2688, 5091. All drain to salmon-bearing waters. These permanent drainage courses require periodic dredging. But dredging disturbs sediments which then flow into salmon waters downstream. AR 1885; AR 4067-68 ("every time the channel is dredged, this stream recovery is set back to zero").

In its prior ordinance, the County exempted these ditches from all critical area requirements. The superior court found the exemption overbroad and ordered the County to narrow it. AR 5284, 5287. On remand, the County again proposed not requiring any erosion or sediment control measures for drainage ditches and exempting diking district ditches. AR 1659-60. Recog-

nizing the absence of such measures would result in harm to water quality and fish habitat, DOE urged the County to act. DOE did not seek restrictions on dredging but rather measures to mitigate the impacts, namely, mandatory riparian buffers of native trees and shrubs to provide shade for temperature control and prevent delivery of pollutants into streams. AR 1478.[53] The County rejected DOE's proposal. SCC 14.24.120(4)(d).

The Ordinance nominally regulates dredging of these watercourses,

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[53] DOE later explained that its proposal would not only provide some protection for water quality and salmon, but would also be consistent with the district's dredging needs. Such an approach is not new–Whatcom County has already started down this road.

> Our Comment recommending some sort of buffer where there is ongoing drainage maintenance was not intended to preclude or hinder drainage ditch maintenance. Rather, our idea is that planting can be a long term solution to eliminating drainage water quality problems on Ag lands. Planting vegetation after removing reed canary grass from drainage channels will, if maintained, help eliminate the habitat for reed canary grass growth. Since canary grass thrives in wet and sunny areas, reducing the amount of sunlight to the ditch areas with shade from vegetative plantings reduces reed canary grass growth and the subsequent need for more ditch cleaning. This approach may also help keep water temperatures lower, provide improved habitat for fish and wildlife, and might have the added benefit of demonstrating that farmers are doing "their part" to protect water quality and salmon habitat.
>
> Whatcom County has had successful experiences with planting along ditches that require maintenance, especially where the Whatcom [Conservation District] has become involved. Examples are ditches where trees and vegetation have been planted only on one side (south or west), which allows ditch cleaning from the opposite bank. In areas where plantings and maintenance have occurred, less reed canary grass grows and consequently, the need for frequent ditch cleanings has diminished thus reducing the frequency and amount of sediment entering state waters.

AR 5040-41. While the County and others have painted drainage maintenance and salmon protection as implacable enemies, DOE has suggested an approach that could close that gap. Unfortunately, the Ordinance does not reflect any consideration of DOE's "olive branch."

but is vague and riddled with exceptions. It permits operation of machinery and removal of vegetation along and within drainage system watercourses, *see, e.g.,* SCC 14.24.120(4)(d)(ii)-(iv), inimical to protecting water quality and fish habitat. AR 4793-4803 (demonstrating importance of vegetation along ditches); AR 687-88. By not requiring the buffers recommended by DOE, the Ordinance offers no real protection.

This WPM directs that dredging occur between June 15 and October 31, *i.e.*, when hopefully there is less water in ditches. But dredging can proceed any time of the year if 1) the presence of crops creates a perceived need to dredge outside the work window, SCC 14.24.120(4)(d)(i), or 2) the farmer deems there is "no feasible alternative." *Id.* at § (4)(d)(ii). In the absence of specific criteria in these exemptions, dredging can occur virtually any time at the expense of water quality. DOE notes the absence of such criteria rendered the Ordinance ineffective:

> Without defining specific criteria, any case could be made for dredging accumulated sediments in any watercourse at any time and this would place water quality at risk (due to turbidity disturbances) and likely would not meet the [no harm standard].

See AR 1478-79 (emphasis added). DOE identified the nub of the problem: with ill-defined criteria, the WPM is nothing more than a *de facto* exemption.

This WPM is too vague to be enforceable and therefore does not

constitute an effective development regulation protecting salmon habitat. "A citizen should be able to determine the law by reading the published code. A citizen should not be subjected to ad hoc interpretations of the law by county officials." *Burien Bark*, 106 Wn. 2d at 871. The majority erred as a matter of law in concluding otherwise. AR 4607.

The majority minimized the significance of the flawed drainage provisions by finding that "most of the drainage district watercourses located upstream of tidegates, floodgates and pump stations are not identified as salmonid habitat." AR 4623 (FF 16). This finding is not supported by substantial evidence. The majority failed to distinguish between streams that have fish in them versus streams that have habitat important to fish, even if the fish are not there now. Watercourses upstream of tidegates and similar features are important to salmon. AR 1157 (waters deemed essential fish habitat under Magnuson Act, 16 U.S.C. 1855(b)); AR 1406. The majority cited a map to support its finding but failed to recognize that the map documented the absence of fish in these watercourses, not the absence of fish habitat.[54] *See* AR 4623 (*citing* Ex. 295 [AR 2198]). Thus the failure of the Ordinance to meaningfully regulate drainage activities has far more

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[54] There is no substantial evidence to support the majority's conclusion that these watercourses do not provide valuable salmon habitat, even if salmon are not present now.

significance to salmon protection than the majority recognized.

g. Use of the BMPs contained in NRCS FOTGs does not ensure that fish are protected

Two WPMs allow farmers to adopt BMPs contained in the current NRCS FOTGs. SCC 14.24.120(4)(b)(i)(b), (4)(c)(iv). *See also, id.* at (3)(a)(iv) (incorporating BMP allowances from §14.24.120(4) into "no harm" standard); 14.04.020 (definition of BMPs). The record is devoid of data establishing the adequacy of the FOTGs for protecting fish habitat. To the contrary, all the natural resource agencies (WDFW, NMFS, and the Tribe's Skagit System Cooperative[55]) have criticized the FOTGs as not protecting fish habitat. AR 1536 (WDFW); AR 4893-94 (NMFS); AR 570 (SSC).

Of import, under the current NRCS FOTGs, buffers need only be 35' wide and even within such narrow buffers manure spreading, pesticide application, and other activities may be allowed. AR 965-67. A 35' buffer, especially one that is not "no touch," is not consistent with the BAS in the record, *see supra* at § III.D.F., yet it would satisfy a farmer's primary obligation under the Ordinance.[56]

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[55] *See* note 39 *supra* for the credentials of the SSC scientists.

[56] The County's failure to adopt performance standards and specific BMPs and/or buffers, consistent with the science it deems relevant, leaves farmers in a difficult position. The DEIS reports a wide range in buffer widths for sediment control. *See* AR 1151, Table 3-1 (and accompanying text). To remove up to 75% of the sediment that would otherwise

h. The WPM governing chemical application does not protect salmon

Skagit farmers use "large quantifies of pesticides," AR 2696, and their presence has been found in County waters. AR 2682. "[V]ery few pesticide chemicals commonly found in aquatic systems have been evaluated in depth for their long-term and short-term impacts on salmonids," AR 678, but many are toxic to salmon. AR 3902 (Table 5-1). Further, farm ditches and drains "deliver [pesticides] directly to surface waters." AR 4786. But rather than requiring a buffer, as did the United States District Court in *Washington Toxics Coalition v. EPA*,[57] the County simply required conformity with state law, which is not keeping farm pesticides out of salmon streams. The County Commissioners specifically deleted language from the draft of this WPM that would have required a farmer "to avoid contribution of farm chemicals to any Watercourse by either direct application or surface runoff." AR 1660.

i. The Ordinance does not protect salmon because some farmers are exempt form the WPMs

The ability of the WPMs to "protect" salmon is further undermined

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find its way into a watercourse, the necessary buffer width ranges from 16-400 feet. *Id.* The Ordinance provides no guidance as to how this information should be used by farmers to meet the intent of SCC 14.24.120(4)(a)(iii).

[57] AR 2631-35, in particular 2633 (Order in *Washington Toxics Coalition v. EPA*, C01-132C (W.D. Wash., July 16, 2003)).

by the exemption granted to some farmers. Under the Ordinance, farmers who are implementing farm plans approved by other agencies (*e.g.*, NRCS, Skagit Conservation District, Washington Department of Agriculture) are deemed to meet the "no harm" standard. However, those plans were developed for other purposes (not fish protection) and contain recommendations, not prescriptions. AR 3115-30. The County's own analysis indicates that the current system, which encourages voluntary actions by farmers, including the adoption of BMPs, NRCS-based farm plans, and Conservation Reserve Enhancement Plans, will result in ongoing degradation of fish habitat and critical areas. *See* AR 1178-79 (impacts of no-action alternative include continued habitat degradation and continuing decline in all salmonid stocks). *See also*, AR 586-87 (Independent Science Panel, Review of "Statewide Strategy to Recover Salmon") Extinction is Not an Option, rpt. 2000-1 (May 2000) ("'despite forty years of effort' the current program of 'voluntary, incentive-based programs' has led to an increasing number of 'water bodies not meeting water quality standards in agricultural areas;'" report questions how voluntary programs will "differ from the failed experiments of the past"). There is no substantial evidence in the record to the contrary. The Board did not find to the contrary either. It simply ignored the issue.

5. Conclusion regarding "no harm" standard and WPMs

The majority committed a series of errors in its analysis of the WPMs and the "no harm" standard. One, the majority ignored the fact that none of the components of the "no harm" standard addressed protecting the salmon's food source. It committed an error of law in concluding that the Act's mandate to "protect" did not require protection of this critical riparian function. *See, e.g., WEAN,* 122 Wn. App. at 174-75 (all functions must be protected). Two, the majority ignored that the WPMs are tied to the flawed "existing" functions and values, which is an error of law. Three, it erred as a matter of law in concluding that the WPMs were sufficient to "protect" salmon habitat. Four, the majority failed to address the WPMs' technical flaws. It devoted most of its "discussion" of WPMs to a recitation of the parties' competing arguments. AR 4600-07 (App. A). It then briefly and summarily found that the WPMs are not too vague to be enforceable (with one exception). AR 4607-08. The majority erred by never discussing the individual flaws in the WPMs. RCW 34.05.570(3)(f). Five, to the extent that the majority addressed the factual issues, its findings (apparently implicit) that the WPMs and other "no harm" components would, as a factual matter, protect salmon habitat were not supported by substantial evidence. RCW 34.05.570(3)(e).

E. The Board Erred in Concluding that the Ordinance does not Exempt Dike Districts

The Ordinance includes an exemption for the operation and maintenance of diking systems. SCC 14.24.100(9). The exemption is qualified by a proviso that diking activities must meet the requirements of SCC 14.24.120(4)(d), but requirements in that referenced subsection apply to drainage activities, not diking activities. *See, e.g.,* AR 1659. Therefore, diking activities are wholly exempt from the Ordinance.

The majority committed an error of law in concluding that the Ordinance eliminated the exemption for diking districts. *See* AR 4624. The majority apparently misread the scope of the proviso, mistakenly believing that the cross-referenced subsection provided coverage for diking activities, not just drainage activities.[58]

Dikes have caused substantial losses of salmon habitat in the Skagit lowlands. *See, e.g.,* AR 627, 5180; AR 3109, 3111. Maintenance and operation of dikes perpetuates this harm and causes additional harm as dredging, rip-rapping, and other maintenance activities destroy riparian habitat. *See, e.g.,* AR 621 (IMST) (*citing* 2000 federal government study showing that

[58] Diking Districts are subject to critical area regulation, like any other entity. *See* WAC 365-195-770.

juvenile chinook densities along constrained, rip-rapped banks were only about one-third of those along natural banks).

VII. CONCLUSION

The Court should find the Ordinance is flawed because it does not require buffers; it allows continuation of harmful practices which caused the current degraded habitat conditions; it uses a misnamed "no harm" standard which permits new harm (and continuation of historic harms) to salmon habitat; and it exempts diking districts. The Court should find that the majority's decision to the contrary was based on flawed legal analysis, included contradictory findings and/or findings not supported by substantial evidence, and failed to address all issues presented. This Court should vacate the majority's decision and direct the County to adopt a new ordinance that includes mandatory buffers, is not limited to protecting only "existing" habitat values, and is otherwise consistent with this Court's decision.

RESPECTFULLY submitted this 7th day of January, 2005.

SWINOMISH INDIAN TRIBAL COMMUNITY

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October 8, 2010

Mr. Michael Bussell, Director
Office of Water and Watersheds
EPA Region 10
1200 Sixth Avenue, Suite 900
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RE: Rule-Making and State Technical Standards for Concentrated Animal Feeding Operations (CAFOs)

Dear Mr. Bussell:

I am responding to your December 15, 2009, and May 25, 2010 letters regarding Washington State's implementation of Federal Concentrated Animal Feeding Operation (CAFO) regulations. You have requested the following:

1. A "regulatory package" consisting of: 1) our final CAFO regulations; 2) a revised state program description; and 3) an Attorney General statement outlining the authorities of the state program (December 15, 2009 letter).
2. Completion of EPA's regulatory crosswalk documenting the Department of Ecology's (Ecology) authority to implement the federal CAFO regulation (December 15, 2009 letter).
3. A description of the current division of implementation of the National Pollutant Discharge Elimination System (NPDES) program between Ecology and the Washington Department of Agriculture (December 15, 2009 letter).
4. An inventory of the CAFO universe in the state of Washington, including dairy and cattle feedlots and swine and poultry facilities (December 15, 2009 letter).
5. Identification and copies of the technical standards that Ecology is using for CAFO operations (May 25, 2010 letter).

Before responding specifically to your requests, I would like to provide EPA with some perspective. Ecology has ample authority to fully implement the new federal CAFO regulations without the need to change state law or regulations.

Ecology uses a range of technical information to evaluate nutrient management plans, including guidance developed by NRCS, EPA, independent researchers, and universities. The most common technical guidance for CAFO operations are the NRCS field office technical guides (FOTGs). NRCS technical guidance plays an important role in nutrient management planning and the development of best management practices to protect water quality. We use these documents to support our review of nutrient management plans. With that said, Ecology has determined that NRCS FOTGs and NRCS technical guidance do not provide the level of protection necessary to assure compliance with Washington State's Water Quality Standards or Water Pollution Control Act, and do not ensure that the effluent limitations of the CAFO permit will be met. Therefore, Ecology does not consider NRCS FOTGs and NRCS guidance to be technical standards for CAFO operations seeking permit coverage.

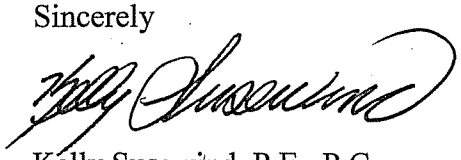
It has been Ecology's experience that many plans submitted for CAFO permit coverage are inadequate and do not provide the level of protection required by the CAFO permit even though these plans are claimed to meet NRCS practice standards. Ecology's CAFO permit mirrors the current federal rule in that it requires an *approved* nutrient management plan before permit coverage can be issued. As previously mentioned, Ecology conducts a thorough review of submitted nutrient management plans and often determines them to be inadequate and not approvable. This results in an iterative process of requesting applicants to update and resubmit plans for review and approval by Ecology. This has become a very time and resource consuming process.

Ecology understands the importance of technical standards and the need to develop them to better implement our CAFO permit. We are currently working on checklists to help permit applicants produce approvable nutrient management plans. Ecology also plans to develop implementation guidance for the CAFO permit and establish CAFO technical standards. Permit implementation guidance and Ecology-developed technical standards will improve the chances of receiving approvable nutrient management plans and streamline the permitting process. We would greatly appreciate EPA's support as we develop these necessary tools.

In the future, we would also like to address the ongoing issue of CAFOs transporting manure offsite from their operations to avoid regulations and oversight. This loophole severely limits the effectiveness of the CAFO rule. Ecology would find it helpful if EPA developed rules that governed how manure generated at CAFOs must be handled and land-applied.

If you have any questions, or need additional clarification, please contact me at (360) 407-6405, or at kelly.susewind@ecy.wa.gov. You may also contact Bill Moore of my staff at (360) 407-6460, or at bill.moore@ecy.wa.gov.

Sincerely



Kelly Susewind, P.E., P.G.
Water Quality Program Manager

Enclosures (5)

General Permit for Biosolids Management

Current permit holders who have submitted a Notice of Intent and properly applied for coverage under this permit are provisionally approved to manage biosolids in accordance with this permit. Ecology may impose additional or more stringent requirements when issuing final coverage under this permit.

General Permit Issuance Date: August 5, 2015
General Permit Effective Date: September 4, 2015
General Permit Expiration Date: September4, 2020

Laurie G. Davies 8/3/15

Laurie G. Davies, Program Manager
Waste 2 Resources Program
Washington Department of Ecology

Date

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1. Overview of the General Permit for Biosolids Management

1.1 Introduction

The biosolids program in the State of Washington is based on Chapter 173-308 WAC, Biosolids Management. The state program, including this General Permit for Biosolids Management (permit), is intended to comply with all applicable federal rules adopted pursuant to the federal Clean Water Act as it existed on February 4, 1987, and Chapter 90.48 RCW, Water Pollution Control. Authority for administering a state biosolids management program is granted to Ecology in Chapter 70.95J RCW, Municipal Sewage Sludge-Biosolids.

The State program regulates biosolids (including septage) applied to the land for beneficial uses, biosolids being stored, sewage sludge disposed in a municipal solids waste landfill and biosolids transferred from one facility to another.

Although the state program does not regulate surface disposal or incineration, the transfer of biosolids from a wastewater treatment plant to an incineration facility or surface disposal site is an activity covered under this permit.

1.2 Use of the terms "Sewage Sludge", "Biosolids", and "Septage"

Sewage sludge is the solids, semisolids, or liquid residue generated during the treatment of domestic sewage in a treatment works. Biosolids are produced by treating sewage sludge to meet certain quality standards that allow it to be beneficially used. Septage is a class of biosolids that comes from septic tanks and similar systems receiving domestic wastes.

In this permit:

Sections 8, 9, and 10 apply only to biosolids or "septage managed as biosolids originating from sewage sludge".
Section 6 applies only to sewage sludge being disposed in a municipal waste landfill.
Section 11 applies only to septage being applied to the land.
All other section apply to biosolids, septage and sewage sludge unless the context requires otherwise.

1.3 Geographical Area Covered

This permit applies to facilities and biosolids management activities that occur on lands under the jurisdiction of the State of Washington.

Any treatment works located outside of the jurisdiction of the State and exporting biosolids into the State must do so in accordance with WAC 173-308-130.

1.4 Persons Required to Apply for Coverage under this Permit

Unless you are obtaining an individual permit in accordance with WAC 173-308-310, you must apply for coverage under this permit if you own or operate any of the following facilities:

- Facilities designated by Ecology as a treatment works treating domestic sewage in accordance with WAC 173-308-310(1)(b).
- Publicly owned treatment works.
- Privately owned treatment works treating only domestic sewage.
- Industrial facilities that treat domestic sewage separately from the industrial waste stream and generate biosolids regulated by Chapter 173-308 WAC.
- Beneficial use facilities.
- Composting facilities that compost non-exceptional quality biosolids that do not have an adequate permit issued by the local health jurisdiction as determined by Ecology.
- Facilities that mix non-exceptional quality biosolids with other material, including other biosolids.
- Septage Management facilities.

1.5 Activities Subject to Coverage under this Permit

Coverage under this permit is based on activities related to the use or disposal of biosolids. These activities include, but are not limited to, the following:

- Applying bulk biosolids to the land, including, but not limited to, agricultural lands, forest lands, public contact sites, and land reclamation sites.
- Applying septage to the land.
- Disposing sewage sludge in municipal solid waste landfills.
- Selling or giving away biosolids in bags or other containers.
- Storing biosolids.
- Transferring biosolids from one facility to another.
- Composting non-exceptional quality biosolids.

1.6 Local Health Jurisdiction Involvement

Ecology may delegate authority to a Local Health Jurisdiction (LHJ) to implement and assist in the administration of Chapter 173-308 WAC and this permit. Delegation is accomplished through an instrument of mutual consent (for example, a Memorandum of Agreement) that is acceptable to both Ecology and the LHJ. When applying for coverage under this permit, contact Ecology to find out the status of delegation agreements in the areas where you treat, store, transfer, or apply biosolids to the land.

1.7 Role of EPA

EPA has a responsibility for implementing a national biosolids management program. EPA Region 10 and Ecology work cooperatively on program implementation. EPA provides periodic technical assistance to the state; in return the state provides certain information on request to EPA regarding biosolids management in Washington.

All applicable facilities in the state must meet requirements set forth by both the state and the federal programs; satisfaction of the state program requirements does not necessarily satisfy federal obligations.

2. Applying For Coverage under this Permit

2.1 When to Apply

All existing facilities required to be covered under this permit must submit a complete application within 90 days of the effective date of this permit unless you have received approval from your regional biosolids coordinator to submit your application within 180 days of the effective date in accordance with WAC 173-308-310(4)(a).

All new facilities must submit a complete application (subsection 2.4) at least 180 days in advance of engaging in biosolids management activities.

2.2 Complying With the State Environmental Policy Act

The act of applying for coverage under this permit triggers a requirement for review under the State Environmental Policy Act (SEPA) Chapter 197-11 WAC.

It may be possible to use previous SEPA documents to comply with the SEPA requirements. For this to be the case, the SEPA lead agency must be able to conclude that possible site specific environmental impacts of applying biosolids have been adequately considered in existing SEPA documents. As part of approving coverage under this permit, you must provide written documentation from the SEPA Lead Official showing that the SEPA requirements have been met.

You may be able to overlap the public notice period of SEPA with the public notice requirements of this permit. If you combine both public notice requirements, you must ensure that comments are directed to both the responsible SEPA and regulatory officials.

2.3 Submitting a Notice of Intent

The biosolids General Permit is reissued every five years. A Notice of Intent is written notification to Ecology that you intend to maintain coverage under the next permit. Failure to submit an NOI will result in loss of coverage and the need to reapply and pay an initial application fee.

Notices of Intent must be submitted on Ecology forms. You can obtain the current version of the Notice of Intent from Ecology's biosolids forms webpage at:

http://www.ecy.wa.gov/programs/swfa/biosolids/forms.html , or you can obtain one from your regional biosolids coordinator.

In accordance with WAC 173-308-310(5)(a), you must submit a Notice of Intent form no less than 180 days before the expiration date of the General Permit for Biosolids Management.

You must submit copies of your Notice of Intent as follows:

- The signed original to the biosolids coordinator in the Ecology region where your facility is located.
- A copy to the biosolids coordinator at Ecology headquarters office.
- A copy to the Local Health Jurisdiction in each county where your biosolids will be treated, stored, disposed, or applied to the land.

You are encouraged to submit copies to Ecology regions and headquarters by email. Contact information for Ecology biosolids staff can be found on the biosolids contacts webpage at: http://www.ecy.wa.gov/programs/swfa/biosolids/contacts.html.

2.4 Submitting a Permit Application

You can obtain the current version of the Application for Coverage form from Ecology's biosolids webpage at: http://www.ecy.wa.gov/programs/swfa/biosolids/forms.html, or from your regional biosolids coordinator.

To apply for coverage under this permit you must submit a Complete Application for Coverage package that includes, but is not limited to, the following:

- A vicinity map of the facility.
- A vicinity map of any associated treatment or storage facilities.
- A treatment facility schematic.
- Confirmation that the SEPA requirements have been met (see Subsection 2.2 for more details).
- Confirmation that the public notice requirements have been met if appropriate (see Subsection 2.5 for more details).
- Land application plans if appropriate (see Subsection 2.6 for more details).
- Monitoring data if appropriate.
- A biosolids sampling plan if appropriate (see Section 8 for more details).
- A contingency plan for handling biosolids.
- A temporary disposal plan (see Subsection 6.2 for more details).
- A spill prevention/response plan if appropriate (see Subsection 4.1 for more details).

You must submit copies of your final permit application as follows:

  - A signed original to the biosolids coordinator in the Ecology regional office where your facility is located.

- A copy to any other Ecology regional office where your biosolids will be treated, stored, disposed, or applied to the land.
- A copy to the biosolids coordinator at Ecology headquarters office.
- A copy to the Local Health Jurisdiction in each county where your biosolids will be treated, stored, disposed, or applied to the land.

Submit any copies to Ecology regions and headquarters by email. You are also encouraged to submit any copies to LHJs by email if the LHJ allows electronic submittal.

Contact information for Ecology biosolids staff can be found on the biosolids contacts webpage at: http://www.ecy.wa.gov/programs/swfa/biosolids/contacts.html.

2.5 Public Notice Requirements When Applying for Coverage

When you apply for coverage under this permit, you must conduct public notice in accordance with this subsection. Follow the steps within the category that applies to your facility.

Note*: If you are a wastewater treatment plant that sends all of your biosolids to a Beneficial Use Facility, you do* ***not*** *land apply biosolids.*

2.5.1 Wastewater Treatment Plants that DO NOT land apply Nonexceptional Quality Biosolids

If your facility met the public notice requirements under the previous general permit (and you have documentation to show this) and you do not land apply biosolids, you are **not** required to conduct additional public notice.

If you are a new facility or for some reason had a lapse in coverage under the General Permit of August 20, 2010 and do not land apply biosolids, you must conduct public notice in the following manner:

- Issue one notice in a newspaper of general circulation in the county where you are located. The minimum required content of the notice can be found in Appendix 1.
- Submit your official interested parties list to the biosolids coordinator at Ecology headquarters office AND any other Ecology regional office where your biosolids will be treated, stored, disposed, or applied to the land.
- Send notification to all persons on your approved interested parties list, plus Ecology headquarters and regional office(s), at the same time or before notice is run in the newspaper.
- Provide a 30-day public comment period following the publication of a newspaper notice.

2.5.2 Wastewater Treatment Plants that Land Apply Nonexceptional Quality Biosolids

If you land apply biosolids you must conduct public notice in the following manner:

- Issue one notice in a newspaper of general circulation in the county where you are located, in each county where you land apply biosolids, and all additional counties that may be covered by

a General Land Application Plan you have submitted. The minimum required content of the notice can be found in Appendix 1.

- If proposing a new land application site or to expand an existing site, post notices at the new site(s) or expanded area of the existing site.
- Submit your official interest parties list to the biosolids coordinator at Ecology headquarters office AND any other Ecology regional office where your biosolids will be treated, stored, disposed, or applied to the land.
- Send notification to all persons on your approved interested parties list, plus Ecology headquarters and regional office(s), at the same time or before notice is run in the newspaper.
- Provide a 30-day public comment period following the newspaper posting.

2.5.3 Beneficial Use Facilities

All Beneficial use facilities must conduct public notice when applying for coverage initially **and** when reapplying for coverage when a new general permit is issued. Public notice must be conducted in the following manner:

- Issue one notice in a newspaper of general circulation in the county where you are located, in each county where you land apply biosolids, and all additional counties that may be covered by a General Land Application Plan you have submitted. The minimum required content of the notice can be found in Appendix 1.
- If proposing a new land application site or to expand an existing site, post notices at the new site(s) or expanded area of the existing site.
- Submit your official interest parties list to the biosolids coordinator at Ecology headquarters office AND any other Ecology regional office where your biosolids will be treated, stored, disposed, or applied to the land.
- Send notification to all persons on your approved interested parties list, plus Ecology headquarters and regional office(s), at the same time or before notice is run in the newspaper.
- Provide a 30-day public comment period following the newspaper posting.

2.6 Land Application Plans

2.6.1 Site Specific Land Application Plans

You must submit a Site Specific Land Application Plan (SSLAP) for every site where non-exceptional biosolids are applied to the land. The minimum required content of a SSLAP can be found in Appendix 3.

2.6.2 General Land Application Plans

You must submit a General Land Application Plan (GLAP) if you intend to develop other land application sites during the life of your permit coverage. The minimum required content of a GLAP can be found in Appendix 2.

2.6.3 Exemption for Biosolids Going to Permitted Beneficial Use Facilities

When your biosolids are sent to a permitted beneficial use facility, you do not have to prepare land application plans if the conditions in WAC 173-308-310(8)(g) have been met.

2.6.4 Exemption for Exceptional Quality Biosolids

You are not required to submit land application plans for the management of exceptional quality biosolids unless Ecology requires a plan in accordance with WAC 173-308-310(8)(a)(ii-iii).

2.7 Ecology Review of Submitted Plans

All plans submitted in the permit application process will be reviewed by Ecology prior to the issuance of Final Coverage. During that review process, Ecology may determine that changes and/or additions are necessary to effectively meet the plan's intended purpose.

Ecology will rely on several reference documents when reviewing plans. http://www.ecy.wa.gov/programs/swfa/biosolids/reglinks.html.

In addition, Ecology has prepared some sample plans that are available on its biosolids forms webpage at: http://www.ecy.wa.gov/programs/swfa/biosolids/forms.html. You can use these plans as guidance.

3. Requirements Applicable to all Permittees

3.1 Duty to Comply

You must comply with all conditions of this permit, all applicable requirements of Chapter 173-308 WAC, all applicable requirements of 40 CFR Part 503, and all applicable requirements of any other state, federal, or local laws, rules, or ordinances.

You must also comply with any provisions in your permit application, including those in any plans, unless those provisions are modified through the permit review and final coverage issuance process.

You must also comply with any additional or more stringent requirements developed as a condition of final coverage under this permit.

Ecology may modify, revoke and reissue, or terminate coverage under this permit for cause. Permit conditions remain in effect even if you file a request to modify, revoke and reissue, or terminate coverage under this permit or notify Ecology of planned changes or anticipated noncompliance.

Ecology may modify or revoke and reissue your coverage under this permit in accordance with WAC 173-308-310(23).

Ecology may terminate your coverage under this permit in accordance with WAC 173-308-310(24).

3.2 Continuing Coverage and Duty to Reapply

If you wish to continue an activity regulated by this permit after its expiration date, you must submit a Notice of Intent at least 180 days in advance of its expiration date and subsequently apply for coverage

under a new permit in accordance with WAC 173-308-310(3)-(5). If you fail to submit a timely and sufficient Notice of Intent, your coverage under this permit will cease on its expiration date.

3.3 Need to Halt or Reduce Activity Not a Defense

It is not a defense for a permit holder in an enforcement action to argue that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3.4 Duty to Mitigate

You must take all reasonable steps to minimize or prevent biosolids use or disposal that may adversely affect human health or the environment. This includes, but is not limited to, the proper operation and maintenance of equipment, adequate laboratory controls and appropriate quality assurance procedures.

3.5 Duty to Provide Information to Ecology

You must furnish any information requested by Ecology to determine compliance with this permit, or to determine whether cause exists for modifying, revoking and reissuing, or terminating coverage. Any and all records required to be kept by Chapter 173-308 WAC must be furnished to Ecology upon request.

3.6 Inspection and Entry

You must allow Ecology, or an authorized representative of Ecology, upon the presentation of credentials and other documents as may be required by law, to:

- Enter the premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit.
- Have access to and copy, during reasonable times, any records that must be kept under the conditions of this permit.
- Inspect during reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit.
- Sample or monitor during reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by state law, Chapter 70.95J RCW, and the Clean Water Act, any substances, parameters, or practices at any location.

3.7 Monitoring and Records

You must monitor and report monitoring results as specified in Section 8 of this permit and in accordance with your NPDES permit or State Waste Discharge Permit, if applicable.

You must retain all records and data used to complete the application for this permit for a period of at least 5 years from the date of the application or longer as required by other applicable laws or regulations.

3.8 Signatory Requirements

All applications, notices of intent, reports, or information submitted to Ecology must be signed and certified in accordance with WAC 173-308-310(10).

3.9 Reporting of Changes, Noncompliance, Compliance Schedules, and Other Information

3.9.1 Planned Changes

You must notify your regional biosolids coordinator and any participating delegated LHJ of significant changes in your biosolids management practices or planned physical alterations or additions to your facility.

3.9.2 Noncompliance

You must report to your regional biosolids coordinator any noncompliance within 24 hours of learning of the situation, notwithstanding *Other Information* in Section 3.9.3. Unless waived by Ecology, you must also submit a written explanation of the noncompliance within 5 days. The written explanation must include the following:

- A description of the noncompliance and its cause.
- The period of noncompliance, including exact dates and times, and, if the noncompliance has not been corrected, the anticipated time it is expected to continue.
- Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

3.9.3 Other Information

If you become aware that you failed to submit any relevant facts or you submitted incorrect information in a permit application or a report, you must promptly submit such facts or information to your regional biosolids coordinator.

3.10 Transferring Permits

Coverage under this permit is not transferable to any person except as provided in WAC 173-308-310(22).

3.11 Penalties

If you violate this permit, you are subject to a penalty of up to $5,000 per day per violation. In the case of a continuing violation, each day of violation is a separate violation. An act of commission or omission that procures, aids, or abets in the violation is considered a violation under this subsection.

If you willfully violate any of the provisions of this permit, you are guilty of a gross misdemeanor. Willful violation of this permit or orders issued pursuant to Chapter 70.95J RCW is a gross misdemeanor punishable by a fine of up to $10,000 per day per violation and costs of prosecution, or by imprisonment for up to 1 year, or both.

3.12 Obtaining and Providing Information

If you prepare biosolids, you must provide information needed to comply with this permit to any person who receives your biosolids.

If you apply bulk biosolids to the land, you must:

- Obtain information needed to comply with the requirements of this permit.
- Obtain written approval of the landowner prior to applying any Class B quality biosolids to the land for the first time.
- Provide information to the landowner or leaseholder needed to comply with this permit.

3.13 Final Coverage: Additional or More Stringent Requirements

On a case-by-case basis, Ecology may impose requirements that are in addition to or more stringent than the requirements in this permit (see WAC 173-308-310(19)). All such requirements will be provided in writing along with Ecology's notice of final coverage under this permit.

All additional or more stringent requirements become a part of the permit and are fully enforceable. Additional or more stringent requirements may be appealed as described in Subsection 3.18.

3.14 Compliance Schedules

A schedule may be established leading to compliance with requirements of this permit and Chapter 173-308 WAC. A compliance schedule may not extend deadlines established under the Clean Water Act or Chapter 70.95J RCW. Compliance schedules must be established in accordance with the requirements of WAC 173-308-310(16).

3.15 Annual Report

You must submit an annual report to Ecology by March 1 of each year. All requested information that is required under Chapter 173-308 WAC or this permit must be submitted. The current annual report form is at: http://www.ecy.wa.gov/biblio/ecy070125.html.

Any required reporting to the EPA must be submitted by February 19 of each year.

3.16 Permit Fees

You must pay an annual biosolids permit fee to Ecology. Fees are determined and issued in accordance with WAC 173-308-320.

3.17 Record Keeping Requirements

You must keep records and certification statements in accordance with WAC 173-308-290.

3.18 Appeals

Any person may appeal this permit as provided by applicable law including, but not limited to, Chapter 43.21B RCW and Chapter 34.05 RCW. Appeals of this permit must be made within 30 days of the issuance date listed on the cover page.

Any person aggrieved by an Ecology decision made in accordance with this permit may appeal that decision as provided by applicable law including, but not limited to, Chapter 43.21B RCW and Chapter 34.05 RCW.

4. Requirements for Transporting Biosolids

If you transport biosolids, you must ensure that the transportation vehicle is properly cleaned prior to use of the vehicle for the transportation of food crops, feed crops, or fiber crops.

4.1 Spill Prevention/Response Plan

A spill prevention/response plan from a facility with coverage under this permit must be in place for all biosolids transfers. The plan may be from either the sending or receiving facility.

You must submit a spill prevention/response plan to Ecology that describes how you will attempt to prevent and respond to any spills. The spill prevention/response plans must include the following:

- The main route traveled and possible alternate routes.
- Spill prevention measures.
- Equipment needed to respond appropriately to a spill that will be carried on the vehicle transporting biosolids.
- Spill response measures should a spill occur.
- Contact information for Ecology, Jurisdictional Health Department(s) and Washington Department of Transportation.

Note: *The transportation of biosolids is otherwise subject to regulation by the Washington State Utilities and Transportation Commission under Title 81 RCW.*

5. Requirements for Storing Biosolids

Storage of biosolids must be conducted in a manner that is not likely to result in harm to human health and/or the environment and with approval from the regional coordinator.

5.1 Exemptions

If you store biosolids in a manner that will not result in harm to human health and/or the environment, your storage is exempt from the provisions of Subsections 5.2 and 5.3 if either of the following applies:

- You are storing in accordance with a current local, state, or federal water pollution control permit or other environmental permit.
- You utilize temporary, small scale storage for no more than 30 days in a tank holding no more than 10,000 gallons with a total on-site maximum volume of no more than 20,000 gallons.

5.2 Surface Impoundments (Lagoons)

If you store your biosolids in a surface impoundment that was constructed and used for that purpose prior to July 1, 2007, the surface impoundment must meet the requirements for the design, construction, and operation of surface impoundments in Chapter 173-304 WAC or a higher standard.

If you store your biosolids in a surface impoundment that was constructed or upgraded since July 1, 2007, or you are proposing to use a surface impoundment for biosolids storage for the first time, the surface impoundment must meet the requirements for the design, construction, and operation of surface impoundments in Chapter 173-350 WAC or a higher standard.

5.3 Tanks

If you store biosolids in a tank, the following must be reviewed by a licensed Professional Engineer and approved by Ecology:

- All tanks must be structurally sound.
- All tanks must be sited in a stable location.
- No tanks may be sited in an area where the seasonal ground water may come into contact with the tank unless otherwise approved by Ecology.
- If tanks are above ground, secondary containment may be required as part of the approval process.
- If tanks are below ground, leak detection tests may be required as part of the approval process.

6. Requirements for Disposal of Sewage Sludge in a Municipal Solid Waste Landfill

6.1 Disposal on an Emergency Basis

If you want to dispose of biosolids or sewage sludge on an emergency basis you must do the following:

- Obtain a written determination from the LHJ where the biosolids or sewage sludge is proposed for disposal.
- Obtain written approval from Ecology that disposal is an acceptable option.

The LHJ must notify Ecology in writing of its findings and the basis for its determination. In its written notification, the LHJ must include the following:

- The date on which disposal is approved to begin.
- Any conditions of approval.
- The date after which disposal is prohibited.

6.2 Disposal on a Temporary Basis

If you want to dispose of biosolids or sewage sludge on a temporary basis you must do the following:

- Submit a plan for approval to Ecology. The plan must include the following information:

  - The conditions that make disposal necessary.
  - The steps that will be taken to correct the conditions that make disposal necessary so that disposal will not become a long-term management option.
  - Submit a timetable for implementing the steps to be taken to correct the conditions that make disposal necessary.
- Obtain written approval for disposal from the LHJ where the biosolids or sewage sludge is proposed for disposal.
- Provide a copy of the LHJ approval to Ecology.
- Obtain written approval from Ecology that disposal is an acceptable option.

6.3 Disposal on a Long-term Basis

Disposal of biosolids or sewage sludge on a long-term basis requires:

- Authorization in a valid NPDES or state waste discharge permit issued under Chapter 90.48 RCW or a permit issued under Chapter 173-308 WAC.
- You must submit, for Ecology approval, an evaluation of the various management options that demonstrates to the satisfaction of Ecology that options for beneficial use are economically infeasible.

Written approval for disposal from the local health jurisdiction in the receiving jurisdiction must be submitted to Ecology.

7. Requirements for Transferring Biosolids

Coverage under this permit includes authorization for transferring biosolids from one facility to another for treatment or management if the following conditions are met:

- Nothing in the permit for either the sending or the receiving facility prohibits the transfer of biosolids.
- Both the sending and the receiving facility exchange adequate information needed to comply with this permit and Chapter 173-308 WAC. This may include, but is not limited to, information on biosolids quality and the permit status of each facility.
- Approval from Ecology.

8. Requirements for Analyzing Biosolids and Monitoring Processes

This section contains the minimum requirements for biosolids analysis and process monitoring that are applicable when you prepare biosolids for land application or sale/give away.

You must submit a biosolids sampling plan that addresses how you intend to meet the requirements in this section. As part of the approval process, Ecology may require biosolids analysis and/or process monitoring beyond the minimum requirements in this section.

8.1 Representative Sampling

Samples collected for analysis and monitoring locations must be representative of the biosolids or the treatment process used to prepare the biosolids.

8.2 Frequency of Biosolids Analysis

At a minimum, you must analyze your biosolids at the frequency listed in Table 1. Ecology may require additional sampling and analysis. The frequency of biosolids analysis is based on the dry weight tonnage of biosolids applied to the land or prepared for sale/give away per 365-day period. For facilities that compost or mix Class B quality biosolids with other materials, the frequency of analysis is based on the dry weight tonnage of the total amount of material, not just the biosolids.

Table 1 applies to the pollutants in WAC 173-308-160, the pathogen density requirements in WAC 173-308-170, the vector attraction reduction standards in WAC 173-308-180, and the nitrogen concentrations and percent solids needed to support agronomic rate determinations. It does not apply to process monitoring, which is described in Subsection 8.3.

Table 1 Minimum Frequency of Biosolids Analysis (adapted from WAC 173-308-150)

Metric tons per Year	Frequency*
<1 - 290 (<1 - 320 U.S. tons)	once per year (1X per year)
290 - 1,500 (320 - 1,653 U.S. tons)	once per quarter (4X per year)
1,500 - 15,000 (1,653 - 16,535 U.S. tons)	once per 60 days (6X per year)
>15,000 (>16,535 U.S. tons)	once per month (12X per year)
* after 2 years of analyzing at this frequency, analysis for the pollutant concentrations may be reduced, but it must not be less than once per year	

8.3 Frequency of Process Monitoring

Monitoring of the processes used to prepare biosolids that are land applied or sold/given away must be conducted at a frequency and duration that will ensure that the process meets the applicable requirements. This applies to the pathogen reduction processes in WAC 173-308-170 and the vector attraction reduction processes in WAC 173-308-180. As an example, Table 2 provides the minimum expectations for monitoring temperatures for a specific composting process.

Table 2 Minimum Process Monitoring Requirements for Meeting the Pathogen and Vector Attraction Reduction Requirements by the Static Aerated Pile Composting Method

Process	Required Process Monitoring*
Pathogen reduction via WAC 173-308-170(3)(b)(i)(A)	Monitor pile temperatures for at least 3 continuous days
Vector attraction reduction via WAC 173-308-180(3)	Monitor pile temperatures for at least an additional 11 continuous days (a total of 14 days)
** applies to each composting pile*	

8.4 Point of Compliance

The point of compliance for a sample is the date on which the sample is taken, not the date on which results are subsequently reported.

You may distribute biosolids based on the most recent analytical results. However, if subsequent results show that you distributed biosolids that failed to meet the appropriate standards, you will be in violation of this permit.

8.5 Requirement for Analysis by an Accredited Laboratory

An accredited laboratory is a laboratory accredited under Chapter 173-50 WAC, Accreditation of Environmental Laboratories, for a specific analyte using a specific analytical method.

All required biosolids analyses must be performed by a laboratory that is accredited by Ecology for the respective method used if an accreditation protocol for the method exists. Accreditation must be under the "Solids and Chemical Materials" matrix, unless otherwise approved

8.6 Analytical Methods

Unless another method is approved by Ecology, the methods in Table 3 must be used for biosolids analysis. In addition, the basic preservation and maximum holding times listed in Table 3 must be met.

Table 3 Analysis Methods, Preservation and Holding Times (adapted from WAC 173-308-140)

Parameter	Methods	Basic Preservation	Maximum Holding Tim
Arsenic	SW-846 6010 SW-846 6020 SW-846 7010 SW-846 7061	Cool to ~4° C	6 months
Cadmium	SW-846 6010 SW-846 6020 SW-846 7000 SW-846 7010	Cool to ~4° C	6 months
Copper	SW-846 6010 SW-846 6020 SW-846 7000 SW-846 7010	Cool to ~4° C	6 months
Lead	SW-846 6010 SW-846 6020 SW-846 7000 SW-846 7010	Cool to ~4° C	6 months
Mercury	SW-846 7470 SW-846 7471	Cool to ~4° C	28 days
Molybdenum	SW-846 6010 SW-846 6020 SW-846 7000 SW-846 7010	Cool to ~4° C	6 months
Nickel	SW-846 6010 SW-846 6020 SW-846 7000 SW-846 7010	Cool to ~4° C	6 months
Selenium	SW-846 6010 SW-846 6020 SW-846 7010 SW-846 7741	Cool to ~4° C	6 months
Zinc	SW-846 6010 SW-846 6020 SW-846 7000 SW-846 7010	Cool to ~4° C	6 months
Total Kjeldahl Nitrogen (TKN)	SM 4500, N_{org} B SM 4500, N_{org} C ASTM D3590-89 ASTM D3590-02	Cool to ~4° C	28 days
Nitrate-nitrogen	EPA 353.2 SM 4500-NO_3 E, F, or H	Cool to ~4° C	28 days
Ammonia-nitrogen	SM 4500-NH_3 B + C, D, E, or G	Cool to ~4° C	28 days
Organic Nitrogen	Calculated: TKN minus NH_3-N	Not applicable	Not applicable

Total Phosphorus	EPA 365.1 EPA 365.3 SM 4500-P B + E or F	Cool to ~4° C	28 days
PCBs	EPA 1668 SW-846 8082	Cool to ~4° C	1 year
Dioxins and Furans	EPA 1613 SW-846 8280 SW-846 8290	Freeze at -10° C	1 year
Semi-volatile Organic Compounds	SW-846 8270	Cool to ~4° C	14 days
Volatile Organic Compounds	SW-846 8260	Cool to ~4° C Freeze at -7° C or preserve with methanol	48 hours 14 days
Total Solids, Fixed Solids, or Volatile Solids	SM 2540 G	Cool to ~4° C	7 days
Volatile Solids Reduction	EPA/625/R-92/013 (Appendix C)	Not applicable	Not applicable
Additional Volatile Solids Reduction for Anaerobically Digested Solids	EPA/625/R-92/013 (Appendix D.1)	Hold at temperature of digester Maintain anaerobic conditions	6 hours
Additional Volatile Solids Reduction for Aerobically Digested Solids	EPA/625/R-92/013 (Appendix D.3)	Cool to 20° C Maintain aerated conditions	As soon as possible
Specific Oxygen Update Rate (SOUR)	EPA/625/R-92/013 (Appendix D.2) SM 2710 B	Hold at temperature of digester (10-30° C) Maintain aerobic conditions	As soon as possible
pH	SW-846 9040 (if <80% solids) SW-846 9045 (if >80% solids)	Not applicable	15 minutes
Fecal Coliform	EPA 1680 EPA 1681 EPA/625/R-92/013 (Appendix F) SM 9221 C and E SM 9222 D	Cool to ~4° C	Analysis within 8 hours from time of collection. Extended to 24 hours if using EPA 1680 or EPA 1681 for Class A compost or Class B from a digester SM 9222 D is not recommended and may only be used for Class B
Salmonella bacteria	EPA 1682 SM 9260 D EPA/625/R-92/013 (Appendix G)	Cool to ~4° C	6 hours
Helminth Ova	EPA/625/R-92/013 (Appendix I)	Cool to ~4° C	1 month
Enteric Viruses	ASTM D4994-89 EPA/625/R-92/013 (Appendix H)	Cool to ~4° C Freeze at -18° C	<24 hours 2 weeks

8.7 Records of Analytical and Monitoring Information

Records of analytical and monitoring information must include all of the following:

- The date, place, and time of sampling or measurement.
- The individuals who performed the sampling or measurement.
- The date analysis was performed.
- The individual who performed the analysis.
- The analytical technique or method used.
- The results of the analysis or measurement, including Quality Assurance and Quality Control (QA/QC) results.

9. Requirements for Biosolids Applied to Agricultural Land, Forest Land, Public Contact Sites, or Land Reclamation Sites

9.1 Removing Manufactured Inerts

The biosolids must meet the requirements for removal of manufactured inerts in WAC 173-308-205. Minimally, the following conditions must be met:

- The biosolids must contain <1% by volume recognizable manufactured inerts.
- Material must be screened through a bar screen with a maximum 3/8 inch aperture or an Ecology-approved equivalent process is required. Screening (or an approved equivalent process) may occur at any time in the wastewater treatment or biosolids manufacturing process, but it must occur before grinding or similar processes.

9.2 Soil Testing

All new land application sites, where nonexceptional quality biosolids will be applied, must be tested for the pollutants listed in WAC 173-308-160 Table 3 to determine background levels.

Soil nutrient levels must be tested prior to each land application event. Background nutrient levels will be used to calculate the agronomic rate in accordance with WAC 173-308-190, except as allowed for certain land reclamation sites or research projects approved in accordance with WAC 173-308-190(3) and WAC 173-308-192, respectively.

9.3 Agronomic Rate

The biosolids must be applied at an agronomic rate in accordance with WAC 173-308-190, except as allowed for certain land reclamation sites or research projects approved in accordance with WAC 173-308-190(3) and WAC 173-308-192, respectively.

The person who prepares the biosolids is responsible for providing information necessary to determine an agronomic rate to the person who receives the biosolids.

9.4 Pollutants

The biosolids must not exceed the ceiling concentration limits in WAC 173-308-160 Table 1. In addition, the biosolids must either not exceed the pollutant concentration limits in WAC 173-308-160 Table 3 or be applied at a rate that will not exceed the cumulative pollutant loading rates in WAC 173-308-160 Table 2.

If the biosolids are subject to the cumulative pollutant loading rates in WAC 173-308-160 Table 2, the person who proposes to apply the biosolids must obtain approval from Ecology in accordance with the process prescribed in WAC 173-308-160(2) prior to application. Table 4 provides a summary of WAC 173-308-160 Tables 1, 2, and 3.

Table 4 Allowable Biosolids Pollutants and Loading Rates (adapted from WAC 173-308-160)

Pollutant	WAC 173-308-160 Table 1 Ceiling Limits	WAC 173-308-160 Table 2 Cumulative Loading Rates	WAC 173-308-160 Table 3 Pollutant Limits
Arsenic	75 mg/kg	41 kg/ha	41 mg/kg
Cadmium	85 mg/kg	39 kg/ha	39 mg/kg
Copper	4300 mg/kg	1500 kg/ha	1500 mg/kg
Lead	840 mg/kg	300 kg/ha	300 mg/kg
Mercury	57 mg/kg	17 kg/ha	17 mg/kg
Molybdenum	75 mg/kg	Not applicable	Not applicable
Nickel	420 mg/kg	420 kg/ha	420 mg/kg
Selenium	100 mg/kg	100 kg/ha	100 mg/kg
Zinc	7500 mg/kg	2000 kg/ha	2000 mg/kg

9.5 Pathogens

The biosolids must meet one of the Class A processes in WAC 173-308-170(1)-(4) or one of the Class B processes in WAC 173-308-170(5)-(7).

9.6 Vector Attraction Reduction

The biosolids must meet one of the vector attraction reduction processes in WAC 173-308-180 or be managed to reduce vector attraction in the field as described in WAC 173-308-210(4)(a) and (b).

9.7 Site Management and Public Access Restrictions for Class B Biosolids

The site management and public access restrictions in this subsection apply to biosolids that are Class B for pathogens when they are applied to the land.

9.7.1 Crop Harvest Waiting Periods

The time between the last application of Class B biosolids and crop harvesting must adhere to the waiting periods in Table 5.

Table 5 Crop Harvesting Restrictions for Class B Biosolids

Crop Type	Examples	Does the harvested part of plant contact biosolids?	Length of time the biosolids remain on soil surface	Waiting period until harvest is allowed
Above ground food crops	Cherries, wheat	No	Not applicable	30 days
Above ground food crops	Lettuce, cucumbers	Yes	Not applicable	14 months
Root food crops	Onions, potatoes	Yes	≥4 months	20 months
Root food crops	Onions, potatoes	Yes	<4 months	38 months
Feed crops	Range land, pasture	Not applicable	Not applicable	30 days
Fiber crops	Trees, cotton	Not applicable	Not applicable	30 days
Turf	Lawn grass	Not applicable	Not applicable	1 year*
** = unless a different waiting period is approved by Ecology*				

9.7.2 Public Access Restrictions

Public access must be restricted following the application of Class B biosolids. Minimally, sites must be posted during the entire time site access is restricted in accordance with the requirements in Table 6. Exceptions to these requirements must have approval by Ecology.

Table 6 Site Posting Requirements for Class B Biosolids

Where	Notice Content*	How Long
All significant points of access to the site. Every ½ mile (805 meters) around the perimeter of the site.	The name and address or phone number of the generator and, if different, the person who applies the biosolids. The names, addresses, and phone numbers of the regulatory and permitting authorities. The material that is being applied Notice that access is restricted and, if desired, the date after which access is no longer restricted. If applicable, a notice on limitations regarding the harvesting of edible plants from the site.	Sites with a "high" potential for public exposure: 1 year Sites with a "low" potential for public exposure: 30 days
** unless the use of "No Trespassing" signs has been approved by Ecology for this purpose*		

9.7.3 Additional Site Management Restrictions

Table 7 contains additional site management restrictions that must be met when Class B biosolids are land applied.

Table 7 Additional Site Management Restrictions for Class B Biosolids

Feature	Restriction
Surface waters	No application within 100 feet*
Wells	No application within 100 feet (30.5 meters)*
Wetlands	No application allowed**
Waters of the state	No application allowed**
Flooded, frozen, or snow-covered sites	No application allowed**
** unless a different buffer is approved or required by Ecology* *** unless approved by Ecology; applies to any Class B quality biosolids*	

10. Requirements for Biosolids Sold/Given Away in Bags or Other Containers

Any biosolids sold or given away must meet the requirements for exceptional quality biosolids. The requirements include meeting pollution concentration limits in Table 3 of WAC 173-308-160, one of the Class A pathogen reduction requirements in WAC 173-308-170 and one of the vector attraction reduction requirements in WAC 173-308-180.

10.1 Labeling Requirements

The biosolids must have a label or accompanying information sheet. The label or information sheet must contain the following information:

- The name, address, and phone number of the person who prepared the biosolids.
- A statement or information indicating that the product complies with applicable regulations for biosolids or that the product has been prepared to meet standards that make it safe for its intended use when used in accordance with the directions provided by the manufacturer.
- A statement or information that encourages proper use of the product and protection of public health and the environment. This may include information on product storage, hygiene, and protection of surface or ground water resources.
- Agronomic rates for typical applications or guidance on how to determine the agronomic rate of application.
- A statement or information indicating that the product contains or is derived from biosolids.

- Unless registered as a fertilizer by the Washington State Department of Agriculture, a disclaimer stating that the product is not a commercial fertilizer and that all nutrient claims are estimates or averages and not guaranteed.

11. Requirements for Septage Applied to the Land

This section contains the requirements for the land application of septage. It does not apply to "septage managed as biosolids originating from sewage sludge".

11.1 Removing Manufactured Inerts

The septage must meet the requirements for removal of manufactured inerts in WAC 173-308-205. Minimally, the following conditions must be met.

- The septage must contain <1% by volume recognizable manufactured inerts.
- Screening through a bar screen with a maximum 3/8 inch opening or an Ecology-approved equivalent process.

11.2 Soil Testing

All new land application sites must test for pollutants to determine background levels.

Soil nutrient levels must be tested prior to each land application event. Background nutrient levels will be used to calculate the agronomic rate in accordance with WAC 173-308-190.

11.3 Application Rates

The septage must be applied at a rate not exceeding the rate determined by *Equation 1.* To determine the distance *(in feet*) over which a load of liquid septage should be spread to meet the application rate, use Equation 2.

Equation 1 – Annual Application Rate for Septage

$$AAR = N \div 0.0026$$

Where:

AAR = annual application rate in gallons per acre per 365-day period
N = amount of nitrogen in pounds per acre per 365-day period needed by the crop or vegetation grown on the land (subtract any nitrogen supplied by other sources—for example, commercial fertilizers or manures)

Equation 2 – Spreader Drive Length for Septage

$$\text{Drive length (in feet)} = \text{gallons} \div \text{spread width (in feet)} \times 43{,}560 \div AAR$$

Where:
AAR = annual application rate in gallons per acre per 365-day period determined by Equation 1

11.4 Pollutants

The septage application rate formula in Equation 1 was developed by EPA. EPA included acceptable pollutant loading from septage into the formula. Testing for pollutants in WAC 173-308-160 is not required for septage applied to land. Ecology may require additional or more stringent testing requirements developed as a condition of final coverage under this permit.

11.5 Pathogen Reduction and Vector Attraction Reduction

The requirements for pathogen and vector attraction reduction for septage are based on the percent by volume of septage from households.

11.5.1 Loads with >75% from Households

For loads of septage composed of >75% septage from households, one of the following requirements must be met.

1. The septage must be injected so that no significant amount of the septage is on the surface within 1 hour after injection, or
2. The septage must be incorporated into the soil within 6 hours after application, or
3. The septage must be stabilized by raising the pH to ≥ 12 and held at this pH for ≥ 30 minutes. The following standards apply to this pH stabilization process:

    - Samples collected or monitoring locations must be representative of the septage that will be applied.
    - A minimum of 2 tests for pH must be conducted.
    - The first test must occur after lime or an alkali has been added and a pH of ≥ 12 has been attained.
    - The second test must occur ≥ 30 minutes after the first test to show that a pH of ≥ 12 has been retained.
    - If the pH is <12 when the second test is conducted, the process must be restarted.

11.5.2 Loads with <75% from Households

For loads of septage composed of <75% septage from households, the septage must be stabilized by raising the pH to ≥12 and held at this pH for ≥30 minutes.

The following standards apply to this pH stabilization process:

- Samples collected or monitoring locations must be representative of the septage that will be applied.
- A minimum of 2 tests for pH must be conducted.
- The first test must occur after lime or an alkali has been added and a pH of ≥12 has been attained.
- The second test must occur >30 minutes after the first test to show that a pH of ≥12 has been retained.

- If the pH is <12 when the second test is conducted, the process must be restarted.

11.6 Sites where Septage Cannot be Applied

Septage cannot be applied to a public contact site, a lawn, or a home garden. A "public contact site" is land with a high potential for public exposure, including, but not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, golf courses, and reclamation sites in a city.

11.7 Site Management and Public Access Restrictions

The site management and public access restrictions in this subsection apply when septage is applied to the land.

11.7.1 Crop Harvest Waiting Periods

The time between the last application of septage and crop harvesting must adhere to the waiting periods in Table 8.

Table 8 Crop Harvesting Restrictions for Septage

Crop Type	Examples	Does the harvested part of plant contact septage?	Length of time the septage remains on soil surface	Waiting period until harvest is allowed
Above ground food crops	Cherries, wheat	No	Not applicable	30 days
Above ground food crops	Lettuce, cucumbers	Yes	Not applicable	14 months
Root food crops	Onions, potatoes	Yes	>4 months	20 months
Root food crops	Onions, potatoes	Yes	<4 months	38 months
Feed crops	Range land, pasture	Not applicable	Not applicable	30 days
Fiber crops	Trees, cotton	Not applicable	Not applicable	30 days

11.7.2 Public Access Restrictions

Public access must be restricted following the application of septage. Minimally, sites must be posted during the entire time site access is restricted in accordance with the requirements in Table 9.

Table 9 Site Posting Requirements for Septage

Where	Notice Content*	How Long
All significant points of access to the site. Every ½ mile (805 meters) around the perimeter of the site.	The name and address or phone number of the generator and, if different, the person who applies. The names, addresses, and phone numbers of the regulatory and permitting authorities. The material that is being applied. Notice that access is restricted and, if desired, the date after which access is no longer restricted. If applicable, a notice on limitations regarding the harvesting of edible plants from the site.	30 days
** unless the use of "No Trespassing" signs has been approved by Ecology for this purpose*		

11.7.3 Additional Site Management Restrictions

Table 10 contains additional site management restrictions that must be met when septage is applied.

Table 10 Additional Site Management Restrictions for Septage

Feature	Restriction
Surface waters	No application within 100 feet (30.5 meters)*
Wells	No application within 100 feet (30.5 meters)*
Wetlands	No application allowed**
Waters of the state	No application allowed**
Flooded, frozen, or snow-covered sites	No application allowed**
** unless a different buffer is approved by Ecology* *** unless approved by Ecology*	

APPENDIX 1 - PUBLIC NOTICE CONTENT

1) Name and address of the facility and the name of the contact person for the facility.

2) Name and address of Ecology person responsible for the permit.

3) Name and address of the local health jurisdiction contact responsible for the permit if the local health jurisdiction has been delegated this responsibility.

4) A description of the proposal.

   - Proposals for coverage under this permit must cite the General Permit for Biosolids Management.

   - Proposals for land application plans must contain information on the location of the proposed land application sites and, if applicable, the sources of biosolids that may be applied.

   - Proposals for general land application plans must provide information on how the public will be notified when specific sites are identified.

5) A brief statement describing the applicant's biosolids management practices.

6) A statement describing an interested person's opportunity to comment or request a public hearing or meeting on the proposal, including the last date for comments or requests and the contact person to whom comments or requests must be directed.

   - The period for comments and requests must be at least 30 days following the posting.

   - Comments and requests should be directed to the responsible Ecology contact or the responsible local health jurisdiction contact if the authority is delegated.

     The following is an example: "*Any person who wants to comment on this proposal or wants to request a public hearing or meeting must do so in writing within 30 days of this notice. Comments should be addressed to* (insert either 'the Ecology contact listed' or 'the local health jurisdiction contact listed')*.*"

7) The statement, "*If you wish to be included on an interested parties list to receive notification of activities relating to this project, please notify, in writing, the* (insert facility name) *contact listed.* (Insert facility name) *will provide written confirmation by certified mail, return receipt requested, to each interested person or organization that their name has been placed on the list.*"

8) Any additional information considered necessary or proper.

APPENDIX 2 - GENERAL LAND APPLICATION PLAN CONTENT

1) Describes the geographical area covered by the plan, including the names of all counties and water resource inventory areas where biosolids may be applied.

2) Identifies site selection criteria.

3) Describes how sites will be managed.

4) Provides for not less than 30 days advance notice to Ecology of new or expanded land application sites, including those subject to provisional approval under WAC 173-308-310(18), to allow time for Ecology to object prior to the biosolids application.

5) Provides for advance public notice as required in WAC 173-308-310(13), and that is reasonably calculated to reach potentially interested adjacent and abutting property owners.

APPENDIX 3 - SITE SPECIFIC LAND APPLICATION PLAN CONTENT

1) Whether or not it is known or can be determined that biosolids containing pollutants in excess of the values in WAC 173-308-160 Table 3 have ever been applied to the site, and if so:

- The date(s) when the biosolids were applied (if known). The amount of biosolids applied (if known).
- The concentrations of the pollutants in the biosolids (if known).
- The area(s) of the site to which the biosolids were applied (if known).

2) A discussion of the types of crops grown or expected to be grown, their intended end use (for example, pasture grass for a feed crop, corn as a food crop), and the current distribution of crops on the site.
3) An explanation of how agronomic rates will be determined during the life of the site, along with any currently available calculations. Whenever agronomic rates or the method used to determine agronomic rates change, an update of the agronomic rate calculations must be filed with Ecology.
4) Method(s) of application.
5) Seasonal and daily timing of biosolids applications.
6) Provisions for conducting any soils, surface waters, or ground water sampling and any available data collected from the site within the last 2 years.
7) The name of the county and water resource inventory area where biosolids will be applied.
8) A description of how biosolids will be stored at the site that also addresses related off-site storage.
9) Map(s) for the site(s) must be submitted. Maps must be of an appropriate scale to show the detail necessary for evaluation of the proposed application areas, and so that a person may reasonably be able to locate the sites and any application units within a site (for example, 1:7,920 [8 inches to the mile] for detailed information with an overview map at 1:63,360 [1 inch to the mile]).
Minimally, maps must provide the following information:

- A legend.
- The location and means of access.
- Specific areas of the site where biosolids may be applied. If there is more than one site or more than one application unit within a site, a site or unit ID number should be included.
- The number of acres in the site or in any distinct application unit within a site.
- Location and extent of any wetlands on the site.
- A topographic relief of the application site and surrounding area.
- Adjacent properties and uses, and their zoning classification.
- Any seasonal surface water bodies located on the site.
- Any perennial surface water bodies located on or within 1/4 mile (402 meters) of the site.
- The location of any wells located on or within 1/4 mile (402 meters) of the site that are listed in public records or otherwise known to the applicant, whether for domestic, irrigation, or other purposes.
- Buffer zones to features such as surface waters, wells, property boundaries, and roadways and the width of the buffer zones.
- The presence and extent of any threatened or endangered species or related critical habitat.
- The location of any critical areas on site, as required to be identified under Chapter 36.70A RCW in the county's growth management plan.
- The location and size of any areas that will be used to store biosolids.

10) If the seasonal ground water is 3 feet (0.91 meters) or less below the surface, a management plan describing how you will protect ground water. For example, you may propose to limit applications to the time of year when ground water has receded to more than 3 feet (0.91 meters) below the surface.
11) A description of how access to the site will be restricted (for example, signs posted around the site or other approved method of access restriction).
12) A copy of the landowner agreement required under WAC 173-308-120(6).
13) Any additional information requested by Ecology that is needed to evaluate the appropriateness of the site for biosolids application.

GLOSSARY OF TERMS

The following definitions cover many of the terms used in this permit.

“Accredited laboratory” is a laboratory accredited under Chapter 173-50 WAC for a specific analyte using a specific analytical method.

“Administrator” means the Administrator of the United States Environmental Protection Agency, or an authorized representative.

“Aerobic digestion” is the biochemical decomposition of organic matter in biosolids into carbon dioxide and water by microorganisms in the presence of air. Aerobic digestion does not include composting.

“Agricultural land” is land on which a food crop, feed crop, or fiber crop is grown. This includes range land and land used as pasture.

“Agronomic rate” is the biosolids application rate that provides the amount of nitrogen necessary for the optimum growth of targeted vegetation, and that will not result in the violation of applicable standards or requirements for the protection of ground or surface water as established under Chapter 90.48 RCW and related rules including Chapters 173-200 WAC and Chapter 173-201A WAC.

“Anaerobic digestion” is the biochemical decomposition of organic matter in biosolids into methane gas and carbon dioxide by microorganisms in the absence of air. Anaerobic digestion does not include composting.

“Apply biosolids or biosolids applied to the land” means the land application of biosolids for the purpose of beneficial use.

“Beneficial use facility” means a receiving-only facility consisting of a site or sites where biosolids from other treatment works treating domestic sewage are applied to the land for beneficial use, which has been permitted as a treatment works treating domestic sewage in accordance with WAC 173-308-310, and that has been designated as a beneficial use facility through the permitting process.

“Beneficial use of biosolids” means the application of biosolids to the land for the purposes of improving soil characteristics including tilth, fertility, and stability to enhance the growth of vegetation consistent with protecting human health and the environment.

“Biosolids sold/given away in a bag or other container” means biosolids sold/given away to the general public in a bag or other container holding less than 1 metric ton (1.1 U.S. tons).

“Biosolids” means municipal sewage sludge that is a primarily organic, semisolid product resulting from the wastewater treatment process that can be beneficially recycled and meets all applicable requirements under this permit. Biosolids includes a material derived from biosolids, and septic tank sludge, also known as septage, that can be beneficially recycled and meets all applicable requirements under this permit. For the purposes of this permit, semisolid products include biosolids or products derived from biosolids ranging in character from mostly liquid to fully dried solids.

“Bulk biosolids” means biosolids that are not sold/given away in a bag or other container for application to the land.

“Ceiling concentration” means the maximum concentration of a pollutant in any biosolids sample, beyond which level the biosolids would be classified as sewage sludge not suitable for application to the land. Ceiling concentrations are established in Table 1 of WAC 173-308-160.

“Class I biosolids management facility” is any publicly owned treatment works (POTW), as defined in 40 CFR 501.2, required to have an approved pretreatment program under 40 CFR 403.8(a) (including any POTW located in a state that has elected to assume local program responsibilities under 40 CFR 403.10(e)), and any treatment works treating domestic sewage, as defined in 40 CFR 122.2, classified as a Class I biosolids management facility by the EPA Regional Administrator, or in the case of approved state programs, the Regional Administrator in conjunction with the state director, because of the potential for its biosolids use or disposal practice to affect public health and the environment adversely.

“Clean Water Act” or “CWA” means the Clean Water Act or Federal Clean Water Act (FCWA) (formerly referred to as either the Federal Water Pollution Act or the Federal Water Pollution Control Act Amendments of 1972), Public Law 92-500, as amended by Public Law 95-217, Public Law 95-576, Public Law 96-483, Public Law 97-117, and Public Law 100-4.

“Complete application” includes but, is not limited, to the following: a completed Application for Coverage, a vicinity map of the facility, a vicinity map of any associated treatment or storage facilities, a treatment facility schematic, confirmation that the SEPA requirements have been met, confirmation that public notice requirements have been met, land application plans if required, monitoring data if required, a biosolids sampling plan if required, a contingency plan for exceptional quality biosolids if required, a temporary disposal plan if required, a spill prevention/ response plan if required, and a signature by an appropriate official.

“Composting” means the biological degradation of organic materials under controlled conditions designed to promote aerobic decomposition. This does not include the treatment of sewage sludge in a digester at a wastewater treatment plant.

“Cumulative pollutant loading rate” is the maximum amount of a pollutant that can be applied to an area of land from biosolids that exceed the pollutant concentration limits established in Table 3 of WAC 173-308-160.

“Density of microorganisms” is the number of microorganisms per unit mass of total solids (dry weight) in the biosolids.

“Department” means the Washington state department of ecology and, within the scope of its delegation, a local health jurisdiction that has been delegated authority under WAC 173-308-050.

“Director” means the director of the department of ecology or his or her authorized representative.

“Disposal on a long-term basis” means to adopt disposal as a preferred method of management for at least 5 years, or for an indefinite period of time with no expectation for pursuing other management alternatives.

“Disposal on a temporary basis” means a period of more than 1 but less than 5 years. Generally, situations requiring the temporary use of disposal facilities will normally occur as a result of deficiencies in the wastewater or biosolids treatment process, or economic, administrative, or contractual constraints which cannot be resolved in less than 1 year.

“Disposal on an emergency basis” means a period up to but not exceeding 1 year. Generally, emergency situations requiring the use of disposal facilities will normally occur as a result of inclement weather conditions at a beneficial use site, contractual or technical difficulties in the treatment, transportation, or application of the biosolids, or as a result of short term economic or administrative barriers, any and all of which are expected to be resolved within a period of 1 year.

“Domestic sewage” is waste and wastewater from humans or household operations that is discharged to or otherwise enters a treatment works.

“Dry weight basis” means calculated on the basis of having been dried at 105C (221°F) until reaching a constant mass (in other words, essentially 100% solids content).

“EPA” means the United States Environmental Protection Agency.

“Exceptional quality biosolids” means biosolids that meet the pollutant concentration limits in Table 3 of WAC 173-308-160, and at least one of the Class A pathogen reduction requirements in WAC 173-308-170, and at least one of the vector attraction reduction requirements in WAC 173-308-180.

“Facility” means a treatment works treating domestic sewage as defined in this permit, unless the context of the permit requires otherwise. For the purposes of this permit a facility is considered to be new if it has not been previously approved for the treatment, storage, use, or disposal of biosolids or sewage sludge.

“Feed crops” are crops produced primarily for consumption by animals.

“Fiber crops” are crops such as flax and cotton including, but not limited to, those whose parts or by-products may be consumed by humans or used in the production or preparation of food for human consumption.

“Food crops” are crops consumed by humans. These include, but are not limited to, fruits, vegetables, grains, and tobacco.

“Forest” is an area of land that is managed for the production of timber or other forest products, or for benefits such as recreation and watershed protection, and that is or will be dominated by trees under the current system of management. For the purposes of this permit, other areas of land that are not

regulated as agricultural land, public contact sites, land reclamation sites, or lawns or home gardens are considered forest land.

“General permit” means a permit issued by Ecology in accordance with the procedures established in this permit, to be effective in a designated geographical area, that authorizes the application of biosolids to the land or the disposal of sewage sludge in a municipal solid waste landfill, under which multiple treatment works treating domestic sewage may apply for coverage.

“Geometric mean” means the antilogarithm of the arithmetic average of the logarithms of the sample values, or the nth root of the product of n sample values.

“Ground water” means water in a saturated zone or stratum beneath the surface of land or below a surface water body.

“Health jurisdiction” or “local health jurisdiction” means city, county, city-county, or district public health jurisdiction as defined in Chapter 70.05 RCW, Chapter 70.08 RCW, and Chapter 70.46 RCW.

“Individual permit” means a permit issued by Ecology to a single treatment works treating domestic sewage in accordance with WAC 173-308-310, which authorizes the management of biosolids or sewage sludge.

“Industrial septage” or “commercial septage” is the contents from septic tanks or similar systems that receive wastewater generated in a commercial or industrial process. This definition includes, but is not limited to, grease trap wastes generated at restaurants and similar food service facilities.

“Industrial wastewater” or “commercial wastewater” is wastewater generated in a commercial or industrial process.

“Incineration” means the firing of sewage sludge as a means of disposal.

“Interested party” is a person who expresses an interest in a specific biosolids project (or a specific Permittee) and either requests to be placed on the interested parties list or takes an action resulting in being placed on an interested parties list.

“Land application” is the application of biosolids to the land surface by means such as spreading or spraying, the injection of biosolids below the land surface, or the incorporation of biosolids into the soil, for the purpose of beneficial use.

“Land with a high potential for public exposure” is land that the public uses frequently. This includes, but is not limited to, a public contact site and a reclamation site located in a populated area (for example, a construction site located in a city).

“Land with a low potential for public exposure” is land that the public uses infrequently. This includes, but is not limited to, agricultural land, forest, and a reclamation site located in an unpopulated area (for example, a strip mine located in a rural area).

“Local health jurisdiction” see definition of health jurisdiction.

“Manufactured inerts” means wastes such as plastic, metals, ceramics and other manufactured items that remain relatively unchanged during wastewater or biosolids treatment processes.

“Monthly average” is the arithmetic mean of all measurements taken during the month.

“Municipal sewage sludge” means sewage sludge generated from a publicly owned treatment works. For the purposes of this permit, sewage sludge generated from the treatment of only domestic sewage in a privately owned or industrial treatment facility is considered municipal sewage sludge.

“Municipality” means a city, town, borough, county, parish, district, association, or other public body (including an inter-municipal agency of two or more of the foregoing entities) created by or under state law, or a designated and approved management agency under Section 208 of the Clean Water Act, as amended. The definition includes a special district created under state law, such as a water district, sewer district, sanitary district, utility district, drainage district, or similar entity, or an integrated waste management facility as defined in Section 201(e) of the Clean Water Act, as amended, that has as one of its principal responsibilities the treatment, transport, use, or disposal of biosolids.

“Nonexceptional quality biosolids” means biosolids that do not meet the criteria of “exceptional quality biosolids” as defined in this section.

“Other container” is either an open or closed receptacle. This includes, but is not limited to, a bucket, a box, a carton, and a vehicle or trailer with a load capacity of 1 metric ton (1.1 U.S. tons) or less.

“Owner” means any person with ownership interest in a site or facility, or who exercises control over a site or facility, but does not include a person who, without participating in management of the site or facility, holds indicia of ownership primarily to protect the person's security interest.

“Pasture” is land on which animals feed directly on feed crops such as legumes, grasses, grain stubble, or stover.

“Pathogenic organisms” are disease causing organisms. These include, but are not limited to, certain bacteria, protozoa, viruses, and viable helminth ova.

“Permit” means an authorization, license, or equivalent control document issued by the director to implement the requirements of this permit. Unless the context requires differently, the use of the term in this permit refers to individual permits, general permits, and coverage under general permits.

“Person who prepares biosolids” is either the person who generates biosolids during the treatment of domestic sewage in a treatment works or the person who derives a material from biosolids.

“Person” is an individual, association, partnership, corporation, municipality, state or federal agency, or an agent or employee thereof.

“pH” means the logarithm of the reciprocal of the hydrogen ion concentration.

“Place sewage sludge” or “sewage sludge placed” means to dispose of sewage sludge.

“Pollutant limit” is a numerical value that describes the amount of a pollutant allowed per unit amount of biosolids (for example, milligrams per kilogram of total solids), the amount of a pollutant that can be applied to a unit area of land (for example, kilograms per hectare), the volume of a material that can be applied to a unit area of land (for example, gallons per acre), or the number of pathogens or indicator organisms per unit of biosolids. Pollutant limits are established in Tables 1 - 3 of WAC 173-308-160, in WAC 173-308-170, and in WAC 173-308-270.

“Pollutant” is an organic substance, an inorganic substance, a combination of organic and inorganic substances, or a pathogenic organism that, after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism either directly from the environment or indirectly by ingestion through the food chain, could, on the basis of information available to the Administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction), or physical deformations in either organisms or offspring of the organisms.

“Public contact site” is land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.

“Publicly owned treatment works” means a treatment works treating domestic sewage that is owned by a municipality, the state of Washington, or the federal government.

“Range land” is generally open, uncultivated land dominated by herbaceous or shrubby vegetation that may be used for grazing or browsing, either by wildlife or livestock.

“Receiving-only facility” means a treatment works treating domestic sewage that only receives sewage sludge or biosolids from other sources for further treatment and/or application to the land, and which does not generate any biosolids from the treatment of domestic sewage.

“Reclamation site” is drastically disturbed land that is reclaimed using biosolids. This includes, but is not limited to, strip mines and construction sites.

“Regional administrator" means the Regional Administrator of Region 10 of the Environmental Protection Agency or his/her authorized representative.

“Residential equivalent value” means the number of residential equivalents determined for a facility under Chapter 173-224 WAC or a value similarly obtained under WAC 173-308-320.

“Restrict public access” means to minimize access of nonessential personnel to land where biosolids are applied, through the use of natural or artificial barriers, signs, remoteness, or other means.

“Saturated zone” means the zone below the water table in which all interstices are filled with water.

“Septage managed as biosolids originating from sewage sludge” means septage managed as if it had originated from a sewage treatment process at a wastewater treatment facility including, but not

limited to, meeting the sampling requirements in WAC 173-308-140, the monitoring requirements in WAC 173-308-150, the pollutant limits in WAC 173-308-160, the pathogen reduction requirements in WAC 173-308-170, and the vector attraction reduction requirements in this permit.

“Septage management facility” means a person who applies septage to the land or one that treats septage for application to the land.

“Septage” or “domestic septage” is liquid or solid material removed from septic tanks, cess-pools, portable toilets, type III marine sanitation devices, vault toilets, pit toilets, RV holding tanks, or similar systems that receive only domestic sewage. Septage may also include commercial or industrial septage mixed with domestic septage if approved in accordance with WAC 173-308-020(3)(g).

“Sewage sludge” is solid, semisolid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screenings generated during preliminary treatment of domestic sewage in a treatment works.

“Significant change in biosolids management practices” means, but is not limited to, the following: a change in the quality of biosolids that are applied to the land, either from class A to class B for pathogens, or from Table 3 to Table 1 of WAC 173-308-160 for pollutant limits; the addition of a new area to which biosolids will be applied which was not previously disclosed during a required public notice process; for class B biosolids only, a change from nonfood crops to food crops, a change from crops where the harvestable portions do not contact the biosolids/soil mixture to crops where the harvestable portions contact the biosolids/soil mixture, or a change in site classification from land with a low potential for public exposure to land with a high potential for public exposure; or any change or deletion of a requirement established in an approved land application plan or established as a condition of coverage under a permit that would result in a decrease in buffer size, site monitoring, or facility reporting requirements, which was not otherwise provided for in the permit or plan approval process.

“Site” means all areas of land, including buffer areas, which are identified in the scope of an approved Site Specific Land Application Plan. A site is considered to be new or expanded when biosolids are applied to an area not approved in a Site Specific Land Application Plan or that was not previously disclosed during a required public notice process.

“Specific oxygen uptake rate (SOUR)” is the mass of oxygen consumed per unit time per unit mass of total solids (dry weight basis) in the biosolids.

“State” means the state of Washington.

“Store or storage of biosolids” is the placing of biosolids on land or in surface impoundments or other containment devices in which the biosolids remain for 2 years or less, except where a greater time

period has been approved by Ecology. This does not include the placing of biosolids on land or in surface impoundments or other containment devices for treatment or disposal.

“Stover” is the non-grain, above-ground part of a grain crop, often corn or sorghum.

“Surface Disposal” is the placing of active sewage sludge into an area of land that contains one or more sewage sludge units.

“Surface impoundment” means a facility or part of a facility which is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials), and which is designed to hold an accumulation of liquids or sludge. The term includes holding, storage, settling, and aeration pits, ponds, or lagoons, but does not include injection wells.

“Surface waters of the state” means surface waters of the state as defined in WAC 173-201A-020.

“Tank” means a stationary device designed to contain an accumulation of liquid or semisolid materials and which is constructed primarily of nonearthen materials to provide structural support.

“Temporary, small-scale storage” is the storage of biosolids for no more than 30 days in a tank holding no more than 10,000 gallons with a total on-site maximum volume of no more than 20,000 gallons.

“Total solids” are the materials in biosolids that remain as residue when the biosolids are dried at 103 to 105C (217.4 to 221°F).

“Treat or treatment of biosolids” is the preparation of biosolids for final use or disposal. This includes, but is not limited to, thickening, stabilization, and dewatering of biosolids. This does not include storage of biosolids.

“Treatment works treating domestic sewage” means a publicly owned treatment works or any other sewage sludge or wastewater treatment devices or systems, regardless of ownership, used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage or sewage sludge, including land dedicated for the disposal of sewage sludge. Treatment works treating domestic sewage also includes beneficial use facilities and septage management facilities as defined in this section, and a person, site, or facility designated as a treatment works treating domestic sewage in accordance with WAC 173-308-310(1)(b). This definition does not include septic tanks or similar devices or temporary, small-scale storage as defined in this section.

“Treatment works” is either a federally owned, publicly owned, or privately owned device or system used to treat (including recycle and reclaim) either domestic sewage or a combination of domestic sewage and industrial waste of a liquid nature.

“Unstabilized solids” are organic materials in biosolids that have not been treated in either an aerobic or anaerobic treatment process.

“Vector attraction” is the primarily odorous characteristic of biosolids that attracts rodents, flies, mosquitoes, or other organisms capable of transporting infectious agents.

“Volatile solids” is the amount of the total solids in biosolids that are lost when the biosolids are combusted at 550C (1,022°F) in the presence of excess air.

“Waters of the state” means waters of the state as defined in RCW 90.48.020.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF THE
REGIONAL
ADMINISTRATOR

DEC 0 4 2012

Ted Sturdevant, Director
Department of Ecology
300 Desmond Drive Southeast
Lacey, Washington 98503

Dan Newhouse, Director
Department of Agriculture
1111 Washington Street Southeast
Olympia, WA 98504

Dear Mr. Sturdevant and Mr. Newhouse:

I understand that your agencies are working on proposals to modify the requirements for livestock operations and would like EPA's perspectives regarding protection of groundwater which is used as a source of drinking water. Our primary goal in this regard is to reduce risk to human health from nitrate contamination in underground sources of drinking water. We believe there are three main areas that the current requirements, as we understand them, could be significantly improved

First, the state should prohibit in most instances the construction of manure lagoons on sites that have a significant risk of nitrate transport to groundwater that serves as a source of drinking water. Where there are no feasible alternatives to the construction of such lagoons, the state should prescribe requirements for liner design, construction, review and certification that will prevent groundwater contamination. Existing manure lagoons in areas with documented groundwater quality problems should be assessed to determine if they are discharging to groundwater and brought up to new standards if needed. My staff can provide more detail on programs from other states that could be looked to as a model.

Second, the state should require that livestock operations and third party recipients of waste that land apply liquid and/or solid waste take additional steps to ensure that manure application fields are not a source of nitrate to the groundwater. It is our understanding that the application of manure that has been transferred to a third party is currently not regulated. All parties applying manure or manure in combination with synthetic fertilizer, including third parties, should implement annual nutrient management plans based on current, annual soil and waste analysis, and application rates should be limited to agronomic rates. Irrigation management practices should also be prescribed to prevent downward migration of nitrates.

Third, the state should impose groundwater-monitoring requirements on large livestock operations that are potential significant sources of nitrates to a drinking water aquifer. The specific monitoring system should be designed by a licensed hydrogeologist and include both upgradient and downgradient monitoring. Where nitrate contamination is detected by the monitoring system, the state should require the facility to take additional steps to address the sources. Additional steps should include reduced application rates of nutrients as determined by on site analysis.

The EPA believes that having safe drinking water and a healthy agricultural economy are complementary goals that can be achieved. My technical staff is available to provide more details if needed. Please contact me directly or have your staff contact Tom Eaton, Director of our Washington Operations Office at (360) 753-8086 or by email at eaton.thomas@epa.gov.

Sincerely,

Dennis J. McLerran
Regional Administrator

cc: Mark Clark, Executive Director
Washington State Conservation Commission

bcc: Tom Eaton
Marie Jennings
Eric Winiecki
Ed Kowalski
Dan Opalski

In The Matter Of:

CARE, et al.

vs.

Cow Palace, et al.

Deposition of

Thomas Tebb

February 26, 2014

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1 IN THE UNITED STATES DISTRICT COURT

2 FOR THE EASTERN DISTRICT OF WASHINGTON

3

4 COMMUNITY ASSOCIATION FOR RESTORATION OF THE ENVIRONMENT, INC., a Washington Non-Profit Corporation and CENTER FOR FOOD SAFETY, INC., a Washington, D.C. Non-Profit Corporation

Plaintiffs,

vs.

COW PALACE, LLC, a Washington Limited Liability Company,

Defendant.

) No. CV-13-3016-TOR

CERTIFIED COPY

COMMUNITY ASSOCIATION FOR RESTORATION OF THE ENVIRONMENT, INC., a Washington Non-Profit Corporation and CENTER FOR FOOD SAFETY, INC., a Washington, D.C. Non-Profit Corporation

Plaintiffs,

vs.

GEORGE & MARGARET, LLC, a Washington Limited Liability Company and GEORGE DERUYTER & SON DAIRY, LLC, a Washington Limited Liability Company

Defendants.

) No. CV-13-3017-TOR

COMMUNITY ASSOCIATION FOR RESTORATION OF THE ENVIRONMENT, INC., a Washington Non-Profit Corporation
and
CENTER FOR FOOD SAFETY, INC., a Washington, D.C. Non-Profit Corporation
Plaintiffs,

vs.

D & A DAIRY, a Washington Partnership
and
D & A DAIRY, LLC, a Washington Limited Liability Company,
Defendants.

) No. CV-13-3018-TOR

COMMUNITY ASSOCIATION FOR RESTORATION OF THE ENVIRONMENT, INC., a Washington Non-Profit Corporation
and
CENTER FOR FOOD SAFETY, INC., a Washington, D.C. Non-Profit Corporation
Plaintiffs,

vs.

HENRY BOSMA DAIRY, a Washington Proprietorship, aka HANK BOSMA DAIRY, aka BOSMA DAIRY,
and
LIBERTY DAIRY, LLC,
Defendants.

) No. CV-13-3019-TOR

DEPOSITION UPON ORAL EXAMINATION OF
THOMAS TEBB
February 26, 2014
Tumwater, Washington

Taken Before:
Laura A. Gjuka, CCR #2057
CENTRAL COURT REPORTING 1-800-442-DEPO
Seattle - Bellevue - Yakima - Wenatchee

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Also Present: SARAH NATSUMOTO
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22

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24

25

EXAMINATION INDEX

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1 BE IT REMEMBERED that on the 26th of February,
2 2014, at 7141 Cleanwater Drive SW, Tumwater, Washington,
3 before LAURA A. GJUKA, CCR# 2057, Washington State
4 Certified Court Reporter residing at University Place,
5 authorized to administer oaths and affirmations pursuant
6 to RCW 5.28.010.
7 WHEREUPON the following proceedings were had,
8 to wit:
9 * * * * * *
10
11 THOMAS TEBB, having been first duly sworn by
12 the Court Reporter, deposed as follows:
13
14 EXAMINATION
15 BY MR. TEBBUTT:
16 Q Mr. Tebb, would you please state your full name and
17 address for the record?
18 A Yes. My name is Gordon Thomas Tebb. Would you like me
19 to spell that or --
20 Q Sure, please.
21 A G-o-r-d-o-n, T-h-o-m-a-s, T-e-b-b. My address is
22 13001 South 1538 PRSW Prosser, Washington 93550. My
23 business address is 15 West Yakima Avenue, suite 200,
24 Yakima, Washington 98902. My phone number at my office
25 is area code (509) 574-3989. Do you need my cell

1 number?
2 Q That's good. You can stop right there. I'm just going
3 to go over some basics first. Have you ever been
4 deposed before?
5 A Yes.
6 Q How many times?
7 A Probably three times.
8 Q In what type of cases?
9 A A variety of pollution cases associated with my
10 business --
11 Q So all in your role as an employee of the Department of
12 Ecology?
13 A Correct.
14 Q Can you tell me the names of those cases?
15 A They were over a decade ago, so I can't. But they
16 were -- I want to say one was associated with the
17 Hanford Nuclear Reservation, one was associated with a
18 water quality permit when I was a water quality section
19 manager at our Yakima office, I can't recall the case.
20 Q Have you ever testified at trial?
21 A I have not.
22 Q Okay. Just so you know, just to go over some ground
23 rules -- by the way, I'm Charlie Tebbutt and I represent
24 Community Association for Restoration of the Environment
25 and the Center for Food Safety in four actions involving

1 Research Conservation and Recovery Act claims for
2 imminent and substantial endangerment to human health in
3 the environment due to the groundwater contamination in
4 the Yakima Valley.
5 Just basic ground rules. Please wait until I finish
6 my question before you answer. Try not to anticipate.
7 Please give audible answers to every question, yeses and
8 nos. Shakes of the head and those sorts of things don't
9 work -- in this situation it's fine because I haven't
10 asked you a question, but when I ask you a question,
11 please give an audible answer. If you don't understand
12 a question of mine, please say that. Otherwise, I will
13 believe that you understood the question and the record
14 will reflect that. If for some reason it is confusing,
15 please say, "I don't understand the question."
16 You may hear some objections interposed either by
17 your counsel or Ms. Kristensen, the counsel for the
18 defendants in the case. That does not mean that you
19 don't have to answer the question, you still have to
20 answer the question.
21 This testimony, as you know, is taken under oath.
22 It can be used at trial later, either by itself or for
23 other purposes, such as refreshing recollection or other
24 things.
25 Any questions at this point?

A No, sir.
Q All right. If you need to take a break, please let me know. That's fine. It's no problem taking a break, you just can't take a break in the middle of a question, while a question is pending, okay?
A I understand.
(Exhibit No. 44 marked for identification.)
MR. TEBBUTT: We are continuing on from yesterday, so we are starting at 44.
BY MR. TEBBUTT:
Q Mr. Tebb, you have seen this document before that's sitting in front of you, Exhibit 44?
A Yes, I have. I believe this was the notice for me to be deposed.
Q Okay. The very last page of this document, Exhibit 44, requests four categories of documents to be produced today. Can you tell me what categories of documents of these four have been produced on the CD that was provided by your counsel Ms. Barker (sic) to us just prior to the start of this deposition?
A I can tell you what we did in terms of trying to produce those documents. I have not been able to actually observe what is on the CD as they were being collected, as I was in travel status. Essentially, I have been here for two days on other business, and so I can tell

1 you what we attempted to produce as a result --
2 Q Okay. Let's do that. Why don't you tell me what you
3 have attempted to produce so far and what --
4 A Sure.
5 Q -- still needs to be produced --
6 A So --
7 Q -- to the extent you know.
8 A When we received this request, I notified our public
9 information officer, Roger Johnson. He works with all
10 of us, our staff at the Yakima office, as well as myself
11 and my assistant, and went through a process where we
12 reviewed all of my e-mail files back to the date, I
13 think it was 2005 was the request date backwards, as
14 well as my folder files, which I keep fairly regular
15 correspondence and information as a working file.
16 Q Is that an electronic folder file?
17 A No. Those are some of the hardcopies that you have
18 received. So I think those were produced. Also,
19 anything else that I had had in terms of notes and
20 things of that sort, I didn't really have a lot there.
21 So we basically looked at everything I had and tried to
22 produce it in respect to this request.
23 Q Okay. Do you know what --
24 A May I get some glasses?
25 Q Sure.

A I should have brought them to the table, I apologize. I'm getting a little older to where I need them.
Q I understand and appreciate that.
A Thank you. Excuse me.
Q No problem. Take your time.
A Yeah.
Q So do you know what categories of documents have not been produced yet?
A I do not.
MR. TEBBUTT: I will ask your counsel, Ms. Barker.
MS. BARNEY: Barney.
MR. TEBBUTT: Barney, sorry. What do you know has been produced and what hasn't been produced? We talked about it before at the start of the deposition.
MS. BARNEY: We did. My understanding is that, from Mr. Johnson on the phone yesterday, was that the disks produced today has approximately 80 percent of the material. It contains e-mails responsive to the third and fourth bullet points from a variety of Ecology employees. It's identified on the disk as folder name by those individual's names.
There is additional material in the second disk that we hope will arrive this morning that continues the

1 production of e-mails. And there is a third disk due
2 early next week because there was an Ecology employee --
3 one Ecology employee's parent had passed away and she
4 was not in the office to do her e-mail searches, and it
5 also contains the material from Ecology headquarter's
6 employee Jon Jennings, because he had a great deal of
7 material in terms of his e-mails, and they were having
8 difficulty downloading all of that down to the disk
9 yesterday. So the decision was made to produce as much
10 as possible on the disk to be here this morning,
11 arriving this morning, to give you the most material,
12 but then those two things are following on.
13 BY MR. TEBBUTT:
14 Q All right. And may I ask who the employee is who was
15 not available to produce her file?
16 A I can respond to that. Her name is Melanie Redding, and
17 she is a hydrogeologist with our water quality program
18 here at headquarters.
19 Q All right. Thank you.
20 Mr. Tebb, could you please explain your educational
21 background?
22 A Sure. I graduated from Toppenish High School in 1978.
23 I went to Yakima Valley Community College, received my
24 AA degree. I subsequently transferred to Western
25 Washington University where I studied environmental

1 geology. And then I -- at that time I graduated with a
2 bachelor of science degree in 1984. I have pursued a
3 master's of engineering work at Cal Berkeley when I
4 moved down there for employment. I have attended the
5 Dan Evans School, University of Washington just --
6 Q Let me stop you for a sec. Did you complete your
7 master's?
8 A I did not.
9 Q How much of it did you complete?
10 A I had about a year.
11 Q And what type of classes did you take?
12 A Geotechnical engineering and civil engineering. The
13 firm that I worked for was a geotechnical firm and it
14 supplemented my work experience.
15 Q All right. You were beginning to tell me about some
16 other education you received after the master's work --
17 A Yeah. Subsequently, as part of my career here at
18 Ecology, I pursued a variety of trainings, particularly
19 most recently several quarters at the University of
20 Washington, Dan Evans School of Business. Actually, the
21 public administration program.
22 Q All right. Is that the extent of your education?
23 A It is.
24 Q I noticed you have some initials after your name.
25 A Uh-huh.

1 Q Tell me what "LHG" stands for.
2 A Sure. I'm a licensed engineering geologist in the state
3 of Washington, also a geologist in the state of
4 Washington and a hydrogeologist. I possess all three of
5 those licenses, license No. 408.
6 Q And so you are certified in the state of Washington as a
7 hydrogeologist?
8 A Yes, sir.
9 Q And an engineer as well?
10 A No, engineering geologist.
11 Q Okay. And when did you -- how long have you been
12 licensed as a hydrogeologist in the State of Washington?
13 A When the state of Washington instituted its
14 hydrogeology, engineering geology, and geology
15 licenses -- I believe it was about a decade ago when
16 they instituted the licensing requirements in this
17 state, I was one of the first -- obviously my license
18 No. 408 represents I was one of the first in the process
19 to be licensed.
20 Q All right. I would like to go over your work history a
21 little bit with you.
22 A Sure.
23 Q Let's start with present and then work our way back.
24 A Okay.
25 Q What's your present -- who is your present employer and

what's your job title?
A I work for the Washington State Department of Ecology in our Yakima regional office. I'm the regional director for the Department of Ecology in that office. I have been in that position since 2008.
Q And what position were you in before 2008?
A From 2008 to 2005, I was our water resources section manager in the Department of Ecology central regional office.
Q And were you employed with the Department of Ecology before 2005?
A Yes.
Q In what capacity?
A I have been employed with the Department of Ecology from 2005 to 1998 as a -- excuse me, there is two positions in there. I was a water quality section manager for Department of Ecology, central regional office after my water resources stint, for two years. So I believe that would take us to 2003.

And then from 2003 to 1998 I worked as our shorelands environmental section manager out of our Spokane and Yakima offices.

And prior to that, from '98 to '92, I worked in the Washington State Department of Ecology's nuclear waste program in Kennewick Washington on the Hanford Nuclear

1 Reservation.
2 Q Have you had your radiation levels checked now and
3 again?
4 A Not lately, sir.
5 Q I don't mean to make light of that.
6 A Yeah, it's a mess out there.
7 Q Prior to '92, where were you employed?
8 A I was employed for the firm that I mentioned. It was
9 Subsurface Consultants, an engineering company out of
10 San Francisco, Washington -- San Francisco, California.
11 Q What was the name of that?
12 A It's name was subsurface Consultants.
13 Q What kind of work did you do for them?
14 A It was basically I was hired as a geologist, and I
15 worked with a variety of clients, everything from the
16 Navy, working on a degaussing range that they had in the
17 bay, San Francisco Bay, as well as building ponds for
18 water storage in the Napa Valley. So anything kind of
19 soil related or engineering related to soil, that was
20 what I did.
21 Q And what years did you work for them?
22 A I worked for them from 1985 to 1992, right after I
23 graduated from college.
24 Q I just want to ask you about a couple of people who I
25 know used to work at Ecology and ask if they are still

working there. Max Linden?
A Max Linden no longer works for the Department of Ecology.
Q Do you know when he moved on?
A I believe he moved on almost -- I want to say seven to eight years ago.
Q Fair enough. Bob Rayforth?
A Bob Rayforth no longer works for the Department of Ecology.
Q Do you know when he left ecology?
A I would say about five years ago.
Q Have you been involved at all with reviewing the EPA study on groundwater that came out in September of 2012 concerning the Lower Yakima Valley?
A I have read the study. I have not been involved in an official capacity per se.
Q And so when did you first become aware of the contamination of groundwater in the Lower Yakima Valley with nitrates?
MS. KRISTENSEN: Objection, vague.
MR. TEBBUTT: Go ahead and answer.
THE WITNESS: I believe I became aware of it when I was in the capacity as a water quality section manager for the Department of Ecology in the Yakima office.

BY MR. TEBBUTT:
Q Let me just stop you for a second. Try to go slow. The court reporter's fingers only move so fast. So try to go as slow as you can. There is no rush here.
A Okay. It had to do with an enforcement action that we were working with. I can't recall exactly what the enforcement issue was. I can't recall if it was the Port of Sunnyside or some other groundwater -- some sort of surface discharge to ground where we were analyzing contaminants, but I believe we began noticing there was a nitrate problem. And as part of the enforcement work -- now I may have this mixed up -- but the bottom line is that it was an enforcement action that resulted in a penalty. The penalty was used for a study to essentially fund a small study to do some groundwater sampling in the Lower Yakima Valley to determine whether we had a nitrate problem.
Q Do you recall the approximate year?
A I want to say it was in the 2005 era, that era.
Q Okay.
A I know I brought this issue up to our executive management team and all three directors that I worked for in my current capacity.
Q Okay. Do you recall a study done by the Valley Institute for Research and Education on groundwater

contamination in the Lower Yakima Valley?
A Yes, that was the study I was referring to. I couldn't recall the name. It was a man, a professor. It was a small group, and I believe his partner, I don't know if they were married or not.
Q Okay. So that wasn't something that Ecology commissioned; it was commissioned as a result of settlements of other cases, enforcement actions by citizens against some of the dairies in the area; correct?
A Correct.
MS. BARNEY: Objection, misstates. Go ahead.
THE WITNESS: I think that is correct.
BY MR. TEBBUTT:
Q Okay. And so if I told you that that study came out in 2002, would that refresh your recollection when that study actually came out?
A I wouldn't be surprised. I deal with a lot of information and my memory probably isn't that sharp.
Q So did you review that study when it came out?
A Yes, I did.
Q Were you aware of another study that was done by Heritage College at the time, a similar type of study of groundwater contamination in the Lower Yakima Valley?

A I was aware of it. And I believe the work that we attempted to work with the Valley Institute or the firm that you referenced was to build off that study and to get a wider expansion and notice of the groundwater.
Q Did you read the Heritage College study?
A I did not.
Q Did you assist the Valley Institute of Research and Education, and when I say "you," Department of Ecology, with reviewing quality assurance protocols for that proposed study?
A Yes. Again, I was acting in the capacity of a manager, so I believe it was my staff. Whether it was Bob or -- Bob Rayforth or others that were involved in the previous enforcement action, yes, to have data and information that we can use, quality assurance project plans are performed.
Q Right. So your staff was satisfied that the quality assurance that was part of the -- I will call it VIRE, V-I-R-E -- the VIRE study, it was satisfactory to meet Ecology's standards?
A That is my recollection. Yes.
Q And they were not enforcement actions by the Department of Ecology against the dairies; right? It was money that came from citizens' suit settlements; correct?
A I don't recollect it that way.

Q Sir, I ask -- okay. How do you recollect it?
A I recollect it -- I just wrote down the name of the firm there.
Q I would ask that you not write on the exhibits.
A Oh.
Q If you would like to have a separate pad of paper to write on for your own purposes, please do. But the exhibits --
A I apologize.
Q -- should not -- just so you know, there is handwriting that says "VIRE study 2002/citizen" on the last page of Exhibit 44.
A Sorry.
Q One of those protocols.
A I will scribble over here.
Q Feel free to scribble all you want.
A Okay. To answer your question, I don't recall it exactly as the funding source. I seem to recall it as a penalty that a portion of was used to fund the study. That's how I recollect it.
Q Right. But it wasn't penalties assessed by the Department of Ecology, was it?
A I believe so.
Q Have you had occasion to review other reports done by Ecology employees about groundwater contamination in the

Lower Yakima Valley related to the dairy industry?
A Could you be more specific about the nature of the reports? Because they -- what I'm trying to say is, often in the job of permitting different facilities, there are reports that are done to support those permits.
Q On an individual facility basis?
A Yeah.
Q I'm talking more generally about studies done, scientific studies by the staff at the Department of Ecology about groundwater contamination, and I will start first in the Lower Yakima Valley.
A I don't recall a particular study that we have funded. Now, that's not to say that one exists. I don't recall that the environmental assessment program or -- I don't recall a comprehensive study that was performed by our agency in that regard.
Q Have you reviewed other studies done by the Department of Ecology about groundwater contamination generally in the state of Washington from dairy facilities?
A I have reviewed a report associated with the Whatcom nitrate study recently, as it relates to a study that was performed by the Department of Ecology's environmental assessment program. That is probably the freshest on my mind. I deal with a lot of information,

so it's hard for me to answer your question as accurately as --

MR. TEBBUTT: We will get down to some more specifics then.

(Exhibit No. 45 marked for identification.)

BY MR. TEBBUTT:

Q Mr. Tebb, you have in front of you Exhibit 45, an issue paper on construction of dairy lagoons below the seasonal high groundwater table done by Melanie Kimsey, a hydrogeologist with the Department of Ecology. Do you know Ms. Kimsey?

A Yes, I do. I believe Melanie Kimsey is now Melanie Redding. I believe that was her maiden name. Or if I -- again, I'm -- this is my understanding.

Q So she now works in the central office in Yakima?

A No. She works in the headquarters office in Lacey.

Q All right.

A For the water quality program.

Q All right.

A And she often does work for the regional offices.

Q Okay. Can you tell me if this study looks familiar at all to you?

A It does.

Q So you reviewed it before?

A I have.

Q Did you have any input into the either the development -- well, let's start with the development of this work.
A No, not specifically.
Q Did you have any input into this study as it was being produced?
A Just as one of several reviewers. The recommendations and the options are typical with the type of construction requirements that I, as a geotechnical engineer, would recommend for water retention or other types of facilities.
Q Is it fair to say that you agree with the findings and recommendations in this study?
A Professionally, I would.
Q Okay. Take a look at the third page of the study down at the bottom, the last paragraph. Just read it to yourself, if you would.
Are you all done?
A Yes.
Q Would you agree with the statement that the liquid contained in the dairy lagoon is untreated manure?
A I would.
MS. KRISTENSEN: Objection, that's not exactly what it says. It talks about lagoons constructed below the seasonal high groundwater table,

not all lagoons. So I object that it misstates this document.

MR. TEBBUTT: We will let the record speak for itself.

BY MR. TEBBUTT:

Q Would you also agree with the statement that Ecology does not allow the direct discharge of contaminated wastewater or highly treated wastewater into groundwater for other activities?

A I would agree with that.

Q What other activities does ecology prohibit direct discharge of contaminated water or highly treated wastewater into groundwater, what kind of activities?

A Activities such as state waste discharge to ground.

Q From what kind of facilities?

A A variety of facilities. It could be everything from an individual pouring -- or not changing his oil correctly, to a fairly sophisticated wastewater treatment plant that applies its wastewater to an alfalfa field.

Q Like a municipal sewage treatment system, for instance?

A Yeah. Typically those discharge to surface water.

Q But there are situations where there are municipal wastewater treatment holding ponds; correct?

A Correct. And there are also very large scale Department of Health, I guess, sewage systems, if you

will.
Q Right. And those are not allowed to discharge to groundwater; correct?
A They are intended to be designed so that the effluent that is discharged is essentially cleaned through the biological reaction of the soil.
Q Right. And are you familiar with the strength of municipal waste, versus the strength of, for instance, manure waste?
MS. KRISTENSEN: Objection, vague.
BY MR. TEBBUTT:
Q Do you understand the question?
A I believe I do, and I don't have specific -- I don't have a specific sense of one facility versus manure. I think manure can be applied in such a manner that it is taken up in --
Q But let me ask the question more specifically. Raw human sewage has a certain type of range of contaminant concentration; correct?
A Yes.
Q And manure from dairy cows has another range of strength of concentration?
A Correct.
Q Is it fair to say that manure from dairy facilities has higher strength of contaminant concentration than human

sewage?

MS. KRISTENSEN: Objection, vague. Calls for speculation.

THE WITNESS: I think in the way that it's measured in terms of E. coli counts for nutrients or nitrogen loading, yes. I think because manure often is collected and concentrated in the manner that it is handled, that, yes, it would be at a higher concentration of contaminants.

Q So is it fair to say it is stronger, if you will? It has more contaminants, more nutrients than human waste?

MS. KRISTENSEN: Same objection.

THE WITNESS: Again, I think it has to do with how it is handled and managed and concentrated. I think if it is distributed across the soil --

BY MR. TEBBUTT:

Q But we are not going there, we are just talking about storage in a lagoon, in a liquid sense. We are comparing the human waste that's in a municipal sewage --

A Yes.

Q -- lagoon versus a dairy lagoon. Is it fair to say that the dairy lagoon waste would be stronger than what is in a human waste lagoon?

MS. KRISTENSEN: Objection, incomplete

1 hypothetical, calls for speculation.
2 MS. BARNEY: Join.
3 THE WITNESS: I believe that's correct.
4 BY MR. TEBBUTT:
5 Q On the fifth page of Exhibit 44, there is an option 2.
6 It says, and I read, "Construct a non-discharging lagoon
7 by designing a double membrane lined lagoon with a leak
8 detection system. This option achieves containment of
9 the dairy wastewater and creates a non-discharging
10 lagoon." Would you agree with that statement?
11 MS. KRISTENSEN: Objection, calls for
12 speculation.
13 THE WITNESS: I'm sorry, could you draw my
14 attention to that statement again?
15 BY MR. TEBBUTT:
16 Q Yes, option 2, the first two sentences.
17 A I would agree with that.
18 Q And have you -- strike that.
19 You have been involved in the regulation of dairy
20 waste now for how long, sir, in your capacity with the
21 Department of Ecology?
22 A Well, being refreshed with the VIRE study of 2002, I
23 would say that in my capacity, both as a section manager
24 and as a regional director, since that time.
25 Q And these options that are provided in Exhibit 44, which

is a January 18th, 2002 report, provide some options for the Department of Ecology to regulate certain types of dairy lagoons; correct?

MS. BARNEY: Objection, the witness hasn't had the opportunity to read the entire document.

BY MR. TEBBUTT:

Q Would you like to take some time to look at the document to refresh your recollection, Mr. Tebb?

A I would.

Q Please do.

A Okay.

Q All right. So is it fair to say that this study was designed to deal with lagoons that are built in or near a high water table?

A This study looks to be providing an analysis associated with that phenomena, where lagoons had been built or will be built in areas of high water table.

Q And Ecology proposed two options for addressing such lagoons; correct?

A That is correct.

Q Which of the two options, option 1 or option 2, do you think is more protective of the environment?

A Option 2.

Q And Ecology, also in this proposal, disagreed with the NRCS proposal for how to deal with lagoons in high water

1 table areas; correct?
2 MS. BARNEY: I'm going to interpose an
3 objection here just to state for the record that
4 Mr. Tebb was not issued a 30(b)(6) subpoena. So he is
5 speaking here in his capacity as an ecology employee and
6 to his knowledge as an ecology employee. He is not
7 speaking for -- in an official capacity for the
8 Department of Ecology as it would be under a 30(b)(6).
9 BY MR. TEBBUTT:
10 Q Go ahead and answer.
11 A Could you restate the question, please.
12 MR. TEBBUTT: Would you mind reading back
13 the question?
14 (Pending question read back.)
15 THE WITNESS: That's correct. Well, I
16 would say the author of this study disagreed with NRCS.
17 BY MR. TEBBUTT:
18 Q And you reviewed this study, you said?
19 A Yes.
20 Q And do you disagree with that statement, that it's --
21 A No, I do not.
22 Q On the last page, page 7 of Exhibit 44, there is a list
23 of additional concerns. The second bullet point talks
24 about discrepancy between construction standards for
25 dairy lagoons and standards required for all wastewater

1 impoundments. Do you agree there is still a discrepancy
2 between dairy lagoons and other types of wastewater
3 impoundments in the state of Washington?
4 A Yes, I agree with that.
5 Q So the requirements for dairy lagoons are less strict
6 than for other impoundments; correct?
7 MS. KRISTENSEN: Objection, vague. Calls
8 for speculation.
9 THE WITNESS: The dairy lagoons are
10 designed under the NRCS standards.
11 Q Which you believe are less protective than the
12 Chapter 173-240 WAC standards for other lagoons?
13 A In my professional opinion as a hydrogeologist and
14 engineering geologist, yes.
15 Q Are you familiar with -- if you take a look at the last
16 page of Exhibit 44, the sixth reference, "Groundwater
17 Quality Assessment, Hornby Dairy Lagoon,
18 Sunnyside Washington, publication 1992." Are you
19 familiar with that study?
20 A No, I am not.
21 Q I have been misspeaking about the exhibit we were just
22 talking to, it's Exhibit 45, that's the Construction of
23 Dairy Lagoons Below the Seasonal High Groundwater Table.
24 It is Exhibit 45, not Exhibit 44, as I have been
25 referring to it. Exhibit 44 is the notice of deposition

1 and the request for production of documents that we
2 talked about in the beginning of the deposition.
3 Do you recall a woman by the name of Marci Ogden,
4 Mr. Tebb?
5 A Yes, I do.
6 Q And what do you recall about Ms. Ogden?
7 A I recall that Marci was a homeowner who had high levels
8 of E. coli and bacteria in her well water and was very
9 concerned that the agricultural practices that were
10 occurring adjacent to her home were affecting her
11 drinking water well. And I had numerous conversations
12 with her over the phone and possibly even via e-mail
13 with her about this subject.
14 MR. TEBBUTT: All right.
15 (Exhibit No. 46 marked for identification.)
16 BY MR. TEBBUTT:
17 Q Sir, you have in front of you Exhibit 46 to your
18 deposition. E-mails from 2005 in which you are copied
19 on at least some of them -- actually, all of them -- and
20 one in which you were the author; correct?
21 A Yes, that is correct.
22 Q And Exhibit 46, is this the first time that you obtained
23 information about Marci Ogden, if you recall?
24 A I believe so. That is correct. There may have been a
25 phone call ahead of this discussion.

Q From Ms. Ogden?
A Yes.
Q So you do recall speaking with her on one or more occasions?
A Yes, I do.
Q Was it multiple occasions you spoke with her?
A I believe so.
Q Did you ever meet with her in person?
A I think I did. Again, I --
Q Did you go out to her house?
A I don't think so.
Q On page 2 of Exhibit 46 you made a comment at the top of the page about your discussion with her, that she was concerned about having to drink contaminated water from her well as a result of a neighbor involved in the dairy or feed lot industry. And your statement was, "I tend to agree with her." Do you still agree with that statement today?
A I do.
Q And you made a series of eight recommendations on page 2. Who did you make those recommendations to?
MS. KRISTENSEN: Objection, there is nothing about recommendations. The document says "questions." Misstates this document.
BY MR. TEBBUTT:

Q Well, I will rephrase my question. You listed eight questions for, you say, "We need to think about." Are you referring -- when you say "we," are you referring to the Department of Ecology?
A That is correct.
Q And so those were questions that you asked in your role as a Department of Ecology employee; correct?
A That is correct.
Q Have you come to any answers to those questions as the Department of Ecology?
A We have made some progress on this issue. For example, we have -- there is a formation of the Lower Yakima Valley groundwater management area, which is, I believe, question four on this e-mail that I wrote. I do also believe the agency is in review of the CAFO permit, and I think we continue to work with our other state agencies, particularly the Department of Ag on our respective roles/responsibilities, and that has evolved over time.
Q I'm going to ask you specifically about question three. You say, "What about high nitrate levels? How do we address those?" What has the Department of Ecology done to address those since 2005, if anything?
A Within the current configuration of our CAFO permit and the activities that we have with the Department of

1 Agriculture and responding to citizen complaints or
2 activities associated with dairy operations, we have --
3 we continue to work on those issues, which I believe is
4 improving the management of manure. It's not perfect.
5 The relationship and the coordination between our
6 respective agency is it is sort of a delicate dance
7 about who does what when. And I think the staff at the
8 lower level have a better sense of that than I do, now
9 that I'm in a different capacity. But I -- it has
10 always been a challenge.
11 Q Around this time, around 2005, a responsibility for
12 overseeing the dairy regulatory side was given from
13 Ecology to Department of Agriculture, wasn't it?
14 A I believe that is correct, yes.
15 Q So Ecology essentially abdicated its role to the
16 Department of Agriculture to undertake the regulatory
17 structure?
18 MS. KRISTENSEN: Objection as to the word
19 "abdicated."
20 THE WITNESS: I would say that the
21 Washington State legislature provided a different
22 regulatory framework from which the Department of
23 Ecology and the Department of Agriculture would work on
24 this issue.
25 BY MR. TEBBUTT:

1 Q Did EPA approve that delegation of authority from
2 Department of Ecology to Department of Agriculture?
3 A I don't believe they have received the Clean Water Act
4 delegation. I believe they are obligated to pursue
5 that, and I don't know the status of that.
6 Q So you say that the agencies are -- you said generally
7 trying to address the high nitrate levels, but what
8 specifically has Ecology done to forward the ball on
9 reducing nitrate levels since 2005?
10 A We have -- I don't have a specific program or activity,
11 other than the general activities I have mentioned, to
12 provide.
13 Q And the groundwater management area, GWMA, the GWMA that
14 you discussed in this e-mail in 2005, did you have
15 discussions with anyone in Yakima County about
16 implementing a GWMA?
17 A I have had numerous discussions with Yakima County
18 officials, Vern Redifer with Public Works, director,
19 Yakima County. I have probably had conversations with
20 Yakima County commissioners. Mike Lieta, Rand Elliott,
21 and Kevin Bouchey, and their predecessors. I have had
22 conversations with Senator Honeyford,
23 Representative Chandler.
24 Q Did you discuss the possibility of a GWMA with
25 Yakima County in 2005?

A That's entirely possible. I have felt that -- I think as my e-mail illustrates, we have more work to do here.
Q Yeah, that's fine. Let's hold off on that for now.
In your initial discussions with Yakima County officials, did they decline to enter into any kind of GWMA?
A I think there was a funding question and a "How are you going to do this" kind of question that they just weren't prepared to answer at that time.
Q Was there political pushback about whether to do a GWMA because of the importance of the dairy industry to the economy in Yakima County?
MS. KRISTENSEN: Objection, vague. Lack of foundation.
BY MR. TEBBUTT:
Q Go ahead and answer.
A I think in all aspects of the work that the Department of Ecology does there is always a political factor in our decision-making.
Q What did Representative Honeyford tell you about the GWMA? Did you have discussions with him about that?
A It's Senator Honeyford. The discussions were primarily around whether the Environmental Protection Agency or the Department of Ecology, a state agency, or the State would have a more leading role. And I believe also I

had this conversation with Representative Bruce Chandler.

Q What was Senator Honeyford's position, do you recall?

A I believe Senator Honeyford and Representative Chandler's positions were that the State should remain the primacy regulatory agency on this issue.

Q Asking you about question No. 6 on page 2 of Exhibit 46, you say, "Why is it that we have no direct course of action (between agencies) to resolve this issue for the affected public." Has this question ever been answered to your satisfaction?

A Partially.

Q Okay. Can you explain that for me, please?

A Yeah, as I mentioned, with the formation of the GWMA, the review of the CAFO permit, and some of the discussions about the issue of nitrate in groundwater generally across the state, there is a heightened awareness, both at the political level and at the executive level, as well as the technical level. So I think progress has been made since 2002, and maybe 2005 when this was written, but we are not there yet.

Q Okay. So let's say someone like Marci Ogden were to call today with the same kind of problem: I have nitrates in my well in excess of the maximum contaminant

level, what do I do? And she called you, what would you tell her?

A I would have her contact Yakima County, groundwater management area, and they actually have a well water testing program. And depending upon the results of those tests, an opportunity or an option for drinking water.

Q For an alternative drinking water source?

A Correct.

Q And there is funding for that?

A There is a limited amount of funding for that.

Q How much funding is available?

A It is part of the recent funding that Senator Honeyford provided for the groundwater management area. As of the last biennial budget, the 2013 budget, there was a grant that was provided for the GWMA, but it went through the Department of Ecology's contracting process. And so we have a contract with Yakima County to do this work. And as an element within that contract, there is a water quality testing and potential off-the-shelf technology options. And subsequently, depending upon the issue and sort of where she falls on a criteria list, an opportunity for replacement water.

Q Do you know how much the fund --

A I want to say in the order of a hundred thousand

1 dollars. I don't know the exact figure.
2 Q Do you know if anyone has applied to that fund at this
3 point?
4 A I do. I believe we have had two rounds of that process.
5 There was the initial round where we had an extensive
6 mail-out program with Yakima County. We had -- the
7 Department of Health worked with us. We had a variety
8 of workshops that we held throughout the Lower Yakima
9 Valley, both in English and in Spanish. Those workshops
10 were moderately attended.
11 I think we are continuing to try to improve our
12 outreach and our ways to communicate with the affected
13 community. And then subsequently that funding -- that
14 initial funding went away and then we got the 2013
15 funding, the formation of the GWMA, and then we
16 reinstituted the program. So there is another round of
17 it.
18 So we are in the second round of that. And there is
19 similarly an outreach program, there is a website you
20 can go to, you can call a number now, and it's a little
21 bit -- it's much better than it was, let me put it that
22 way.
23 Q Is that on the Department of Ecology's website?
24 A No, this is on Yakima County's website.
25 Q Okay. And so the information about how that process is

working and how much has been funded, is that available in the Yakima County website?

A It's not readily available on the website, but that's information we can get. It's associated with our contract with Yakima County to move forward and then you can see how we have divvied out the work tasks.

Q That's information within the possession of Department of Ecology?

A Yes.

MS. BARNEY: Charlie are you at a breaking point?

MR. TEBBUTT: Want to take a break?

MS. BARNEY: We have been going for about an hour.

MR. TEBBUTT: Would you like to take a break? It's a good time.

THE WITNESS: Sure.

(Short break taken.)

BY MR. TEBBUTT:

Q Mr. Tebb, just for the record, you understand you are still under oath?

A Yes, sir.

Q A little before the break we talked about Exhibit 45 and options for protecting groundwater from dairy lagoon waste. You are both a hydrologist and a soils

scientist, would you agree with that statement?
A I'm a licensed hydrogeologist and a licensed engineering geologist. A soil scientist is slightly a different --
Q As a --
A So the physical properties and how they react to soil and water, as opposed to the biological property, like a soil scientist would be more familiar with.
Q From the engineering point of view, a lagoon built into earth would not be an impermeable lagoon, would it?
MS. KRISTENSEN: Objection, vague. Incomplete hypothetical, calls for speculation.
THE WITNESS: A lagoon built on earth, if not properly constructed, would leak.
BY MR. TEBBUTT:
Q Is there a way that a constructed lagoon, built into the earth, with only using native soils, could be impermeable?
A Not to my knowledge.
Q It would have to have some kind of synthetic liner in order to potentially keep water from seeping through the bottoms of the lagoons?
A That is correct.
Q And even then there is questions about whether the liners leak?
MS. KRISTENSEN: Objection, calls for

1 speculation. Incomplete hypothetical.
2 THE WITNESS: That is correct.
3 BY MR. TEBBUTT:
4 Q And that's why the recommendation in Exhibit 45 is to
5 have a double-lined system with a leak detection system
6 between the two liners, correct, to see if those two
7 liners are performing as required?
8 MS. KRISTENSEN: Objection, calls for
9 speculation. He didn't write this paper. He doesn't
10 know why she included that or not included that.
11 MR. TEBBUTT: Speaking objections are not
12 necessary.
13 MS. BARNEY: My objection is it misstates
14 the document, the question.
15 BY MR. TEBBUTT:
16 Q You understood the question, didn't you, Mr. Tebb?
17 A Yes. In my professional opinion, option 2 is probably
18 the most appropriate and protective constructed lagoon
19 at the current industry standards.
20 Q Now, you were involved with the -- what became the 2006
21 Concentrated Animal Feeding Operation, NPDES, and State
22 Waste Discharge General Permit, were you not?
23 A Again, I believe my staff or staff that I worked with
24 were primary authors or the assignment. As a manager, I
25 was involved and provided review, but didn't generate

the documents.

(Exhibit No. 47 marked for identification.)

BY MR. TEBBUTT:

Q You have in front of you Exhibit 47, 2006 CAFO general permit, NPDES, and State Waste Discharge Permit; correct?

A That is correct.

Q So you said you were involved in reviewing it; correct?

A That is correct.

Q Do you believe that this permit provides -- strike that. Are you familiar with the original recommendations from the staff about requiring groundwater monitoring around dairies?

A That is correct.

Q And the final version did not have groundwater monitoring, did it, as a requirement?

A It did not.

Q In your professional opinion, is that an adequate response to the concerns you have of the potential for leaking lagoons and over-application of manure to fields and dairy facilities?

MS. KRISTENSEN: Objection, vague. Calls for speculation.

THE WITNESS: In my professional opinion, the option that was identified in Melanie Kimsey's

1 report, option 2, is the highest protective option. And
2 while this permit doesn't require that, in my
3 professional opinion, if you were to provide an
4 absolutely -- a program that provided minimal, if any,
5 opportunity for leakage, that would be the option to
6 pursue.
7 BY MR. TEBBUTT:
8 Q Take a look at page 9 of the permit. There is a section
9 near the top begins, "Process Wastewater Discharges," if
10 you will read that section. Feel free to read the whole
11 section about S1, Effluent Limitations, if you would
12 like. But this is particularly S1(b), "Groundwater
13 Effluent Limitations." It starts at the very bottom of
14 page 8, which is the subtitle of that section, and
15 continues about halfway onto page 9, if you will read
16 that to yourself.
17 Are you done?
18 A Yes, I am done.
19 Q That section talks about, (as read) "Process wastewater
20 discharges, including seepage from waste storage
21 facilities, may not reduce existing groundwater quality
22 except in certain circumstances," and it lists two
23 circumstances; correct?
24 A That is correct.
25 Q Can you envision any situation where, number one, an

1 overriding consideration of the public interest would be
2 served by discharges into groundwater from storage
3 facilities?
4 A I guess I would answer that if there was some sort of
5 alternative that required protection of human health
6 and/or property. In other words, if there was some sort
7 of natural disaster and there was just no other option,
8 that maybe -- that may fall under this notion of
9 overriding concern for the public interest.
10 Q But not a daily operation of a dairy lagoon in eastern
11 Washington, that wouldn't fall into the overriding
12 consideration of public interest, would it?
13 A Not in my professional opinion.
14 Q Do you know anyone who has ever applied to the
15 Department of Ecology for an exception that fits these
16 two criteria on page 9 of Exhibit 47?
17 A I personally do not.
18 Q And under any circumstances, do you agree that
19 discharges may not cause or contribute to a violation of
20 state groundwater quality standards?
21 MS. KRISTENSEN: Objection, vague.
22 THE WITNESS: I agree with that statement,
23 if that's the nature of your question.
24 MR. TEBBUTT: That is the nature of my
25 question.

(Exhibit No. 48 marked for identification.)

BY MR. TEBBUTT:

Q Sir, you have in front of you Exhibit 48, a series of e-mails about soil column testing. Can you tell me a little bit more about the context of the questions that you asked in this series of e-mails? Take your time and review it.

A Yes, I have read it.

MR. TEBBUTT: Can you read my question back please.

(Pending question read back.)

THE WITNESS: I think this e-mail is in reference to enforcement action in the nature of a letter of warning to DeRuyter Brothers Dairy, and it was in regards to soil testing to see if in fact the soil was being overly loaded with nutrients and/or nitrate. And my understanding was that we had the authority and the permit to do that as a measure of protection in contrast to groundwater monitoring.

And let me just say that, even if you had a groundwater monitoring well, in my professional opinion, as I understand how nitrate and contamination moves in the soil, it may indicate a problem but may not indicate when that problem was essentially discharged below the root zone. Water really pushes that loading, and what

you will see over time is that loading will move; that is, not taken up through the root zone. It will move through the soil column. And this was a measure of compliance in the vadose zone --

Q V-a-d-o-s-e?

A It's a term of art in the profession where everything above the water table to, I guess, the surface of the soil essentially constitutes the vadose zone. So it was a measure of being able to determine if there was a history of over-application.

Q So the vadose zone is the unsaturated area, essentially; is that right?

A That's correct.

Q So if there is saturation between a surface impoundment all the way down to groundwater, the vadose zones would essentially not be in existence in that situation, in the scientific definition; correct?

MS. KRISTENSEN: Objection, calls for speculation. Beyond the scope of this notice of deposition. He has not been noticed as an expert.

BY MR. TEBBUTT:

Q Go ahead and answer.

A That is my understanding.

Q And you are familiar with the nitrogen cycle?

A Yes.

Q So when manure is applied, it has nitrogen in it, elemental nitrogen?
A (Witness nods head.)
Q And it transforms in the soil and mineralizes to become nitrate that is then usable potentially by crops; correct?
A Correct.
MS. KRISTENSEN: I just want to object. Again, beyond the scope of this deposition. And Charlie is testifying in this case. So object to the form of the question.
MR. TEBBUTT: These are foundational questions, and I don't appreciate your speaking objections.
BY MR. TEBBUTT:
Q So when the nutrient is in the soil and it gets below the root zone or the crop, it has nowhere to go but down towards groundwater; correct?
MS. KRISTENSEN: Objection, calls for speculation, assumes facts not in evidence, incomplete hypothetical.
BY MR. TEBBUTT:
Q Go ahead and answer.
A Yes.
Q So the means for carrying that -- carrying the nitrate

1 down to groundwater would be water itself, because
2 nitrate is very soluble in water; correct?
3 MS. KRISTENSEN: Same objection.
4 THE WITNESS: Application of irrigation
5 water or precipitation from the sky would drive material
6 down through the soil column that wasn't taken up by the
7 plant and eventually into the vadose zone, and
8 eventually into groundwater potentially.
9 BY MR. TEBBUTT:
10 Q So in your e-mail in Exhibit 48, you were concerned
11 about the levels of nitrate in the soil column; is that
12 correct?
13 MS. KRISTENSEN: Objection, leading.
14 Assumes facts not in evidence.
15 THE WITNESS: I was attempting to provide
16 a request that we would take soil samples to determine
17 the loading of nitrate in the soil column.
18 BY MR. TEBBUTT:
19 Q So how far down did you want to take the tests?
20 A Typically, we would take a deep soil sample up to six
21 feet.
22 Q Okay. Why would you do that?
23 A Because it would provide a historical record, if you
24 will, of application of -- or, if you will, loading of
25 nitrogen and nitrate in the soil column at various

1 depths within the soil. It would infer to us either an
2 over-application on the field or some other problem
3 essentially.
4 Q And that would be a more recent history, the six feet
5 would give you an indication of the more recent history
6 of applications of manure; is that correct?
7 A I think that's hard to say exactly because it depends on
8 how often the field is farmed, the amount of water
9 that's been on over time. The nitrogen actually can get
10 locked up if the field hasn't been irrigated or farmed
11 for sometime. It can just sit there until some time the
12 field gets cultivated and again the water drives it. So
13 it's hard exactly to make a one-for-one correlation
14 there.
15 Q Sure. But if it's a field that's regularly cultivated,
16 regularly irrigated, would you be concerned that the
17 nitrate would be driven down to the groundwater from
18 those regular activities?
19 A Yes.
20 MS. KRISTENSEN: Same objections.
21 THE WITNESS: Yes, I would be concerned.
22 BY MR. TEBBUTT:
23 Q And you could tell by testing in the top six feet, if
24 you will, what recent activity has impacted those top
25 six feet, wouldn't you?

1 A With the normal scenario that we described of a regular
2 cultivated field with a regular irrigation application,
3 that is my assumption.
4 Q And with manure application records that would be
5 available for the dairy facilities that are required by
6 the dairy nutrient management plans; is that correct?
7 A That is correct.
8 (Exhibit No. 49 marked for identification.)
9 BY MR. TEBBUTT:
10 Q You have in front of you Exhibit 49, which includes an
11 e-mail from you to other people at the Department of
12 Ecology. And was this an e-mail related to the e-mail
13 that we just discussed in Exhibit 48, at least in part
14 related to Exhibit 48?
15 A I'm sorry, can you restate the question now?
16 Q Yes, I will restate the question. Exhibit 48 was
17 involving a letter of warning issued to
18 DeRuyter Brothers Dairy; correct?
19 A Exhibit 48, yes, that's correct.
20 Q And this Exhibit 49 includes some reference for the
21 attorney for DeRuyter Brothers Dairy; correct?
22 A I believe that is correct. I simply -- Lori Terry
23 Gregory, who was a Foster Pepper attorney, I can't
24 recall exactly if she was the DeRuyter attorney or not.
25 Q But it says right here in the third line about

1 DeRuyter Dairy; is that correct?
2 A Yes, that is correct.
3 Q What I want to ask you about is not so much about that,
4 but the second paragraph where it says, (as read) "I
5 share your concern and perspectives on the optics.
6 Furthermore, I don't really have a good sense or
7 understanding on where we are headed (as a state and
8 agency) with the Lower Valley Yakima County ground
9 nitrate problem other than to kick the can down the road
10 more."
11 What do you mean by kicking the can down the road
12 more there?
13 A I felt as a professional geologist, hydrogeologist, and
14 engineering geologist that we could be doing more around
15 providing monitoring and basically understanding of the
16 system in our permit. And as you saw in the Exhibit 47,
17 we did not require groundwater monitoring as part of
18 that.
19 Q So it is your belief that the Department of Ecology
20 should require groundwater monitoring?
21 A Yes, I do.
22 Q And this e-mail was, at least in part, a response to a
23 Washington Court of Appeals decision in CARE versus
24 Department of Ecology where the 2006 permit was upheld
25 by the Court of Appeals; correct? And this is your

1 response to that?
2 A Yes, that is my response to that.
3 Q So in the next paragraph, you say, "This one is tough
4 for me because it seems like four years ago all over,
5 when we acknowledged we had a problem but due to
6 priorities chose not to do anything."
7 What were the priorities that caused Ecology not to
8 do anything?
9 A I can't recall exactly, but I think they were probably
10 more focused on storm water and other activities that
11 the water quality program was embarking upon.
12 Q So essentially Ecology let this problem fester for years
13 because of its failure to adequately require monitoring
14 in the 2006 permit; correct?
15 MS. KRISTENSEN: Objection, calls for
16 speculation.
17 THE WITNESS: I believe the Department of
18 Ecology has been wrestling with this issue for a number
19 of years.
20 BY MR. TEBBUTT:
21 Q And you believe they were remiss in their duties in not
22 requiring more strict permitting in the 2006 permit;
23 correct?
24 A In my professional opinion, I would agree. I do not
25 speak for the agency --

1 Q I understand that. Thank you.
2 Mr. Tebb, are you familiar with the new draft permit
3 that has been circulating for the CAFO general permit,
4 NPDES, and waste discharge general permit?
5 A I'm familiar that we are in the process of renewing that
6 permit. I have not read it.
7 Q Have you seen it?
8 A I have not.
9 Q Has your staff seen it?
10 A That's entirely possible, yes.
11 Q So are you familiar with it at all; have you talked with
12 anyone about what proposals are listed in the draft
13 permit?
14 A Not specifically, no. My duties have been more focused
15 on water resource issues over the past several years.
16 Q Do you know if the present draft permit or have you had
17 any discussions with anyone about whether the present
18 draft permit requires groundwater monitoring?
19 A I think there have been discussions at the policy level
20 and at the technical level within the agency, but I have
21 not been aware and have not participated in those
22 discussions.
23 Q Do you know whether groundwater monitoring is a
24 component of the present draft permit as it sits?
25 A My understanding is that it is not a component.

Q Have you made any comments to anyone within Ecology about the failure to require groundwater monitoring?
A I have not.
Q Why not?
A I believe I have expressed my professional opinion on this matter at the previous cycle. I believe that the Department is working with a sister agency, the Department of Agriculture, to come up with a program that provides that protection in a different manner.
Q Do you believe it is your responsibility, as someone with a professional opinion, that groundwater monitoring is necessary to give your input into the present permit process?
MS. KRISTENSEN: Objection, argumentative, calls for speculation, lack of foundation.
THE WITNESS: If I understand your question to ask should the Department of Ecology ask me as a professional hydrogeologist for my opinion on this matter?
BY MR. TEBBUTT:
Q Yes.
A If they did, I would provide it, and it would be that groundwater monitoring should be required.
Q My question is a little bit different. As a professional manager, as the head of the central office,

as someone who has worked for the Department of Ecology now for 22 years, do you feel that it's your duty to give your advice to your staff and to the water quality management division without them having to ask for it?

A Yes, I would.

Q And you haven't done that yet?

A I have not. I have been remiss in that.

Q I appreciate your honesty, sir.

When EPA released its report on Yakima groundwater quality in the fall of 2012, you were provided with an advance copy of that study; correct?

A Yes, I was.

(Exhibit No. 50 marked for identification.)

BY MR. TEBBUTT:

Q Sir, you have in front of you Exhibit 50. It's an e-mail from Marie Jennings at EPA, conveying the EPA groundwater report on the Yakima Valley; correct?

A That is correct.

Q Did you participate in the briefing that EPA did that's referenced in this e-mail?

A Yes, I did.

Q Did you ask questions of EPA about the scientific protocols they used in conducting the study and coming to the conclusions they did in the report?

A I recall at the briefing a robust discussion on a

variety of topics, some of which had to do with the data that was collected, the nature of how it was collected, and the information that was produced.

Q Have you reviewed the study yourself?

A I have read it.

Q Do you take issue with any of the findings in the study?

A I think there are issues of debate around how the Environmental Protection Agency made its conclusions and how it sort of, if you will, its sampling strategy. But I was not surprised by the results or the conclusions of the study.

Q When you say you are not surprised by the results or conclusions, why is that?

A Because of my professional opinion, I believe that groundwater contamination has/is occurring at these locations.

Q Around the dairies?

A Correct.

Q In your opinion, is part of the reason why the 2006 permit was changed from originally having groundwater monitoring required to not having groundwater monitoring required, was the political pressure from the dairy industry a part of that equation?

MS. KRISTENSEN: Objection, lack of foundation. Calls for speculation.

1 THE WITNESS: I think there were a variety
2 of conversations, both the policy and technical level,
3 around whether groundwater monitoring was the best
4 mechanism to determine whether a grower or a person who
5 is applying the application of manure, how to provide
6 that information to the dairy or to the feed lot.
7 BY MR. TEBBUTT:
8 Q Right, but that's not my question. My question is:
9 Were you aware of -- I will rephrase my question -- were
10 you aware of the pressure from the dairy industry on
11 Department of Ecology and Department of Ag to not
12 require groundwater monitoring?
13 MS. KRISTENSEN: Same objection.
14 THE WITNESS: I was aware of, I guess I
15 would say, conversations with the dairy industry with
16 our agency. I can't say whether that was pressure or
17 not. I'm not sure the nature of the word pressure.
18 BY MR. TEBBUTT:
19 Q Did you have any discussions with anyone in the dairy
20 industry about the permit requirements in 2006 or the
21 2006 permit requirements?
22 A Not to my recollection.
23 Q Have you had any discussions with anyone in the dairy
24 industry about the new proposed permit?
25 A I have not.

Q Have you ever had discussions with any of the principals of the Bosma dairies?
A I have not.
Q Have you ever met Mr. Henry Bosma?
A It is entirely possible.
Q You don't recall specifically?
A I don't recall specifically. There is a variety of meetings I attend, and they may be on a variety of topics, or I'm engaged with the local community and business and farmers and things of that sort.
Q Were you in attendance at a meeting with a number of people from Department of Ecology in 1997, shortly after the dairies received notices of intent to sue from CARE, my client, over the Clean Water Act discharges?
A I was aware of your lawsuit. I was actually the shorelands and environmental assistant section manager at the time, so I was focused on shoreland issues and wetland issues in Eastern Washington as a whole.
Q So you didn't participate in any of those meetings between Ecology and the dairy industry?
A No, sir.
Q Do you know Jay Gordon?
A Yes, I do.
Q What interactions have you had with Jay Gordon?
A Very minor. They are typically at a very high level,

either in conversations with the dairy federation locally or the farm bureau, but they are typically -- he is a participant at a function or at a meeting and it could be a conference, it could be a variety of things.

Q Have you had any discussions with him about the regulation of the dairy industry in the state of Washington?

A Me personally?

Q Yes.

A No.

Q How about the same question with respect to Dan Wood?

A I'm sorry, I don't know --

Q Do you know Dan Wood?

A I don't know Dan Wood.

Q Okay. Do you know Bill or Bob Dolsen?

A It sounds like a dairy family.

Q Dolsen's Cow Palace, do you know them at all?

A I know the Cow Palace and I have heard of the name.

Q But you haven't met them?

A I haven't met them.

Q How about George DeRuyter, have you ever met George DeRuyter?

A I have not met Mr. DeRuyter but I have probably met relations of DeRuyter.

Q Have you met Dan DeRuyter, his son?

A I believe so.
Q Do you know in what context?
A I believe he is a participant on the Groundwater Management Area as an advisory board member.
Q Do you participate in the Groundwater Management Area?
A I do; I'm an alternate.
Q So you are not there all the time?
A I try to be there as much as I can, but I'm not there all the time.
MR. TEBBUTT: Why don't we take a short break. We are having some more copies made of some documents today. I'm getting close to done.
MS. BARNEY: Okay.
(Discussion held off the record.)
MR. TEBBUTT: Let me go on the record right now and we will take care of this before I forget, that if there are documents that we receive later after this deposition is concluded this morning, I would like to reserve my right to ask Mr. Tebb some additional questions about documents that we receive after we conclude this deposition today.
MS. BARNEY: Well, Ecology would object to leaving the deposition open, even for that limited purpose, but maybe we could -- there might be a way that we could have a written, perhaps, response.

1 MR. TEBBUTT: What I would suggest is that
2 we just continue by telephonic deposition so that we can
3 not have to appear in person, we can just ask some
4 follow-up questions, if any, telephonically.
5 MS. BARNEY: On specific documents and for
6 that limited purpose?
7 MR. TEBBUTT: Yes. Not that it's left
8 open for us to go back, but just for documents that we
9 receive after -- that we receive after the disk that we
10 receive this morning.
11 MS. BARNEY: For that limited purpose
12 then?
13 MR. TEBBUTT: Yes.
14 MS. BARNEY: Okay.
15 MR. TEBBUTT: All right. Let's take a
16 break.
17 (Short break taken.)
18 MR. TEBBUTT: On the record, any
19 additional documents that we find that are produced
20 today, we can ask questions about with follow-up
21 questions.
22 (Exhibit No. 51 marked for identification.)
23 BY MR. TEBBUTT:
24 Q Mr. Tebb, you have in front of you Exhibit 51, an agenda
25 draft for a meeting that you attended; correct?

A Yes.
Q And did you make a presentation on the Yakima River Basin at this meeting?
A Yes, I did.
Q Was it a PowerPoint presentation?
A I believe so.
Q Do you know if that PowerPoint presentation has been provided on the disk provided today?
A I do not know. I would be glad to provide it, though, if it is missing.
Q We would like to see that PowerPoint presentation.
Did you have other notes that you would have made to help you present on that day?
A The notes and materials would primarily have been what the USGS provided in the context of the John Vaccaro report in its relationship to illustrating and demonstrating the hydrologic continuity of surface and groundwater.
Q Right. But my question is: Did you prepare separate notes to help you make a presentation?
A Typically, those would be part of just sort of the making of the presentation itself. There might be, but I don't -- I don't recall a specific set of notes for this particular presentation.
Q Could you search to see if you have notes --

A I will.
Q -- from that presentation?
A Yeah, it's not my normal style. I kind of do it as I'm creating the presentation, but I can look.
Q So you normally would do the presentation, and just use that as the outline --
A Yeah, I would have my reference materials and I would just start building the presentation.
Q I understand. I do something very similar when I do them myself.
A Okay.
Q The USGS study that you are referring to, did it come out right around this time?
A Yes, it did.
Q And what were its conclusions, do you recall?
A Its conclusions were significant in that the Department of Ecology was required as part of a settlement to help fund and participate in the development and creation of this report, both by funding as well as participating in some of the technical reviews.

The report basically concluded that groundwater and surface water are hydrologically connected, which means there is a relationship.
Q It's not a stunning scientific finding, is it, as a hydrogeologist yourself?

A It is not a stunning finding, but you would be surprised how information and methods of doing business were different without that information in the context of how we managed water quantity. We managed water quantity and issued permits in two separate buckets, groundwater and surface water. And this report basically said we shouldn't be doing that, that in fact the water in the Yakima basin is a single resource.

Q And so if, for instance, an entity like the dairy industry is polluting the groundwater, it will be hydrologically connected to the surface waters in that area; correct?

MS. KRISTENSEN: Objection, incomplete hypothetical, assumes facts not in evidence.

BY MR. TEBBUTT:

Q Isn't that a fair inference?

A I think that's a fair inference. It would be dependent upon space and time. There is a timing difference as it relates to groundwater when it expresses itself into a surface water body.

Q Right. But the general principle that the aquifer in the Lower Yakima County Valley, what is known as the Granger drain, that is it hydrologically connected to the Yakima River is a fairly certain scientific principle, is it not?

MS. KRISTENSEN: Same objection.
THE WITNESS: That is correct.
BY MR. TEBBUTT:
Q Certainly more likely than not as a scientist you could say that; correct?
MS. KRISTENSEN: Same objection.
THE WITNESS: In my professional opinion, that's correct.
BY MR. TEBBUTT:
Q And even as I said before, it's a far higher degree of certainty than more likely than not, would you agree?
MS. KRISTENSEN: Assumes facts not in evidence, beyond the scope of this deposition notice. He is not an expert in this case.
BY MR. TEBBUTT:
Q Go ahead.
A Reviewing, and in my experience as a licensed hydrogeologist and geologist, engineering geologist, and reviewing the USGS study report that was prepared by doctoral-level geologists from the United States Geological Survey, provides, I think, ample evidence and scientific evidence to make that conclusion.
Q So we talked about one of the bullet points was potential legal impacts. What were the potential legal impacts that you discussed?

A This was more specifically two parts. One was the water quantity issue that I referred to earlier in regards to how water rights are permitted and issued and how they relate to the -- what we call the priority system. In other words, to achieve a water right, the moment that you achieve it, essentially when you file an application, you have what's called a priority date. And so what we basically had was, is we had a series of surface water rights that were issued priority dates. And in the Yakima Basin to be a senior water right you have to have a pre-May 10th, 1905 water right. The groundwater rights that we issued were subsequently after World War II, and therefore largely junior to that senior surface water right. So the relationship that I was speaking of in terms of the legal impacts is the fact that we have gone through a 30-year, 30-million-plus-dollar adjudication in the Yakima Basin, solely focused on the surface water rights. There is almost double the amount of information and process we have to go through to resolve groundwater rights in the context of an adjudication.

So what I was speaking of was my predecessors have created an out-of-priority use of groundwater in the Yakima Basin that's dependent upon a federal irrigation project that basically asks the state of Washington to

1 secure that water for its use as of May 10th, 1905. And
2 so we had this issue here that -- I'm still dealing with
3 it today.
4 Q Let me ask you, the dairies in the Lower Yakima Valley,
5 use -- are you familiar with how much water they use?
6 A I'm familiar that they use a lot of water, I'm not
7 familiar with how much exactly.
8 Q And that they have been given water rights?
9 A They have been given water rights.
10 Q But are they -- are those water uses regulated in any
11 respect?
12 A They are regulated in the context of either the stock
13 water permit -- stock water exemption, or they have an
14 actual groundwater permit. So, in that instance, that's
15 the form of regulation that they have. They are not --
16 if you mean during a time of drought that we would
17 interrupt them, we have not resolved those issues yet.
18 And that was what I was trying to illustrate, that we
19 have, in my opinion, out-of-priority water use that is
20 not being treated under the same regulatory regime that
21 surface water rights are being treated under the
22 Yakima Superior Court.
23 Q So the dairies are the out-of-priority water use that
24 you are referring to? Because they have been subsequent
25 to World War II?

MS. KRISTENSEN: Objection, lack of foundation.

THE WITNESS: In my opinion, they have a junior priority date to the May 10th, 1905 water right that was associated with the Yakima irrigation project.

BY MR. TEBBUTT:

Q Did you discuss any potential legal impacts of the hydrological connection that was found in the study to pollution discharges into the Yakima Basin?

A Yes. I think that was the context of the lower subject here, demonstrating that there was an observed high nitrate contamination in the shallow groundwater in the Yakima Basin, and therefore making a similar conclusion or analogy that this water then subsequently gets into surface water and that's a violation of our state water quality laws, as well as the Clean Water Act.

Q So those discharges to surface water from groundwater would add nutrients to the surface water; correct?

MS. KRISTENSEN: Objection, assumes facts not in evidence, incomplete hypothetical.

THE WITNESS: That was my conclusion.

BY MR. TEBBUTT:

Q And those additional nutrients will change water quality in the Yakima Basin; correct?

MS. KRISTENSEN: Same objection.

THE WITNESS: They will add to the degradation of the quality of the water quality.

BY MR. TEBBUTT:

Q What types of degradation?

A I think in the report some of the things are large E. coli, BOD issues, suspended sediments, chlorine, other kinds of contaminants that are associated with typical manure configuration.

Q So your concern with manure contamination of groundwater and its hydrological connection to surface water included E. coli?

A Potentially.

Q What about other pathogens?

A I would imagine the same for them.

Q Okay. Do you also have concerns about surface water runoff from manure applied to fields?

MS. KRISTENSEN: Same objection, lacks foundation, incomplete hypothetical.

THE WITNESS: I would.

BY MR. TEBBUTT:

Q So the same issues of nutrient contamination, nutrient and loading?

MS. KRISTENSEN: Same objection.

THE WITNESS: Yes.

BY MR. TEBBUTT:
Q And also exposure to pathogens?
A Yes.
Q So humans could be exposed to those pathogens in the surface water?
MS. KRISTENSEN: Objection, calls for speculation, incomplete hypothetical.
THE WITNESS: Yes. Actually, one of the beneficial uses that the water quality criteria provides is recreational use of a water body.
BY MR. TEBBUTT:
Q So if pathogens were affecting the surface waters, those would negatively impact those recreational values; correct?
MS. KRISTENSEN: Same objection.
THE WITNESS: That is my understanding.
BY MR. TEBBUTT:
Q And potentially put people at risk of health impairment?
MS. KRISTENSEN: Calls for speculation, objection.
THE WITNESS: Yes, that is correct.
MR. TEBBUTT: That's all I have. Thank you.
MS. KRISTENSEN: Mr. Tebb, I have a couple of follow-up questions for some of the things that you

were asked about earlier.

(Discussion held off the record.)

EXAMINATION

BY MS. KRISTENSEN:

Q Mr. Tebb, again I'm Deb Kristensen, I'm counsel for the dairy defendants in the four cases that you have been noticed here to appear for. And we have gone through a couple of different documents, and I will ask you to first turn to Exhibit 45.

I know Mr. Tebbutt asked you a bunch of questions about this, but the paper is titled "Issue Paper." Can you tell me what an issue paper is?

A Yes. An issue paper, or white paper depending upon the nomenclature, is typically a paper that would be produced by a professional hydrogeologist or geologist, in this instance, to provide a discussion on what options or approaches, based on science and based on the current standard of practice, would be used to essentially implement or improve our regulations.

Q Do you know why this specific issue paper, Exhibit 45, was written?

A I believe it had to do in the context of whether we would be requiring lined manure lagoons in the context of the CAFO permit.

Q I see the title on Exhibit 45 is a "Construction of Dairy Lagoons Below the Seasonal High Groundwater Table." Do you see that?
A Yes.
Q And then if you turn to page 4 of that same exhibit, under the paragraph that begins with "Options," and before we get to option 1 there, the last sentence says, "There are two main options for designing dairy lagoons in areas where there is a seasonally high groundwater table." Do you see that?
A I do.
Q Is this issue paper meant to address only those lagoons where there is a seasonally high groundwater table?
A That is my understanding.
Q Okay. Is there -- in your opinion, is there a seasonally high groundwater table in the Yakima Valley?
A There can be, based on irrigation-induced, artificially elevating the groundwater table.
Q Do you know where the Cow Palace area is located?
A I do.
Q Do you have an opinion as to whether or not there is a seasonally high groundwater table at the Cow Palace location?
A My professional assessment and judgment of that is that there is not.

1 Q Okay. Do you know where the Liberty Bosma area is?
2 A I believe it is further down in the basin; and I don't
3 know exactly where it is.
4 Q Do you have an opinion as to whether or not there is a
5 seasonally high groundwater table at the Liberty Dairy?
6 A Again, not knowing its exact location, but if it is in
7 the lower portions below, say, the canals, either the
8 Rosa or Sunnyside Canal, that's a potential.
9 Q I will represent to you that the Liberty Dairy is
10 adjacent and close to the Cow Palace Dairy.
11 A Okay.
12 Q Do you know where the DeRuyter, the DNA dairy is
13 located?
14 A I do not.
15 Q Do you know where the George DeRuyter dairy is located?
16 A I do not.
17 Q So do you have an opinion one way or another as to
18 whether the recommendations in Exhibit 45 apply
19 specifically to the lagoons in any of the four dairies
20 at issue here?
21 A I do not have an opinion on that.
22 Q Mr. Tebbutt also asked you about Exhibit 47. And page 9
23 of that report, which has the Bates number CARE 26421 --
24 do you see that one -- yeah, 9 of 34.
25 Mr. Tebbutt asked you about the language there at

the top of that page, and that's under "Effluent Limitations" of S1 and subparagraph B, "Groundwater Effluent Limitations." The top of that sentence that we didn't go over, can you read that out loud?

A On top of page 9, the top sentence?

Q Yes.

A Yes. "The permittee must only apply manure, litter, and processed wastewater to lands as specified in its nutrient management plan."

Q Okay. So what is your understanding of what that language means? If a dairy applies its processed wastewater in accordance with this nutrient management plan, then it's in compliance with this provision?

A That is my --

MR. TEBBUTT: Objection, calls for a legal conclusion.

BY MS. KRISTENSEN:

Q Is that your understanding?

A That is my understanding.

Q In the paragraph below 1 and 2 there, Mr. Tebbutt, again, drew your attention to the first sentence there of that language. The second sentence there reads, "Contaminant concentrations of chemicals and nutrients found in saturated soils that have been applied at agronomic rates for agricultural purposes are exempt

1 from all requirements of," and then it lists chapter
2 173-200 WAC, and it goes on.
3 Do you understand what an "agronomic rate" is as
4 that term is used in that provision?
5 A Yes, I have a basic understanding.
6 Q Can you describe?
7 A My understanding of that is that the materials or the
8 contaminant concentrations of the manure, if you will,
9 is applied to the soil in such a manner and in such a
10 concentration that the crop would basically take that
11 material up in its production --
12 Q Okay. And --
13 A -- as a form of fertilizer.
14 Q On the agronomic rates that are referred to here, are
15 they reflected in the nutrient management plans?
16 A That is my understanding.
17 Q So if a dairy is applying its nutrients at agronomic
18 rates consistent with the nutrient management plan, it
19 is your understanding they are complying with this
20 provision?
21 A That is correct.
22 MR. TEBBUTT: Objection, calls for a legal
23 conclusion.
24 BY MS. KRISTENSEN:
25 Q Turn to Exhibit 50, if you could. This is the e-mail

that Mr. Tebbutt was asking you to get into your conversation about the EPA study that came out in 2012. During the course of your discussion with Mr. Tebbutt, you said words to the effect of -- and I don't want to put words in your mouth -- but something along the lines of that you believe groundwater contamination is occurring around the dairies in the Yakima Valley; is that fair? Is that --

A I think there is a high probability that contamination is potentially coming from those facilities, yes.

Q Do you have an opinion as to whether there are other potential sources of nitrate contamination?

A I do. Yes, I believe there are other sources of contamination such as irrigated crop land, orchards, septic systems, a variety of things.

Q Are there any efforts at the Department of Ecology to identify those potential other sources of nitrate contamination?

A Yes. Under the Groundwater Management Area, advisory board process, we have just embarked upon a process what we are calling a nutrient loading model to determine just that.

Q Okay. How far along is that process? Where is the process?

A Unfortunately, it is not as far along as we would like.

But we just authorized, as of, I believe, last week, funding to be spent on that issue.
Q Is there a lead person in charge of that effort or is it a group effort? Could you describe that --
A Yakima County is the contracting agency as a grant with us, so it would have to be a conversation with Yakima County to determine who is the lead on that.
Q Okay. Are there any kind of timelines or milestones set up for what the group is going to do to identify other sources of potential nitrate contamination?
A Yeah. I believe that would be part of the scope of work that will be developed for the funding that's just been released into this nitrogen-loading model.
Q It sounds like it's pretty early in that process; is that fair?
A Yes, ma'am.
Q Have you been directly involved with those efforts?
A I have not.
Q Who from Ecology has been?
A Charlie McKinney, our water quality section manager.
Q Where is he located?
A He is in Yakima, Washington. He is the actual board member; I'm his alternate.
Q But he works for Ecology?
A Yes, ma'am.

1 Q In any of the documents that have been produced today,
2 to the extent there are any documents related to these
3 efforts to identify other potential sources of nitrates,
4 either through your work as an alternate or
5 Mr. McKinney's work, are those documents included in the
6 materials that were produced today or will be produced
7 shortly; do you know?
8 A I do not know. I don't think they were because of the
9 nature of the request for the document production.
10 Q If you turn to Exhibit 51, I notice this is a draft
11 agenda, and I realized it just came off the desk. Did
12 this change in any meaningful way from the time it was
13 drafted to the time it became final?
14 A I do not believe so.
15 Q Who attended, ever -- do you recall who attended this
16 meeting?
17 A I don't. It looks to be at a fairly high level, though,
18 because those are myself, as a regional director;
19 Jeannie Summerhays is a regional director out of our
20 Northwest Regional Office; and then Josh Baldi was the
21 special assistant to the director on water quality
22 issues.
23 Q Where is Mr. Baldi, is he here?
24 A Mr. Baldi is currently employed by the Department of
25 Ecology at the Northwest Regional Office, regional

1 director. He took Jeannie's place.
2 Q Okay. Are you aware that there are consent orders that
3 each of the four dairies -- that are at issue today have
4 been -- have entered into with the EPA?
5 A I am aware --
6 MR. TEBBUTT: Objection to the extent it
7 mischaracterizes what they are.
8 THE WITNESS: Yes. I'm aware of a form of
9 consent or some legal document that requires the dairies
10 to do certain things.
11 BY MS. KRISTENSEN:
12 Q Have you ever reviewed any of those consent orders?
13 A I have not.
14 Q Prior to those being entered into between the dairies
15 and EPA, did you have any discussions with EPA about the
16 need or their efforts to enter into consent orders with
17 the dairies?
18 A I did not.
19 Q Okay. Do you know if anyone at Ecology did?
20 A That's entirely possible. The Environmental Protection
21 Agency pretty much held that material and their
22 subsequent regulatory action pretty tight.
23 Q I know Mr. Tebbutt asked you previously about the 2012
24 EPA study that was conducted. Did you have an
25 opportunity to actually review that and provide any

1 comments back to the EPA on that study?
2 A I personally did not. I believe our staff does, either
3 both at our regional office in Yakima,
4 Charlie McKinney's staff, or possibly someone at
5 headquarters I wouldn't be aware of.
6 Q You think someone at Ecology may have provided
7 comments --
8 A I'm not specifically aware of that.
9 Q Are you aware of any comments that were provided by
10 Ecology back to EPA on their study?
11 A As I said, I believe there were some comments. I'm not
12 specifically aware of them, nor their nature.
13 Q Okay.
14 MS. KRISTENSEN: That's all I have.
15 MR. TEBBUTT: Okay. I just have one
16 follow-up.
17
18 EXAMINATION
19 BY MR. TEBBUTT:
20 Q With regard to Exhibit 47, Mr. Tebb, Ms. Kristensen
21 asked you some questions about the language on page 9.
22 If you would turn to that, please.
23 Ms. Kristensen asked you questions about whether
24 applications at agronomic rates -- if a facility was
25 applying at agronomic rates, if they would then be in

compliance with the permit, and I believe you answered yes; is that correct?

A Yes.

Q Doesn't the last clause of the last sentence of paragraph B, which states, "If those contaminants will not cause pollution of any ground waters below the root zone," change your -- doesn't that language change your opinion about whether compliance would be achieved?

A Absolutely.

Q So if the contaminants reach groundwater, then compliance will not be achieved; correct?

A That is correct.

MR. TEBBUTT: That's all I have. Thank you. We will reserve the opportunity to -- on the record ask further questions pending the provision of additional documents.

(Proceedings adjourned at 11:00 a.m.)

(Signature reserved.)

C E R T I F I C A T E

I, Laura Gjuka, a Certified Court Reporter in and for the State of Washington, residing at University Place, Washington, authorized to administer oaths and affirmations pursuant to RCW 5.28.010, do hereby certify;

That the foregoing Verbatim Report of Proceedings was taken stenographically before me and transcribed under my direction; that the transcript is a full, true and complete transcript of the proceedings, including all questions, objections, motions and exceptions;

That I am not a relative, employee, attorney or counsel of any party to this action or relative or employee of any such attorney or counsel, and that I am not financially interested in the said action or the outcome thereof;

That upon completion of signature, if required, the original transcript will be securely sealed and the same served upon the appropriate party.

IN WITNESS HEREOF, I have hereunto set my hand this _____ day of_____, 2014.

_____
Laura Gjuka, CCR No. 2057

DEPOSITION OF THOMAS TEBB
CORRECTION AND SIGNATURE CERTIFICATE

I, _____, hereby certify under penalty of perjury of the laws of the state of Washington that I have read my foregoing deposition taken the _____ day of _____, 2014, and that to the best of my knowledge the deposition is true and accurate with the exception of the following corrections:

PAGE	LINE	CORRECTION

Executed at _____, Washington on the _____ day of _____, 2014.

_____
(Deponent's Signature)

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DEPARTMENT OF
ECOLOGY
State of Washington

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STATE WASTE DISCHARGE PERMIT NUMBER ST6144

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Southwest Regional Office

In compliance with the provisions of the
State of Washington Water Pollution Control Law
Chapter 90.48 Revised Code of Washington, as amended,
authorizes

Wilcox Farms, Inc.
40400 Harts Lake Valley Road South
Roy, WA 98580

to discharge wastewater in accordance with the special and general conditions which follow.

Facility Location: 40400 Harts Lake Valley Rd S Roy, WA 98580	Discharge Location: Approximately 440 acres in Sections 1, 12 and 13 in Township 16N, Range 2E and Sections 6, 7, 8, 17 and 18 in Township 16N, Range 3E
Industry Type Chicken Eggs, Livestock Services, Poultry Slaughtering and Processing, Poultry and Poultry Products	Latitude: 46° 52' 57" N Longitude: 122° 28' 35" W
SIC Code(s): 0252, 0751, 2015, 5144	

Robert W. Bergquist, LEED© AP
Southwest Region Manager
Water Quality Program
Washington State Department of Ecology

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SUMMARY OF PERMIT REPORT SUBMITTALS

Refer to the Special and General Conditions of this permit for additional submittal requirements.

Permit Section	Submittal	Frequency	First Submittal Date
S2.C	Soil Monitoring Plan	As necessary	No later than 90 days prior to soil sampling.
S3.A	Discharge Monitoring Report	Monthly Quarterly Annually	November 15, 2011 January 15, 2012 September 15, 2012
S3.E	Noncompliance Notification	As necessary	
S4.A	Operations and Maintenance Manual	1/permit cycle	January 2, 2015, if no modifications have been submitted during the permit cycle
S4.A	Modified Operations and Maintenance Manual	As necessary	Within 30 days of modification
S4.B	Reporting Bypasses	As necessary	
S5.C	Solid Waste Control Plan	1/permit cycle	January 2, 2015
S5.C	Modified Solid Waste Control Plan	As necessary	Within 30 days of modification
S6.	Spill Plan	1/permit cycle	January 2, 2015, if no modifications have been submitted during the permit cycle
S6.	Modified Spill Plan	As necessary	Within 30 days of modification
S7.	Annual Irrigation and Crop Management Plan	Annually	January 2, 2012
S8.	Application for Permit Renewal	1/permit cycle	January 2, 2015

SPECIAL CONDITIONS

S1. DISCHARGE LIMITS

All discharges and activities authorized by this permit shall be consistent with the terms and conditions of this permit. The discharge of any of the following pollutants more frequently than, or at a concentration in excess of, that authorized by this permit shall constitute a violation of the terms and conditions of this permit.

The intent of this permit is to cover the Permittee's discharge of wastewater from industrial processes. Any waste generated which involves the confined animal feedlot operations for poultry shall be covered under the General Concentrated Animal Feeding Operations (CAFOs) Discharge Permit. The Permittee shall comply with any CAFO regulations which are applicable and apply for CAFO permit coverage, if applicable.

A. Land Application Limits

Beginning on the effective date and lasting through the expiration date of this permit, the Permittee is authorized to apply treated wastewater, stormwater and/or leachate to land via spray irrigation from the following sources: milk products processing, egg products processing, and leachate and stormwater from the manure storage pad. Treated wastewater, stormwater and/or leachate is defined as wastewater, stormwater and/or leachate which is treated by using all known, available, and reasonable methods of prevention, control and treatment (AKART). The land application of treated wastewater, stormwater and/or leachate shall comply with the limitations stated in this permit.

Land application is limited to the area as designated by the land application management unit areas: North River Field, South River Field, West Field, South Field, Middle Field, and Island Field as designated in Figure 1. The total application area consists of approximately 432 acres and is located in Sections 1, 12 and 13 in Township 16N, Range 2E and Sections 6, 7, 8, 17, 18 in Township 16N, Range 3E.

Land application of treated process wastewater, stormwater and/or leachate, must be contained within a 100-foot setback from any surface water boundary of state waters. A 35-foot vegetated buffer from any surface water is allowed in lieu of the 100-foot setback requirement.

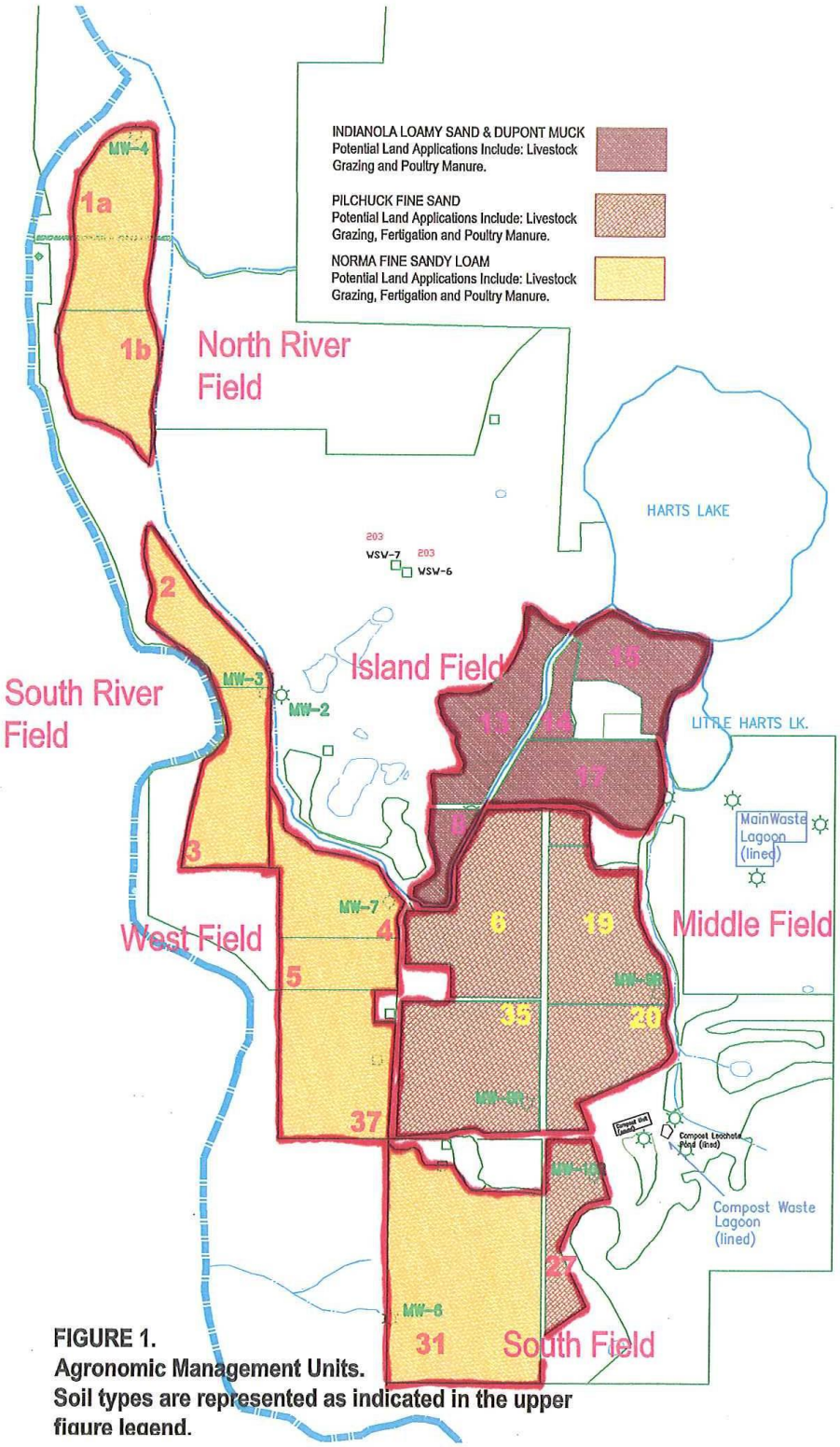

FIGURE 1.
Agronomic Management Units.
Soil types are represented as indicated in the upper figure legend.

Annual maximum total nitrogen applied to the irrigation lands shall not exceed the application rates designated in the following schedule **in any given designated land application management unit**:

Agronomic Rate Limits	
Grass and Pasture	**Corn**
400 lb-N/acre/year	200 lb-N/acre/year

The Permittee is required to annually develop and update a Crop and Irrigation Plan (Special Condition S7) to ensure that the annual application rates specified are not exceeded on any individual field and to use the annually submitted Crop and Irrigation Plan as a tool for managing application rates for each following year. Hydraulic loading, oil and grease, and organic [biochemical oxygen demand (BOD) containing] waste loading to the land application site shall also be limited to commonly accepted agronomic rates for the Pacific Northwest.

B. Groundwater Quality Limitations

The Permittee must only apply authorized land application discharges (See Special Condition S1.A) to lands as specified in its Comprehensive Waste Management Plan.

Authorized land application discharges, including seepage from waste storage facilities, may not cause or contribute to a violation of the state Groundwater Quality Standards [Chapter 173-200 Washington Administrative Code (WAC)].

The Permittee must comply with the following groundwater quality limitations as measured in the downgradient monitoring wells shown below:

GROUNDWATER LIMITS				
Parameter	**Units**	**Downgradient Monitoring Wells**	**Max Daily[a]**	**Early Warning[b]**
Total Dissolved Solids	mg/L	3, 4, 7, and 14	500	250
Total Coliform	cfu/100 mL	3, 4, 7, and 14	1	N/A
NO_3/NO_2 (as N)	mg/L	3, 4, 7, and 14	10	5
Chloride	mg/L	3, 4, 7, and 14	250	125

[a.] The maximum daily effluent limitation is defined as the highest allowable daily discharge. The daily discharge means the discharge of a pollutant measured during a calendar day

[b.] Upon detecting concentrations that are in excess of the following groundwater concentrations, the Permittee shall immediately follow the procedure contained in the approved Operations and Maintenance Manual as per Special Condition S4.A.5. If this situation occurs, a report shall be submitted to Ecology within 30 days of completion of the procedure.

C. Mortality Handling

Mortalities must not be disposed of in any process wastewater system, and must be handled in such a way as to prevent the discharge of pollutants to surface water, unless alternative technologies pursuant to §412.31(a)(2) and approved by Ecology are designed to handle mortalities.

D. Unauthorized Discharges

The Permittee must take immediate action to stop and contain any unauthorized discharges. The Permittee must also clean up unauthorized discharges to the extent practical, minimize any adverse impacts to waters of the state, and correct the cause of the problem.

S2. MONITORING REQUIREMENTS

A. Wastewater Monitoring

The sampling point for the main pond effluent will be from the main pond prior to distribution to the fields for fertigation. The Permittee shall monitor the wastewater according to the following schedule:

Parameter	Units	Sample Point	Sampling Frequency	Sample Type
Flow Applied to Land [a]	gpd	Lagoon Effluent	continuous[b]	metered
pH	s.u.	Lagoon Effluent	monthly[b]	Grab
BOD_5	mg/L	Lagoon Effluent	monthly[b]	Grab
TSS	mg/L	Lagoon Effluent	monthly[b]	Grab
TKN (as N)	mg/L	Lagoon Effluent	monthly[b]	Grab
NO_3/NO_2 (as N)	mg/L	Lagoon Effluent	monthly[b]	Grab
NH_3 (as N)	mg/L	Lagoon Effluent	monthly[b]	Grab
Fats, Oil and Greases	mg/L	Lagoon Effluent	monthly[b]	Grab
TDS	mg/L	Lagoon Effluent	monthly[b]	Grab
Chlorides	mg/L	Lagoon Effluent	monthly[b]	Grab
Total Coliform	MPN/100mL	Lagoon Effluent	monthly[b]	Grab

[a.] Records shall be kept for volumes of water applied to each field for each day. These records shall be retained at the facility and available for Ecology's review when requested.

[b] Sampling and reporting must occur for months when a discharge occurs. When no discharge occurs, no sampling is required but a Discharge Monitoring Report (DMR) must still be submitted reporting "No Discharge" has occurred.

B. Groundwater Monitoring

The sampling points for ground water will be monitoring wells numbered MW1, MW3, MW4, MW5, MW7, MW8R, MW9R, MW10R, MW11, MW12, MW13, MW14 and MW15.

The Permittee shall monitor the ground water according to the following schedule:

Parameter	Units	Monitoring Wells (MW)	Sampling Frequency	Sample Type [a]
Water Level	feet	All	Quarterly[b]	Field Measurement
pH	standard unit	All	Quarterly[b]	Field Measurement
Temperature	°C	All	Quarterly[b]	Field Measurement
Dissolved Oxygen	mg/L	All	Quarterly[b]	Field Measurement
Conductivity	micromho/cm	All	Quarterly[b]	Field Measurement
Ferrous Iron	Present /Absent	All	Quarterly[b]	Field Measurement
Total Coliform	cfu/100 mL	All	Quarterly[b]	Grab
Dissolved Organic Carbon	mg/L	All	Quarterly[b]	Grab
TKN (as N)	mg/L	All	Quarterly[b]	Grab
NO_3/NO_2 (as N)	mg/L	All	Quarterly[b]	Grab
Iron (Total)	mg/L	All	Quarterly[b]	Grab
Chloride [c]	mg/L	All	Quarterly[b]	Grab
Total Dissolved Solids	mg/L	All	Quarterly[b]	Grab
Manganese	mg/L	All	Quarterly[b]	Grab
Calcium	mg/L	All	Annually [d]	Grab
Magnesium	mg/L	All	Annually [d]	Grab
Potassium	mg/L	All	Annually [d]	Grab
Sodium	mg/L	All	Annually [d]	Grab
Sulfate	mg/L	All	Annually [d]	Grab
Carbonate or Bicarbonate	mg/L	All	Annually [d]	Grab

[a.] All samples of groundwater shall be collected at the monitoring wells using low flow techniques as recommended in the **Implementation Guidance for the Groundwater Quality Standards** (Ecology Publication No. 96-02, 1996 as updated).

A logbook reporting stabilized well purging results shall be kept at the facility and shall record pH, specific conductance, temperature and dissolved oxygen) for each well and sampling event. This logbook shall be kept at the facility and be available for review by Ecology.

[b.] Quarterly is defined as January-March, April-June, July-September, October-December. Quarterly DMRs are due on April 15th, July 15th, October 15thand January 15th.

[c.] Chloride samples collected during the fourth quarter should be collected at the same time coinciding with the annual groundwater sampled parameters (around mid-October of each year).

[d.] Samples should be collected annually sometime around mid-October of each year, and reported on the annual DMR form.

C. Soil Monitoring

The Permittee shall perform soil monitoring on lands receiving authorized discharges once per year (at the end of the growing season and, if possible, before the rainy season begins) in accordance to the depths identified in the schedule below. The sampling sites shall be located so as to be representative of each irrigated field. If possible, sampling sites shall remain in the same vicinity from year to year.

Composite samples will be for a minimum of five cores per irrigation field for each depth increment specified below. There shall be a separate sampling point for each soil type and for each different crop within each soil type. Samples shall be collected at a time that best represents soil conditions at the end of the growing season. Results shall be submitted annually with the annual Irrigation and Crop Management Plan (refer to Special Condition S7.).

Parameter	Units	Sample Point	Depth Increments
pH	s.u.	All irrigated fields	0-12 inches
Conductivity	mmhos/cm	All irrigated fields	0-12 inches, and 36-48 inches
Organic matter	Percent	All irrigated fields	0-12 inches
Moisture content	Percent	All irrigated fields	0-12 inches
Exchangeable sodium percentage	Percent	All irrigated fields	0-12 inches
Cation exchange capacity	meq/100g	All irrigated fields	0-12 inches
Sodium	meq/100g	All irrigated fields	0-12 inches
Calcium	meq/100g	All irrigated fields	0-12 inches
Magnesium	meq/100g	All irrigated fields	0-12 inches
TKN (as N)	mg/Kg	All irrigated fields	0-12 inches
NO_3 (as N)	mg/Kg	All irrigated fields	0-12 inches, and 36-48 inches
Total-P (as P)	mg/Kg	All irrigated fields	0-12 inches
Potassium	mg/Kg	All irrigated fields	0-12 inches
Sulfate (as S)	mg/Kg	All irrigated fields	0-12 inches

The Permittee may propose an alternative soil monitoring approach. Any such proposed alternative monitoring should be submitted to Ecology for review and approval. The draft Soil Monitoring Plan shall be submitted no later than 90 days prior to collecting soil samples.

D. Crop Monitoring

The Permittee shall perform crop monitoring on each field once per harvest. Composite samples will be comprised of at least ten random samples collected from each center-pivot field, and from the handline fields. Crop composite samples shall be analyzed for the parameters:

Parameter	Units	Sample Frequency	Sample Type
Crop production	dry tons/ac	Once per Harvest	Composite
Moisture content	Percent	Once per Harvest	Composite
TKN (as N)	Percent	Once per Harvest	Composite
TP (as P)	mg/kg	Once per Harvest	Composite
NO_3 (as N)	mg/kg	Once per Harvest	Composite
Sodium	mg/kg	Once per Harvest	Composite
Magnesium	mg/kg	Once per Harvest	Composite
Potassium	mg/kg	Once per Harvest	Composite
Calcium	mg/kg	Once per Harvest	Composite

The Permittee may opt to utilize Washington State University's (WSU) methods for collecting crop samples on a monthly basis to determine crop yield. When WSU's methods are used to assess monthly crop yield, the crop will need additional sampling and analysis consistent with the paragraph provided above.

Crop monitoring results are not required to be submitted in the quarterly Discharge Monitoring Reports. **The crop monitoring results are required to be submitted as part of the Annual Irrigation and Crop Management Plans**.

E. Sampling and Analytical Procedures

Samples and measurements taken to meet the requirements of this permit shall be representative of the volume and nature of the monitored parameters, including representative sampling of any unusual discharge or discharge condition, including bypasses, upsets and maintenance-related conditions affecting effluent quality.

Ground water sampling shall conform to the latest protocols in the *Implementation Guidance for the Ground Water Quality Standards*, (Ecology 1996).

Sampling and analytical methods used to meet the water and wastewater monitoring requirements specified in this permit shall conform to the latest revision of the *Guidelines Establishing Test Procedures for the Analysis of Pollutants* contained in 40 CFR Part 136 or to the latest revision of *Standard Methods for the Examination of Water and Wastewater* (APHA), unless otherwise specified in this permit or approved in writing by Ecology.

All soil analysis and reporting will be in accordance with *Laboratory Procedures*, Soil Testing Laboratory, Washington State University, November 1981.

F. Flow Measurement

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the quantity of monitored flows. The devices shall be installed, calibrated, and maintained to ensure that the accuracy of the measurements are consistent with the accepted industry standard for that type of device. Frequency of calibration shall be in conformance with manufacturer's recommendations and at a minimum frequency of at least one calibration per year. Calibration records shall be maintained for at least three years.

G. Laboratory Accreditation

All monitoring data required by Ecology shall be prepared by a laboratory registered or accredited under the provisions of, *Accreditation of Environmental Laboratories*, Chapter 173-50 WAC. Flow, temperature, settleable solids, turbidity, conductivity, pH, ferrous iron and other field test kits are exempt from this requirement so long as they meet EPA or Standard Methods and are used and calibrated in accordance with the manufacturer's manual. Crops, soils, and hazardous waste testing has not been included in the accreditation program. Crops, soils, and hazardous waste data shall be provided by a lab accredited for similar parameters in water media.

S3. REPORTING AND RECORDKEEPING REQUIREMENTS

The Permittee shall monitor and report in accordance with the following conditions. The falsification of information submitted to Ecology shall constitute a violation of the terms and conditions of this permit.

A. Reporting

The first monitoring period begins on the effective date of the permit. Monitoring results shall be submitted quarterly. Monitoring data obtained during each monitoring period shall be summarized, reported, and submitted on a Discharge Monitoring Report (DMR) form provided, or otherwise approved, by Ecology. DMR forms shall be postmarked or received no later than the 15th day of the month following the completed monitoring period, unless otherwise specified in this permit. The report(s) shall be sent to:

Industrial Unit Permit Coordinator
Department of Ecology
Southwest Region Office
P.O. Box 47775
Olympia, WA 98504-7775

Discharge Monitoring Report forms must be submitted quarterly whether or not the facility was discharging. If there was no discharge during a given monitoring period, submit the form as required with the words "no discharge" entered in place of the monitoring results.

Discharge Monitoring Report forms are not required for the soils (Special Condition S2.C) or crop monitoring results (Special Condition S2.D). **The results from the soils and crop monitoring are required to be reported as part of the Annual Irrigation and Crop Management Plan**.

B. Records Retention

The Permittee shall retain records of all monitoring information for a minimum of three years. Such information shall include all calibration and maintenance records and all original recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by the Director of Ecology.

C. Recording of Results

For each measurement or sample taken, the Permittee shall record the following information: (1) the date, exact place, method, and time of sampling or measurement; (2) the individual who performed the sampling or measurement; (3) the dates the analyses were performed; (4) the individual who performed the analyses; (5) the analytical techniques or methods used; and (6) the results of all analyses.

D. Additional Monitoring by the Permittee

If the Permittee monitors any pollutant more frequently than required by this permit using test procedures specified by Condition S2. of this permit, then the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Permittee's DMR.

E. Twenty-four Hour Notice of Noncompliance Reporting

1. The Permittee must report the following occurrences of noncompliance by telephone, to Ecology at 360-407-6300, within 24-hours from the time the Permittee becomes aware of any of the following circumstances:

   a. any noncompliance that may endanger health or the environment;

   b. any unanticipated **bypass** that exceeds any effluent limitation in the permit (See Part S4.B., “Bypass Procedures”);

   c. any **upset** that exceeds any effluent limitation in the permit;

   d. any violation of a maximum daily or instantaneous maximum discharge limitation for any of the pollutants in S1.A.; or

   e. any overflow prior to the treatment works, whether or not such overflow endangers health or the environment or exceeds any effluent limitation in the permit.

2. The Permittee must also provide a written submission within five days of the time that the Permittee becomes aware of any event required to be reported under subpart 1, above. The written submission must contain:

a. a description of the noncompliance and its cause;

b. the period of noncompliance, including exact dates and times;

c. the estimated time noncompliance is expected to continue if it has not been corrected;

d. steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance; and

e. if the non compliance involves an overflow prior to the treatment works, an estimate of the quantity (in gallons) of untreated overflow.

3. Ecology may waive the written report on a case-by-case basis if the oral report has been received within 24-hours of the noncompliance.

4. Reports must be submitted to the address in S3. ("REPORTING AND RECORDKEEPING REQUIREMENTS").

F. Other Noncompliance Reporting

The Permittee must report all instances of noncompliance, not required to be reported within 24-hours, at the time that monitoring reports for S3.A ("Reporting") are submitted. The reports must contain the information listed in paragraph E above, ("Twenty-four Hour Notice of Noncompliance Reporting"). Compliance with these requirements does not relieve the Permittee from responsibility to maintain continuous compliance with the terms and conditions of this permit or the resulting liability for failure to comply.

G. Maintaining a Copy of This Permit

A copy of this permit must be kept at the facility and be made available upon request to Ecology inspectors.

S4. OPERATION AND MAINTENANCE

The Permittee shall, at all times, properly operate and maintain all facilities or systems of treatment and control (and related appurtenances) which are installed to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems, which are installed by a Permittee only when the operation is necessary to achieve compliance with the conditions of this permit.

A. Operations and Maintenance Manual

The Operation and Maintenance Manual (O&M) shall be reviewed by the Permittee at least annually. Substantial changes or updates to the O&M Manual shall be submitted to Ecology no later than 30 days after they are incorporated into the manual. If no modifications to the manual have been made during this permit cycle, then the Permittee shall review and update the manual and submit it to Ecology no later than **January 2, 2015.**

The O&M Manual shall contain the treatment plant process control and groundwater monitoring schedule. All operators shall follow the instructions and procedures of this manual. The approved O&M Manual shall be kept available at the permitted facility.

The O&M Manual shall conform to the requirements of WAC 173-240-150. In addition to the requirements of WAC 173-240-150(1) and (2), the manual shall include:

1. Emergency procedures for plant shutdown and cleanup in event of wastewater system upset or failure;
2. Irrigation system operational controls and procedures;
3. Plant maintenance procedures;
4. Protocols and procedures for ground water monitoring network sampling and testing.
5. A description of steps taken to mitigate any threat to groundwater upon exceedance of early warning values contained in Condition S1.B, including sampling to confirm exceedences.

B. Bypass Procedures

Bypass, which is the intentional diversion of waste streams from any portion of a treatment facility, is prohibited, and Ecology may take enforcement action against a Permittee for bypass unless one of the following circumstances (1, 2, or 3) is applicable. The Permittee shall immediately notify Ecology of any spill, overflow, or bypass from any portion of the treatment or conveyance system.

1. Bypass for Essential Maintenance without the Potential to Cause Violation of Permit Limits or Conditions.

   Bypass is authorized if it is for essential maintenance and does not have the potential to cause violations of limitations or other conditions of this permit, or adversely impact public health as determined by Ecology prior to the bypass. The Permittee shall submit prior notice, if possible, at least10 days before the date of the bypass.

2. Bypass which is Unavoidable, Unanticipated, and Results in Noncompliance of this Permit.

   This bypass is permitted only if:

   a. Bypass is unavoidable to prevent loss of life, personal injury, or severe property damage. “Severe property damage” means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass.

   b. There are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment downtime

(but not if adequate backup equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance), or transport of untreated wastes to another treatment facility.

c. Ecology is properly notified of the bypass as required in condition S3.E of this permit.

3. Bypass which is Anticipated and has the Potential to Result in Noncompliance of this Permit.

The Permittee shall notify Ecology at least 30 days before the planned date of bypass. The notice shall contain (1) a description of the bypass and its cause; (2) an analysis of all known alternatives which would eliminate, reduce, or mitigate the need for bypassing; (3) a cost-effectiveness analysis of alternatives including comparative resource damage assessment; (4) the minimum and maximum duration of bypass under each alternative; (5) a recommendation as to the preferred alternative for conducting the bypass; (6) the projected date of bypass initiation; (7) a statement of compliance with the State Environmental Policy Act (SEPA); (8) a request for modification of water quality standards as provided for in WAC 173-201A-110, if an exceedance of any water quality standard is anticipated; and (9) steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass.

For probable construction bypasses, the need to bypass is to be identified as early in the planning process as possible. The analysis required above shall be considered during preparation of the engineering report or facilities plan and plans and specifications and shall be included to the extent practical. In cases where the probable need to bypass is determined early, continued analysis is necessary up to and including the construction period in an effort to minimize or eliminate the bypass.

Ecology will consider the following prior to issuing an administrative order for this type bypass:

a. If the bypass is necessary to perform construction or maintenance-related activities essential to meet the requirements of this permit.

b. If there are feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment down time, or transport of untreated wastes to another treatment facility.

c. If the bypass is planned and scheduled to minimize adverse effects on the public and the environment.

After consideration of the above and the adverse effects of the proposed bypass and any other relevant factors, Ecology will approve or deny the request. The public shall be notified and given an opportunity to comment on bypass incidents of significant duration, to the extent

feasible. Approval of a request to bypass will be by administrative order issued by Ecology under Revised Code of Washington (RCW) 90.48.120.

C. Irrigation Land Application

1. There shall be no runoff of wastewater applied to land by spray irrigation to any surface waters of the state or to any land not owned by or under control of the Permittee.

2. The Permittee shall use recognized good practices, and all available and reasonable procedures to control odors from the land application system. When notified by Ecology, the Permittee shall implement measures to reduce odors to a reasonable minimum.

3. The wastewater shall not be applied to the irrigation lands in quantities that:

   a. Significantly reduce or destroy the long-term infiltration rate of the soil.

   b. Would cause long-term anaerobic conditions in the soil.

   c. Would cause ponding of wastewater and produce objectionable odors or support insects or vectors.

   d. Would cause leaching losses of constituents of concern beyond the treatment zone or in excess of the approved design. Constituents of concern are constituents in the wastewater, partial decomposition products, or soil constituents that would alter ground water quality in amounts that would affect current and future beneficial uses.

4. The Permittee shall maintain all irrigation agreements for lands not owned for the duration of the permit cycle. Any reduction in irrigation lands by termination of any irrigation agreements may result in permit modification or revocation. The Permittee shall immediately inform Ecology in writing of any proposed changes to existing agreements.

D. Duty to Mitigate

The Permittee is required to take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

S5. SOLID WASTE DISPOSAL

A. Solid Waste Handling

The Permittee shall handle and dispose of all solid waste material in such a manner as to prevent its entry into state ground or surface water.

B. Leachate

Leachate from its solid waste material **is prohibited from entering** state waters without providing all known, available and reasonable methods of treatment, nor allow such leachate to cause violations of the state Surface Water Quality Standards, Chapter 173-201A WAC, or the state Ground Water Quality Standards, Chapter 173-200 WAC. The Permittee shall apply for a permit or permit modification as may be required for such discharges to state ground or surface waters.

C. Solid Waste Control Plan

The Solid Waste Control Plan must be coordinated with the CAFO permit and the required Nutrient Management Plan (as required by the CAFO permit). A revised Solid Waste Control Plan shall be submitted to Ecology no later than **January 2, 2015.** The Permittee shall annually review and revise the solid waste control plan, as needed. Any revisions or modifications to the solid waste control plan shall be submitted to Ecology within 30 days of modification. The Permittee shall comply with any plan revisions or modifications.

S6. SPILL PLAN

The Permittee shall review the existing Spill Plan at least annually and update the Spill Plan as needed. Changes to the Plan shall be sent to Ecology within 30 days of the modification. The Plan and any supplements shall be followed throughout the term of the Permit. If no modifications to the Spill Plan have been made during this permit cycle, then the Permittee shall review and update the Spill Plan and submit it to Ecology no later than **January 2, 2015.**

The Spill Control Plan shall address the prevention, containment, and control of spills or unplanned discharges of: (1) oil and petroleum products, (2) materials, which when spilled, or otherwise released into the environment, are designated Dangerous (DW) or Extremely Hazardous Waste (EHW) by the procedures set forth in WAC 173-303-070, or (3) other materials which may become pollutants or cause pollution upon reaching state's waters. The plan and any supplements shall be followed throughout the term of the permit.

For the purpose of meeting this requirement, plans and manuals, or portions thereof, required by 33 CFR 154, 40 CFR 109, 40 CFR 110, 40 CFR Part 112, the Federal Oil Pollution Act of 1990, Chapter 173-181, and contingency plans required by Chapter 173-303 WAC may be submitted.

The updated spill control plan shall include the following:

- A description of operator training to implement the plan.
- A description of the reporting system which will be used to alert responsible managers and legal authorities in the event of a spill.
- A description of preventive measures and facilities (including an overall facility plot showing drainage patterns) which prevent, contain, or treat spills of these materials.
- A list of all oil and petroleum products, materials, which when spilled, or otherwise released into the environment, are designated Dangerous (DW) or Extremely Hazardous Waste (EHW) by the procedures set forth in WAC 173-303-070, or other materials which may become pollutants or cause pollution upon reaching state's waters.

S7. IRRIGATION AND CROP MANAGEMENT PLAN

An Irrigation and Crop Management Plan shall be submitted annually for Ecology review. The first plan is due by **January 2, 2012,** and subsequent plans are due by January 31 each year thereafter. The plan shall generally conform with Guidelines for Preparation of Engineering Reports for Industrial Wastewater Land Application Systems, Ecology 1993. The plan must be prepared by a soil scientist, or approved equivalent certified professional. The plan shall include the following elements:

A. Annual Summary of Farm Operations

This summary shall include:

1. For each crop grown, the total acreage and quantity harvested.

2. Calculated balances for total nitrogen, nitrate/nitrite, TKN, TDS, and chloride - The calculations shall include crop consumptive use, process wastewater loadings of total nitrogen, nitrate/nitrite, TKN, TDS, and chloride, and contributions from commercial fertilizers applied and/or grazing animals.

3. Calculated water balance - The calculations shall include irrigation system efficiency and application uniformity, the quantity of supplemental irrigation water and process wastewater applied, crop consumptive use, precipitation, water stored in the soil profile outside the normal growing season, and salt leaching requirements. The frequency of the application should be adjusted for the following season to provide optimum nutrient uptake, minimize leaching and maintain aerobic conditions in the soil.

4. Soil testing and crop testing results - The soil testing and crop testing results shall be submitted and discussed as part of the annual Irrigation and Crop Management Plan.

5. List any best management practices used to minimize pollutant discharge in general.

B. Irrigation and Cropping Schedule for Upcoming Year

This schedule shall include:

1. Irrigation Management. The frequency and timing of wastewater and supplemental irrigation water application (including harvest and non-harvest periods), and recommended rest cycles for wastewater application where organic or hydraulic loading is a concern. Maximum land application goals must be established for each field to limit the amount of nitrogen applied. **At no time may the nitrogen loading limitation established in Special Condition S1. of this permit be exceeded for any given land application management unit in any given year**.

2. Crop Management. The proposed acreage for each crop, cultivation and harvesting requirements, expected crop yields, and methods for establishing a crop, and proposed schedule for crop tillage and replanting; and the proposed schedule for herbicide, pesticide, and fertilizer application.

S8. APPLICATION FOR PERMIT RENEWAL

The Permittee shall submit an application for renewal of this permit by **January 2, 2015**

S9. REQUIRED CONCENTRATED ANIMAL FEEDING OPERATIONS (CAFO) PERMIT COVERAGE

The Permittee is required to maintain Concentrated Animal Feeding Operations (CAFO) discharge permit coverage with Ecology.

GENERAL CONDITIONS

G1. SIGNATORY REQUIREMENTS

All applications, reports, or information submitted to Ecology shall be signed as follows:

A. All permit applications shall be signed by either a principal executive officer or ranking elected official.

B. All reports required by this permit and other information requested by Ecology shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by the person described above and is submitted to Ecology at the time of authorization, and

2. The authorization specifies either a named individual or any individual occupying a named position.

C. Changes to authorization. If an authorization under paragraph B.2. above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization must be submitted to Ecology prior to or together with any reports, information, or applications to be signed by an authorized representative.

D. Certification. Any person signing a document under this section shall make the following certification:

> "I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

G2. RIGHT OF ENTRY

Representatives of Ecology shall have the right to enter at all reasonable times in or upon any property, public or private for the purpose of inspecting and investigating conditions relating to the pollution or the possible pollution of any waters of the state. Reasonable times shall include normal business hours; hours during which production, treatment, or discharge occurs; or times when Ecology suspects a violation requiring immediate inspection. Representatives of Ecology shall be allowed to have access to, and copy at reasonable cost, any records required to be kept under terms and conditions of the permit; to inspect any monitoring equipment or method required in the permit; and to sample the discharge, waste treatment processes, or internal waste streams.

G3. PERMIT ACTIONS

This permit shall be subject to modification, suspension, or termination, in whole or in part by Ecology for any of the following causes:

A. Violation of any permit term or condition;

B. Obtaining a permit by misrepresentation or failure to disclose all relevant facts;

C. A material change in quantity or type of waste disposal;

D. A material change in the condition of the waters of the state; or

E. Nonpayment of fees assessed pursuant to RCW 90.48.465.

Ecology may also modify this permit, including the schedule of compliance or other conditions, if it determines good and valid cause exists, including promulgation or revisions of regulations or new information.

G4. REPORTING A CAUSE FOR MODIFICATION

The Permittee shall submit a new application, or a supplement to the previous application, along with required engineering plans and reports, whenever a new or increased discharge or change in the nature of the discharge is anticipated which is not specifically authorized by this permit. This application shall be submitted at least 60 days prior to any proposed changes. Submission of this application does not relieve the Permittee of the duty to comply with the existing permit until it is modified or reissued.

G5. PLAN REVIEW REQUIRED

Prior to constructing or modifying any wastewater control facilities, an engineering report and detailed plans and specifications shall be submitted to Ecology for approval in accordance with Chapter 173-240 WAC. Engineering reports, plans, and specifications should be submitted at least 180 days prior to the planned start of construction. Facilities shall be constructed and operated in accordance with the approved plans.

G6. COMPLIANCE WITH OTHER LAWS AND STATUTES

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

G7. PERMIT TRANSFER

This permit is automatically transferred to a new owner or operator if:

A. A written agreement between the old and new owner or operator containing a specific date for transfer of permit responsibility, coverage, and liability is submitted to Ecology;

B. A copy of the permit is provided to the new owner and;

C. Ecology does not notify the Permittee of the need to modify the permit.

Unless this permit is automatically transferred according to section A. above, this permit may be transferred only if it is modified to identify the new Permittee and to incorporate such other requirements as determined necessary by Ecology.

G8. PAYMENT OF FEES

The Permittee shall submit payment of fees associated with this permit as assessed by Ecology. Ecology may revoke this permit if the permit fees established under Chapter 173-224 WAC are not paid.

G9. PENALTIES FOR VIOLATING PERMIT CONDITIONS

Any person who is found guilty of willfully violating the terms and conditions of this permit shall be deemed guilty of a crime, and upon conviction thereof shall be punished by a fine of up to ten thousand dollars and costs of prosecution, or by imprisonment in the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional violation.

Any person who violates the terms and conditions of a waste discharge permit shall incur, in addition to any other penalty as provided by law, a civil penalty in the amount of up to ten thousand dollars for every such violation. Each and every such violation shall be a separate and distinct offense, and in case of a continuing violation, every day's continuance shall be and be deemed to be a separate and distinct violation.

APPENDIX A

LIST OF POLLUTANTS WITH ANALYTICAL METHODS, DETECTION LIMITS AND QUANTITATION LEVELS

The Permittee must use the specified analytical methods, detection limits (DLs) and quantitation levels (QLs) in the following table for permit and application required monitoring unless:

- Another permit condition specifies other methods, detection levels, or quantitation levels.
- The method used produces measurable results in the sample and EPA has listed it as an EPA-approved method in 40 CFR Part 136.

If the Permittee uses an alternative method, not specified in the permit and as allowed above, it must report the test method, DL, and QL on the discharge monitoring report or in the required report.

When the permit requires the Permittee to measure the base neutral compounds in the list of priority pollutants, it must measure all of the base neutral pollutants listed in the table below. The list includes EPA required base neutral priority pollutants and several additional polynuclear aromatic hydrocarbons (PAHs). The Water Quality Program added several PAHs to the list of base neutrals below from Ecology's Persistent Bioaccumulative Toxics (PBT) List. It only added those PBT parameters of interest to Appendix A that did not increase the overall cost of analysis unreasonably.

Ecology added this appendix to the permit in order to reduce the number of analytical "non-detects" in permit-required monitoring and to measure effluent concentrations near or below criteria values where possible at a reasonable cost.

CONVENTIONAL PARAMETERS

Pollutant & CAS No. ***(if available)***	**Recommended Analytical Protocol**	**Detection (DL)[1]** ***µg/L unless specified***	**Quantitation Level (QL)[2]** ***µg/L unless specified***
Biochemical Oxygen Demand	SM5210-B		2 mg/L
Chemical Oxygen Demand	SM5220-D		10 mg/L
Total Organic Carbon	SM5310-B/C/D		1 mg/L
Total Suspended Solids	SM2540-D		5 mg/L
Total Ammonia (as N)	SM4500-NH3-GH		0.3 mg/L
Flow	Calibrated device		
Dissolved oxygen	SM4500-OC/OG		0.2 mg/L
Temperature (max. 7-day avg.)	Analog recorder or Use micro-recording devices known as thermistors		0.2º C
pH	SM4500-H^+ B	N/A	N/A

NONCONVENTIONAL PARAMETERS

Pollutant & CAS No. ***(if available)***	**Recommended Analytical Protocol**	**Detection (DL)[1]** ***µg/L unless specified***	**Quantitation Level (QL)[2]** ***µg/L unless specified***
Total Alkalinity	SM2320-B		5 mg/L as CaCO3
Chlorine, Total Residual	SM4500 Cl G		50.0
Color	SM2120 B/C/E		10 color units
Fecal Coliform	SM 9221D/E,9222	N/A	N/A
Fluoride (16984-48-8)	SM4500-F E	25	100
Nitrate-Nitrite (as N)	SM4500-NO3-E/F/H		100
Nitrogen, Total Kjeldahl (as N)	SM4500-NH3-C/E/FG		300
Ortho-Phosphate (PO_4 as P)	SM4500- PE/PF	3	10
Phosphorus, Total (as P)	SM4500-PE/PF	3	10
Oil and Grease (HEM)	1664A	1,400	5,000
Salinity	SM2520-B		3 PSS
Settleable Solids	SM2540 -F		100
Sulfate (as mg/L SO_4)	SM4110-B		200
Sulfide (as mg/L S)	SM4500-S^2F/D/E/G		200
Sulfite (as mg/L SO_3)	SM4500-SO3B		2000
Total dissolved solids	SM2540 C		20 mg/L
Total Hardness	SM2340B		200 as CaCO3
Aluminum, Total (7429-90-5)	200.8	2.0	10
Barium Total (7440-39-3)	200.8	0.5	2.0
BTEX (benzene +toluene + ethylbenzene + m,o,p xylenes)	EPA SW 846 8021/8260	1	2
Boron Total (7440-42-8)	200.8	2.0	10.0
Cobalt, Total (7440-48-4)	200.8	0.05	0.25
Iron, Total (7439-89-6)	200.7	12.5	50
Magnesium, Total (7439-95-4)	200.7	10	50
Molybdenum, Total (7439-98-7)	200.8	0.1	0.5
Manganese, Total (7439-96-5)	200.8	0.1	0.5
NWTPH Dx	Ecology NWTPH Dx	250	250
NWTPH Gx	Ecology NWTPH Gx	250	250
Tin, Total (7440-31-5)	200.8	0.3	1.5
Titanium, Total (7440-32-6)	200.8	0.5	2.5

PRIORITY POLLUTANTS

Pollutant & CAS No. ***(if available)***	**Recommended Analytical Protocol**	**Detection (DL)[1]** ***µg/L unless specified***	**Quantitation Level (QL)[2]** ***µg/L unless specified***
METALS, CYANIDE & TOTAL PHENOLS			
Antimony, Total (7440-36-0)	200.8	0.3	1.0
Arsenic, Total (7440-38-2)	200.8	0.1	0.5
Beryllium, Total (7440-41-7)	200.8	0.1	0.5
Cadmium, Total (7440-43-9)	200.8	0.05	0.25
Chromium (hex) dissolved (18540-29-9)	SM3500-Cr EC	0.3	1.2
Chromium, Total (7440-47-3)	200.8	0.2	1.0
Copper, Total (7440-50-8)	200.8	0.4	2.0
Lead, Total (7439-92-1)	200.8	0.1	0.5
Mercury, Total (7439-97-6)	1631E	0.0002	0.0005
Nickel, Total (7440-02-0)	200.8	0.1	0.5
Selenium, Total (7782-49-2)	200.8	1.0	1.0
Silver, Total (7440-22-4)	200.8	0.04	0.2
Thallium, Total (7440-28-0)	200.8	0.09	0.36
Zinc, Total (7440-66-6)	200.8	0.5	2.5
Cyanide, Total (57-12-5)	335.4	5	10
Cyanide, Weak Acid Dissociable	SM4500-CN I	5	10
Phenols, Total	EPA 420.1		50
DIOXIN			
2,3,7,8-Tetra-Chlorodibenzo-P-Dioxin (176-40-16)	1613B	1.3 pg/L	5 pg/L
ACID COMPOUNDS			
2-Chlorophenol (95-57-8)	625	1.0	2.0
2,4-Dichlorophenol (120-83-2)	625	0.5	1.0
2,4-Dimethylphenol (105-67-9)	625	0.5	1.0
4,6-dinitro-o-cresol (534-52-1) (2-methyl-4,6,-dinitrophenol)	625/1625B	1.0	2.0
2,4 dinitrophenol (51-28-5)	625	1.0	2.0
2-Nitrophenol (88-75-5)	625	0.5	1.0
4-nitrophenol (100-02-7)	625	0.5	1.0
Parachlorometa cresol (59-50-7) (4-chloro-3-methylphenol)	625	1.0	2.0
Pentachlorophenol (87-86-5)	625	0.5	1.0
Phenol (108-95-2)	625	2.0	4.0
2,4,6-Trichlorophenol (88-06-2)	625	2.0	4.0
VOLATILE COMPOUNDS			
Acrolein (107-02-8)	624	5	10
Acrylonitrile (107-13-1)	624	1.0	2.0
Benzene (71-43-2)	624	1.0	2.0
Bromoform (75-25-2)	624	1.0	2.0

Pollutant & CAS No. ***(if available)***	**Recommended Analytical Protocol**	**Detection (DL)[1]** ***µg/L unless specified***	**Quantitation Level (QL)[2]** ***µg/L unless specified***
METALS, CYANIDE & TOTAL PHENOLS			
Carbon tetrachloride (56-23-5)	624/601 or SM6230B	1.0	2.0
Chlorobenzene (108-90-7)	624	1.0	2.0
Chloroethane (75-00-3)	624/601	1.0	2.0
2-Chloroethylvinyl Ether (110-75-8)	624	1.0	2.0
Chloroform (67-66-3)	624 or SM6210B	1.0	2.0
Dibromochloromethane (124-48-1)	624	1.0	2.0
1,2-Dichlorobenzene (95-50-1)	624	1.9	7.6
1,3-Dichlorobenzene (541-73-1)	624	1.9	7.6
1,4-Dichlorobenzene (106-46-7)	624	4.4	17.6
Dichlorobromomethane (75-27-4)	624	1.0	2.0
1,1-Dichloroethane (75-34-3)	624	1.0	2.0
1,2-Dichloroethane (107-06-2)	624	1.0	2.0
1,1-Dichloroethylene (75-35-4)	624	1.0	2.0
1,2-Dichloropropane (78-87-5)	624	1.0	2.0
1,3-dichloropropene (mixed isomers) (1,2-dichloropropylene) (542-75-6) [3]	624	1.0	2.0
Ethylbenzene (100-41-4)	624	1.0	2.0
Methyl bromide (74-83-9) (Bromomethane)	624/601	5.0	10.0
Methyl chloride (74-87-3) (Chloromethane)	624	1.0	2.0
Methylene chloride (75-09-2)	624	5.0	10.0
1,1,2,2-Tetrachloroethane (79-34-5)	624	1.9	2.0
Tetrachloroethylene (127-18-4)	624	1.0	2.0
Toluene (108-88-3)	624	1.0	2.0
1,2-Trans-Dichloroethylene (156-60-5) (Ethylene dichloride)	624	1.0	2.0
1,1,1-Trichloroethane (71-55-6)	624	1.0	2.0
1,1,2-Trichloroethane (79-00-5)	624	1.0	2.0
Trichloroethylene (79-01-6)	624	1.0	2.0
Vinyl chloride (75-01-4)	624/SM6200B	1.0	2.0
BASE/NEUTRAL COMPOUNDS (compounds in bold are Ecology PBTs)			
Acenaphthene (83-32-9)	625	0.2	0.4

Pollutant & CAS No. ***(if available)***	**Recommended Analytical Protocol**	**Detection (DL)[1]** ***µg/L unless specified***	**Quantitation Level (QL)[2]** ***µg/L unless specified***
METALS, CYANIDE & TOTAL PHENOLS			
Acenaphthylene (208-96-8)	625	0.3	0.6
Anthracene (120-12-7)	625	0.3	0.6
Benzidine (92-87-5)	625	12	24
Benzyl butyl phthalate (85-68-7)	625	0.3	0.6
Benzo(*a*)anthracene (56-55-3)	625	0.3	0.6
Benzo(b)fluoranthene (3,4-benzofluoranthene) (205-99-2) [4]	610/625	0.8	1.6
Benzo(j)fluoranthene (205-82-3) [4]	625	0.5	1.0
Benzo(k)fluoranthene (11,12-benzofluoranthene) (207-08-9) [4]	610/625	0.8	1.6
Benzo(r,s,t)pentaphene (189-55-9)	625	0.5	1.0
Benzo(*a*)pyrene (50-32-8)	610/625	0.5	1.0
Benzo(*ghi*)Perylene (191-24-2)	610/625	0.5	1.0
Bis(*2-chloroethoxy)*methane (111-91-1)	625	5.3	21.2
Bis(*2-chloroethyl*)ether (111-44-4)	611/625	0.3	1.0
Bis(*2-chloroisopropyl*)ether (39638-32-9)	625	0.3	0.6
Bis(*2-ethylhexyl*)phthalate (117-81-7)	625	0.1	0.5
4-Bromophenyl phenyl ether (101-55-3)	625	0.2	0.4
2-Chloronaphthalene (91-58-7)	625	0.3	0.6
4-Chlorophenyl phenyl ether (7005-72-3)	625	0.3	0.5
Chrysene (218-01-9)	610/625	0.3	0.6
Dibenzo (a,j)acridine (224-42-0)	610M/625M	2.5	10.0
Dibenzo (a,h)acridine (226-36-8)	610M/625M	2.5	10.0
Dibenzo(a-*h*)anthracene (53-70-3)(1,2,5,6-dibenzanthracene)	625	0.8	1.6
Dibenzo(a,e)pyrene (192-65-4)	610M/625M	2.5	10.0
Dibenzo(a,h)pyrene (189-64-0)	625M	2.5	10.0
3,3-Dichlorobenzidine (91-94-1)	605/625	0.5	1.0

Pollutant & CAS No. ***(if available)***	**Recommended Analytical Protocol**	**Detection (DL)[1]** ***µg/L unless specified***	**Quantitation Level (QL)[2]** ***µg/L unless specified***
METALS, CYANIDE & TOTAL PHENOLS			
Diethyl phthalate (84-66-2)	625	1.9	7.6
Dimethyl phthalate (131-11-3)	625	1.6	6.4
Di-n-butyl phthalate (84-74-2)	625	0.5	1.0
2,4-dinitrotoluene (121-14-2)	609/625	0.2	0.4
2,6-dinitrotoluene (606-20-2)	609/625	0.2	0.4
BASE/NEUTRAL COMPOUNDS (compounds in bold are Ecology PBTs)			
Di-n-octyl phthalate (117-84-0)	625	0.3	0.6
1,2-Diphenylhydrazine (*as Azobenzene*) (122-66-7)	1625B	5.0	20
Fluoranthene (206-44-0)	625	0.3	0.6
Fluorene (86-73-7)	625	0.3	0.6
Hexachlorobenzene (118-74-1)	612/625	0.3	0.6
Hexachlorobutadiene (87-68-3)	625	0.5	1.0
Hexachlorocyclopentadiene (77-47-4)	1625B/625	0.5	1.0
Hexachloroethane (67-72-1)	625	0.5	1.0
Indeno(*1,2,3-cd*)Pyrene (193-39-5)	610/625	0.5	1.0
Isophorone (78-59-1)	625	0.5	1.0
3-Methyl cholanthrene (56-49-5)	625	2.0	8.0
Naphthalene (91-20-3)	625	0.3	0.6
Nitrobenzene (98-95-3)	625	0.5	1.0
N-Nitrosodimethylamine (62-75-9)	607/625	2.0	4.0
N-Nitrosodi-n-propylamine (621-64-7)	607/625	0.5	1.0
N-Nitrosodiphenylamine (86-30-6)	625	0.5	1.0
Perylene (198-55-0)	625	1.9	7.6
Phenanthrene (85-01-8)	625	0.3	0.6
Pyrene (129-00-0)	625	0.3	0.6
1,2,4-Trichlorobenzene (120-82-1)	625	0.3	0.6
PESTICIDES/PCBs			
Aldrin (309-00-2)	608	0.025	0.05
alpha-BHC (319-84-6)	608	0.025	0.05
beta-BHC (319-85-7)	608	0.025	0.05
gamma-BHC (58-89-9)	608	0.025	0.05
delta-BHC (319-86-8)	608	0.025	0.05
Chlordane (57-74-9)[5]	608	0.025	0.05
4,4'-DDT (50-29-3)	608	0.025	0.05
4,4'-DDE (72-55-9)	608	0.025	0.05[10]

Pollutant & CAS No. ***(if available)***	**Recommended Analytical Protocol**	**Detection (DL)[1]** ***µg/L unless specified***	**Quantitation Level (QL)[2]** ***µg/L unless specified***
METALS, CYANIDE & TOTAL PHENOLS			
4,4' DDD (72-54-8)	608	0.025	0.05
Dieldrin (60-57-1)	608	0.025	0.05
alpha-Endosulfan (959-98-8)	608	0.025	0.05
beta-Endosulfan (33213-65-9)	608	0.025	0.05
Endosulfan Sulfate (1031-07-8)	608	0.025	0.05
PESTICIDES/PCBs			
Endrin (72-20-8)	608	0.025	0.05
Endrin Aldehyde (7421-93-4)	608	0.025	0.05
Heptachlor (76-44-8)	608	0.025	0.05
Heptachlor Epoxide (1024-57-3)	608	0.025	0.05
PCB-1242 (53469-21-9) [6]	608	0.25	0.5
PCB-1254 (11097-69-1)	608	0.25	0.5
PCB-1221 (11104-28-2)	608	0.25	0.5
PCB-1232 (11141-16-5)	608	0.25	0.5
PCB-1248 (12672-29-6)	608	0.25	0.5
PCB-1260 (11096-82-5)	608	0.13	0.5
PCB-1016 (12674-11-2) [6]	608	0.13	0.5
Toxaphene (8001-35-2)	608	0.24	0.5

1. Detection level (DL) or detection limit means the minimum concentration of an analyte (substance) that can be measured and reported with a 99 percent confidence that the analyte concentration is greater than zero as determined by the procedure given in 40 CFR Part 136, Appendix B.

2. Quantitation Level (QL) also known as Minimum Level of Quantitation (ML) – The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that the lab has used all method-specified sample weights, volumes, and cleanup procedures. The QL is calculated by multiplying the MDL by 3.18 and rounding the result to the number nearest to (1, 2, or 5) x 10^n, where n is an integer. (64 FR 30417).
   ALSO GIVEN AS:
   The smallest detectable concentration of analyte greater than the Detection Limit (DL) where the accuracy (precision & bias) achieves the objectives of the intended purpose. (Report of the Federal Advisory Committee on Detection and Quantitation Approaches and Uses in Clean Water Act Programs Submitted to the US Environmental Protection Agency December 2007).

3. 1, 3-dichloroproylene (mixed isomers) You may report this parameter as two separate parameters: cis-1, 3-dichlorpropropene (10061-01-5) and trans-1, 3-dichloropropene (10061-02-6).

4. Total Benzofluoranthenes - Because Benzo(b)fluoranthene, Benzo(j)fluoranthene and Benzo(k)fluoranthene co-elute you may report these three isomers as total benzofluoranthenes.

5. Chlordane – You may report alpha-chlordane (5103-71-9) and gamma-chlordane (5103-74-2) in place of chlordane (57-74-9). If you report alpha and gamma-chlordane, the DL/PQLs that apply are 0.025/0.050.

PCB 1016 & PCB 1242 – You may report these two PCB compounds as one parameter called PCB 1016/1242

Issuance Date:
Effective Date:
Expiration Date:

Commented [JonJ1]: Insert dates

DRAFT

Concentrated Animal Feeding Operation (CAFO) General Permit

A National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit for Discharges Associated with Concentrated Animal Feeding Operations

State of Washington
Department of Ecology
Olympia, WA 98504-7600

In compliance with the provisions of
The State of Washington Water Pollution Control Law
Chapter 90.48 Revised Code of Washington
and
The Federal Water Pollution Control Act
(The Clean Water Act)
Title 33 United States Code, Section 1251 et seq.

Until this permit expires, is modified, or revoked, Permittees that have properly obtained coverage under this general permit are authorized to discharge in accordance with the conditions that follow.

The Permittee must reapply for permit coverage on or before **DATE**, 180 days before the expiration of this permit if the Permittee intends to continue operations and discharges at its facility beyond the term of this permit.

Commented [JonJ2]: Insert Date

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Summary of Permit Submittals

Refer to the Special and General Conditions for details on the submittal requirements.

Permit Condition	Submittal	Frequency/Due Date(s)
S2	Complete Facility NMP	When requested by Ecology.
S2.A	Application for Coverage	At least 60 days prior to first discharge.
S2.A	Application for Coverage after discharge	No later than 30 days after a discharge has occurred.
S4.C.9	Emergency Action Plan	When requested by Ecology.
S4.I.3	Alternative Buffer Certification	As necessary.
S4.M	Ground Water Monitoring	Quarterly
S7.A	Annual Report	January 31 each year.
S7.B	Annual Field Nutrient Mass Balance	January 31 each year.
S8	Noncompliance notification	As necessary.
S8.A	Noncompliance Phone Reporting	As necessary within 24 hours of discharge.
S8.C	Noncompliance Written Report	As necessary within 5 days of discharge.
S8	Anticipated Bypass/Upset	As necessary within 24 hours.
G21	Application for Permit Renewal	No later than 180 days before expiration of the general permit.
S7.A	Non-Compliance Notification	As Necessary.
S7.B	Annual Report	Yearly by January 31.
S7.C	Yearly Field Nutrient Mass Balance	Yearly by January 31

NOTE: The text of this permit contains words and phrases in ***bold and italics***. These words and phrases are the first usage in the permit and are defined in Appendix A.

Special Conditions

S1. Permit Coverage

This statewide ***general permit*** covers the activities associated with operating a ***concentrated animal feeding operation (CAFO)*** that has, or had, a ***discharge*** of ***pollutants*** to ***waters of the state*** from its ***production area***, or a discharge of pollutants from its ***land application area*** that does not meet ***agricultural stormwater*** discharge exemption requirements.

Multiple facilities that use the same land application area are considered one facility for permitting.

All authorized discharges and activities must be consistent with the terms and conditions of this permit.

S1.A. Limits on Coverage

This permit does not apply to:

1. CAFOs with a continuous discharge. Such CAFOs must be covered under an ***individual permit***.

2. Federal lands.

3. "Indian Country" as defined in 18 USC §1151, except portions of the Puyallup Reservation as noted below.

Indian County includes:

a. All land within any Indian reservation notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation. This includes all federal, tribal, and Indian and non-Indian privately owned land within the reservation.

b. All off-reservation Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.

c. All off-reservation federal trust lands held for Native American tribes.

Puyallup Exception: Following the Puyallup Tribe of Indians Land Claims Settlement Act of 1989, 25 U.S.C. §1773; this permit does apply to land within the Puyallup

Reservation except for discharges to surface water on land held in trust by the federal government.

S2. Limitations and Standards

Discharges must not cause or contribute to a violation of Water Quality Standards for Surface Waters of the State of Washington (chapter 173-201A WAC), Ground Water Quality Standards (chapter 173-200 WAC), Sediment Management Standards (chapter 173-204 WAC), and human health criteria in the National Toxics Rule (40 CFR 131.36). Discharges not in compliance with these standards are not authorized.

Permittees must use ***all known, available, and reasonable methods of prevention, control, and treatment (AKART)*** when operating their production and land application areas. Compliance with this permit constitutes AKART.

S2.A. Ground Water Impacted Areas

Where ***ground water*** already exceeds the 10 mg/L nitrate drinking water standard, discharges must not cause further degradation of the ground water.

Commented [JonJ3]:

~~***Non-degradation*** of ground water is required in ***Ground Water Impacted Areas***.~~ Based on evidence of ***over application*** of ***waste***, soil tests, the presence of a Ground Water Impacted Area or other information that indicates a discharge to ground water, Ecology may require the Permittee to obtain an ***individual permit*** for its facility.

S2.B. Production Area Discharge Limits

The production area must be designed, constructed, operated, and maintained to contain:

1. All generated and received wastes during the required storage period.
2. The runoff from a 25-year, 24-hour ***precipitation*** event at the location of the facility.
3. The direct precipitation to waste storage from a 25-year, 24-hour ***precipitation*** event at the location of the facility.

If the Permittee meets these requirements, and a discharge from the production area does occur that does not violate water quality standards, it is not a violation of this permit. All other discharges from the production area are prohibited.

Waste that is stacked or stockpiled on fields or other locations is part of the production area. Discharge from waste stacks or stockpiles is prohibited.

S2.C. Land Application Area Discharge Limits

1. **Land Application**

   Land application of waste is prohibited during the period of time when crops are not present and when crops are taking up minimal to no nutrients.

2. **Agricultural Stormwater**

   Discharges during dry weather, or due to irrigation, from the Permittee's land application area are not agricultural stormwater and are prohibited.

   For a discharge from the land application area to be considered agricultural stormwater, the Permittee must:

   a. Be in compliance with all terms and conditions of this permit.

   b. Properly time and apply waste to land application fields at a field-specific, crop-specific ***application rate*** that does not exceed yearly field nutrient mass balance.

   c. Ensure that human actions do not cause or contribute to the discharge. For example, not applying waste to:

      i. Frozen or snow covered ground or to saturated soils.

      ii. Unplanted fields or dormant crops.

      iii. During precipitation events or when precipitations events are forecast that may result in runoff to surface waters.

      iv. Within buffers or setbacks that protect surface waters and conduits to surface and ground waters.

   d. Have records showing that permit conditions S2.C.2.a through S2.C.2.c are met.

S2.D. Unauthorized Discharges

The Permittee must take immediate action to stop and contain any unauthorized discharges, including dry weather discharges, clean up unauthorized discharges, minimize any adverse impacts to waters of the state, and correct the cause of the discharge.

The Permittee must also follow the non-compliance notification requirements in permit condition S7.A.

S2.E. Nitrate Benchmark

Option 1: Set a statewide soil nitrate benchmark.

Option 2: Set a soil nitrate benchmark for each region on the state (NWRO, SWRO, CRO, ERO). This accounts for some regional variability.
Option 3: Set a variable benchmark that is calculated by the Permittee/Ecology that takes into account field level data.
Option 4: Set a variable benchmark as in Option 3 with a default benchmark that is statewide or regional.

If the Permittee has exceeded the 15 ppm ***benchmark*** for nitrate in field soils at the end of the previous growing season, see permit condition S4.M.

Commented [JonJ4]:

Commented [JonJ5]: At what depth?

If the Permittee has exceeded the benchmark for post-harvest soil test nitrate in permit condition S2.E for three of the five years that this permit is effective, the Permittee must implement ground water monitoring.

$$End\ of\ Season\ Soil\ Test\ Nitrate\ Concentration\ \ (ppm) \times Average\ Bulk\ Density\ of\ Soil = Mass\ Loading\ of\ Nitrate\ \left(\frac{\frac{lbs}{acre}}{year}\right)$$

$$ppm = \frac{mg}{L}\ or\ \frac{mg}{kg}$$

$$Average\ Bulk\ Density\ of\ Soil = 3.6$$

S3. Planning Requirements

Commented [JonJ6]: work on this section

Keep NMP up to date
Update NMP to ensure it meets permit requirements
Field Nutrient Mass Balance?

S4. Operating Requirements

The Permittee is responsible for the proper handling, storage, management, land application, disposal, or ***export*** of waste generated or received by its facility.

Commented [JonJ7]: Does this really need a defintion

S4.A. Ensure Adequate Waste Storage

Commented [JonJ8]: what about facilities that export all manure?

The Permittee must have enough storage to store all waste, direct precipitation to waste storage, ***silage leachate***, and contaminated water generated or received during the period of time that land application is prohibited (permit condition S2.C.1)~~***non-growing season***~~.

Commented [JonJ9]: really need definition?

Commented [JonJ10]: definition?

Permittees that do not have enough waste storage for the period of time that land application is prohibited (permit condition S2.C.1) ~~the non-growing season~~ must have

adequate storage designed and constructed within two years of the date of permit coverage.

Lagoons must be constructed to meet the minimums in permit condition S4.B.

S4.B. Waste Storage Structure Construction

1. Lagoons

Lagoons must be sized to contain all liquid/slurry waste, direct precipitation, all contaminated run-off and silage leachate from the production area during the non-growing season and have enough volume, when full, to contain the direct precipitation and contaminated run-off that occurs during a 25-year, 24 hour storm event, plus one-foot of ***freeboard***. Animal numbers or operational changes must not cause the waste produced to exceed this storage capacity.

Lagoons that are being newly constructed, rehabilitated, retrofitted, or upgraded must have a liner with a ***permeability*** of $1x10^{-6}$ cm/sec or less as described in the ***record drawing*** of the structure.

Commented [JonJ11]: necessary definition?

If a lagoon will be constructed, rehabilitated, retrofitted, or upgraded and is at or below a ***water table***, ***seasonally high water table*** or on ***highly permeable soils***, the liner must have zero permeability. ***Zero permeability liners*** must be a double layer synthetic (or similar) liner with leak detection.

All lagoons must have a ***depth gauge***. The depth gauge must measure the entire depth of the lagoon to help detect leaks and must have clear measurement divisions and mark the level at which the lagoon, when full, will have enough volume to contain a 25-year, 24-hour storm event (including direct precipitation and contaminated run-off from the production area) for that location and 1-foot of freeboard to prevent ***over-topping***.

Other liquid waste storage structures must meet these requirements, as applicable.

2. Solid Waste Storage

Solid waste storage must be covered and any clean water (uncontaminated) directed away from the storage and production areas or the liquid waste storage must be sized to handle this additional run-off. It must also have a conveyance system to take any contaminated run-off and liquid draining off the pile to a lagoon.

Silage and other feed storage areas must be covered and any clean water directed away from the storage and production areas, or if clean water is not directed away, the lagoon must be sized to handle this run-off in addition to all other run-off.

S4.C. Liquid Waste Facility Infrastructure Maintenance

The Permittee must maintain lagoons, associated facilities and equipment, and digester feedstock receiving and delivery systems in optimal working condition. Any non-critical infrastructure deficiencies observed during routine inspections must be fixed within 30 days.

If there are reasons that the deficiency cannot be addressed within 30-days, the Permittee must document the reasons, and include this documentation with the annual report along with a date that the deficiency was, or will be, addressed.

Critical problems that would likely result in environmental harm or degradation, such as leaking lagoon embankments or storage failure, must be addressed to stop the discharge to surface or ground water immediately with repairs made as soon as environmental conditions allow.

If a lagoon is found to be leaking it must be emptied and relined with a zero-permeability liner (see permit condition S4.B) capable of detecting a leak between the membranes.

All liquid waste storage structures must meet these requirements, as applicable.

1. **Lagoon Inspections**

   Refer to permit condition S5.C.

2. **Vegetation Control**

   Cut vegetation on embankment ***crest*** and slopes as needed and at least annually to allow inspection of the embankment surfaces. Maximum grass height should not exceed one foot. Remove brush and small trees annually before the root systems become established. Control any plants which preclude the inspection of the entire lagoon structure.

   If animals are used for vegetation control on the lagoon structure instead of mowing, animals must not be allowed on the lagoon structure until such time of year as the soils making up the embankments will not be disturbed by animal traffic. If animals are causing damage to the embankment they must be removed immediately and the damage repaired.

   If trees that have established root systems are present in, or next to, the lagoon embankments, the Permittee must evaluate them with the assistance of a ***technical service provider (TSP),*** who is a licensed engineer, for their effect on the lagoon embankment and liner. Remove or mitigate for large trees based on the TSP's professional judgment.

3. **Burrowing Animal Control**

Eradicate burrowing animals from the lagoon walls at least annually, or more often when needed. Repair burrow holes by compacting fill soils into the affected area and re-seeding.

4. Crest Elevation Control and Maintenance

Maintain the lagoon embankment crest by filling any ruts, erosion rills or minor depressions with compacted fill soils and re-seed. Maintain the design elevation by leveling and re-grading (if needed) the crest to the design specifications using elevation surveying equipment.

5. Inside and Outside Slope Maintenance

Cracks, scarps, depressions, toe bulging and other signs of lagoon embankment instability must be inspected and repaired according to the judgment of the Permittees TSP who must be a licensed engineer.

Repair erosion rills and gullies by removing loose materials and replacing them with compacted fill to bring the lagoon embankment back to equivalent operating capability as the original record drawing of the structure. Gravel or cobble (riprap) or grass may be added on the surface over the compacted fill to protect against further erosion.

6. Volume Maintenance

Permittees must periodically remove built up solids from the lagoon to maintain storage volume. The solids must be removed often enough to preserve adequate lagoon volume to contain all waste and precipitation in addition to providing capacity for a 25-year, 24-hour storm event, plus 1-foot of freeboard. The liner must not be damaged during maintenance.

7. Concrete Structure Repair and Maintenance

Concrete structures generally deteriorate slowly, but can experience accelerated failure if not adequately maintained. Minor cracks and spalls should be filled and coated with a bonding agent to protect the area from further penetration by water. Larger defects should be evaluated by a TSP who is a licensed engineer.

8. Mechanical Devices and Piping

Mechanical devices (e.g. pumps, agitators, piping, flow gauges etc.) and piping need to be monitored and maintained, and should be repaired when needed. Pre-season and regular inspection records and maintenance records for all devices used to deliver or transport manure/waste shall be maintained and available for inspectors.

9. Emergency Action Plan

The Permittee must develop an Emergency Action Plan in the case of catastrophic failure of the lagoon or other infrastructure. The plan must ensure that discharge of waste is minimized. If at any time conditions require emergency actions, the Emergency Action Plan must be implemented and followed. The Emergency Action Plan must be kept on site and available for inspections or if Ecology requests it.

Potential items include, but not limited to:

a. Leaking or broken risers.

b. Leaking or broken lines.

c. Leaking lagoon.

d. Inadequate storage space for the period of time when crops are not present and when crops are taking up minimal to no nutrients.

S4.D. Lagoon Closure

A TSP, who is a licensed engineer, must evaluate the lagoon to ensure that it is properly decommissioned.

1. Temporary Closure

Lagoons that are temporarily closed must continue to be maintained, inspected, and records kept as required in permit condition S6, to preserve the integrity of the lagoon liner and structure as if it was actively being used.

2. Permanent Closure(Decommissioning)

a. To close a lagoon, all waste must be removed.

b. If the lagoon liner shows signs of failure, subsoil high in nutrients must also be removed.

c. All liquid, solids, and soils removed from the lagoon must be land applied at rates that are in compliance with yearly field nutrient mass balances.

d. The lagoon inlet and outlet pipes (and other conveyances) must be removed and the locations backfilled with compacted soil unless used as a embankment breach location (permit condition S4.D.2.e).

e. The lagoon structure must be filled with compacted soils or the structure breached so that it can no longer hold liquid.

f. Once a lagoon is closed, there must be no remaining potential to discharge pollutants from the structure.

S4.E. Management of Mortalities

The Permittee is responsible for ensuring that animal mortalities are not disposed of in a lagoon, storm water, or in a manner that will cause water pollution. The Permittee has the option to manage routine mortalities as specified in chapter 16-25 WAC, which includes burial, composting, incineration, land filling, and rendering.

Mortalities that are picked up for rendering, incineration, landfilling or other offsite disposal must be stored in a location that does not allow run-off to surface water or leaching to groundwater. All water that comes into contact with stored mortalities must be directed to a liquid waste storage structure.

Those disposal options that can affect water quality have these additional requirements:

1. Burial

Mortality burial must be at least 300 feet from any well, spring, or surface water such as a river, stream, lake, pond, or intermittent stream; not in low-lying areas subject to seasonally high water table, seasonal flooding, within a 100-year flood plain or in a manner that will effect groundwater. Mortalities must be buried with a minimum of 3-feet of soil cover.

2. Composting

Composting must be conducted in compliance with chapter 70.95 RCW and chapter 173-350 WAC. On-farm mortality composting must comply with Ecology Publication No: 05-07-034 "On-Farm Composting of Livestock Mortalities." This publication may be accessed on Ecology's website at: https://fortress.wa.gov/ecy/publications/summarypages/0507034.html.

3. Natural decomposition

Natural decomposition may be used if the carcass is 1,320 feet or more from any well, spring, sinkhole, or body of surface water, including wetlands, such as a river, stream, lake, pond, or intermittent stream; and not located in an area that has a seasonally high water table, seasonal flooding, or within a hundred-year flood plain.

S4.F. Diversion of Clean Water

Water that comes into contact with animals or waste, including waste stacks or stockpiles not stored in a waste storage structure, must be directed to liquid waste storage structures. Clean water that doesn't come into contact with waste or other pollutants may be diverted

from the production area through the use of gutters, berms, roofs, tarps, or other means of conveyance to prevent contact with waste.

S4.G. Prevent Direct Animal Contact with Water

Animals must be fenced out of surface water bodies, vegetative buffers, and conduits to surface and ground water by a minimum of 35 feet from the ***top of the bank***. Animals may not be allowed access to buffers (permit condition S4.I) or conduits to surface or groundwater.

If animal pens or similar structures are already less than 35 feet from surface water bodies, buffers, and conduits to surface and ground water, the Permittee must install curbs or similar devices or structures to prevent pen run-off from entering surface waters or conduits to surface or ground waters.

Commented [JonJ12]: ordinary high-water mark?

what about drainage ditches? do they have ordinary high water mark?

RCW 90.58.030(2)(c) "Ordinary high water mark" on all lakes, streams, and tidal water is that mark that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland, in respect to vegetation as that condition exists on June 1, 1971, as it may naturally change thereafter, or as it may change thereafter in accordance with permits issued by a local government or the department: PROVIDED, That in any area where the ordinary high water mark cannot be found, the ordinary high water mark adjoining salt water shall be the line of mean higher high tide and the ordinary high water mark adjoining freshwater shall be the line of mean high water;

S4.H. Chemical Handling

Chemicals and other non-waste contaminants may not be disposed of into the waste handling and storage system unless the system is specifically designed to treat the chemicals or contaminants.

All chemicals must be stored, handled and disposed of in accordance with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) label directions, or other applicable environmental statues, in secondary containment that prevents spills from coming in contact with clean or waste water. All personnel handling or applying chemicals must be licensed to do so if a license is required, or be under the supervision of a licensed individual.

S4.I. Buffers

The Permittee must prevent pollution of surface and ground waters by installing buffers on all land application area where surface waters or conduits to surface and ground waters are present. The width of the buffer is measured from the top of the bank to the inner edge where the buffer ends and regular crop production begins.

Commented [JonJ13]: ordinary high water mark?

Buffers are not considered part of the Permittee's land application area for calculating yearly nutrient mass balances. Waste may not be applied to the buffer.

The buffer chosen for use on a field must be maintained to provide optimal pollutant reduction performance. Maintenance must not cause discharge of pollutants.

Buffers must at least conform to the minimums in permit condition S4.I.1, I.2, or I.3 unless site specific circumstances (e.g. field slope) require a larger vegetated buffer to be protective of water quality. An objective risk assessment of the field must be completed to determine if a larger buffer is required.

1. **35-foot Perennial Vegetative Buffer**

   A minimum of 35-feet of perennial grass vegetative buffer, measured horizontally from the top of the bank, from surface waters, wellheads, drains, open tile lines, or other conduits to surface or ground waters.

2. **100-foot Land Application Setback**

   A minimum 100-foot land application setback, measured horizontally from the top of the bank, from all surface waters, wellheads, drains, open tile lines, or other conduits to surface or ground waters.

3. **Alternative Compliance Buffers**

   To be acceptable for use under this permit alternative practices, as implemented and maintained on the ground, must be at least as effective as a 35-foot vegetated buffer (or site specific larger buffer if required) at reducing the pollutant load coming off a specific field.

   To use an alternative practice under this permit, the Permittee (and their TSP if part of the certification process research) must certify, following the requirements in permit condition S4.I.4, to Ecology that an alternative practice is as effective as 35-foot vegetated buffer on a specific field.

4. **Alternative Compliance Buffer Certification**

   Alternative buffers are provisionally accepted in the context of research and development to determine if the alternative is as effective as the 35-foot vegetated buffer.

   Alternative buffer certifications are not required for vegetated buffers or application setbacks larger than the defaults listed in special condition S4I.1 and S4I.2 above.

   To certify that an alternative buffer is as effective as the 35-foot vegetated buffer, the Permittee must first submit a plan to Ecology. The plan must detail how the alternative buffer will cause field run-off to meet water quality standards at the level of the 35-foot buffer. The plan must, at a minimum, include:

   a. The alternative buffer specifications (e.g. how it is implemented and maintained, width, etc).

   b. A research component in which the Permittee will demonstrate that the alternative buffer is as effective as the 35-foot vegetated buffer.

   c. Details of the methodology for comparison of the 35-foot vegetated buffer and the alternative buffer.

d. A list of the samples that will be collected for comparison between the buffers.

e. A list of the parameters for which data that will be collected and the sample analysis methods.

Data must be evaluated during the research process. If data shows that the alternative buffer is not performing as expected, the Permittee must install one of the default buffers.

If the data show that the alternative buffer is at least as effective as the 35-foot vegetated buffer at preventing pollution, the Permittee may move forward with the certification process.

In a certification letter to Ecology, the Permittee and their TSP must state that the alternative buffer, as implemented and maintained on site, is as effective as the 35-foot vegetated buffer in reducing the amount of pollutants in run-off from a specific field. The certification must also include the complete data used to make the equivalency determination, maps of the fields that the alternative buffer will be implemented on and if necessary, an updated yearly field nutrient mass balance. It must also include the following statement and the signature of the Permittee and TSP (if used):

> *"I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."*

Ecology may require the Permittee to provide additional information to support the use of the alternative buffer.

S4.J. Waste Import and Export

1. Import

If the Permittee's facility includes a digester and the Permittee accepts offsite feedstock, it must meet the requirements of WAC 173-350-250 (Anaerobic digesters) in order to avoid being required to apply for a Solid Waste Handling Permit.

2. Export

Export occurs when waste is removed from the Permittee's facility to land that is not owned, rented, or leased by the Permittee.

Export does not occur:
On fields that are part of the Permittee's land application area. This includes other parties applying to the Permittee's land application area
Until the Permittee relinquishes all decision-making control over the waste.

Export occurs when the Permittee no longer has any decision-making authority over the waste.

when waste leaves the Permittee's production area and is not taken to its land application area

For export to occur, waste must leave the Permittee's production area and not be used on its land application area.

Land that is part of the Permittee's land application area
Land that the Permittee uses but that is not part of its land application area?
This would be land that is not owned, rented or leased by the Permittee

Is land that the Permittee has an "application" agreement on owned, rented, or leased by the Permittee? I would say no. However, it could be argued that the Permittee has some form of control over that land.

The permittee is responsible for manure until
picked up by another party from facility
permittee drops it off at another facility

Export occurs when the Permittee is no longer in control of what happens to waste that has been removed from the facility. The requirements in this section apply to all methods of export.

The Permittee must provide a copy of the most recent waste nutrient analysis (permit condition S5.E) to the entity receiving the waste.

The Permittee must only export the amount of waste requested by the receiving party.

Export occurs:

1. After the Permittee has completed delivering waste to another party.

2. After another party completes picking up waste from the Permittee. This does not include a contractor, employee, person, or other entity acting on behalf of the Permittee.

3. After a Permittee has completed applying waste at the request of the entity in control of a field. The Permittee is responsible for ensuring that there is no discharge during land application. This also applies to land application where the Permittee uses a system of pipes to move and apply the manure to the field.

4. If a Permittee as a custom applicator. The Permittee applies waste not generated or accepted by its facility to another party's fields.

After export occurs, exported waste becomes the responsibility of the entity that accepted the waste, including the responsibility not to discharge to surface or ground water.

S4.K. Protocols for Land Application of Waste

Prior to the first land application of the year, the Permittee must:

Collect and analyze soil samples from all fields that are part of its land application area following the requirements in permit condition S5.D.

The Permittee must use the laboratory nutrient analysis to develop its nutrient mass balance for each field in its land application area using the worksheet in Appendix D.

Commented [JonJ14]:

Nutrient mass balance worksheets for each field that the Permittee controls must be submitted to Ecology at least 30-days before land application begins for the season (see permit condition S7.C).

On-going land application requirements, the Permittee must:

1. Follow the field nutrient mass balance for each field submitted as part of its permit application or annual report. Crop nutrient needs for the field nutrient mass balance must be based on Land Grant University (Washington State University) nutrient recommendations or, if not available, based upon the USDA Crop Nutrient Tool at http://plants.usda.gov/npk/main.

2. Land apply waste at a rate that is equal to, or less than, the nutrient mass balance calculated on its field budgets. The total amount of nutrients provided by land application for a year may not exceed the nutrient mass balance calculated for the field in the annual nutrient budget.

3. Multi-Year Phosphorus Application
   The Permittee may land apply waste at a rate to supply the amount of phosphorus needed by crops for multiple seasons. The application rate for the season may not exceed the nitrogen based nutrient mass balance of the current crop. No more phosphorus may be applied to the field until the phosphorus supplied by the multi-year application is removed by crop harvest.

4. By October 1, collect field soil samples and have them analyzed according to permit condition S4.K.1. If the Permittee has not harvested a field by October 1, field soil sampling and analysis must take place within 1 month of the last harvest from the field.

   If sample analysis indicates that the soil nitrate value is greater than 15 ppm after harvest, the Permittee must adjust their following season's nutrient budget to reduce the amount of residual nitrate to 15 ppm or less following the next season's harvest (see Appendix D).

   If the Permittee has not met the soil test benchmark for three consecutive years, or for 3 out of 5 years of this permit cycle, ground water monitoring is required in addition to permit-required soil sampling, see permit condition S3.K.

5. Calibrate land application equipment at least once per year.

6. Not apply waste to frozen, snow covered, or fields that have saturated soils.

7. Not apply waste to land application area buffers (permit condition S4.I).

8. Not apply waste to land application area where the Phosphorus Index (P-Index) rating is high or very high.

9. Not land-apply waste until it has submitted its annual report and yearly field nutrient budgets to Ecology.

10. Have no dry weather discharges from its land application area.

11. Not apply waste within the Sanitary Control Area for Group A public drinking water wells.

Commented [JonJ15]: Not sure this fits here – move to monitoring?

Commented [JonJ16]: What depth should the 15ppm be set as the benchmark.

S5. Monitoring Requirements

Sampling and analytical methods must conform to the latest revision of the Guidelines Establishing Test Procedures for the Analysis of Pollutants contained in 40 CFR Part 136 Standard Methods for the Examination of Water and Wastewater (APHA) unless otherwise specified in this permit or approved in writing by Ecology. If an appropriate method is not available in 40 CFR Part 136 appropriate methods from EPA *Test Methods for Evaluating Solid Waste* (SW-846) may be used.

S5.A. Laboratory Accreditation

All samples must be analyzed by a laboratory registered or accredited under the provisions of Accreditation of Environmental Laboratories, Chapter 173-50 WAC. The following parameters need not be accredited or registered:

1. Flow.

2. Temperature.

3. Settleable solids.

4. Conductivity, except that conductivity must be accredited if the laboratory must otherwise be registered or accredited.

5. pH, except that pH must be accredited if the laboratory must otherwise be registered or accredited.

6. Turbidity, except that turbidity must be accredited if the laboratory must otherwise be registered or accredited.

7. Parameters which are used solely for internal process control

S5.B. Monitoring Documentation

Documentation of monitoring activities and results must, in addition to the monitoring data collected, include:

1. The date, exact place, and time of sampling.

2. The dates analyses were performed.

3. Who performed the analyses.

4. The analytical techniques/methods used (if any).

5. The results of such analyses.

Commented [JonJ17]: Should this be in record keeping???

S5.C. Infrastructure Monitoring ~~(Inspection)~~

The Permittee must:

1. On a daily basis, visually inspect all water and waste lines and waste application equipment (when in use) for proper function.

2. On a weekly basis:

a. Visually inspect stormwater diversion devices, runoff diversion structures, and devices channeling waste and water contaminated with waste into storage.

b. Inspect lagoons, noting the level of liquid in storage based on the depth gauge.

c. Inspect all inlets and outlets for leakage (e.g. leakage around pipes that go through the lagoon walls).

d. Repair any infrastructure deficiencies noted during inspection per permit condition S4.C.

3. Inspect the lagoons once annually when the liquid level is at its lowest for the season. The embankment and liner must be inspected thoroughly and completely. Any deficiencies must be corrected promptly to bring the lagoon back to ***record drawing*** specifications.

Commented [JonJ18]:

4. Inspect the lagoons at least once annually when the liquid level is at its fullest for the season and when the lagoon is empty to determine if it can still contain the volume it was designed to hold (e.g. to check on the waste solids build-up). The embankment, pipes and pumps must be inspected thoroughly. Any deficiencies must be corrected before the lagoon is refilled, per permit condition S4.C.

5. Inspect facility lagoons after storm events. Any infrastructure deficiencies noted during inspection must be corrected promptly per permit condition S4.C.

S5.D. Soil ~~Monitoring~~ Characterization Protocols

1. Collecting a Representative Soil Sample

a. The Permittee must take separate soil samples for each foot of the top three feet of soil on each field that it controls. Sample locations should be randomly chosen in every field sampled. Samples must represent 0-12 inches, 12-24 inches, and 24-36 inches. Use Table 1 to determine the number of subsamples for each depth that must be collected. No samples may be collected in buffer areas.

If fields that the Permittee controls do not have 36 inches of soil before a confining/restricting layer or ground water is reached, the Permittee must take samples in 12-inch increments until it reaches this depth. The Permittee must indicate in its record keeping and annual report at what depth the confining/restricting layer or ground water was reached.

Commented [JonJ19]: Put in annual report section

Table 1: Number of Subsamples Required	
Field Size (Acres)	Number of Subsamples
Fewer than 5	15
5 to 10	18

10 to 25	20
25 to 50	25
More than 50	30

b. Combine the subsamples from one field into a bulk sample in a clean plastic bucket. Take the composite sample that will be sent to the laboratory for analysis from the bulk sample.

c. The final composite sample to be analyzed should be stored or shipped at 0° to 6° Celcius and sent immediately to the laboratory according to the methods described by the laboratory that the Permittee is using to have the sample analyzed

2. Soil Sample Analysis

The Permittee must have soil samples analyzed for the following parameters using EPA test methods from SW846 with the results reported in the units specified.

Parameter	Units
Moisture Content	Percent (%)
pH	Standard Units
Total Kjeldahl Nitrogen (TKN)	mg/kg as N (dry weight)
Nitrate (NO_3) plus Nitrite (NO_2)	mg/kg as N (dry weight)
Ammonia/Ammonium (NH_3) as N	mg/kg as N (dry weight)
Phosphorus (Total)	mg/kg as P (dry weight)

Commented [JonJ20]: Policy Call Necessary
Having these parameters reported in mg/kg will be an accurate representation of the concentration in the waste at the time of sampling. mg/kg is easily converted to ppm for comparison with the 15ppm nitrate benchmark (mg/kg and ppm are equivalent)

WSDA is encouraging us to use lbs/Acre or lbs/Ton (for solids). This makes sense from a management standpoint because these are the units that facilities will be using when determining land application amounts.

This poses a problem.

There is no direct conversion from mg/kg or ppm to lbs/Acre.

Any conversion will be an estimate. This is because one acre-foot of soil is estimated to weigh 3.6 million pounds, however this varies greatly depending on soil density (average 1.3 g/cm^3 but high organic soils (>20% organics) can be 0.6-0.8 g/cm^3)

Is an estimate good enough for comparison to the benchmark?

Another option may be requiring the reporting of soil density on each field.

S5.F. Waste ~~Monitoring~~ Characterization Protocols

1. Collecting a Representative Liquid/Slurry Waste Sample

a. Thoroughly mix the stored waste for at least 2 hours before sampling. If not mixed, the Permittee must sample the entire depth of the lagoon.

b. If the waste is thoroughly mixed take a minimum of 5 subsamples from different locations around the lagoon. If waste is not mixed, take a minimum of 10 subsamples. Subsamples should be collected in a clean plastic bucket.

c. Mix the waste subsamples in the bucket and take the final composite sample that will be analyzed by the laboratory.

d. The final composite sample should be stored or shipped immediately according to the methods described by the laboratory that the Permittee is using to have the sample analyzed.

e. The sample must be analyzed according to the requirements in permit condition S5.E.3.

2. **Collecting a Representative Solids Waste Sample**

   a. Thoroughly mix the stored waste before sampling. If not mixed, the Permittee must sample at several different locations and depths in the waste pile and must avoid the outer 6 inches of the stored waste.

   b. If the waste is thoroughly mixed take minimum of 5 subsamples. If waste is not mixed, take a minimum of 10 subsamples. Subsamples should be collected and all placed in a clean plastic bucket.

   c. Mix the waste subsamples in the bucket for form a bulk sample. Take the final composite sample that will be analyzed by the laboratory from the bulk sample.

   d. The final composite sample should be stored or shipped at 0° to 6° C and sent immediately to the laboratory according to the methods described by the laboratory that the Permittee is using to have the sample analyzed.

   e. The sample must be analyzed according to the requirements in permit condition S5.E.3.

3. **Waste Sample Analysis**

   The Permittee must have waste samples analyzed for the following parameters using EPA test methods from SW846, or the methods included in the table, with the results reported in the units specified.

Parameter	EPA Test Method	Units
Dry matter/Solids	SM 2540G	Percent (%)
pH	SM4500-H^+ B	Standard Units
Total Kjeldahl Nitrogen (TKN)	SM4500-N_{org}B/C and SM4500NH_3-B/C/D/EF/G/H	mg/kg as N (dry weight)
Ammonia/Ammonium (NH_3)	SM4500-NH3-B and C/D/E/G/H	mg/kg as N (dry weight)
Phosphorus (P_2O_5)	SM 4500 PB followed by SM4500-PE/PF	mg/kg as P (dry weight)

S5.G. Ground Water Monitoring Protocols

If the Permittee has exceeded the soil test nitrate benchmark (permit condition S2.E) in a field for three of the five years that this permit is effective, the Permittee must implement a ground water monitoring program.

1. **Ground Water Monitoring Plan**

Commented [JonJ21]: Policy Call Necessary
Having these parameters reported in mg/kg will be an accurate representation of the concentration in the waste at the time of sampling. mg/kg is easily converted to ppm for comparison with the 15ppm nitrate benchmark (mg/kg and ppm are equivalent)

WSDA is encouraging us to use lbs/1000gal or lbs/Ton (for solids). This makes sense from a management standpoint because these are the units that Edaleen will be using when determining land application amounts.

This poses a problem.

There is no direct conversion from mg/kg or ppm to lbs/1000gal.

Any conversion will be an estimate. This is because the desnity, and therefore weight of 1 gallon of waste will vary depending on the current content.

Is an estimate good enough for comparison to the benchmark.

Another option may be requiring the reporting of the weight of one gallon of waste.

Commented [JonJ22]: Policy Call Necessary
Having these parameters reported in mg/kg will be an accurate representation of the concentration in the waste at the time of sampling. mg/kg is easily converted to ppm for comparison with the 15ppm nitrate benchmark (mg/kg and ppm are equivalent)

WSDA is encouraging us to use lbs/1000gal or lbs/Ton (for solids). This makes sense from a management standpoint because these are the units that facilities will be using when determining land application amounts.

This poses a problem.

There is no direct conversion from mg/kg or ppm to lbs/1000gal.

Any conversion will be an estimate. This is because the density, and therefore weight of 1 gallon of waste will vary depending on the current content.

Is an estimate good enough for comparison to the benchmark?

Another option may be requiring the reporting of the weight of one gallon of waste.

Commented [JonJ23]: What about fields that are "traded" off to another entity to avoid groundwater monitoring?

Most likely will happen with rented or leased fields.

Commented [JonJ24]: Set up as field level

The Permittee must submit a ground water monitoring plan to Ecology within three months of determining that the soil nitrate benchmark has been exceeded for three of five years.

A ground water monitoring plan, including potential monitoring well locations, must be approved by Ecology prior to installation to ensure that the wells are sited, designed and constructed properly in order to assess potential impacts to ground water. The plan must include the requirements in permit conditions S5.G.2 – S5.G.4.

The monitoring plan must be developed by a licensed hydrogeologist as required in chapter 18.220 RCW and chapter 308-15 WAC.

2. Ground Water Monitoring Well Installation

a. The Permittee must install at least three ground water monitoring wells in accordance with Chapter 173-160 WAC.

   i. The wells must be installed by a licensed well driller.

   ii. The wells must be completed in the uppermost aquifer, screened across the top of the aquifer, with the screened length sufficient to account for seasonal fluctuations in the water level.

   iii. Ground water monitoring wells must be located to determine ground water flow and direction across the part of the land application area not meeting the soil nitrate benchmarks (permit condition S2.E) as well as monitor impacts from the Permittee's potential discharge.

   iv. The Permittee must install at least one upgradient well and two downgradient wells. Downgradient wells must be located downgradient from the discharge source as near as technically, hydrogeologically, and geographically feasible.

b. Ground water monitoring wells must be installed and monitoring started within six months of the date of the last annual report which determined that the soil nitrate benchmark has been exceeded for 3 of the 5 years of this permit cycle.

c. The Permittee must notify Ecology in writing within 30 days after completion of monitoring well installation.

3. Ground Water Sampling Protocols

Ground water sampling must conform to the latest protocols in the *Implementation Guidance for the Ground Water Quality Standards (Ecology Publication No.96-02).*

Samples and measurements taken to meet the requirements of this permit must be representative of the volume and nature of the monitored ground water, including representative sampling of any unusual discharge or discharge condition.

The Permittee must submit ground water sample analysis to Ecology on a quarterly basis. This submittal consists of a copy of the laboratory analysis and a letter including the signatory requirements in permit Condition G1. Quarterly monitoring is defined as January-March, April-June, July-September, and October-December. Quarterly monitoring results are due on April 15th, July 15th, October 15th, and January 15th.

Commented [JonJ25]: where should this go?

4. **Ground Water Sample Analysis**
The Permittee must have ground water samples analyzed for the following parameters using EPA test methods from SW846, or the methods included in the table, with the results reported in the units specified.

Groundwater Parameter	Analytical Method	Units
Nitrate (NO_3) + Nitrite (NO_2)	SM 4500-NO_3 I	mg/L as N
Ammonia (NH_3)/Ammonium(NH_4)		mg/L as N
Total Kjeldahl Nitrogen (TKN)	SM 4500-N B/C	mg/L as N

S6. Record Keeping

Commented [JonJ26]: List levels

The Permittee must keep the following records onsite for 5 years and make them available to Ecology upon request:

S6.A. Nutrient Management Plan (NMP)

A current site specific NMP that describes how the Permittee is meeting permit requirements at its facility.

S6.B. Waste Storage

Commented [JonJ27]: work on language

1. Documentation of the current design of waste storage structures including volume for solids accumulation, design treatment volume, total design volume, number of days of storage capacity.

2. Documentation of required visual inspections.

3. Documentation of any actions taken to correct deficiencies noted during visual inspection. If corrective action is not completed in 30 days, documentation as to what prevented corrective action.

4. Documentation of date, time, and estimated volume of any overflow (as necessary).

5. Documentation of the depth of liquid contained in all liquid waste storage structures in feet and inches recorded during visual inspection.

S6.C. Records of Mortality Management (as necessary)

Record how mortalities are disposed of, including the date and method of disposal.

S6.D. Diversion of Clean Water

1. Documentation of required visual inspections.

2. Records documenting any actions take to correct deficiencies noted during visual inspection. If corrective action not completed in 30 days, documentation as to what prevented corrective action.

S6.E. Protocols for Land Application of Waste (daily as necessary)

1. Documentation of land application equipment inspection and calibration.

2. For each application event where waste is applied, documentation of the following, by field:

   a. Date of application.

   b. Method of application and days to incorporation, if any.

   c. Weather conditions at the time of application and for 24 hours prior to and following application.

   d. Total amount of nitrogen and phosphorus applied in Pounds/Acre.

   e. Application rate for the field in Gallons/Acre or Tons/Acre.

S6.F. Export of Waste to Another Party (as necessary)

1. Date of export.

2. Name and address of recipient.

3. Amount of waste exported in Tons or Gallons.

4. Nutrient content of waste.

6. Method of export (e.g. truck, pipe etc.).

S7. Reporting

S7.A. Non-Compliance Notification

In the event the Permittee is unable to comply with any part of this permit, which may threaten human health or the environment, the Permittee must :

1. Immediately take action to prevent the discharge/pollution, or otherwise stop or correct the noncompliance.

2. Immediately notify Ecology of the failure to comply by calling the applicable Regional Office ERTS phone number and the permit administrator at Ecology Headquarters. The regional phone numbers are:

   Central (CRO) ---------- 509-575-2490

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

   Eastern (ERO) ---------- 509-329-3400

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

   Northwest (NWRO) ---------- 425-649-7000

   Island, King, Kitsap, San Juan, Skagit, Snohomish, and Whatcom counties

   Southwest (SWRO) ---------- 360-407-6300

   Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, and Wahkiakum counties

   Headquarters ---------- 360-407-6283

3. Submit a detailed written report to Ecology within five (5) days of the noncompliance. The report must contain a description of the noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

The Permittee must report any unanticipated ***bypass*** and/or ***upset*** that exceeds any effluent limit in the permit in accordance with the 24-hour reporting requirement contained in 40 CFR 122.41(l)(6)).

Compliance with these requirements does not relieve the Permittee from responsibility to maintain continuous compliance with the terms and conditions of this permit or the

resulting liability for failure to comply. Refer to permit condition G14 of this permit for specific information regarding permit violations.

S7.B. Annual Report

By January 31 of each year, the Permittee must submit a completed annual report form (Appendix E) for the previous 12 months (January – December). Attach copies of all laboratory test results for waste and soil sampling.

If applicable from permit condition S5.D.1, the depth of the confining layer that prevented the Permittee from taking soil samples down to 36 inches

Commented [JonJ28]: Add place to put confining layer info in annual report template

S7.C. Yearly Planning Update

By January 31 of each year, the Permittee must submit a nutrient mass balance for each field that will be part of its land application area for the coming season (January 1 to December 31) using Appendix D. Use a separate worksheet for each field.

Crop nutrient needs for the field nutrient budgets must be based on Land Grant University (Washington State University) nutrient recommendations or, if not available, based upon the USDA Crop Nutrient Tool at http://plants.usda.gov/npk/main.

If the Permittee has exceeded the 15 ppm limit for nitrate in field soils at the end of the previous growing season, see permit condition S4.M.

Commented [JonJ29]: At what depth?

In addition to the nutrient mass balances worksheet for each field, the Permittee must submit a map of each field that is part of its land application area for the season. The map must contain the buffers implemented on each field. If the Permittee's land application area and buffers have remained the same from the previous season, the Permittee need not submit updated maps.

S8. Permit Administration

S8.A. Who Must Apply for Permit Coverage

Owners or operators of large or medium sized (as defined in the CAFO definition) AFOs that have, or had, a discharge to waters of the state must obtain coverage under this permit.

Owners or operators of small AFOs, and AFOs of animal types not listed in the CAFO definition that Ecology ***designates*** as a CAFO must obtain coverage under this permit.

S8.B. How to Apply for Permit Coverage

Owners of operators of AFOs required to apply for permit coverage on or after the effective date of this general permit must:

1. Submit an ***application for coverage*** to Ecology at least 60 days before discharge occurs. A complete application includes:

a. A completed and signed ***Notice of Intent (NOI)***. Use the form provided in Appendix XX.

b. Completed ***nutrient mass balances*** for the year. The nutrient mass balances must include every land application field that the applicant controls (owns, rents or leases) during the calendar year. The applicant must use the template in Appendix D for calculating the nutrient mass balances. A separate worksheet must be filled out for each field. Each field must have a unique identification that will always be associated with that field in all documents. Crop nutrient needs for the field nutrient mass balances must be based on Land Grant University (Washington State University) nutrient recommendations or, if not available, based upon the USDA Crop Nutrient Tool at lhttp://plants.usda.gov/npk/main.

Commented [JonJ30]: work on

c. Maps or diagrams of the production area and each land application field included in permit condition S2.B.1. One map may be used to identify all fields. The map must identify the buffers (see permit condition S4.I) used on the land application fields to prevent surface and ***ground water*** pollution.

d. Certifications for alternative buffer practices (see permit condition S4.I.3)

e. For ***new dischargers***, a completed and signed State Environmental Policy Act (SEPA) checklist. If SEPA was completed at the local level, include a copy of the SEPA determination.

If applying for permit coverage because of a discharge that has occurred, submit a completed application for coverage within 30 days of the discharge.

Applicants are not required to submit their ***Nutrient Management Plan (NMP)*** to Ecology. However, once covered by the permit, the entire NMP must be made available to Ecology upon request.

2. Mail the complete application for coverage to :

Department of Ecology
Water Quality Program
Attn: CAFO Permit Administrator
PO Box 47600
Olympia, WA 98504

Ecology is moving to online permit administration. When it becomes available for this permit, Ecology may modify this permit to require electronic submittal of the permit application and supporting documents.

3. On or after the date that Ecology receives the complete application for coverage publish a public notice using the template provided in Appendix C. The notice must be published once a week for two consecutive weeks in a newspaper of general circulation in the geographical area where the permitted activity will take place. On the date that the second public notice is published, a 30-day public comment period begins.

At the end of the 30-day public comment period, Ecology will consider and received comments about the applicability of this permit to the proposed activity before issuing a decision on permit coverage. Once permit coverage is issued, the CAFO owner or operator who applied for coverage becomes a ***Permittee***.

For ***existing dischargers*** where there is an increase in the volume of waste by ten percent or more, a reduction in the acreage available for land application by ten percent or more, or a change in the character of the effluent which requires the discharger to submit an updated NOI, a completed and signed SEPA checklist must be included with the NOI. If SEPA is completed at the local level, include a copy of the SEPA determination.

Commented [JonJ31]: make sure fact sheet discusses

S8.C. How to Transfer Permit Coverage

A Permittee may transfer coverage to a new Permittee using the Transfer of Coverage form (Appendix XX), which may be accessed here: WEB ADDRESS

Both the original Permittee and the new Permittee must sign the form and provide the date that the new Permittee will be responsible for permit coverage. Once both parties have signed the Transfer of Coverage form, the new Permittee becomes responsible for all permit compliance and permit fees on the date indicated on the form. The original Permittee remains responsible for, and subject to, all permit conditions and permit fees until the transfer of permit coverage is effective.

Ecology is moving to online system for permit administration. When it becomes available for this permit, Ecology may modify this permit to require electronic submittal of the Transfer of Coverage form.

S8.D. How to Terminate Permit Coverage

In order to terminate this permit coverage, the Permittee must submit a Notice of Termination (NOT) to Ecology (see Appendix F). The NOT must be signed in accordance with permit condition G1.

After receiving the NOT, Ecology will respond to the request for termination by reviewing the permit file and having a facility closeout inspection completed. The

closeout inspection will occur within 30 days of Ecology receiving the NOT. After the inspection, Ecology will determine if it is appropriate for coverage under this general permit to be terminated. Permit coverage is terminated when the Permittee is notified, in writing, by Ecology. The Permittee is responsible for complying with all permit conditions until it receives notification that coverage is terminated. The Permittee is also responsible for all permit fees.

1. Ecology may approve a Notice of Termination (NOT) request when the Permittee meets one or more of the following conditions and there are no outstanding fees or penalties:

    a. The facility has ceased all operations and all waste storage structures have been properly closed (for lagoons, see permit condition S4.D) and all waste has been land applied in accordance with field nutrient mass balances.

    b. There has not been a discharge, not including agricultural storm water, for a minimum of 5 years.

    c. The Permittee sells or otherwise transfers responsibility for the day-to-day operations. In this case, the permit coverage may be transferred from the Permittee to the entity taking over operations instead of cancelling the permit coverage. See Appendix G for the permit coverage transfer form and permit condition S2.C for transfer instructions.

    d. Discharges associated with the agricultural activity (production area and land application fields) are permanently eliminated by elimination of the flow or by connection to a Publicly Owned Treatment Works (POTW).

General Conditions

G1. SIGNATORY REQUIREMENTS

All applications, reports, or information submitted to Ecology must be signed and certified.

A. In the case of corporations, by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

   1. A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision making functions for the corporation, or

   2. The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

B. In the case of a partnership, by a general partner.

C. In the case of sole proprietorship, by the proprietor.

D. In the case of a municipal, state, or other public facility, by either a principal executive officer or ranking elected official.

E. All reports required by this permit and other information requested by Ecology must be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   1. The authorization is made in writing by the person described above and is submitted to Ecology at the time of authorization, and

   2. The authorization specifies either a named individual or any individual occupying a named position.

F. Changes to authorization. If an authorization under paragraph E above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization must be submitted to Ecology prior to or together with any reports, information, or applications to be signed by an authorized representative.

G. Any person signing a document under this section must make the following certification:

"I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

G2. RIGHT OF ENTRY AND INSPECTION

Representatives of Ecology must have the right to enter at all reasonable times in or upon any property, public or private, for the purpose of inspecting and investigating conditions relating to the pollution or the possible pollution of any waters of the state.

Reasonable times includes normal business hours; hours during which production, treatment, or discharge occurs; or times when Ecology suspects a violation requiring immediate inspection.

Representatives of Ecology must be allowed to have access to, and copy at reasonable cost, any records required to be kept under terms and conditions of the permit; to inspect any monitoring equipment or method required in the permit; and to sample any discharge, waste treatment processes, or internal waste streams.

G3. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated either at the request of any interested person (including the permittee) or upon Ecology's initiative. However, the permit may only be modified, revoked and reissued, or terminated for the reasons specified in 40 CFR 122.62, 122.64 or WAC 173-220-150 according to the procedures of 40 CFR 124.5.

A. The following are causes for terminating this permit during its term, or for denying a permit renewal application:

1. Violation of any permit term or condition.
2. Obtaining a permit by misrepresentation or failure to disclose all relevant facts.
3. A material change in quantity or type of waste disposal.
4. A determination that the permitted activity endangers human health or the environment or contributes to water quality standards violations and can only be regulated to acceptable levels by permit modification or termination [40 CFR part 122.64(3)].

5. A change in any condition that requires either a temporary or permanent reduction or elimination of any discharge or sludge use or disposal practice controlled by the permit [40 CFR part 122.64(4)].

6. Nonpayment of fees assessed pursuant to RCW 90.48.465.

7. Failure or refusal of the permittee to allow entry as required in RCW 90.48.090.

B. The following are causes for modification but not revocation and reissuance except when the Permittee requests or agrees:

1. A material change in the condition of the waters of the state.

2. New information not available at the time of permit issuance that would have justified the application of different permit conditions.

3. Material and substantial alterations or additions to the permitted facility or activities which occurred after this permit issuance.

4. Promulgation of new or amended standards or regulations having a direct bearing upon permit conditions, or requiring permit revision.

5. The Permittee has requested a modification based on other rationale meeting the criteria of 40 CFR Part 122.62.

6. Ecology has determined that good cause exists for modification of a compliance schedule, and the modification will not violate statutory deadlines.

7. Incorporation of an approved local pretreatment program into a municipality's permit.

C. The following are causes for modification or alternatively revocation and reissuance:

1. Cause exists for termination for reasons listed in A1 through A7, of this section, and Ecology determines that modification or revocation and reissuance is appropriate.

2. Ecology has received notification of a proposed transfer of the permit. A permit may also be modified to reflect a transfer after the effective date of an automatic transfer but will not be revoked and reissued after the effective date of the transfer except upon the request of the new permittee.

G4. REPORTING PLANNED CHANGES, CAUSE FOR MODIFICATION

The Permittee must, as soon as possible, but no later than sixty (60) days prior to the proposed changes, give notice to Ecology of planned physical alterations or additions to the permitted facility, production increases, or process modification which will result in:

A. The permitted facility being determined to be a new source pursuant to 40 CFR 122.29(b).
B. A significant change in the nature or an increase in quantity of pollutants discharged.
C. A significant change in the Permittee's sludge use or disposal practices.

Following such notice, and the submittal of a new application or supplement to the existing application, along with required engineering plans and reports, this permit may be modified, or revoked and reissued pursuant to 40 CFR 122.62(a) to specify and limit any pollutants not previously limited. Until such modification is effective, any new or increased discharge in excess of permit limits or not specifically authorized by this permit constitutes a violation.

G5. PLAN REVIEW REQUIRED

Prior to constructing or modifying any wastewater control facilities, an engineering report and detailed plans and specifications must be submitted to Ecology for approval in accordance with Chapter 173-240 WAC. Engineering reports, plans, and specifications must be submitted at least one hundred eighty (180) days prior to the planned start of construction unless a shorter time is approved by Ecology. Facilities must be constructed and operated in accordance with the approved plans.

G6. COMPLIANCE WITH OTHER LAWS AND STATUTES

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

G7. TRANSFER OF THIS PERMIT

In the event of any change in control or ownership of facilities from which the authorized discharge emanate, the Permittee must notify the succeeding owner or controller of the existence of this permit by letter, a copy of which must be forwarded to Ecology. This permit is automatically transferred to a new owner or operator if:

A. A written agreement between the old and new owner or operator containing a specific date for transfer of permit responsibility, coverage, and liability is submitted to Ecology.

B. A copy of the permit is provided to the new owner.

C. Ecology does not notify the Permittee of the need to modify the permit.

Unless this permit is automatically transferred according to section A. above, this permit may be transferred only if it is modified to identify the new Permittee and to incorporate such other requirements as determined necessary by Ecology.

G8. REDUCED PRODUCTION FOR COMPLIANCE

The Permittee, in order to maintain compliance with its permit, must control production and/or all discharges upon reduction, loss, failure, or bypass of the treatment facility until the facility is restored or an alternative method of treatment is provided. This requirement applies in the situation where, among other things, the primary source of power of the treatment facility is reduced, lost, or fails.

G9. REMOVED SUBSTANCES

Collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters must not be resuspended or reintroduced to the final effluent stream for discharge to state waters.

G10. DUTY TO PROVIDE INFORMATION

The Permittee must submit to Ecology, within a reasonable time, all information which Ecology may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Permittee must also submit to Ecology upon request, copies of records required to be kept by this permit.

G11. OTHER REQUIREMENTS OF 40 CFR

All other requirements of 40 CFR 122.41 and 122.42 are incorporated in this permit by reference.

G12. ADDITIONAL MONITORING

Ecology may establish specific monitoring requirements in addition to those contained in this permit by administrative order or permit modification.

G13. PAYMENT OF FEES

The Permittee must submit payment of fees associated with this permit as assessed by Ecology. Ecology may revoke this permit if the permit fees established under Chapter 173-224 WAC are not paid.

G14. PENALTIES FOR VIOLATING PERMIT CONDITIONS

Any person who is found guilty of willfully violating the terms and conditions of this permit is deemed guilty of a crime, and upon conviction thereof will be punished by a fine of up to ten thousand dollars ($10,000) and costs of prosecution, or by imprisonment in the discretion of the court. Each day upon which a willful violation occurs is a separate and additional violation. Any person who violates the terms and conditions of a waste discharge permit incurs, in addition to any other penalty as provided by law, a civil penalty in the amount of up to ten thousand dollars ($10,000) for every such violation. Each and every such violation is a separate and distinct offense, and in case of a continuing violation, every day's continuance is deemed to be a separate and distinct violation.

G15. UPSET

Definition – "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limits if the requirements of the following paragraph are met. A Permittee who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that: 1) an upset occurred and that the Permittee can identify the cause(s) of the upset; 2) the permitted facility was being properly operated at the time of the upset; 3) the Permittee submitted notice of the upset as required in condition S3.E; and 4) the Permittee complied with any remedial measures required under S4.C of this permit. In any enforcement proceedings the Permittee seeking to establish the occurrence of an upset has the burden of proof.

G16. PROPERTY RIGHTS

This permit does not convey any property rights of any sort, or any exclusive privilege.

G17. DUTY TO COMPLY

The Permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

G18. TOXIC POLLUTANTS

The Permittee must comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if this permit has not yet been modified to incorporate the requirement.

G19. PENALTIES FOR TAMPERING

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit will, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than two years per violation, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this Condition, punishment will be a fine of not more than $20,000 per day of violation, or by imprisonment of not more than four (4) years, or by both.

G20. COMPLIANCE SCHEDULES

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit must be submitted no later than fourteen (14) days following each schedule date.

G21. DUTY TO REAPPLY

The Permittee must reapply for coverage under this general permit at least one hundred and eighty (180) days prior to the specified expiration date of this general permit. An expired general permit and coverage under the permit continues in force and effect until Ecology issues a new general permit or until Ecology cancels it. Only those Permittees that reapply for coverage are covered under the continued permit.

Appendices

Commented [JJ32]: Also make these separate publications.

Appendix A: Acronyms and Definitions
Appendix B: CAFO Permit Notice of Intent (NOI) Application Form
Appendix C: Public Notice Form
Appendix D: Field Nutrient Budget Worksheet Template
Appendix E: Annual Report Form
Appendix F: Notice of Termination Form
Appendix G: Transfer of Coverage Form

Appendix B: Application for Coverage Notice of Intent Form Concentrated Animal Feeding Operation General Permit

DEPARTMENT OF ECOLOGY State of Washington

To comply with the terms of the statewide general permit for discharges of related to the operation of a CAFO to waters of the state of Washington.

Permit Number: ☐New Application ☐Updated Application

Applicant/Permittee Information		
Business/Facility Name:		
Applicant Name:		
Mailing Address:		
City:	State:	Zip:
Phone:	Cell Phone (Optional):	
Email:	UBI:	

Facility Address (If different from above):		
City:	State:	Zip:

Facility Latitude:	Facility Longitude:
Attach a topographic or orthophoto map of the facility to this application.	
Is the facility or any land application fields located within the 6-month time of travel wellhead protection area for a Group A public drinking water groundwater well? ☐Yes ☐No You can check by going to https://fortress.wa.gov/doh/eh/dw/swap/maps/	

Facility Contact (If Different From Above):	
Phone:	Cell Phone (Optional):
Email:	

SEPA (State Environmental Policy Act)	
Is the facility:	☐An existing facility (built before DATE of Permit issuance) ☐A proposed Facility (not in operation yet) ☐An expanding facility (build before DATE of Permit issuance, but expanding)
• If the facility is an existing facility, no additional SEPA is required. • If the facility is a new or expanding facility, has a SEPA determination been issued for the facility under WAC 197-11? ☐Yes ☐No • Who issued the SEPA determination? • If a SEPA determination has been made, attach a copy to this application form.	

Animal Information		
Provide the maximum number of animals that are confined at your facility for a total of 45 days, or more, in any 12-month period.		
	Number of Animals in Open Confinement	Number of Animals Housed Under Roof
Mature Dairy Cows		
Dairy Heifers		
Dairy Calves		
Veal Caves		
Cattle (Not Dairy or Veal)		
Swine (Under 55 lb.)		
Swine (55 lb. or Over)		
Horses		
Sheep or Lambs		
Turkeys		
Chickens (Broilers)		
Chickens (Layers)		
Ducks		
Other (Specify)		

Manure, Litter, Process Waste Water	
What is the total waste is generated at your facility each year?	☐Tons/☐Gallons
If land applying waste, how many acres is necessary to balance the nutrients your facility generates?	Acres
How many acres do you have available for land application of waste?	Acres
How much waste will you export per year?	☐Tons/☐Gallons

Waste Storage	
Type of Storage	**Total Capacity**
Lagoon	☐Tons/☐Gallons
Roofed Storage Shed	☐Tons/☐Gallons
Storage Ponds	☐Tons/☐Gallons
Under-floor Pits	☐Tons/☐Gallons
Above Ground Storage Tanks	☐Tons/☐Gallons
Below Ground Storage Tanks	☐Tons/☐Gallons
Concrete Pad	☐Tons/☐Gallons
Impervious Soil Pad	☐Tons/☐Gallons
Other (Specify):	☐Tons/☐Gallons

Field Nutrient Mass Balance
Attach a copy of each field's nutrient mass balance to this application (Permit Appendix D).

Do you have a Nutrient Management Plan? ☐Yes / ☐No
Is the nutrient management plan fully implemented at the facility? ☐Yes / ☐No
If the nutrient management plan is not fully implemented at the facility, what date will it be implemented by?

Public Notice	
The public notice must be published at least **once** each week for two consecutive weeks, in a **single** newspaper that has general circulation in the county in which the facility is located. See the permit application instructions in permit Section S2.D for public notice requirements. Permit coverage will not be issued sooner than 31 days after the date of the second public notice. **Note: The permit application must be submitted to Ecology on or before the date of the first public notice.**	
First Public Notice Date:	Second Public Notice Date:
Publishing Newspaper:	

Applicant Certification	
"I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."	
Print Name:	Date:
Signature:	

Appendix C: Public Notice

Public notice must be published at least once each week for two consecutive weeks, in a single newspaper of general circulation in the county or counties where the permitted facility is located.

The applicant may add additional information to this template, but must not remove or change any language other than language in **bold,** which is information that the applicant must provide.

PUBLIC NOTICE TEMPLATE

Applicant name and contact (email, phone, mailing address) is seeking coverage under the Washington State Department of Ecology's NPDES and State Waste General Permit for discharges associated with managing a concentrated animal feeding operation (CAFO).

The proposed coverage applies to the animal and animal product production areas and to associated fields where waste will be land applied as fertilizer.

The CAFO facility, known as **Facility Name** is located at **Enter street address** in **Enter name of nearest city**. The facility is **currently operating OR due to begin operation on *ENTER DATE***.

Each year, the nutrient mass balances for this facility will be updated as part of an annual report. Yearly updates may be accessed at: WEBSITE.

Ecology reviews public comments and considers whether discharges from this project would cause a measurable change in receiving water quality, and, if so, whether the project is necessary and in the overriding public interest according to Tier II antidegradation requirements under WAC 173-201A-320.

Any person desiring to present their views to the Department of Ecology regarding this application must do so in writing within 30 days of the last date of publication of this notice. Comments must be submitted to the Department of Ecology. Any person interested in the Department's action on the application may notify the Department of their interest within 30 days of the last date of publication of this notice.

Submit comments to: Department of Ecology, Water Quality Program, Attn: CAFO Permit Manager, P.O. Box 47600, Olympia, WA 98504-7600

Appendix D: Yearly Field Nutrient Mass Balance Calculation Worksheet

Use this form to calculate the nutrient mass balance for one field. For additional fields, make additional copies of this form – one for each field.

1. Field Information		
Field ID:		Field Acres:
P-Index*	Rating: ☐ Low, ☐ Medium, ☐ High (no multi-year P applications allowed, P-based nutrient budget) ☐ Very High (no multi-year P applications allowed, P-removal based nutrient budget)	Number:
*If you do not have P-Index information for your fields, the worksheet for calculating the P-Index may be accessed here: http://efotg.sc.egov.usda.gov/references/public/WA/NRCS-WA_WQ_TN2_Phosphorus_Index.pdf		

2. Nutrients Available (Inputs)				
Line	**Source**	**Nitrogen**	**Phosphorus**	**Units**
1	Spring soil-test - crop available nutrients (attach a copy of the laboratory analysis)			lbs/Acre
2	Mineralization			lbs/Acre
3	Nutrients from previous crop residue			
4	Nutrients in irrigation water			lbs/Acre
5	Nutrients from plow down of cover-crop			lbs/Acre
6	Pre-Plant/At Planting Chemical Fertilizer			lbs/Acre
7	Other sources (e.g. atmospheric deposition)			lbs/Acre
8	**Total Nutrients Available per Acre for Year** *Line 1 + Line 2 + Line 3 + Line 4 + Line 5 + Line 6 + Line 7*			lbs/Acre

3. Nutrient Needs (Outputs)				
Line		**Nitrogen**	**Phosphorus**	**Units**
1	Crop:			
2	Yield Goal and Units* (e.g. corn X bushels/acre)			
3	Nutrients required per unit of yield goal** (e.g. corn X lbs N/bushel, Y lbs P/bushel)			
4	**Nutrients Needed per Acre for Year** *Line 2 x Line 3*			lbs/Acre
*Average for past 3 to 5 years that the crop was grown, or if not available, consult with conservation district, university guidance, crop advisor, agronomist, or other technical service provider.				
**Nutrient needs must be based on Land Grant University (Washington State University) nutrient guides or, if not available, based upon the USDA Crop Nutrient Tool at http://plants.usda.gov/npk/main.				

4. Nutrient Balance				
Line		**Nitrogen**	**Phosphorus**	**Units**
1	Total Nutrients Available per Acre for Year			lbs/Acre
2	Nutrients Needed per Acre			lbs/Acre
3	**Maximum Amount of Nutrients that may be Supplied by Waste for the Year** *Line 1 – Line 2*			lbs/Acre

Appendix E: Annual Report for the Concentrated Animal Feeding Operation (CAFO) NPDES and State Waste Discharge General Permit

DEPARTMENT OF ECOLOGY
State of Washington

Permit Number:

Permittee Information		
Business/Facility Name:		
Applicant Name:		
Mailing Address:		
City:	State:	Zip:
Phone:	Cell Phone (Optional):	
Email:	UBI:	

Facility Address (If different from above):		
City:	State:	Zip:

Facility Contact (If Different From Above):	
Phone:	Cell Phone (Optional):
Email:	

Animal Information		
Provide the maximum number of animals confined at your facility for a total of 45 days or more during the previous 12-month period.		
	Number of Animals in Open Confinement	Number of Animals Housed Under Roof
Mature Dairy Cows: Milking		
Mature Dairy Cows: Dry		
Dairy Heifers		
Dairy Calves		
Veal Caves		
Cattle (Not Dairy or Veal)		
Swine (Under 55 lbs)		
Swine (55 lbs or Over)		
Horses		
Sheep or Lambs		
Turkeys		
Chickens (Broilers)		
Chickens (Layers)		
Ducks		
Other (Specify):		

Nutrient Management	
Total amount of waste generated in the past 12 months.	☐Tons/☐Gallons

Total amount of waste exported to others during the past 12 months.	☐Tons/☐Gallons
How many acres of land are included in your yearly field nutrient mass balances for land application of waste?	Acres
For the acres referenced in the previous question, how many of those acres were used for land application of waste during the past 12 months?	Acres

Discharges	
During the past 12 months, have there been any discharges of waste from your production area or land application fields? This does not include discharges that qualify as agricultural stormwater.	☐ Yes / ☐ No
If you answered YES to the previous question, supply the date(s), time(s), duration(s), approximate volume(s), and a summary of your response to the discharge(s) here. Attach separate sheets of paper if necessary.	

Waste Export Reporting (If you need more lines, print out more of this page)					
Date of Export	**Name of Recipient**	**Address of Recipient**	**Amount of Waste Exported**	**Waste Nitrate (as N in mg/kg)**	**Waste Phosphorus (mg/kg)**
			☐Tons ☐Gallons	Inorganic* Organic**	
			☐Tons ☐Gallons	Inorganic Organic	
			☐Tons ☐Gallons	Inorganic Organic	
			☐Tons ☐Gallons	Inorganic Organic	
			☐Tons ☐Gallons	Inorganic Organic	
			☐Tons ☐Gallons	Inorganic Organic	
			☐Tons ☐Gallons	Inorganic Organic	
			☐Tons ☐Gallons	Inorganic Organic	
			☐Tons ☐Gallons	Inorganic Organic	
			☐Tons ☐Gallons	Inorganic Organic	
			☐Tons ☐Gallons	Inorganic Organic	
			☐Tons ☐Gallons	Inorganic Organic	

*Inorganic = Nitrate N + Ammonia N; **Organic = Total Kjeldahl N – Inorganic N

Land Application Information (If you need more lines, print out more of this page)						
Field ID	**Crop**	**Yield**	**Supplemental Fertilizer Applied (per Acre)**	**Total Waste Applied (per Acre)**	**Total N Applied (Lbs/Acre)**	**Total P Applied (Lbs/Acre)**
			☐ Tons ☐Gallons	☐ Tons ☐Gallons	Inorganic* Organic**	
			☐ Tons ☐Gallons	☐ Tons ☐Gallons	Inorganic Organic	
			☐ Tons ☐Gallons	☐ Tons ☐Gallons	Inorganic Organic	
			☐ Tons ☐Gallons	☐ Tons ☐Gallons	Inorganic Organic	
			☐ Tons ☐Gallons	☐ Tons ☐Gallons	Inorganic Organic	
			☐ Tons ☐Gallons	☐ Tons ☐Gallons	Inorganic Organic	
			☐ Tons ☐Gallons	☐ Tons ☐Gallons	Inorganic Organic	
			☐ Tons ☐Gallons	☐ Tons ☐Gallons	Inorganic Organic	
			☐ Tons ☐Gallons	☐ Tons ☐Gallons	Inorganic Organic	
			☐ Tons ☐Gallons	☐ Tons ☐Gallons	Inorganic Organic	
			☐ Tons ☐Gallons	☐ Tons ☐Gallons	Inorganic Organic	
			☐ Tons ☐Gallons	☐ Tons ☐Gallons	Inorganic Organic	

*Inorganic = Nitrate N + Ammonia N; **Organic = Total Kjeldahl N – Inorganic N

Applicant Certification	
"I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."	
Print Name:	Date:
Signature:	

DEPARTMENT OF ECOLOGY State of Washington	**Appendix F: Notice of Termination (NOT) Form** **Concentrated Animal Feeding Operation General Permit** Use this form to request termination of permit coverage.

Permit Number:

Applicant/Permittee Information		
Business/Facility Name:		
Owner/Operator Name:		
Mailing Address:		
City:	State:	Zip:
Phone:	Cell Phone (Optional):	
Email:	UBI:	

Facility Address (If different from above):		
City:	State:	Zip:

Facility Contact (If Different From Above):	
Phone:	Cell Phone (Optional):
Email:	

Termination Requirements
This facility is eligible for coverage termination for one of the following reasons:
☐ The facility has ceased all operations and all waste storage structures have been properly closed (for lagoons, see permit condition S4.C) and all other waste not in a storage structure has been land applied in accordance with field nutrient budgets.
☐ The facility is no longer a CAFO that discharges waste to waters of the state.
☐ The party that is responsible for permit coverage (signatory on NOI) sells or otherwise transfers responsibility for the day-to-day operations and agricultural activity. In this case, the permit coverage may be transferred from the Permittee to the entity taking over operations instead of cancelling the permit coverage (See Appendix G for the permit coverage transfer form)
☐ The discharges associated with the agricultural activity (production area and land application fields) are permanently eliminated by elimination of the flow or by connection to a Publicly Owned Treatment Works (POTW).

Applicant Certification
"I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate,

and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."	
Print Name:	Date:
Signature:	

DEPARTMENT OF ECOLOGY State of Washington	**Appendix G: Transfer of Coverage Form** **Concentrated Animal Feeding Operation General Permit** Use this form to transfer permit coverage from the current Permittee to a new Permittee that will be responsible for permit compliance and paying annual permit fees.

Permit Number:

Original Permittee		
Business/Facility Name:		
Original Owner/Operator Name:		
Mailing Address:		
City:	State:	Zip:
Phone:	Cell Phone (Optional):	
Email:	UBI:	
Signature:		

Facility Address (If different from above):		
City:	State:	Zip:

Original Facility Contact (If Different From Above):	
Phone:	Cell Phone (Optional):
Email:	

New Permittee		
New Owner/Operator Name:		
Mailing Address:		
City:	State:	Zip:
Phone:	Cell Phone (Optional):	
Email:	UBI:	
Will assume responsibility and liability for coverage on:		
Signature:		

New Facility Contact (If Different From Above):	
Phone:	Cell Phone (Optional):
Email:	

Instructions for Transfer of Coverage Form

Submit a Transfer of Coverage Form to the Department of Ecology when another party will be taking over the CAFO operations and will be the entity responsible for meeting permit requirements and paying permit fees.

Original Permittee	Give the permit number, name, address, and telephone number of the person who is currently responsible for the permit coverage.
New Permittee	Give the name, company, mailing address, phone number and email address of the person who will be taking over responsibility and liability for the permit coverage. This person will also be sent permit fee invoices. Include the date that the new Permittee will assume responsibility and liability for the permit coverage.
New On-Site Contact Person	If the permit contact of the new Permittee is different from the new Permittee, enter the contacts name, mailing address, phone number, and email address.

Please sign and return this original document to the following address and retain a copy for your records:

Department of Ecology
Water Quality Program
Attn: CAFO Permit Manager
PO Box 47600
Olympia, WA 98504-7600

Note: The original Permittee remains responsible for, and subject to, all permit conditions and permit fees until the permit coverage transfer is effective.

Questions?
Call: Jon Jennings at (360) 407-6283 or email at jonathan.jennings@ecy.wa.gov.

To ask about the availability of this document in a format for the visually impaired, call the Water Quality Program at 360-407-6401. Persons with hearing loss may call 711 for Washington Relay Service. Persons with a speech disability may call 877-833-6341.

From:	Mena, Nora (AGR)
To:	Jennings, Jonathan (ECY)
Cc:	Prest, Virginia (AGR); Robinson, Kirk (AGR)
Subject:	WSDA notes on Permit Draft
Date:	Tuesday, January 24, 2012 3:44:00 PM
Attachments:	Permit Draft 2011.docx

Hi Jon,
Many thanks for sending us this draft for review. Attached is the permit draft as you sent it to us. We have reviewed the Fact sheet but have not gotten that documented for you yet. That will come soon.

We have used track changes to show a few suggested edits and a number of comments and thoughts. Hope these are helpful as you continue your work. As we mentioned before, the organization and overall draft of the permit is very good with some really good sections. Certainly there are some items that will be subject to major discussions and outcries when this eventually goes public.

Any questions, please give me a call.
thanks
Nora

From:	Peak.Nicholas@epamail.epa.gov
To:	Jennings, Jonathan (ECY)
Cc:	Lidgard.Michael@epamail.epa.gov; Anderson.Karma@epamail.epa.gov; Eaton.Thomas@epamail.epa.gov; Potokar.Steven@epa.gov
Subject:	EPA comments on draft WA NPDES CAFO General Permit
Date:	Wednesday, November 14, 2012 12:34:14 PM
Attachments:	DRAFT - CAFO Permit - Working -NP Comments - Nov 11, 2012.docx DRAFT - CAFO Permit - Working_CC.docx RF Comments WA Draft permit.docx Yakima - Comments on draft WA CAFO permit.docx

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Jon,

Thanks again for allowing EPA to informally comment on your working draft of the NPDES CAFO general permit for Washington. Below you'll find 4 documents attached as well as the bodies of emails from Caitlin Conover from HQ, Ralph Fisher, and myself. Also included are comments from EPA Region 10's Drinking Water Unit, who worked on the Yakima study. While I realize that those comments from the Drinking Water Unit might be beyond the scope of a general NPDES permit, I thought it would be important to include those comments to provide an additional perspective, or perhaps to give a few ideas on what could be included on an individual permit for a facility where ECY has determined that an individual permit is required based on groundwater concerns.

Nevertheless, let me know if you would like to set some time aside to chat about any or all of the comments and thanks again for letting us take a look.

My general comments:

I echo Caitlin's comment from HQ (although I will mention that she took a very quick look at it and did do a thorough review). I am still concerned about the lack of the requirement for submitting an entire NMP and for public review of the NMP. I realize the goal to streamline the review and to put a stop to the endless review of NMPs, but I think there could be a modification to those sections of the permit. Could you clearly establish the criteria, but still require submission of the entire NMP? Therefore, you could still public notice the entire NMP, the draft terms of the NMP, but only review the nutrient budgets or materials you've already specified because you've already established specific criteria for the other items? So... you've established the adequate storage requirements, no need to review that part, you'd just public notice what was submitted in the NMP to establish the site specific term for that facility. We can chat more about this...

Here are my specific comments... *(See attached file: DRAFT - CAFO Permit - Working -NP Comments - Nov 11, 2012.docx)*

Attached below are Caitlin Conover's general and specific comments (again, she just did a quick, preliminary review):

I have gone through the permit materials although I really only looked at the public notice NMP requirements. I have to say that I like the "innovative" solution to the NMP review procedures that they are presenting. I've found some key things that are not right but in general, I think this approach can work. A few main issues which we can discuss further:

- While the technical standards can be located in the permit, I don't see them
- They have to public notice the entire NMP with terms and they aren't doing that
- While the nutrient budget provides the required information for the linear rate approach (with the exception of two missing items) for terms for protocols for land application, there are no terms for the other 8 minimum measures. While many of these measures could be covered by a generally applicable GP requirement, they should at least have something site-specific public noticed for adequate storage

and likely conservation practices.

Some of my initial comments are on the attached (this is not an extensive review) and I'm available to talk any time next week.

(See attached file: DRAFT - CAFO Permit - Working_CC.docx)

Attached below are Ralph Fishers general and specific comments:

1. They need to adopt an NMP software package of some kind. Whether it is MMP, a program from one of the SCDs or something they generate themselves they need to have a prescribed reproducible method for generating NMPs.
2. The need to recognize the differences between the east side and the west side specifically, when it comes to application rates, when waste can be applied and how.
3. They don't recognize the difference between a linear and a narrative NMP.

(See attached file: RF Comments WA Draft permit.docx)

Attached below are additional comments from our Drinking Water Unit:

(See attached file: Yakima - Comments on draft WA CAFO permit.docx)

Nick Peak
EPA, Region 10
Idaho Operations Office
208-378-5765

AgID	Lagoon ID	Landowner	Farm Name	Lat	Long
70	Not given	Not given	Allen Thomas Dairy		
5	005-1	Asplund Francis	Baumgardener Dairy	48.46747	-122.27345
2158	2158-1	Steve Boon (manager)	Bayside Dairy	48.32632	-122.382755
3260	3260-1	Gerrit Kuipers	Beaver Marsh Farms	48.3696	-122.40193
3260	3260-2	Gerrit Kuipers	Beaver Marsh Farms	48.3696	-122.40193
5981	5981-1	Leroy Plagerman	Bel-Lyn Farms Dairy	48.88424	-122.48401
5981	5981-2	Leroy Plagerman	Bel-Lyn Farms Dairy	48.87953	-122.47704
5981	5981-3	Leroy Plagerman	Bel-Lyn Farms Dairy	48.88332	-122.47294
5981	5981-4	Leroy Plagerman	Bel-Lyn Farms Dairy	48.88332	-122.47299
5981	5981-5	Leroy Plagerman	Bel-Lyn Farms Dairy	48.85365	-122.51254
4946	4946-1N	August Berendsen	Berensend Dairy LLC		
4946	4946-2S	August Berendsen	Berensend Dairy LLC	48.9597	-122.31851
4946	4946-3HS	August Berendsen	Berensend Dairy LLC	48.9649	-122.31157
4956	4956-1	Ed Lee and Dale Blok	Bloks Evergreen Farm	48.91177	-122.47402
4956	4956-2	Ed Lee and Dale Blok	Bloks Evergreen Farm	48.91277	-122.47263
4956	4956-3	Ed Lee and Dale Blok	Bloks Evergreen Farm	48.91329	-122.4716
4956	4956-4	Ed Lee and Dale Blok	Bloks Evergreen Farm	48.91317	-122.47234
4956	4956-5	Ed Lee and Dale Blok	Bloks Evergreen Farm	48.91317	-122.47234
4956	4956-6	Ed Lee and Dale Blok	Bloks Evergreen Farm	48.91317	-122.47234
2018	2018-1	Shawn Atwood	Blossom Time Dairy	47.06643	-122.192
9896	9896-T4	Not given	Blue Mountain Dairy	48.098177	-123.240015
9876	9876-1	Louis Bouma	Bouma Farms Dairy	48.931	-122.49575
9876	9876-2	Louis Bouma	Bouma Farms Dairy	48.93219	-122.49568
9876	9876-3	Louis Bouma	Bouma Farms Dairy	48.92162	-122.48826
9887	9887-1	Mike Gonser	Breckenridge Farm Dairy	48.92787	-122.30538
4826	4826-1	Mike Bueler	Bueler Farms Inc	47.8796	-122.11547
4826	4826-2	Mike Bueler	Bueler Farms Inc	47.8796	-122.11547
8261	8261-1	Burton Haugen	Burton Haugen Dairy	47.17698	-122.07192
8261	8261-2	Burton Haugen	Burton Haugen Dairy	47.17698	-122.07192
10043	10043-1	Chad Postma	Chad Postma Dairy	48.907683	-122.508603
52	52-1	Randy and Marky Stite	Circle S Farms Dairy	48.9954	-122.20513
52	52-2	Randy and Marky Stite	Circle S Farms Dairy		
9926	9926-1	Arlyn Visser	Clearbrook Holsteins Dairy	48.98415	-122.32161
9926	9926-2	Arlyn Visser	Clearbrook Holsteins Dairy	48.985403	-122.318561
5714	5714-1	Frank Sybrandy (operator)	Clam Bar Dairy	48.33445	-122.37875
5714	5714-2	Frank Sybrandy (operator)	Clam Bar Dairy		
8469	8469-1	Not given	Cliffhaven Jersey Farm	48.2114	-122.29737
9707	9707-1	Jeff Rainey	Coldstream Farms Dairy #1	48.72565	-122.20324
9707	9707-2	Jeff Rainey	Coldstream Farms Dairy #1	48.72565	-122.20324
9707	9707-3	Jeff Rainey	Coldstream Farms Dairy #1	48.72565	-122.20324
9707	9707-4	Jeff Rainey	Coldstream Farms Dairy #1	48.72565	-122.20324
2175	9707-5	Jeff Rainey	Coldstream Farms Dairy #1	48.698001	-122.182535
2175	2175-1	Jeff Rainey	Coldstream Farms Dairy #2	48.78745	-122.20551
9990	9990-1	Michael Schoneveld	Countryside Dairy	48.92552	-122.5227

9990	9990-2	Michael Schoneveld	Countryside Dairy	48.92552	-122.5227
9868	9868-1	James A Crandall	Crandall Farms Dairy	48.81942	-122.41359
9860	9860-1	Karen Williams	Dettling Dairy Farm LP	48.26942	-122.36777
9860	9860-2	Karen Williams	Dettling Dairy Farm LP	48.26942	-122.36777
9704	9704-1	Fred De Vries	De Vries Dairy LP	48.46	-122.29438
9704	9704-2	Fred De Vries	De Vries Dairy LP	48.46	-122.29438
2096	2096-1	Drue Dickinson	Dickinson Farms Dairy	48.91524	-122.50752
4719	4719-1	Gordy Van Hoof	Don Van Hoof Dairy	47.24195	-122.04495
4794	4794-1	Douglas Rex	Doug Rex Dairy	48.45667	-122.37918
4374	4374-1	Andrew Dykstra (operator)	DYKSTRA Farms LLC	48.49367	-122.33212
9194	9194-1	Delvin and Pam Crabtree	DVH Enterprises Trust	48.96647	-122.52287
9194	9194-2	Delvin and Pam Crabtree	DVH Enterprises Trust	48.9664	-122.522199
9468	9468-1	Glen Dykstra	Dyna Moo Dairy	48.89497	-122.35299
9468	9468-2	Glen Dykstra	Dyna Moo Dairy	48.89306	-122.34776
9468	9468-3	Glen Dykstra	Dyna Moo Dairy	48.89294	-122.34697
9149	9149-1	Pete Dykstra	Dykstra Farms Dairy	48.91089	-122.32208
10010	10010-1	Rod DeJong	Eagle Mill Farms LLC	48.91695	-122.39766
10010	10010-2	Rod DeJong	Eagle Mill Farms LLC	48.929157	-122.415411
10010	10010-3	Rod DeJong	Eagle Mill Farms LLC	48.92586	-122.40495
10010	10010-4	Rod DeJong	Eagle Mill Farms LLC	48.92681	-122.421867
10010	10010-5	Rod DeJong	Eagle Mill Farms LLC	48.914823	-122.435032
10010	10010-6	Rod DeJong	Eagle Mill Farms LLC	48.887314	-122.44043
10010	10010-7	Rod DeJong	Eagle Mill Farms LLC	48.925907	-122.405857
10010	10010-8	Rod DeJong	Eagle Mill Farms LLC	48.931204	-122.420678
10010	10010-9N	Rod DeJong	Eagle Mill Farms LLC	48.931404	-122.420678
9005	9005-1	Mitch Moorlaag	Edaleen Dairy	48.98434	-122.45247
9005	9005-2	Mitch Moorlaag	Edaleen Dairy	48.98434	-122.45247
9005	9005-3	Mitch Moorlaag	Edaleen Dairy	48.98434	-122.45247
9005	9005-4	Mitch Moorlaag	Edaleen Dairy	48.9962	-122.49866
9005	9005-5	Mitch Moorlaag	Edaleen Dairy	48.9746	-122.45
9005	9005-6	Mitch Moorlaag	Edaleen Dairy	48.996328	-122.49712
9005	9005-7	Mitch Moorlaag	Edaleen Dairy	48.99657	-122.49636
9005	9005-8	Mitch Moorlaag	Edaleen Dairy	48.99063	-122.46546
74	74-1	Ed Bosscher	Ed Bosscher Dairy #2	48.91145	-122.30061
74	74-2	Ed Bosscher	Ed Bosscher Dairy #2	48.91203	-122.30171
9989	9989-1	Hans Wolfisberg	Edelweiss Dairy	48.93479	-122.40769
9948	9948-1	Larry Plagerman	Ever-lyn Farm Dairy	48.93395	-122.350472
9948	9948-2	Larry Plagerman	Ever-lyn Farm Dairy	48.93401	-122.34976
10044	10044-1	Lauren Hoekema	Evernook Valley Milk Dairy	48.903161	-122.312498
10044	10044-2	Lauren Hoekema	Evernook Valley Milk Dairy	48.904119	-122.322363
8714	8714-1	Percy Hoekema	Evernook Dairy	48.91123	-122.3382
OOB	Not given	Not given	Elida Smith Dairy		
24	24-1	Dwayne and Harry Faber	Faber Dairy LLC #2	48.50047	-122.30797
9727	9727-1	Harry Faber	Faber Dairy	48.90793	-122.38528
8610	8610-1	Arnold Feddema	Feddema and Sons Dairy	48.97238	-122.47394
9582	9582-1	Arnold Fohn	Fohn Farm LP	48.39475	-122.44873
9582	9582-2	Arnold Fohn	Fohn Farm LP	48.39475	-122.44873

9582	9582-3	Arnold Fohn	Fohn Farm LP	48.39475	-122.44873
9582	9582-4	Arnold Fohn	Fohn Farm LP	48.39307	-122.45118
8981	8981-1	Fred Folkertsma	Folkertsma Farms Inc	48.34133	-122.36563
8981	8981-2	Fred Folkertsma	Folkertsma Farms Inc	48.34133	-122.36563
9767	9767-1	Shawn Langley	Fresh Breeze Organic Dairy	48.98473	-122.50304
9767	9767-2	Shawn Langley	Fresh Breeze Organic Dairy	48.98724	-122.50371
9767	9767-3	Shawn Langley	Fresh Breeze Organic Dairy	48.98724	-122.50371
4528	4528-1	Not given	Frohning		
62	62-1	Patrick Michaels	Giles Dairy	48.186876	-122.222237
8834	8834-1	Sid Giliam	Gilliam Dairy	48.99368	-122.49541
4587	4587-1	Glen Bankers	Glen Bankers Dairy	48.9821	-122.48563
4587	4587-2	Glen Bankers	Glen Bankers Dairy	48.98224	-122.486795
4587	4587-3	Glen Bankers	Glen Bankers Dairy	48.980264	-122.486553
9740	9740-1	Tim and Julie Vaner Haak	Golden Hills Dairy	48.980897	-122.513936
9740	9740-2	Tim and Julie Vaner Haak	Golden Hills Dairy	48.98082	-122.5155
4535	4535-1	James Roetcisoender	Green Acres Dairy LLC	47.77053	-121.96129
5375	5375-1	Gregory Smit	Greg Smit Dairy	48.96995	-122.51358
5375	5375-2	Gregory Smit	Greg Smit Dairy	48.97112	-122.518077
4548	4548-1	Not given	Groeneveld Farm		
4679	4679-1	Paul Gwerders	Gwerders Swiss Acres	47.21404	-122.03736
4679	4679-2	Paul Gwerders	Gwerders Swiss Acres	47.21404	-122.03736
4386	4386-1	Not given	Hagen-Moe Dairy	48.40312	-122.37109
4386	4386-2	Not given	Hagen-Moe Dairy	48.40366	-122.37088
8304	8304-1	Harold Heeringa	Ha-Lo	48.969415	-122.463835
Not giv	Not given	Robert and Lynda Hamstra	Eastlyn Dairy	48.95425	-122.39422
Not giv	Not given	Hank Boschma	Hank and Bernice Boschma Tru	48.9411	-122.37924
5549	5549-1	Jason Vander Kooy	Harmony Dairy LLC	48.3739	-122.4023
5549	5549-2	Jason Vander Kooy	Harmony Dairy LLC	48.39858	-122.39898
2217	2217-1	Jason Vander Kooy	Harmony Dairy LLC #2	48.42992	-122.43587
2217	2217-2	Jason Vander Kooy	Harmony Dairy LLC #2	48.43749	-122.43353
4225	4225-1	Leo Harrison	Harrison Dairy	48.87723	-122.42935
9315	9315-1	Henry Van Dam	Henry Van Dam Dairy	47.21598	-122.09778
9315	9315-2	Henry Van Dam	Henry Van Dam Dairy	47.21648	-122.09801
9314	9314-1	Corby Groen	Hidden Acres Farm Dairy	48.98044	-122.53373
4542	4542-1	Marvin Vreugdenhil	Hillview Dairy	48.49302	-122.32418
9136	9136-1	Marvin Vreugdenhil	Hillview Dairy	48.9842	-122.2184
9136	9136-2	Marvin Vreugdenhil	Hillview Dairy	48.99188	-122.21627
9136	9136-3	Marvin Vreugdenhil	Hillview Dairy	48.98235	-122.21498
9179	9179-1	Terry Sapp	Hoehn Bend Farm	48.50348	-122.149869
None g	1 Barn	Sarah Hoffman	Hoffman	48.98171	-122.55475
9820	9820-1	Not given	Hofstra Dairy	47.8516	-121.85065
9457	9457-1	Darrin Hoines	Hoines Farm Dairy	48.8748	-122.309947
9549	9549-1	Not given	Hollandia Farms LP	47.79526	-121.97659
9549	9549-2	Not given	Hollandia Farms LP	47.79526	-121.97659
9149	9149-1	Not given	Hopewell Farms Dairy	48.91089	-122.32208
9688	9688-1	Richard Gwerder	Hy-Grass Farms Inc	47.25746	-122.081066
9688	9688-2	Richard Gwerder	Hy-Grass Farms Inc	47.25746	-122.081066

2162	2162-1	W. Axton	Jackie's Jersey Milk Dairy	48.84578	-122.5206
2162	2162-2	None given	Jackie's Jersey Milk Dairy	48.838408	-122.517011
4998	4998-1	None given	Jake Dehoog Dairy	48.908494	-122.365639
5060	5060-1	Jim Heeringa	James Heeringa Dairy	48.98447	-122.27578
5060	5060-2	Jim Heeringa	James Heeringa Dairy	48.98447	-122.27578
5099	5099-1	Gordon James	James dairy	48.94315	-122.57482
5099	5099-2	Gordon James	James Dairy	48.948633	-122.584735
8090	None given	None given	Jerry Van Der Veen Dairy	48.418	-122.37452
9712	9712-1	Steve Hilborn	Samish River Dairy	48.53033	-122.41697
10053	None given	None given	Samish River Dairy		
4835	4835-1	Paul	John Deck Dairy	47.82668	-121.98411
4835	4835-2	None given	John Deck Dairy	47.82668	-121.98411
9098	None	None given	John Albert Dairy	47.17269	-122.0722
9316	9316-1	None given	Josie Dairy	47.21107	-122.04912
10075	10075-1	Jay De Jong	JV Dairy (was Rhody Dairy)	48.96897	-122.26009
10075	10075-2	Jay De Jong	JV Dairy (was Rhody Dairy)	48.97387	-122.26983
10075	10075-3	Unknown	JV Dairy - Jeremy Visser	48.9738	-122.2694
8013	8013-1	Elvin Kalsbeek	Kalsbeek Farms	48.73468	-122.20386
8013	8013-2	Elvin Kalsbeek	Kalsbeek	48.73456	-122.20362
8013	8013-3	Elvin Kalsbeek	Kalsbeek	48.735869	-122.19989
8869	8869-2	Keith and Roxie Roosma	Keith and Roxie Roosma Dairy	48.86375	-122.401375
8869	8869-1	Keith Roosma	Keith and Roxie Roosma Dairy	48.87815	-122.51361
None g	#1	None given	Keller		
None g	#2	None given	Keller		
9785	9785-1	Ken Bosscher	Ken Bosscher Dairy	48.96871	-122.3091
9392	9392-1	Kenneth G Zylstra	Kenneth G Zylstra dairy	49.00124	-122.41069
9392	9392-2	Kenneth G Zylstra	Kenneth G Zylstra dairy	48.99512	-122.41016
ND 18	1 east	Rich and Linda Kortus	Kortus	48.94345	-122.59953
ND 18	2 West	Rich Kortus	Kortus	48.94368	-122.60063
4686	4886-1	None given	Kruse Family LP	47.21678	-121.96302
9912	9912-1	Larry Vander Veen	L B Veen Holsteins LLC	48.55538	-122.30162
9912	9912-2	None given	L B Veen Holsteins LLC	48.55538	-122.30162
2000	2000-1	None given	Le Clair Farms	48.43314	-122.220821
4607	4607-1	Dennis D Lenssen	Lenacres Dairy	48.97476	-122.42438
5531	5531-1	Troy Lenssen	Lenssen Dairy	48.98225	-122.37072
5531	5531-2	Troy Lenssen	Lenssen Dairy	48.97562	-122.38457
9304	9304-1	Lloyd A Winterberg	Lloyd Winterberg Dairy	48.91294	-122.47922
9804	9804-2	None given	Louis H Stangeland Farm 2	48.22924	-122.29424
4347	4347-1	None given	Louis H Strangeland Farm 1	48.229077	-122.304516
9804	9804-1	None given	Louis H Stangeland Farm 2	48.22924	-122.29424
T8	None given	None given	Lowbird Farm/Wilcox Farms		
4687	4687-1	None given	Mike Lanting Dairy	47.19712	-122.06573
9866	9866-1	None given	M J D Farms Dairy	48.9467	-122.56919
9866	9866-2	None given	M J D Farms Dairy	48.9479	-122.57269
9866	9866-3	None given	M J D Farms Dairy	48.94767	-122.57016
9866	9866-4	None given	M J D Farms Dairy	48.94648	-122.5706
9866	9866-5	None given	M J D Farms Dairy	48.94658	-122.57174

9866	9866-6	None given	M J D Farms Dairy	48.9487	-122.5758
8036	None	Brian Strom	Mountain Glo Dairy	48.86127	-122.38364
10058	10058-1	Mylon Smith	Myshann Dairy	48.91181	-122.46154
8675	8675-1	Ken Maarhuis	Maarhuis Dairy	48.98249	-122.26236
8675	8675-2	Ken Maarhuis	Maarhuis Dairy	48.98249	-122.26141
8675	8675-3	Ken Maarhuis	Maarhuis Dairy	48.97796	-122.21746
8675	8675-4	Ken Maarhuis	Maarhuis Dairy	48.98582	-122.19978
9880	9880-1	Brad Te Velde	Maple View Farm Dairy	48.95504	-122.39739
4637	4637-1	None given	Maple View Farm LLC	48.08254	-123.05956
4637	4637-2	None given	Maple View Farm LLC	48.09912	-123.064443
8979	8979-1	John De Vries	Mapleville Dairy	48.98757	-122.26975
4606	4606-1	Mark Van Mersbergen	Markwell Holsteins Dairy	48.97945	-122.40747
5171	5171-1	Mark Olson	Marmel Dairy	48.96382	-122.30285
2101	2101-1	Kevin Engelsma	Meadow Park Dairy	48.96997	-122.44338
2101	2101-2	Kevin Engelsma	Meadow Park Dairy	48.97053	-122.44434
2101	2101-3	Kevin Engelsma	Meadow Park Dairy	48.97057	-122.445279
2101	2101-4	Kevin Engelsma	Meadow Park Dairy	48.97057	-122.44269
9502	9502-1	None given	Mesman Farm	48.39122	-122.47
9502	9502-2	None given	Mesman Farm	48.39172	-122.47192
2208	2208-1	None given	Natural Milk LLC	48.21229	-122.262031
2208	2208-2	None given	Natural Milk LLC	48.21229	-122.26203
10030	10030-1	Nick Van Dam	Nick Van Dam Dairy	48.10292	-122.14148
10030	10030-2	Nick Van Dam	Nick Van Dam Dairy	48.10292	-122.14148
10030	10030-3	Nick Van Dam	Nick Van Dam Dairy	48.10292	-122.14148
18	18-1	None given	North Fork Dairy	48.26823	-122.0208
ND 6	2	Wayne Groen	Northwest Liquid Transport	48.996395	-122.50895
ND 6	1	Wayne Groen	Northwest Liquid Transport	48.99627	-122.5093
9524	9524-1	Jay Van Middendorp	Ok Dairy	48.96347	-122.28405
9524	9524-2	Jay Van Middendorp	Ok Dairy	48.96288	-122.28403
ND21	2 - West	Christina Paul	Paul Was Dairy - OOB (?, handv	48.97336	-122.62138
No dat	1 - East	Christina Paul	Christina Paul	48.97315	-122.62107
10061	10061-2	"was old Ruby Ridge, Ag ID 20	Paradise Jerseys Dairy	48.85535	-122.57006
5032	5032-1	Paul Parish	Parish Dairy	48.90131	-122.442205
No dat	5032-1	Paul and Alene Parish	Parish Dairy	48.905078	-122.434037
5189	5189-2 E	No data	Perry Farms Dairy	48.966690	-122.328390
5189	5189-1 W	No data	Perry Farms Dairy	48.966690	-122.328390
5189	5189-2	Roderic Perry	Perry Farms Dairy	48.96669	-122.32839
5189	5189-1	Roderic Perry	Perry Farms Dairy	48.96669	-122.32839
10061	10061-1	No data	Paradise Jerseys Dairy	48.85535	-122.57006
9329	9329-1	Pete and Shelli De Jager	Pete DeJager Dairy	48.90553	-122.32111
9822	1	Onkar S & Sukhjig K Gosal	Plagerman Dairy Farms	48.96017	-122.4834
4585	4585-1	Ed Pomeroy	Pomeroy Farm Dairy	48.91791	-122.60761
4585	4585-2	Ed Pomeroy	Pomeroy Farm Dairy	48.91782	-122.60839
4585	4584-3	Ed Pomeroy	Pomeroy Farm Dairy	48.92007	-122.66881
4585	4585-5	Ed Pomeroy	Pomeroy Farm Dairy	48.91991	-122.660271
4585	4585-4	Ed Pomeroy	Pomeroy Farm Dairy	48.911235	-122.642886
5200	5200-1	Dean Postma	Postma Dairy	48.97555	-122.27005

2192	None given	John VanWieringen	Premier Farms, now Boise Cree	47.18941	-121.98653
None g	1	John Prang	Prang	48.965	-122.3752
10033	None	Larry Mahan	Quality Cattle		
2156	2156-1	None given	Rainview Dairy LLC	48.20423	-122.33898
4939	4939-1	Roger Bajema	R Bajema Farm Dairy	48.96489	-122.4478
9469	9469-3	Jay De Jong	Rhody Dairy	48.97387	-122.26983
9469	9469-2	Jay De Jong	Rhody Dairy	48.96555	-122.26621
9469	9469-1	Jay De Jong	Rhody Dairy	48.96897	-122.26009
9291	9291-1 W	John and Cindy Van Berkum	Ridgeline Dairy	48.88482	-122.30839
9291	9291-2 E	John and Cindy Van Berkum	Ridgeline Dairy	48.88494	-122.3083
9291	9291-3	John and Cindy Van Berkum	Ridgeline Dairy	48.88494	-122.3083
9291	9291-4	John and Cindy Van Berkum	Ridgeline Dairy	48.878197	-122.307629
9188	9188-1	Richard and Judith Van Dam	Richard and Judith Van Dam	47.2315	-122.02658
9188	9188-2	Richard and Judith Van Dam	Richard and Judith Van Dam	47.2315	-122.02658
9837	9837-1	Jim Ritter	Ritter Dairy LLC	47.21179	-122.07642
Not giv	Not given	Ken Ritter	Ritter	48.96489	-122.38079
2243	2243-1	James Ritter	Ritter Dairy LLC	47.18784	-121.974773
9630	9630-1	James Ritter	River Bend Dairy Inc	48.34982	-122.35583
8322	8322-2	Roger Blok	RJ Blok & Sons Dairy	48.88441	-122.4538
8322	8322-1	Roger Blok	RJ Blok & Sons Dairy	48.88441	-122.4538
9137	9137-5	Robert and Debbie Smit	Robert J Smit Dairy	48.955134	-122.475161
9137	9137-4	Robert and Debbie Smit	Robert J Smit Dairy	48.961469	-122.475864
9137	9137-3	Robert and Debbie Smit	Robert J Smit Dairy	48.965741	-122.4913864
9137	9137-2	Robert and Debbie Smit	Robert J Smit Dairy	48.96811	-122.487069
9137	9137-1	Robert and Debbie Smit	Robert J Smit Dairy	48.96902	-122.48696
4662	4662-1	None given	Osceola Jerserys (Robert Baker	47.18465	-122.04378
4662	4662-2	None given	Robert T Baker Dairy	47.181975	-122.041659
9823	9823-1	Ronald L Vander Veen	Ronald Vander Veen Dairy	48.95333	-122.5979
9150	9150-1	Ron Brann	Ron Brann Dairy	48.97172	-122.40602
5213	5213-2	Shermand and Phyllis Polinde	Ronlee Farms Dairy	48.93087	-122.93087
5213	5213-1	Shermand and Phyllis Polinde	Ronlee Farms Dairy	48.9343	-122.45447
4793	4793-1	Burmasken	Ron Rex Dairy	48.51445	-122.16482
102	102-1	Roger	Rootagaa Country Farm (Samia	48.56500	-122.41986
5889	5889-1	Johanna Roosma	Roosma Dairy	48.87817	-122.51286
4612	4612-1	Leon D Zweegman	Rozelyn Farm Dairy	48.97823	-122.47472
4612	4612-2	Leon D Zweegman	Rozelyn Farm Dairy	48.982853	-122.474493
9230	9320-2	Rodney and Sharon Tjoelker	RTJ Farm Dairy	48.96293	-122.60159
9230	9230-1	Rodney and Sharon Tjoelker	RTJ Farm Dairy	48.96293	-122.60159
9890	9890-1	None given	SDI Farms	48.21184	-122.3178099
5227	None given	Donald and Irene Scheffer	SchefferLyn Dairy	48.99209	-122.4746
4653	None given	None given	Sherman - Bishop Farms Inc	48.20112	-122.69191
2149	2149-1	Willem/Wytse Bouma	Silvergate Dairy	48.99162	-122.232
2149	2149-3	Willem Bouma	Silvergate Dairy	48.9834	-122.23028
2149	2149-2	Willem/Wytse Bouma	Silvergate Dairy	48.99083	-122.23196
2149	2149-4	Wytse/Willem Bouma	Silvergate Dairy	48.9835	-122.2303
2216	2216-1	Steve Boon	SJB Farms LLC	48.326122	-122.383967
10009	10009-1	Eric Sundstrom	Silve Springs Creamery	48.86262	-122.4789

5243	5243-1	Harry A Smit	Smit Bros. Dairy	48.88423	-122.54645
10040	10040-2	None given	Sno Valley Milk	47.89852	-122.068805
10040	10040-1	None given	Sno Valley Milk	47.91308	-122.0656
9991	9991-1	Leonard Spoelstra	Spoelstra Dairy	48.97876	-122.41952
9246	9246-1	John Steensma	Steensma Dairy	48.9793	-122.51372
2200	2200-1	Robert and Diane Sterk	Sterk Dairy	49.00032	-122.48517
4412	4412-1	John Sterk	Sterk Dairy of Whatcom Count	48.87479	-122.46317
4412	4412-2	John Sterk	Sterk Dairy of Whatcom Count	48.8747	-122.4631
4412	4412-3	John Sterk	Sterk Dairy of Whatcom Count	48.8747	-122.46317
4537	4537-1	None given	Storbo Brothers Dairy	47.17854	-121.98637
4995	4995-1	Larry A De Haan	Storm Haaven Farm and Dairy	48.99884	-122.50053
4995	4995-3	None given	Storm Haaven Farm and Dairy	48.99115	-122.51512
4995	4995-2	Larry A De Haan	Storm Haaven Farm and Dairy	48.9962	-122.50704
4995	4995-4	Larry A De Haan	Storm Haaven Farm and Dairy	48.99419	-122.48665
9749	9749-2	Ed and Maurice Strachila	Strachila Farms Dairy	48.754	-122.20436
9749	9749-1	Ed and Maurice Strachila	Strachila Farms Dairy	48.754	-122.20436
9127	9127-1	Bob Struiksma	Struiksma Dairy LLC	48.20928	-122.24902
10031	10031-2	James Suhoversnik	Suhoversnik Dairy	47.27134	-122.04218
10031	10031-1	James Suhoversnik	Suhoversnik Dairy	47.27134	-122.04218
9163	9163-1	None given	Summitridge Holsteins Dairy	48.87181	-122.61953
14	14-3	None given	Sundown Farms Inc	48.18951	-122.212952
14	14-2	None given	Sundown Farms Inc	48.18805	-122.21662
14	14-1	None given	Sundown Farms Inc	48.18805	-122.21662
9104	9104-1	Jerry and Carey Hallberg	Swede Hill Farm Dairy	48.9839	-122.54305
9104	9104-2	Jerry and Carey Hallberg	Swede Hill Farm Dairy	48.983	-122.54305
9266	9266-1	Fred and Andy Sytsma	Sytsma Bros Dairy	48.85741	-122.50546
9266	9266-2	Fred and Andy Sytsma	Sytsma Bros Dairy	48.85713	-122.5055
9503	9503-1	Theo Van Berkum	TC Berkum Farm Dairy	48.94857	-122.32217
9503	9503-2	Theo Van Berkum	TC Berkum Farm Dairy	48.9485	-122.32295
9503	9503-3	Theo Van Berkum	TC Berkum Farm Dairy	48.9485	-122.32295
5011	5011-1	Terry De Valois	Terry De Valois Dairy	48.98964	-122.50049
4715	4715-1	Tim Thomasson	Thomasson Dairy	47.22802	-122.10163
None g	ND 16	Bernie Tiersma	Tiersmsma	48.96667	-122.58366
8788	8788-2	None given	Tillman Dairy	48.19966	-122.063412
8788	8788-1	None given	Tillman Dairy	48.19966	-122.063412
5662	None	JRT Holdings Inc - Nursery	Timmermans Dairy	48.95514	-122.4894
5274	5274-1	John Vander Veen	TJ Veen Acre Farms Dairy	48.98568	-122.33099
5274	5274-2	John Vander Veen	TJ Veen Acre Farms Dairy	48.98568	-122.33099
N0 9	None given	Bud Tjoelker	Tjoelker	49.98585	-122.55327
NO 14	NO14-1	Dean and Heather Tjoelker	Tjoelker	48.98103	-122.56448
NO 14	NO14-2	Dean Tjoelker	None given	48.98024	-122.55107
ND 13	None given	Lanse? Larse?	Tjoelker	48.97893	-122.57258
ND 8	None	Tjoelker	Tjoelker	48.98729	-122.54908
2236	None given	Tyler and rebecca Bos	Unclear	48.92983	-122.29912
10011	10011-1	Scott James	Trails Edge Farm Dairy	48.95272	-122.58072
10011	10011-2	Scott James	Trails Edge Farm Dairy	48.95218	-122.58071
10011	10011-3	Scott James	Trails Edge Farm Dairy	48.95163	-122.58073

2184	2184-1	Larry Stap	Twin Brook Dairy #1	48.98638	-122.43025
9726	9726-2	Larry Stap	Twin Brook Dairy #2	48.98638	-122.43025
9726	9726-1	Larry Stap	Twin Brook Dairy #2	48.98638	-122.43025
9726	9726-3	Larry Stap	Twin Brook Dairy #2	48.984011	-122.429134
9130	9130-1	Jerry Juergens, John and Sid F	Twin View Dairy	48.90172	-122.35265
2023	2023-1	None given	Two Sisters Dairy Inc	47.66815	-121.90903
8368	8368-1E	Alan Sytsma	Udder Pride Dairy	48.94308	-122.32293
8368	8368-2	Alan Sytsma	Udder Pride Dairy	48.9437	-122.32379
2099	2099-1	Jeremy Visser	Valley Brothers Dairy	48.99866	-122.21635
2099	2099-2	Jeremy Visser	Valley Brothers Dairy	48.99726	-122.21577
9396	9396-1	Jerry Lanting	Valley View Dairy	48.40244	-122.2329
9396	9396-2	Jerry Lanting	Valley View Dairy	48.402841	-122.231908
4717	4717-1	None given	Van Beek Dairy LLC	47.18327	-122.02808
9593	9593-1	Harold Van Berkum	Van Berkum & Sons Dairy	48.93183	-122.39772
9593	9593-2	Harold Van Berkum	Van Berkum & Sons Dairy	48.93218	-122.39904
9593	9593-3	Harold Van Berkum	Van Berkum & Sons Dairy	48.94334	-122.41197
9593	9593-4	Harold Van Berkum	Van Berkum & Sons Dairy	48.94077	-122.39336
9593	9593-5	Harold Van Berkum	Van Berkum & Sons Dairy	48.93289	-122.38543
10005	10005-1	Mike Van Berkum	Van Berkum Dairy	48.39885	-122.37362
5376	None given	Jerry and Michelle Van Dellen	Van Dellen	48.89024	-122.32432
5376	5376-1	Jerald Van Dellen	Van Dellen Farms Dairy	48.8907	-122.3234
2109	None	None given	Van Dyk - Dry Heifer		
2109	2109-1	None given	Van Dyk K Holsteins Dairy	48.99607	-122.464444
9520	9520-1	None given	Van Dyk S Holsteins Dairy	48.9161	-122.41058
9520	9520-3	Bud Van Dyk	Van Dyk S Holsteins Dairy	48.9161	-122.41058
9520	9520-2	Bud Van Dyk	Van Dyk S Holsteins Dairy	48.9161	-122.41058
2109	2109-2	None given	Van Dyk K Holsteins Dairy	48.99597	-122.46249
5948	5948-2	None given	Van Ess Dairy	47.76547	-122.00089
5948	5948-1	None given	Van Ess Dairy	47.76547	-122.00089
2091	2091-1	Allan Van Hofwegen	Van Hofwegen Dairy	48.95433	-122.33115
2039	2039-1	Ben Van Ingen	Van Ingen Dairy	48.95817	-122.59687
2039	2039-2	Ben Van Ingen	Van Ingen Dairy	48.958301	-122.589855
2039	2039-3	Van Ingen	Van Ingen	48.981371	-122.585786
8012	8012-1	Rodney Vande Hoef	Vande Hoef Dairy LLC #1	48.92893	-122.3748
8012	8102-2	Rodney Vande Hoef	Vande Hoef Dairy LLC #1	48.92893	-122.3748
8012	8102-3	Rodney Vande Hoef	Vande Hoef Dairy LLC #1	48.92893	-122.3748
8012	?	None given	Vande Hoef Dairy LLC #1	48.93323	-122.38354
2241	2241-1	Rodney Vande Hoef	Vande Hoef Dairy LLC #2	48.94192	-122.38544
2241	2241-2	Rodney Vande Hoef	Vande Hoef Dairy LLC #2	48.94192	-122.38544
5373	5373-5	Darryl Vander Haak	Vander Haak Dairy	48.99848	-122.4627
5373	5373-4	Darryl Vander Haak	Vander Haak Dairy	49.00032	-122.48318
5373	5373-3	Darryl Vander Haak	Vander Haak Dairy	48.99848	-122.4627
5373	5373-2	Darryl Vander Haak	Vander Haak Dairy	48.99836	-122.45237
5373	5373-1	Darryl Vander Haak	Vander Haak Dairy	48.99747	-122.45217
2163	2163-1	Darryl Vander Haak	Vander Haak Farm Dairy	48.94169	-122.50819
2163	2163-2	Tim Vander Haak	Vander Haak Farm Dairy	48.94111	-122.50856
2163	2163-3	Tim Vander Haak	Vander Haak Farm Dairy	48.94114	-122.51005

5328	5328-1	Tim Vander Deen	Vander Deen Dairy	48.97916	-122.39456
8975	1	Delbert & Karen Heutink	Vedder Mountain Dairy	49.00197	-122.16027
10046	10046-1	Jason Vander Veen	Veen Huizen Farms Dairy	48.89199	-122.41112
10046	10046-2	Jason Vander Veen	Veen Huizen Farms Dairy	48.89199	-122.41112
8219	8219-2	Jeremy Visser	Viacres Dairy	48.99986	-122.16606
8219	8219-2	Jeremy Visser	Viacres Dairy	48.9986	-122.16606
9429	9429-2	Peter Vlas	Vlas Dairy	48.96135	-122.48816
9429	9429-1	Peter Vlas	Vlas Dairy	48.96124	-122.48744
2040	2040-2	Cornie Vreugdenhil	Vreugdenhil Farms Dairy	49.00034	-122.20004
2040	2040-1	Cornie Vreugdenhil	Vreugdenhil Farms Dairy	49.00034	-122.20004
9821	9821-2	None given	None given	47.21252	-122.03773
1006	1006-1	Troy Wallin	Wallin Dairy #2	47.20988	-122.05
5342	West	Walter Vis	Walter Vis Dairy	48.96346	-122.56789
5342	East	Walter Vis	Walter Vis Dairy	48.96346	-122.56789
7028	7028-1	None given	Weg-Way Dairy	48.95521	-122.47371
4504	4504-3	None given	Werkhoven Dairy Inc - Digester	47.8118	-121.986824
4504	4504-1	None given	Werkhoven Dairy Inc	47.83108	-121.98788
4504	4504-2	None given	Werkhoven Dairy Inc - Digester	47.8119	-121.986706
3088	3088-2	None given	Wesen Farms Inc	47.83161	-121.98837
3088	3088-3	None given	Wesen Farms Inc	48.57854	-122.423672
9407	9407-1	None given	Wesen Organic		
9407	9407-2	None given	Wesen Organic - Vordeport He	48.53769	-122.238028
3088	3088-1	None given	Wesen Farms Inc	47.83161	-121.98837
3088	None	None given	Wesen Farms	48.539101	-122.393555
20616	20616-1	None given	Western Valley Farm LLC	48.34655	-122.31443
20616	20616-2	None given	Western Valley Farm LLC	48.34652	-122.31602
10002	10002-4	Kevin Dougerty	Western Waves Dairy	48.87986	-122.062997
10002	10002-3	Kevin Dougerty	Western Waves Dairy	48.87986	-122.062997
10002	10002-2	Kevin Dougerty	Western Waves Dairy	48.87857	-122.63022
10002	10002-1	Kevin Dougerty	Western Waves Dairy	48.87852	-122.631
9821	9821-1	Ed Josie	Wetzel Family LLC	47.21282	-122.03773
9210	9210-1	Don Van Mersbergen	Will_O_West Dairy	48.97956	-122.44047
9709	9709-1	Ryan McCarthey	Willow-Wist	48.13458	-123.13516
5812	5812-1	Nelva De Jong	Willie De Jong Dairy	47.211273	-122.093954
Z-5	Z-5	Richard and Alyne Zwiers	Z-Dairy		
8324	8324-1	Richard and Alyne Zwiers	Z-Dairy	48.89265	122.46298
9392	9392-1	Kenneth G Zylstra	Kenneth G Zylstra dairy	49.00124	-122.41069
9392	9392-2	Kenneth G Zylstra	Kenneth G Zylstra dairy	48.99512	-122.41016
9392	9392-3	Kenneth G Zylstra	Kenneth G Zylstra dairy	49.002167	-122.476733
None g	1 East	3 G Holdings, INC	3 G Holdings	48.93991	-122.56742
None g	2 West	3 G Holdings, INC	None given	48.93977	-122.56816

Alt Lat/Long	Max Excavation Depth	Total Pond Depth	Conflicting Depth Data	Alt Depth Data (Max,Total)	NRCS Standard	Date built (years ago)
	7.5	11			Unknown	Unknown
	4	12	Yes	0, 8	Yes	20-30
48.38250/-122.34502	0	12	No		Unknown	Unknown
	2	12	No		Unknown	Unknown
	No data	12	No		Unknown	Unknown
48.88335/-122.48408	No data	No data	No		Yes	Unknown
48.883352/-122.484118	6	15	Yes	4, 14	Yes	Unknown
48.8826/-122.4734; 48.88	5.5	11	Yes	5, 10	Yes	Unknown
48.88290/-122.45775; 48	9	10	Yes	2, 7	No	Unknown
48.85356/-122.51260; 48	4	10	No		Yes	30+
	No data	No data	No		No	20-30
	No data	No data	No		Unknown	Unknown
	No data	No data	No		No	Unknown
48.913009/-122.473534;	No data	12	Yes	8	Yes	20-30
48.91277/-122.47263	No data	2	No		No	30+
48.912753/-122.472277	4	15	No		Yes	10-20
48.912936/-122.465860	No data	No data	No		Unknown	30+
48.908109/-122.492014	No data	No data	No		Unknown	Unknown
48.911564/-122.487717	No data	No data	No		Unknown	Unknown
	0	12	No		Unknown	Unknown
	4	14	No		Unknown	Unknown
48.831539/-122.496028	15	15	Yes	0, 10	No	30+
48.93218/-122.49522; 48	0	10	Yes	4, 11	No	20-30
48.92174/-122.4887; 48.9	11	12	Yes	3, 10	Yes	10-20
	15	40	Yes	14, 14	No	20-30, modifie
	1	16	No		Yes	10-20
	4	19	No		Yes	30+
47.177319/-122.077845	6	12	No		Yes	10-20
	4	12	No		Yes	10-20
	8	10	No		No	Unknown
	No data	No data	No		No	Unknown
	No data	No data	No		Yes	10-20
	2	14	No		Unknown	Unknown
	0	10	No		Yes	10-20
	No data	10	Yes	0, 9	Unknown	Unknown
	No data	10	Yes	5, 8	Unknown	Unknown
	No data	No data	No		Yes	Unknown
	3	11	No		Yes	Unknown
48.729258/-122.197589	7	10	No		Yes	Unknown
48.729503/-122.196755	7	10	No		Yes	10-20
48.729300/-122.195290	6	10	Yes	0, 9.5	Yes	Unknown
	No data	No data			Yes	Unknown
	0	10	No		Yes	Unknown
48.92580/-122.524307	15	15	No		Yes	Unknown

48.92503/-122.524798; 4	15	15	Yes	14, 14; 14,10	Yes	30+
	12	12	Yes	10, 10	Yes	Unknown
48.27048, -122.36880	6	14	No		Unknown	Unknown
48.27127/-122.36903	0	10	No		Unknown	Unknown
	5	19	Yes	0, 16	Yes	20-30
	0	14	Yes	0, 10	Yes	10-20
48.91623/-122.50821; 48	2	8	Yes	0, 8	Yes	Unknown
48.24115/-122.04472	0	18	No		Unknown	Unknown
48.45574/-122.37631	14	20	Yes	5, 13	Unknown	Unknown
	2	12	Yes	2, 10	Yes	20-30
	1	9	No		No	20-30
	No data	No data			Unknown	30+
48.893341/-122.348264	6	12			Unknown	Unknown
	No data	No data			Unknown	Unknown
	8	8			Unknown	Unknown
	No data	No data			Unknown	Unknown
	0	12	No		Yes	Unknown
48.929119/-122.414242	0	12	No		Yes	Unknown
48.929039/-122410402	0	12	No		Yes	Unknown
48.91698/-122.40106	2	12	Yes	4, 9	Unknown	Unknown
	0	12	No		Unknown	Unknown
	0	12	No		Unknown	Unknown
48.92682/-122.42150	2	12	Yes	0, 8	Unknown	Unknown
	No data	No data	No		Unknown	Unknown
	0	5	No		Unknown	Unknown
48.98389/-122.45651; 48	4	16	No		Unknown	Unknown
48.98389/-122.45651	8	16	No		Unknown	Unknown
48.98406/-122.45901	3	13	Yes	0, 12	Unknown	Unknown
48.99630/-122.49881	5	11	No		Unknown	Unknown
48.97492/-122.44905	0	10	No		Unknown	Unknown
48.99646/-122.49741	0	8.5	No		Unknown	Unknown
	11	11	No		Unknown	Unknown
48.99056/-122.46597	0	10	No		Unknown	Unknown
	No data	No data	No		Yes	10-20
	No data	No data	No		Yes	Unknown
48.933919/-122.407395	4	12	Yes	5.5, 10.5	Yes	Unknown
	10	No data	No		Yes	Unknown
	0	12	No		Yes	Unknown
	6	14	No		Yes	Unknown
	4	4	No		Yes	Unknown
48.911642/-122.3337571	6	6	No		Yes	Unknown
	8	18	No		Unknown	Unknown
	0	12	No		Unknown	Unknown
48.90746/-122.384357	10	12	No		Yes	10-20
48.97202/-122.47532; -12	0	8	No		Yes	Unknown
48.39363/-122.45016	8	8	No		Unknown	30+
48.39304/-122.45016	8	14	Yes	2, 8	Yes	20-30

48.39380/-122.45118	0	8	No		Unknown	Unknown
	0	8	No		Unknown	Unknown
48.33979/-122.36506	2	12	Yes	0, 10	Unknown	Unknown
48.33912/-122.36494	2	12	Yes	0, 10	Unknown	Unknown
	No data	No data	No		Yes	Unknown
	4	8	No		Yes	Unknown
48.984694/-122.485532	8	No data	No		Yes	Unknown
	4	11	No		Yes	20-30
48.18807/-122.22247	0	10	No		Unknown	Unknown
48.994404/-122.495326	2	12	No		Yes	10-20
48.981990/-122.486328	4	11	Yes	3, 10	Yes	30+
48.9821/-122.48563	4	14	Yes	4, 10	Yes	30+
48.9821/-122.48563	4	10	Yes	2, 8	Yes	30+
48.98088/-122.51492	3	8	No		Unknown	Unknown
48.980722/-122.515420	0	10	No		Unknown	Unknown
47.76981/-121.96428; 47	12	12	No		Unknown	Unknown
48.971223/-122.517461	4.5	11	Yes	0, 10.5	Yes	5-10
	10	10.5	Yes	4.5, 0	Yes	5-10
	4	12	No		Yes	30+
47.21478/-122.03459	5	22	Yes	None, 15	Unknown	Unknown
47.21478/-122.03459	5	15	No		Unknown	Unknown
48.40349/-122.368386	0	8	No		Unknown	Unknown
48.40349/-122.368386	0	10	No		Unknown	Unknown
48.97727/-122.46195	0	8	No		Yes	Unknown
	No data	No data	No		No	Unknown
	No data	No data	No		No	Unknown
48.372/-122.40042	7	15	Yes	0, 14	Unknown	Unknown
	0	14	Yes	0, 8	Unknown	Unknown
48.42985/-122.435685	4	14	Yes	0, 10	Unknown	Unknown
	2	12	Yes	0, 12	Unknown	Unknown
48.878296/-122.430776	4	12	No		Yes	20-30
47.21569/-122.09083	0	16	No		Unknown	Unknown
47.21569/-122.09083	0	16	No		Unknown	Unknown
48.98638/-122.53758; 48	10	12	Yes	8, 10	Yes	30+
	0	10	Yes	0, 8	Yes	20-30
48.984145/-122.218289	6.5	13.5	Yes	0, 12	Yes	Unknown
	2	12	Yes	0.5, 4.5	Unknown	30+
	9	10	Yes	5, 10	Yes	10-20
	7	14	No		Yes	Unknown
48.98165/-122.55385	6	6	No		No	10-20
47.85160/-121.85256	3.7	No data	No		Unknown	30+
48.874812/-122.311415	2	10	No		Unknown	Unknown
	No data	10	No		Unknown	Unknown
	No data	12	No		Unknown	Unknown
48.911478/-122.3223006	0	6	No		Unknown	Unknown
	10	22	Yes	6, 18	Yes	30+
	10	22	Yes	6, 18	No	30+

	8	8	No		Unknown	Unknown
	3	6	No		Unknown	Unknown
	No data	No data	No		Unknown	Unknown
	2	12	Yes	2, 8	Yes	30+
	4	12	Yes	2, 12	Yes	5-10
48.9424/-122.57624	5	16	Yes	6, 16	No	Unknown
	2	9	Yes	3, 10	Unknown	Unknown
	6	13	No		Unknown	Unknown
	4	10	No		Unknown	30 +
	4	10	No		Unknown	Unknown
	2	10	Yes	3, 9.7	Yes	10 - 20
47.829110/-121.987645	2	10	Yes	3, 9.7; 0, 12	Yes	10 - 20
	6	12	No		Unknown	Unknown
47.21330/-122.0425	9	14	Yes	4, 14	Unknown	Unknown
48.96927/122.26072	4	14	Yes	7, 13.5	No	Unknown
48.96558/-122.26551	0	8	No		Yes	Unknown
48.973870/-122.269830	0	12	No		No	Unknown
	6	12	No		No	20-30
	Unknown	Unknown	No		No	20-30
	4	8	No		No	Unknown
	4.7	8.7	No		Yes	Unknown
48.89116/-122.42448; 48	4.7	8.7	No		Yes	Unknown
	1	8	No		Yes	20-30
	7	14	No		Yes	20-30
	0	10	Yes	2, 8	Yes	Unknown
49.00134/-122.41049	4	9	No		Yes	20-30
48.99479/-122.410979	7	13	No		Yes	20-30
	12	12	No		Yes	30 +
	12	12	No		Yes	20-30
47.21550/-121.96101	10	15	No		Unknown	Unknown
48.582858/-122.269995	0	14	Yes	5, 15	Unknown	Unknown
48.582688/-122.27095	2m?	12	Yes	14, 14; 5, 15	Yes	5-10
	1	8	No		Unknown	Unknown
48.975371/-122.425694	5	10	Yes	4, 11	Yes	Unknown
48.98293/-122.37152	0	16	No		Yes	20-30?
	10	16	Yes	8, 14	Unknown	Unknown
48.91906/-122.48040; 48	4	12	No		Yes	10-20
	0	14	Yes	4, 16	Yes	20-30
48.22984/-122.30511	0	18	Yes	6-7, 17	Yes	20-30
	Unknown	Unknown	No		Yes	20-30
	45	45	No		Unknown	Unknown
47.19577/-122.06951	10	14	Yes	8, 14	Unknown	Unknown
48.94670/-122.576919	Unknown	Unknown	No		Unknown	Unknown
48.94778/-122.57210	Unknown	Unknown	No		Unknown	Unknown
48.94706/-122.57159	Unknown	Unknown	No		Unknown	Unknown
48.94704/-122.5701	Unknown	Unknown	No		Unknown	Unknown
48.94784/-122.57229	Unknown	12	No		Unknown	Unknown

48.94887/-122.57661	6	12	No		Unknown	Unknown
	8	8	No		No	30 +
48.91218/-122.46206; 48	10	10	Yes	2, 6	Yes	Unknown
48.982203/-122.262360	2	12	No		Yes	Unknown
48.982275/-122.261520	0	12	No		Yes	Unknown
	6	12	Yes	2, 10	Yes	Unknown
	0	12	No		Yes	Unknown
	0	12	Yes	6, 12	Yes	30 +
	3	10	No		Yes	30 +
	3	10	Yes	2, 8	Unknown	Unknown
48.97947/-122.30100	Unknown	20	No		Yes	Unknown
48.980185/122.408170	5	10	No		Yes	10-20
48.965704/-122.302090	0	16	No		Yes	Unknown
48.96997/-122.44366	Unknown	Unknown	No		Yes	Unknown
	Unknown	Unknown	No		Yes	Unknown
48.97041/-122.445279	4	18	No		Yes	Unknown
48.973197/-122.442211	2	14	No		Yes	Unknown
48.38977/-122.47073	6	12	Yes	4, 10	Unknown	Unknown
48.38971/-122.47035	6	12	Yes	4, 12	Unknown	Unknown
	4	12	No		Unknown	Unknown
	4	12	Yes	2, 12	Unknown	Unknown
	4	14	No		Yes	20-30
	0	10	No		Yes	20-30
	0	10	Yes	0, 12	Yes	10 - 20
	7	13	Yes	0, 10	Yes	10-20
	4	10	No		No	Unknown
	12	12	No		No	Unknown
	4	14	No		Yes	Unknown
	?	10	No		No	10 - 20
	?	?			No	20-30
48.852653/-122.567234	No data	No data	No		No	Unknown
	0	14	No		Unknown	Unknown
	4	15			Yes	20-30
48.96687/122.32676	6	12	No		Unknown	Unknown
	0	8	No		Unknown	Unknown
	6	12	No		Unknown	Unknown
	4	12	No		Yes	Unknown
48.85358/-122.567215	2	12	No		Unknown	Unknown
48.942722/-122.315470	Unknown	Unknown	Yes	3, 10	Yes	Unknown
	2-3	9-Aug	No		No	Unknown
	0	15	No		Yes	20-30
	0	15	Yes	0, 16	Yes	20-30
48.91130/-122.64299	10	10	No		Yes	20-30
	10	10	Yes	12, 12	Yes	5-10
48.920070/-122.56890	(crossed out)	10	Yes	10, 10	Yes	10-20
48.95298/none	Unknown	15	Yes	14, None	Yes	Unknown

	8	12	No		Unknown	Unknown
	4	10	No		No	Unknown
	15	15	No		Unknown	Unknown
	0	12	Yes	0, 10	Unknown	5-10
48.965302/-122.446690	8	16	No		No	30 +
	Unknown	Unknown	No		Yes	Unknown
	Unknown	Unknown	No		Yes	Unknown
	Unknown	Unknown	No		Yes	Unknown
48.88482/-122.30500	6	11	No		Yes	Unknown
48.884513/-122.308193	6	12	Yes	2, 11	Yes	Unknown
48.87437/-122.31148	5	12	Yes	2, 10	Yes	Unknown
	3	9	No		Yes	Unknown
	No data	No data	No		Unknown	Unknown
	No data	No data	No		Yes	20-30
	12	12	No		Unknown	Unknown
	No data	No data	No		No	
47.187719/-122.976521	9	16	Yes	0, 8	Yes	Unknown
	4	14	Yes	None, 8	Unknown	Unknown
48.88308/-122.46819	3	10	Yes	0, 10	Yes	Unknown
48.88255/-122.45361	0	10	No		Yes	Unknown
	1	7	Yes	2, 8	Yes	Unknown
	1	6	No		No	Unknown
	1	7	No		Unknown	Unknown
	1	9	Yes	4, 16	Yes	Unknown
	1	9	Yes	2, 12	Yes	Unknown
47.181984/-122.040948	0	12	No		Unknown	Unknown
	No data	No data	No		Unknown	Unknown
48.953100/-122.598576	2	12	No		Yes	20-30
	10	10	Yes	6, 8	Unknown	Unknown
48.933606/-122.458066	0	12	No		Yes	Unknown
48.930621/-122.452415	0	12	Yes	6, 11; 10, 18	Yes	Unknown
	4	10	No		Yes	Unknown
	No data	No data	No		Unknown	Unknown
	7	10	No		No	Unknown
	5	11	Yes	2, 10	Yes	Unknown
	5	11	Yes	2, 10	Yes	Unknown
48.961663/-122.601868	3	Unknown	No		Yes	Unknown
	5	10	No		Yes	Unknown
48.212197/-122.316966	6	12	No		Unknown	Unknown
	Unknown	Unknown	No		No	30 +
	6	14	No		Unknown	Unknown
48.9915/122.2319	0	10	Yes	5, 12	Yes	Unknown
49.0012/-122.2442	0	10	No		Yes	Unknown
48.9909/122.2312	0	10	Yes	3, 10	Yes	Unknown
48.001217/-122.244340	3.5	7	Yes	0, 10	Yes	Unknown
48.32574/-122.38393	2	12	Yes	4, 10	Unknown	Unknown
48.86351/-122.4789	0	8	No		Yes	20-30

48.88174/-122.547322	Unknown	13	No		Yes	20-30
	6	12	No		Unknown	Unknown
	0	15	Yes	0, 3; 0, 18	Unknown	Unknown
	4	10	Yes	6, 12	Yes	20-30
48.97310/-122.5134544	4	10	Yes	5.5, 11	Yes	20-30
48.00064/-122.48663	2	10	Yes	None, 12	Yes	20-30
48.875134/-122.461698	5	14	Yes	8, 14	Yes	20-30
48.87153/-122.47224	6	12' 4"	Yes	2, 12	Yes	20-30
48.8705/-122.45072	0	8	Yes	10, 10	Yes	Unknown
	4	12	Yes	0, 8	Unknown	Unknown
48.99792/-122.50008	3.5	11	Yes	1, 9	Yes	30 +
48.99113/-122.51507	0	12	No		Yes	Unknown
48.996710/-122.507190	0	10	No		Yes	Unknown
	3	8	No		Yes	Unknown
48.75338/-122.204550	2	12	Yes	0, None	Yes	Unknown
48.753371/-122.205174	2	12	Yes	0, 12	Yes	Unknown
	4-7	14	No		Yes	20-30
47.26538/-122.04480	20	16	Yes	15, 15	Unknown	Unknown
47.26581/-122.04507	15	15	No		Unknown	Unknown
48.871166/-122.622296	Unknown	15	No		Unknown	Unknown
	2	14	Yes	4, 12	Unknown	Unknown
	2	12	No		Yes	10 - 20
	2	12	No		Yes	10-20
48.98412/-122.54273	10	10	No		Yes	20-30
48.9846/-122.54279	5	10	Yes	6, 12	Yes	20-30
	Unknown	Unknown	No		Yes	Unknown
	3	Unknown	Yes	5.5, 10.5	Yes	Unknown
48.947920/-122.321701	10	18	Yes	4, 20	Yes	20-30
	10	20	No		Yes	10-20
48.948138/-122.322331	Unknown	4	No		Unknown	Unknown
48.9867/-122.4998	3	10 +	Yes	2, 8	Yes	Unknown
47.234080/-122.099136	Unknown	Unknown	No		Unknown	Unknown
	Unknown	12 (guess)	No		No	Unknown
	2	12	No		Unknown	20-30
	4	14	No		Yes	20-30
	0	5	No		Yes	Unknown
	Unknown	14	Yes	0, 12	Yes	Unknown
	12	12	Yes	14, 14	Yes	Unknown
	Unknown	Unknown	No		No	Unknown
	10	10	No		No	20-30
	12	12	No		Unknown	Unknown
	10	10	No		No	20-30
	5	6 or less	No		Unknown	30 +
	10	10	No		No	Unknown
48.951726/-122.580015	0	12	Yes	3, 9	Unknown	Unknown
48.952140/-122.58031	2	12	Yes	3, 9	Yes	Unknown
48.952770/-122.580337	4	12	Yes	3, 9	Unknown	Unknown

48.99483/-122.47217	Unknown	Unknown	No		Unknown	Unknown
48.98634/-122.43120; 48	2	6	No		Unknown	Unknown
48.98409/-122.42927; 48	2	10	Yes	0, 6	Yes	Unknown
	0	8	No		Unknown	Unknown
48.901801/-122.349625	0	10	Yes	8, None	Yes	30 +
	12	12	No		Unknown	Unknown
	Unknown	Unknown	No		Yes	Unknown
	2	12	No		Yes	Unknown
	10	18	No		Yes	Unknown
	0	10	Yes	8, 16	Yes	Unknown
	0	12	No	0, 10	Unknown	Unknown
	0	16	No		Unknown	Unknown
	No data	No data	No		Yes	30 +
	6	14	Yes	0, 12	Yes	Unknown
48.93535/-122.40645	4	No data	Yes	4, 12	Unknown	Unknown
	0	12	Yes	2, 12	Unknown	Unknown
	0	10	Yes	0, 12	Unknown	Unknown
	12	None	No		Yes	Unknown
48.39785/-122.37386	4	12	No		Unknown	Unknown
	5	12	No		Yes	Unknown
	12	Unknown	No		Yes	20-30?
	None	None	No		Unknown	Unknown
	6	10	No		Yes	Unknown
	12	12	No		Unknown	Unknown
	0	12	No		Unknown	Unknown
	2	12	No		Unknown	Unknown
48.996040/-122.462469	None	8	No		Unknown	Unknown
47.771003/-122.000735	13	21	No		Unknown	Unknown
47.770454/-122.000541	0	18	Yes	None, 16	No	20-30
48.954927/-122.329408	12	27	Yes	4, 12	Yes	Unknown
48.958161/-122.598836	Unknown	16?	Yes	5, 11	Yes	Unknown
48.958508/-122.590139	4	12	Yes	4, 11	Yes	Unknown
48.96115/-122.585636	5	10	Yes	2, 10	Yes	Unknown
49.92893/-122.374800	0	12	No		Yes	Unknown
	2	12	No		Yes	Unknown
	6	12	No		Yes	Unknown
	2	10	No		No	Unknown
	2	10	Yes	2, 12	Yes	Unknown
48.9410490/-122.385293	10	10	Yes	8, 10	Yes	Unknown
	1	6	No		Unknown	Unknown
	4	12	No		Unknown	Unknown
49.00049/-122.43764	2	10	No		Unknown	Unknown
48.99869/-122.43871	2	10	No		Unknown	Unknown
48.99825/-122.45325	4	14	No		Unknown	Unknown
48.941171/-122.509205	No data	No data	No		Unknown	Unknown
48.941181/-122.509963	2	10	No		Unknown	Unknown
48.941619/-122.5109950	2	10	No		Unknown	Unknown

48.97988/-122.39538; 48	5	11	Yes	6, 12	Yes	20-30
	12	12	No		No	Unknown
	Unknown	Unknown	No		Yes	Unknown
48.893149/-122.41001	0	Unknown	No		Yes	Unknown
	12	No data	No		Yes	Unknown
	12	27	No		Yes	Unknown
	4	11	Yes	8, None	No	Unknown
	4	10	Yes	8, 8	No	Unknown
	0	12	No		Yes	Unknown
	0	12	Yes	6, 10	Yes	Unknown
47.21330/-122.04425	9	14	No		Unknown	Unknown
47.20833/-122.05798	10	22	Yes	6, 22	Unknown	Unknown
	12	12	No		Yes	Unknown
	12	12	No		No	Unknown
48.95600/-122.47366	2	10	Yes	5, 10	Yes	Unknown
47.81092/-121.98650	No data	No data	No		Unknown	Unknown
47.83202/-121.98848	No data	No data	No		Unknown	Unknown
47.81193/121.986706	No data	No data	No		Unknown	Unknown
48.53112/122.39391	No data	No data	No		Unknown	Unknown
	No data	No data	No		Unknown	Unknown
	0	10	No		Unknown	Unknown
48.53799/122.38739	No data	No data	No		Unknown	Unknown
48.57856/122.47569	No data	No data	No		Unknown	Unknown
	No data	No data	No		Unknown	Unknown
	4	11	Yes	3, 10	Yes	20-30
	1	10	Yes	0, 8	Yes	20-30
48.879637/-122.631413	10	20	Yes	4, 12	Unknown	0-5
	0	10	No		Yes	Unknown
	10	8	No		Yes	Unknown
	No data	4	No		Yes	Unknown
47.21277/-122.04137	4	14	No		Unknown	Unknown
48.979835/-122.439185	No data	No data	No		Unknown	Unknown
48.133267/-123.136438	3	6	Yes	2, 6	No	20-30
	0	12	No		Unknown	Unknown
	6 +	6+	No		No	Unknown
	4	8	No		No	Unknown
49.00/-122.4	14	16	No		No	Unknown
48.994818/-122.409816	10	10	No		Unknown	Unknown
49.00058/-122.47724	5	8	No		Unknown	Unknown
	Unknown	Unknown	No		No	Unknown
	Unknown	Unknown	No		Unknown	Unknown

PDF	Liner type	Comments
Assorted lagoon assessment 2012.pdf	Compacted clay	123 E Roosevelt Ave, Enumclaw, WA 98022;
B lagoon assessment 2012.pdf	Unknown	Built under 100 year flood mark. Previous ow
B lagoon assessment 2012.pdf	Compacted clay	
B lagoon assessment 2012.pdf	Compacted clay	
B lagoon assessment 2012.pdf	Compacted clay	Heavy solids on lagoon. See p. 30: does 35%
B lagoon assessment 2012.pdf	Unknown	Contains only rain, no nutrients
B lagoon assessment 2012.pdf	Compacted clay	Was not in database at time of first assessme
B lagoon assessment 2012.pdf	Compacted clay	Some erosion caused by horses pasturing nea
B lagoon assessment 2012.pdf	Compacted clay	Has around 3 ft of solids in lagoon. Pond was
B lagoon assessment 2012.pdf	Compacted clay	Extensive blackberries prevented bank asses
B lagoon assessment 2012.pdf	Compacted clay	No coordinates, no address
B lagoon assessment 2012.pdf	Unknown	
B lagoon assessment 2012.pdf	Compacted clay	
B lagoon assessment 2012.pdf	Compacted clay	
B lagoon assessment 2012.pdf	Compacted clay	
B lagoon assessment 2012.pdf	Compacted clay	
B2 lagoon assessment 2012.pdf	Unknown	Not used from 2011-2012
B2 lagoon assessment 2012.pdf	Unknown	
B2 lagoon assessment 2012.pdf	Unknown	Not used for 5 years
B2 lagoon assessment 2012.pdf	Compacted clay	
B2 lagoon assessment 2012.pdf	Unknown	Ducks in lagoon, top grazed by horses
B2 lagoon assessment 2012.pdf; Assorte	Compacted clay sides,	Outside bank is 15' elevation, some interior b
B2 lagoon assessment 2012.pdf; Assorte	Compacted clay sides,	cement bottom
B2 lagoon assessment 2012.pdf; Assorte	Compacted clay	Inspector questioned integrity of S and W ba
B2 lagoon assessment 2012.pdf; Assorte	Compacted clay	Modified in 1998; too much gravel may comp
B2 lagoon assessment 2012.pdf	Compacted clay	Over 100 year flood
B2 lagoon assessment 2012.pdf	Compacted clay	Brought up to NRCS standards in 2000 by bee
B2 lagoon assessment 2012.pdf	Compacted clay	Organic, no pesticides
B2 lagoon assessment 2012.pdf	Compacted clay	
C lagoon assessment 2012.pdf	Compacted clay	Had been sprayed, killing 3'-5' trees on W an
C lagoon assessment 2012.pdf	Compacted clay	Substantial solids with grass growing on porti
C lagoon assessment 2012.pdf	Unknown	9748 Lenhart Rd, Sumas, WA 98295-9408. In
C lagoon assessment 2012.pdf	Unknown	
C lagoon assessment 2012.pdf	Compacted clay	
C lagoon assessment 2012.pdf	Unknown	
C lagoon assessment 2012.pdf	Unknown	21466 Wyle Rd., Mt. Vernon, WA 98273. Stag
C lagoon assessment 2012.pdf	Unknown	
C lagoon assessment 2012.pdf; Assorte	Compacted clay	
C lagoon assessment 2012.pdf; Assorte	Compacted clay	
C lagoon assessment 2012.pdf; Assorte	Compacted clay	
C lagoon assessment 2012.pdf; Assorte	Compacted clay	
Assorted lagoon assessment 2012.pdf	Compacted clay	AG ID and Lagoon ID don't correspond; emba
C lagoon assessment 2012.pdf; Assorte	Compacted clay	Winter 2009 seeped through top of embankr
C lagoon assessment 2012.pdf	Compacted clay	Gravity flow between ponds 1-2

C lagoon assessment 2012.pdf	Compacted clay	Gravity flow between ponds 1-2
C lagoon assessment 2012.pdf	Compacted clay	
D2 lagoon assessment 2012.pdf	Compacted clay	Erosion where leachate is pumped into lagoo
D2 lagoon assessment 2012.pdf	Compacted clay	
D2 lagoon assessment 2012.pdf	Compacted clay	100 feet from Nookachamps Creek; manure
D2 lagoon assessment 2012.pdf	Compacted clay	100 feet from Nookachamps Creek
D2 lagoon assessment 2012.pdf	Unknown	Very extensive, tall grass; flows into dairy bar
D2 lagoon assessment 2012.pdf	Compacted clay	
D2 lagoon assessment 2012.pdf	Compacted clay	
D2 lagoon assessment 2012.pdf	Compacted clay	
D2 lagoon assessment 2012.pdf	Compacted clay	Line runs 1350 ft from facility on Weidkamp
D2 lagoon assessment 2012.pdf	Compacted clay	Only collecting rainwater
D2 lagoon assessment 2012.pdf	Compacted clay	Embankment damage due to moles
D2 lagoon assessment 2012.pdf	Unknown	Embankment damage due to moles
D2 lagoon assessment 2012.pdf	Unknown	
D2 lagoon assessment 2012.pdf	Compacted clay	
E lagoon assessment 2012.pdf	Compacted clay	
E lagoon assessment 2012.pdf	Compacted clay	
E lagoon assessment 2012.pdf	Compacted clay	
E lagoon assessment 2012.pdf	Compacted clay	
E lagoon assessment 2012.pdf	Compacted clay	
E lagoon assessment 2012.pdf	Compacted clay	One assessment states that it is no longer in
E lagoon assessment 2012.pdf	Compacted clay	Some weeds, but sprayed. East side toe 4 ft.
E lagoon assessment 2012.pdf	Unknown	
E lagoon assessment 2012.pdf	Unknown	Some bubbling
E lagoon assessment 2012.pdf	Compacted clay	This is the primary lagoon and they do not pu
E lagoon assessment 2012.pdf	Compacted clay	
E lagoon assessment 2012.pdf	Compacted clay	Numerous areas of standing water near toe
E lagoon assessment 2012.pdf	Compacted clay	Excavation of top embankment due to anima
E lagoon assessment 2012.pdf	Compacted clay	Small wet spot on SE corner, looks like low sp
E lagoon assessment 2012.pdf	Compacted clay	Mostly water/milk; evidence of soil erosion
E lagoon assessment 2012.pdf	Compacted clay	East embankment outside way too steep; spi
E lagoon assessment 2012.pdf	Compacted clay	Low spot along SW end of berm; low bank al
E2 lagoon assessment 2012.pdf	Compacted clay	
E2 lagoon assessment 2012.pdf	Compacted clay	
E2 lagoon assessment 2012.pdf	Compacted clay	Needs a TAR for leaking lagoon; 3 leaks on E
E2 lagoon assessment 2012.pdf	Compacted clay	Some slab runoff creating a minor gully; lots
E2 lagoon assessment 2012.pdf	Compacted clay	
E2 lagoon assessment 2012.pdf	Compacted clay	
E2 lagoon assessment 2012.pdf	Compacted clay	
E2 lagoon assessment 2012.pdf	Compacted clay	
E2 lagoon assessment 2012.pdf	Unknown	242 Cook Road, Sequim, WA 98382
F lagoon assessment 2012.pdf	Unknown	
F lagoon assessment 2012.pdf	Compacted clay	
F lagoon assessment 2012.pdf	Other - native soils	Mole/vole activity in N bank; operator stated
F lagoon assessment 2012.pdf	Compacted clay	Bank erosion due to rainfall
F lagoon assessment 2012.pdf	Compacted clay	

F lagoon assessment 2012.pdf	Compacted clay	
F lagoon assessment 2012.pdf	Compacted clay	Used as duck pond, 100% reeds
F lagoon assessment 2012.pdf	Compacted clay	
F lagoon assessment 2012.pdf	Compacted clay	
F lagoon assessment 2012.pdf	Compacted clay	Embankment interior and liner erosion
F lagoon assessment 2012.pdf	Compacted clay	Pond mostly dairy washdown; processing wa
F lagoon assessment 2012.pdf	Compacted clay	
F lagoon assessment 2012.pdf	Compacted clay	17506 SE 190th St., Monroe, WA
G lagoon assessment 2012.pdf	Compacted clay	Perimeter drains blocked
G lagoon assessment 2012.pdf	Compacted clay	
G lagoon assessment 2012.pdf	Compacted clay	Embankment damage due to moles
G lagoon assessment 2012.pdf	Compacted clay	W bank messy
G lagoon assessment 2012.pdf	Compacted clay	A few mole holes
G lagoon assessment 2012.pdf	Unknown	Cows have access to S and E banks
G lagoon assessment 2012.pdf	Unknown	
G lagoon assessment 2012.pdf	Compacted clay	Does not look like manure
G lagoon assessment 2012.pdf	Compacted clay	
G lagoon assessment 2012.pdf	Compacted clay	3 feet of solids
G lagoon assessment 2012.pdf	Compacted clay	No lat/long, nor address given. Natural swale
G lagoon assessment 2012.pdf	Compacted clay	
G lagoon assessment 2012.pdf	Compacted clay	
H lagoon assessment 2012.pdf	Compacted clay	
H lagoon assessment 2012.pdf	Compacted clay	
H lagoon assessment 2012.pdf	Unknown	Driveway and gravel areas along S berm of p
H lagoon assessment 2012.pdf	Compacted clay	Slight erosion along top, appears to be wave
H lagoon assessment 2012.pdf	Unknown	Rainwater/algae, no animals on site
H lagoon assessment 2012.pdf	Unknown	18718 Beaver Marsh Road, Mt. Vernon, WA
H lagoon assessment 2012.pdf	Unknown	
H lagoon assessment 2012.pdf	Unknown	Evidence of erosion NW corner
H lagoon assessment 2012.pdf	Compacted clay	
H lagoon assessment 2012.pdf	Compacted clay	
H lagoon assessment 2012.pdf	Compacted clay	Animal -> #1, overflow T to #2
H lagoon assessment 2012.pdf	Compacted clay	Mostly water overflow from #1, used for irrig
H lagoon assessment 2012.pdf	Compacted clay	Narrow N bank
H lagoon assessment 2012.pdf	Compacted clay	
H lagoon assessment 2012.pdf	Compacted clay	
H lagoon assessment 2012.pdf	Compacted clay	
H lagoon assessment 2012.pdf	Compacted clay	
H2 lagoon assessment 2012.pdf	Unknown	Seepage near bottom of berm slope; small h
H2 lagoon assessment 2012.pdf	Compacted clay	
H2 lagoon assessment 2012.pdf	Compacted clay	
H2 lagoon assessment 2012.pdf	Unknown	
H2 lagoon assessment 2012.pdf	Unknown	Agitated solids used to build/reinforce W bar
H2 lagoon assessment 2012.pdf	Unknown	Back filled, no real bank; no crust, just foam
H2 lagoon assessment 2012.pdf	Unknown	
H2 lagoon assessment 2012.pdf	Compacted clay	Embankment damage due to moles
H2 lagoon assessment 2012.pdf	Compacted clay	Embankment damage due to moles

J Lagoon Assessment 2012.pdf	Unknown	
J Lagoon Assessment 2012.pdf	Unknown	
J Lagoon Assessment 2012.pdf	Unknown	
J Lagoon Assessment 2012.pdf	Compacted clay	
J Lagoon Assessment 2012.pdf	Compacted clay	
J Lagoon Assessment 2012.pdf	Unknown	
J Lagoon Assessment 2012.pdf	Unknown	
J Lagoon Assessment 2012.pdf	Compacted clay	
J Lagoon Assessment 2012.pdf	Unknown	same lagoon as 10053-1
J Lagoon Assessment 2012.pdf	Unknown	No address provided
J Lagoon Assessment 2012.pdf	Compacted clay	
J Lagoon Assessment 2012.pdf	Unknown	
J Lagoon Assessment 2012.pdf	Compacted clay	
J Lagoon Assessment 2012.pdf	Compacted clay	
J Lagoon Assessment 2012.pdf	constructed without	
J Lagoon Assessment 2012.pdf	Compacted clay	
J Lagoon Assessment 2012.pdf	Compacted clay	
K lagoon assessment 1212.pdf	Compacted clay	
K lagoon assessment 1212.pdf	Compacted clay	
K lagoon assessment 1212.pdf	Compacted clay	
K lagoon assessment 1212.pdf	Compacted clay	structure modified in August 2011 moving w
K lagoon assessment 1212.pdf	Compacted clay	
K lagoon assessment 1212.pdf	Compacted clay	No address provided
K lagoon assessment 1212.pdf	Compacted clay	No address provided
K lagoon assessment 1212.pdf	Compacted clay	
K lagoon assessment 1212.pdf	No liner	
K lagoon assessment 1212.pdf	None	
K lagoon assessment 1212.pdf	Compacted clay	
K lagoon assessment 1212.pdf	Compacted clay	
K lagoon assessment 1212.pdf	Compacted clay	100% full of solids
L2 lagoon assessment 2012.pdf	Unknown	
L2 lagoon assessment 2012.pdf	Compacted clay	
L2 lagoon assessment 2012.pdf	N/A	
L2 lagoon assessment 2012.pdf	Compacted clay	
L2 lagoon assessment 2012.pdf	Compacted clay	
L2 lagoon assessment 2012.pdf	Unknown	
L2 lagoon assessment 2012.pdf	Compacted clay	
L2 lagoon assessment 2012.pdf	Compacted clay	
L2 lagoon assessment 2012.pdf	Compacted clay	
L2 lagoon assessment 2012.pdf	constructed without	
L2 lagoon assessment 2012.pdf	Unknown	40400 Harts Lake Valley Rd., Roy, WA 98580
M2 lagoon assessment 2012.pdf	Compacted clay	
M2 lagoon assessment 2012.pdf	Compacted clay	
M2 lagoon assessment 2012.pdf	Compacted clay	
M2 lagoon assessment 2012.pdf	Compacted clay	
M2 lagoon assessment 2012.pdf	Compacted clay	
M2 lagoon assessment 2012.pdf	Compacted clay	

M2 lagoon assessment 2012.pdf	Compacted clay	
M2 lagoon assessment 2012.pdf	Compacted clay	
M2 lagoon assessment 2012.pdf	Compacted clay	
M lagoon assessment 1212.pdf	Compacted clay	
M lagoon assessment 1212.pdf	Unknown	
M lagoon assessment 1212.pdf	Compacted clay	
M lagoon assessment 1212.pdf	Compacted clay	
M lagoon assessment 1212.pdf	Compacted clay	
M lagoon assessment 1212.pdf	Compacted clay	
M lagoon assessment 1212.pdf	Unknown	
M lagoon assessment 1212.pdf	Compacted clay	
M lagoon assessment 1212.pdf; Assorte	Compacted clay	
M lagoon assessment 1212.pdf	Compacted clay	
M lagoon assessment 1212.pdf	Compacted clay	
M lagoon assessment 1212.pdf	Compacted clay	
M lagoon assessment 1212.pdf	Compacted clay	
M lagoon assessment 1212.pdf	Compacted clay	
M lagoon assessment 1212.pdf	Compacted clay	
M lagoon assessment 1212.pdf	Compacted clay	
N lagoon assessment 1212.pdf	Unknown	
N lagoon assessment 1212.pdf	Compacted clay	
N lagoon assessment 1212.pdf	Compacted clay	
N lagoon assessment 1212.pdf	Compacted clay	
N lagoon assessment 1212.pdf	Compacted clay	
N lagoon assessment 1212.pdf	Compacted clay	
N lagoon assessment 1212.pdf	Compacted clay	
N lagoon assessment 1212.pdf	Compacted clay	
O Lagoon assessment 2012.pdf	Compacted clay	
O Lagoon assessment 2012.pdf	Compacted clay	
P Lagoon assessment 2012.pdf	Compacted clay	
P Lagoon assessment 2012.pdf	Compacted clay	only used for some beef catte and horses; se
P Lagoon assessment 2012.pdf	Compacted clay	
P Lagoon assessment 2012.pdf	Compacted clay	
P Lagoon assessment 2012.pdf	Compacted clay	modified, expanded to the north in 1984 or 1
P Lagoon assessment 2012.pdf	Unknown	
P Lagoon assessment 2012.pdf	Compacted clay	
P Lagoon assessment 2012.pdf	Compacted clay	
P Lagoon assessment 2012.pdf	Compacted clay	
P Lagoon assessment 2012.pdf	Unknown	
P Lagoon assessment 2012.pdf	Unknown	structurally modified 1994, doubled capacity
P Lagoon assessment 2012.pdf	Compacted clay	
P Lagoon assessment 2012.pdf	Unknown	
P Lagoon assessment 2012.pdf	constructed without	
P Lagoon assessment 2012.pdf	native clay, bentomite amendment	
P Lagoon assessment 2012.pdf	Compacted clay	
P Lagoon assessment 2012.pdf	Compacted clay	
P Lagoon assessment 2012.pdf	Compacted clay	

P Lagoon assessment 2012.pdf	Unknown	
P Lagoon assessment 2012.pdf	Clay	
Q Lagoon assessment 2012.pdf	Compacted clay	No coordinates, no address.
R Lagoon assessment 2012.pdf	Unknown	
R Lagoon assessment 2012.pdf	constructed without	Modified by expanding to the west by 1/3.
R Lagoon assessment 2012.pdf	Compacted clay	
R Lagoon assessment 2012.pdf	Compacted clay	
R Lagoon assessment 2012.pdf	Unknown	
R Lagoon assessment 2012.pdf; Assorte	Compacted clay	Connects to lagoon 2 with a 12-inch pipe
R Lagoon assessment 2012.pdf; Assorte	Compacted clay	Connects to lagoon 1 with a 12-inch pipe
R Lagoon assessment 2012.pdf; Assorte	Compacted clay	Some roofwater and slab goes to storage via
Assorted lagoon assessment 2012.pdf		Some mole evidence
R Lagoon assessment 2012.pdf	Unknown	Mole holes
R Lagoon assessment 2012.pdf	Unknown	Pond constructed without a liner; perimeter
R Lagoon assessment 2012.pdf	Unknown	
R Lagoon assessment 2012.pdf	Site soils	Collects slab water, dry stack on opposite of
R Lagoon assessment 2012.pdf	Compacted clay	
R Lagoon assessment 2012.pdf	Unknown	
R Lagoon assessment 2012.pdf	Compacted clay	
R Lagoon assessment 2012.pdf	Compacted clay	
R Lagoon assessment 2012.pdf	Compacted clay	
R Lagoon assessment 2012.pdf	Compacted clay	
R Lagoon assessment 2012.pdf	Compacted clay	
R Lagoon assessment 2012.pdf	Compacted clay	
R Lagoon assessment 2012.pdf	Compacted clay	
R Lagoon assessment 2012.pdf	Compacted clay	
R Lagoon assessment 2012.pdf	Unknown	
R Lagoon assessment 2012.pdf; Assorte	Compacted clay	Embankment very steep!
R Lagoon assessment 2012.pdf	Compacted clay	
R Lagoon assessment 2012.pdf	Compacted clay	
R Lagoon assessment 2012.pdf	Compacted clay	
R Lagoon assessment 2012.pdf	Unknown	
R Lagoon assessment 2012.pdf	Unknown	
R Lagoon assessment 2012.pdf	Compacted clay	
R Lagoon assessment 2012.pdf	Compacted clay	
R Lagoon assessment 2012.pdf	Compacted clay	
R Lagoon assessment 2012.pdf	Compacted clay	modified 2006, added 2ft to height
R Lagoon assessment 2012.pdf	Compacted clay	
S Lagoon Assessment 2012.pdf	Compacted clay	
S Lagoon Assessment 2012.pdf	Compacted clay	Lagoon hadn't been used in 7 years, owner ir
S Lagoon Assessment 2012.pdf	Compacted clay	
S Lagoon Assessment 2012.pdf	Compacted clay	new inlet pipe from dairy facility in 2008
S Lagoon Assessment 2012.pdf	Unknown	only collecting rainwater, serves as back up la
S Lagoon Assessment 2012.pdf	Compacted clay	some fill added along south banks
S Lagoon Assessment 2012.pdf	Unknown	
S Lagoon Assessment 2012.pdf	Compacted clay	
S Lagoon Assessment 2012.pdf	Compacted clay	lagoon receives processed wastewater from

S Lagoon Assessment 2012.pdf	constructed without	
S Lagoon Assessment 2012.pdf	Compacted clay	
S Lagoon Assessment 2012.pdf	Not clay	NRCS nondairy lagoon list
S Lagoon Assessment 2012.pdf	Compacted clay	
S Lagoon Assessment 2012.pdf	Compacted clay	
S Lagoon Assessment 2012.pdf	Compacted clay	1998 doubled size of pond
S Lagoon Assessment 2012.pdf	Compacted clay	
S Lagoon Assessment 2012.pdf	Compacted clay	
S Lagoon Assessment 2012.pdf	Compacted clay	
S 2 Lagoon assessment 2012.pdf	Compacted clay	
S 2 Lagoon assessment 2012.pdf	constructed without	
S 2 Lagoon assessment 2012.pdf	Compacted clay	
S 2 Lagoon assessment 2012.pdf	Compacted clay	
S 2 Lagoon assessment 2012.pdf	Unknown	
S 2 Lagoon assessment 2012.pdf	Compacted clay	
S 2 Lagoon assessment 2012.pdf	Compacted clay	
S 2 Lagoon assessment 2012.pdf	Unknown	
S 2 Lagoon assessment 2012.pdf	Compacted clay	
S 2 Lagoon assessment 2012.pdf	Compacted clay	
S 2 Lagoon assessment 2012.pdf	Compacted clay/ Bent	installation of irrigation to allow manure acce
S 2 Lagoon assessment 2012.pdf	N/A	
S 2 Lagoon assessment 2012.pdf	Unknown	
S 2 Lagoon assessment 2012.pdf	Compacted clay	
S 2 Lagoon assessment 2012.pdf	Compacted clay	
S 2 Lagoon assessment 2012.pdf	Compacted clay	some fill materials have been added to the tc
S 2 Lagoon assessment 2012.pdf	Compacted clay	
S 2 Lagoon assessment 2012.pdf	Compacted clay	Pond was expanded to the north from origin
T Lagoon Assessment 2012.pdf	Compacted clay	
T Lagoon Assessment 2012.pdf	Compacted clay	
T Lagoon Assessment 2012.pdf	Unknown	
T Lagoon Assessment 2012.pdf	Compacted clay	added fill to top and outer banks when boarc
T Lagoon Assessment 2012.pdf	Unknown	
T Lagoon Assessment 2012.pdf	Compacted clay	
T Lagoon Assessment 2012.pdf	N/A	
T Lagoon Assessment 2012.pdf	N/A	
T Lagoon Assessment 2012.pdf	Compacted clay	added several interior low berms to create s
T Lagoon Assessment 2012.pdf	Compacted clay	
T Lagoon Assessment 2012.pdf	Compacted clay	
T Lagoon Assessment 2012.pdf	Compacted clay	
T Lagoon Assessment 2012.pdf	Compacted clay	
T Lagoon Assessment 2012.pdf	Unknown	
T Lagoon Assessment 2012.pdf	Compacted clay	
T Lagoon Assessment 2012.pdf	Compacted clay	collects only rainwater
T Lagoon Assessment 2012.pdf	Unknown	
T Lagoon Assessment 2012.pdf	Unknown	
T Lagoon Assessment 2012.pdf	Compacted clay	Lagoons 2 and 3 originally installed as single l
T Lagoon Assessment 2012.pdf	Compacted clay	Lagoons 2 and 3 originally installed as single l

T Lagoon Assessment 2012.pdf	Compacted clay	
T Lagoon Assessment 2012.pdf	Compacted clay	
T Lagoon Assessment 2012.pdf	Compacted clay	
T Lagoon Assessment 2012.pdf	Unknown	
T Lagoon Assessment 2012.pdf	Compacted clay	
T Lagoon Assessment 2012.pdf	Compacted clay	
U Lagoon Assessment 2012.pdf	Compacted clay	lagoon size expanded
U Lagoon Assessment 2012.pdf	Compacted clay	
V 1 Lagoon Assessment 2012.pdf	Compacted clay	
V 1 Lagoon Assessment 2012.pdf	Compacted clay	
V 1 Lagoon Assessment 2012.pdf	Unknown	
V 1 Lagoon Assessment 2012.pdf	Unknown	
V 1 Lagoon Assessment 2012.pdf	constructed without	
V 1 Lagoon Assessment 2012.pdf	Compacted clay	
V 1 Lagoon Assessment 2012.pdf	Compacted clay	
V 1 Lagoon Assessment 2012.pdf	Compacted clay	
V 1 Lagoon Assessment 2012.pdf	Compacted clay	
V 1 Lagoon Assessment 2012.pdf	Compacted clay	
V 1 Lagoon Assessment 2012.pdf	Compacted clay	
V 1 Lagoon Assessment 2012.pdf	Compacted clay	
V 1 Lagoon Assessment 2012.pdf	Compacted clay	
V 1 Lagoon Assessment 2012.pdf	Unknown	
V 1 Lagoon Assessment 2012.pdf	Unknown	
V 1 Lagoon Assessment 2012.pdf	Compacted clay	
V 1 Lagoon Assessment 2012.pdf	Unknown	
V 1 Lagoon Assessment 2012.pdf	Compacted clay	
V 1 Lagoon Assessment 2012.pdf	Unknown	
V 1 Lagoon Assessment 2012.pdf	Unknown	
V 1 Lagoon Assessment 2012.pdf	Unknown	
V 1 Lagoon Assessment 2012.pdf; Assor	Compacted clay	Sump hose has eroded hole into side of inter
V 2 Lagoon Assessment 2012.pdf	Compacted clay	
V 2 Lagoon Assessment 2012.pdf	Unknown	
V 2 Lagoon Assessment 2012.pdf	Compacted clay	
V 2 Lagoon Assessment 2012.pdf	Compacted clay	
V 2 Lagoon Assessment 2012.pdf	Compacted clay	
V 2 Lagoon Assessment 2012.pdf	Compacted clay	
V 2 Lagoon Assessment 2012.pdf	Unknown	
V 2 Lagoon Assessment 2012.pdf	Compacted clay	
V 2 Lagoon Assessment 2012.pdf	Compacted clay	
V 2 Lagoon Assessment 2012.pdf	Unknown	
V 2 Lagoon Assessment 2012.pdf	Unknown	
V 2 Lagoon Assessment 2012.pdf	Unknown	
V 2 Lagoon Assessment 2012.pdf	Unknown	
V 2 Lagoon Assessment 2012.pdf	Unknown	
V 2 Lagoon Assessment 2012.pdf	Unknown	
V 2 Lagoon Assessment 2012.pdf	Unknown	
V 2 Lagoon Assessment 2012.pdf	Unknown	

V 3 Lagoon Assessment 2012.pdf	Unknown	
V 3 Lagoon Assessment 2012.pdf	Compacted clay	
V 3 Lagoon Assessment 2012.pdf	Compacted clay	
V 3 Lagoon Assessment 2012.pdf	Compacted clay	
V 3 Lagoon Assessment 2012.pdf	Compacted clay	
V 3 Lagoon Assessment 2012.pdf	Compacted clay	
V 3 Lagoon Assessment 2012.pdf	Compacted clay	
V 3 Lagoon Assessment 2012.pdf	Compacted clay	
V 3 Lagoon Assessment 2012.pdf	Compacted clay	
V 3 Lagoon Assessment 2012.pdf	Compacted clay	
W Lagoon Assessment 2012.pdf	Compacted clay	
W Lagoon Assessment 2012.pdf	Compacted clay	
W Lagoon Assessment 2012.pdf	Compacted clay	
W Lagoon Assessment 2012.pdf	Compacted clay	
W Lagoon Assessment 2012.pdf	Compacted clay	
W Lagoon Assessment 2012.pdf	Compacted clay	
W Lagoon Assessment 2012.pdf	Compacted clay	
W Lagoon Assessment 2012.pdf	Compacted clay	
W Lagoon Assessment 2012.pdf	Unknown	
W Lagoon Assessment 2012.pdf	Compacted clay	
W Lagoon Assessment 2012.pdf	Unknown	
W Lagoon Assessment 2012.pdf	Unknown	
W Lagoon Assessment 2012.pdf	Unknown	
W Lagoon Assessment 2012.pdf	Unknown	
W Lagoon Assessment 2012.pdf	Compacted clay	Also has AG ID 9955
W Lagoon Assessment 2012.pdf	Compacted clay	Also has AG ID 9955
W Lagoon Assessment 2012.pdf	Compacted clay	New (2011). Has not been full yet.
W Lagoon Assessment 2012.pdf	Compacted clay	
W Lagoon Assessment 2012.pdf	Compacted clay	Has been recently structurally modified by th
W Lagoon Assessment 2012.pdf	Compacted clay	Has been recently structurally modified by th
W Lagoon Assessment 2012.pdf	Compacted clay	43319 SE 228th Avenue, Enumclaw, WA 980
W Lagoon Assessment 2012.pdf	Unknown	Horses only, dry manure
W Lagoon Assessment 2012.pdf	No liner	Bank not wide, wet spot on W side of lagoon
W Lagoon Assessment 2012.pdf	Compacted clay	
Z-3G Lagoon Assessment 2012.pdf	Compacted clay	
Z-3G Lagoon Assessment 2012.pdf	Compacted clay	
Z-3G Lagoon Assessment 2012.pdf	Unknown	
Z-3G Lagoon Assessment 2012.pdf	Unknown	
Z-3G Lagoon Assessment 2012.pdf	Unknown	
Z-3G Lagoon Assessment 2012.pdf	Compacted clay	
Z-3G Lagoon Assessment 2012.pdf	Unknown	

2009-2010 certified by engineer and brought up to specs then
/ner raised bank.

outside/30% inside mean anything to you?

ent. Does not collect manure, although is connected to the system and liquids can be directed into it. Located "i
arby
expanded at some point.
sment

bank erosion along W bank; has received past notice of correction for narrow, steep eroding embankment

nks
promise structural integrity; too wet to tell if there is seedage, standing water at bottom of lagoon

efing up banks.

d E bank. Unable to evaluate N enbankment river is downslope
ions of the lagoon. Owner states lagoons have never been agitated and pumped since going out of business in 2
spector did not see lagoon. Owner said was of same status as lagoon 52-1

ge 2 needs NRCS evaluation; narrow, uneven bank with trees by creek

ankment does not appear well-maintained compared to other facilities. Has only been in Coldstream ownership
ment when filled near capacity (no freeboard)

›n 1

pipe crosses creek

rn area over scrape ramp

Rd to west

use; another shows it is actively bubbling/ anaerobic lagoon pink/purple
excavated to build new storage pool building.

ımp it down generally. Main cell does not usually empty.

›f W and N slopes
ıl access; Solids built up NE corner; Few gopher holes
›ot
›n W embankment
ills to adjoining pond @ 8.5
ong S end acts as road

side of lagoon dike due to rodents; 2 slumping areas on S side of lagoon dike; livestock are pastured and have a
of weeds on all sides, unable to walk around

ł that exterior slopes were widened for access to agitate and for mowing and solids were added atop berms ma

ter

bermed S side about 80-100 ft, slight slope on outside of berm bank; No other side has bank

ond drain to dairy sump pump; Possible seepage along N bank; check banks duing summer, not very smooth; Re
action; S bank bermed, 16' high approx., toe drain adjoins berm, does not connect to drainage ditches

98273

gation

ole leaking into pasture. Operator is pumping below the leak line

nk

estern bank eastward 40ft reducing pond capacity by 40%

epage near bottom of berm slope

1985

a sump because solids are stored in old silage bunker. Can be sumped to grass when clean.

drains plugged or blocked

road; also collects some H2O

nterested in decommisioning

agoon

creamery

ess

op bank

al design

der road was widened

ettling and seration ponds

lagoon. Been divided into two of nearly equal size.
lagoon. Been divided into two of nearly equal size.

ior embankment, approx 2 ft diameter and 3-4 ft deep; agitation hose also eroded smaller hole in the S bank ne

ıe NRCS; lagoon 2 receives effluent from 1
ıe NRCS; lagoon 1 outputs effluent to lagoon 2
22

bottom, could be an issue, contact NRCS for evaluation

n the woods"

:005. given limited access, could not assess embankment. Lagoons on adjacent farmland are for sale.

for 3 years; SW corner somewhat eroded

ccess to lagoon top and outer bank 1 of every 20 days, some sloughing and bank top erosion

ny years ago, raising berm approx 1 ft.

ecycling pumps and transfer pipes not functioning

:ar E end

AgID
LagoonID
Landowner
Farm Name
Lat
Long
Alt Lat/Long
Max Excavation Depth
Total Pond Depth
Conflicting Depth Data
Alt Depth Data
NRCS Standard
Data Built (years ago)
PDF
Comment

Ag ID/Farm ID
Lagoon ID (typically Ag ID plus 1,2,3, etc)
Landowner Name
Farm Name
Latitude
Longitude
If previous latitude/longitude was replaced with new values, note those here.
Maximum Excavation Depth
Total Pond Depth
Does depth match up among site visit forms? Yes or No.
If previous depths are not consistent among forms, note other depths here
Built with NRCS standard designs? Yes or no
If noted on the form, enter the approximate date range built (0-5, 5-10, 10-20, 20-30, 30+) years ago. If not notec
name of PDF the information came from
Note any comments issues here. If no lat/long given, enter address here.

d, leave cell blank.

OperatorFirst Name	OperatorLast Name	AgLicID1	FacStAddr	FacCity
John	Koopmans	8986	3970 Highland Dr	Zillah
John	Koopmans	2021	250 White Rd	Zillah
John	Koopmans	2021	250 White Rd	Zillah
Allen	Voortman	7052	2145 Liberty Rd	Granger
Allen	Voortman	7052	2145 Liberty Rd	Granger
Richard	Leyendeker	5607	2501 Sli Rd	Sunnyside
Clarence	Benjert	3915	300 Braden Rd	Sunnyside
Clarence	Benjert	3915	300 Braden Rd	Sunnyside
Clarence	Benjert	3915	300 Braden Rd	Sunnyside

Clarence	Benjert	3950	1370 Waneta Rd	Grandview
Clarence	Benjert	3950	1370 Waneta Rd	Grandview
Clarence	Benjert	3950	1370 Waneta Rd	Grandview
Jake	Veldhuis	2225	26480 State Route 22	Mabton
William J/Sid	Wavrin	2097	2501 Boundary Rd	Mabton
William J/Sid	Wavrin	2195/9844	1605/1671 Boundary Rd	Mabton
William J/Sid	Wavrin	2195/9844	1605/1671 Boundary Rd	Mabton
William J/Sid	Wavrin	2195/9844	1605/1671 Boundary Rd	Mabton
William J/Sid	Wavrin	2195/9844	1605/1671 Boundary Rd	Mabton
William J/Sid	Wavrin	2195/9844	1605/1671 Boundary Rd	Mabton
Sid	Leyendekker	9665	2253 Boundary Rd	Mabton
Sid	Leyendekker	9665	2253 Boundary Rd	Mabton
David R	Newhouse	3875	1760 Murray Rd	Mabton
Robert	Golob	3953	500 Nelson Rd	Granger

Robert	Golob	3953	500 Nelson Rd	Granger
Will	Bron	9801	640 Nelson Rd	Granger
Will	Bron	9801	640 Nelson Rd	Granger
Will	Bron	9801	640 Nelson Rd	Granger
Roalio	Brambila	10079	4581 Maple Grove Rd	Sunnyside
Roalio	Brambila	10080	4582 Maple Grove Rd	Sunnyside
Roalio	Brambila	10081	4583 Maple Grove Rd	Sunnyside
Roalio	Brambila	10082	4584 Maple Grove Rd	Sunnyside
Roalio	Brambila	10083	4585 Maple Grove Rd	Sunnyside
Roalio	Brambila	10084	4586 Maple Grove Rd	Sunnyside
Roalio	Brambila	10085	4587 Maple Grove Rd	Sunnyside
Roalio	Brambila	10086	4588 Maple Grove Rd	Sunnyside
Bill	Scheenstra	9863	2850 Alexander Rd	Sunnyside
Bill	Scheenstra	2171	340 Den Boer Rd	Grandview

William	Scheenstra	10088	731 Den Boer Rd	Grandview
William	Scheenstra	10088	731 Den Boer Rd	Grandview
Jason	Smeenk	2199	8220 Emerald Rd	Sunnyside
Scott	Smeenk	2076	451 Wendell Phillips Rd	Sunnyside
Art	Mensonides	2056	305 S Fisher Rd	Mabton
Art	Mensonides	2056	305 S Fisher Rd	Mabton
Art	Mensonides	2056	305 S Fisher Rd	Mabton
Art	Mensonides	2056	305 S Fisher Rd	Mabton
Art	Mensonides	2056	305 S Fisher Rd	Mabton
Aaron	Prins	17	1741 Holaday Rd	Mabton
Arturo Perez	Salazar	59	1070 Buss Rd	Mabton
Arturo Perez	Salazar	59	1070 Buss Rd	Mabton
John	Banks, Jr	50	1220 Vance Rd	Mabton
John	Banks, Jr	50	1220 Vance Rd	Mabton
Dirk	Van Slageren	9024	101 Gap Rd	Granger

Dirk	Van Slageren	9024	101 Gap Rd	Granger
John	Prins	9284	1690 Hudson Rd	Granger
John	Prins	2052	931 Gap Rd	Granger
Tom	DeVries	2020	15720 Highway 24	Moxee
Tom	DeVries	2020	15720 Highway 24	Moxee
Tom	DeVries	2020	15720 Highway 24	Moxee
Jake	Veldhuis	2003/2112	650 Hornby Rd	Grandview
Jake	Veldhuis	2003/2112	650 Hornby Rd	Grandview
Jake	Veldhuis	2003/2112	2371 Stover Road	Grandview
Kevin	Den Hoed	3951	2320 N County Line Road	Grandview
Kevin	Den Hoed	3951	2320 N County Line Road	Grandview
Frank	De Jong	9983	31 Robinson Rd	Grandview
Dale	Swager	9831	2221 Alexander Ext	Grandview
Dale	Swager	9831	2221 Alexander Ext	Grandview
Tom	Van Ruiten	8005	611 Ferson Rd	Sunnyside
Tom	Van Ruiten	2008	1260 W Puterbaugh Rd	Sunnyside
Bill	De Ruyter	9882	1400 Lewandowski Rd	Sunnyside
Bill	De Ruyter	9882	1400 Lewandowski Rd	Sunnyside
Bill	De Ruyter	9882	1400 Lewandowski Rd	Sunnyside
Bill	De Ruyter	9882	1400 Lewandowski Rd	Sunnyside

Dan	De Groot	2094	4701 Scoon Rd	Sunnyside
Dan	De Groot	2094	4701 Scoon Rd	Sunnyside
Dan	De Groot	2094	4701 Scoon Rd	Sunnyside
Dan	De Groot	2094	4701 Scoon Rd	Sunnyside
Tony	Veiga	9659	7190 E Edison Rd	Sunnyside
Tony	Veiga	9659	7190 E Edison Rd	Sunnyside
Tony	Veiga	9659	7190 E Edison Rd	Sunnyside
Jason	Sheehan	2086	7190 E Edison Rd	Sunnyside
Jason	Sheehan	2086	7190 E Edison Rd	Sunnyside
Clifford (Ron)	Nilles	9974	3280 Sheller Rd	Sunnyside
Clifford (Ron)	Nilles	9974	3280 Sheller Rd	Sunnyside
Jake	Slegers Jr	10048	7190 Sheller Rd	Sunnyside
Frank	Leyendekker	9561	1860 Harrison Rd	Sunnyside
Joe	Rollinger	2125	840 E Allen Rd	Sunnyside
Nick	Struikmans	3090	2270 Gurley Rd	Outlook
Nick	Struikmans	3090	2270 Gurley Rd	Outlook
Nick	Struikmans	3090	2270 Gurley Rd	Outlook
Jake N	De Ruyter	5706	5111 Van Belle Rd	Outlook
Jake N	De Ruyter	5706	5111 Van Belle Rd	Outlook
Jake N	De Ruyter	5706	5111 Van Belle Rd	Outlook
Jake N	De Ruyter	5706	5111 Van Belle Rd	Outlook
Jake N	De Ruyter	5706	5111 Van Belle Rd	Outlook

Henry R	Haak	3894	211 Nichols Rd	Outlook
Henry R	Haak	3894	211 Nichols Rd	Outlook
Henry R	Haak	3894	211 Nichols Rd	Outlook
Henry	Bosma	2239	440 Dekker Rd	Outlook
Henry	Bosma	2239	440 Dekker Rd	Outlook
Jim	Stoutjesdyk	10083	16041 Yakima Valley Hwy	Zillah
John	Bosma	9908	3610 Independence Rd	Outlook
John	Bosma	9908	3610 Independence Rd	Outlook
John	Bosma	9908	3610 Independence Rd	Outlook
John	Bosma	9908	3610 Independence Rd	Outlook
Joe	Rollinger	2125	1310 Tear Road	Sunnyside
Joe	Rollinger	2125	840 E Allen Rd	Sunnyside
Andy	Sytsma	2114	6160 Van Belle Rd	Sunnyside
Andy	Sytsma	2114	6160 Van Belle Rd	Sunnyside
Andy	Sytsma	12	3471 Independence Rd	Sunnyside
Andy	Sytsma	12	3471 Independence Rd	Sunnyside

Facility Name:	MailStAddr	MailCity	MailState	MailZip	County
Highview Inc #1	3970 Highland Dr	Zillah	WA	98953	Yakima
Highview Inc #2	3970 Highland Dr	Zillah	WA	98953	Yakima
Highview Inc #2	3970 Highland Dr	Zillah	WA	98953	Yakima
Pride & Joy Dairy #1	2145 Liberty Rd	Granger	WA	98932	Yakima
Pride & Joy Dairy #1	2145 Liberty Rd	Granger	WA	98932	Yakima
Sli Dairy	2501 Sli Rd	Sunnyside	WA	98944	Yakima
Benjert Farms #2	300 Braden Rd	Sunnyside	WA	98944	Yakima
Benjert Farms #2	300 Braden Rd	Sunnyside	WA	98944	Yakima
Benjert Farms #2	300 Braden Rd	Sunnyside	WA	98944	Yakima

Benjert Farms Inc #1 (Quality Dairy)	300 Braden Rd	Sunnyside	WA	98944	Yakima
Benjert Farms Inc #1 (Quality Dairy)	300 Braden Rd	Sunnyside	WA	98944	Yakima
Benjert Farms Inc #1 (Quality Dairy)	300 Braden Rd	Sunnyside	WA	98944	Yakima
Veldhuis Dairy	771 Hornby Rd	Grandview	WA	98930-9231	Yakima
Sunny Dene Ranch III - Sunny Dene at Horse Heaven	1675 Boundary Rd	Mabton	WA	98935	Yakima
Sunny Dene II & IV - Sunny Dene at Windcrest	1675 Boundary Rd	Mabton	WA	98935	Yakima
Sunny Dene II & IV - Sunny Dene at Windcrest	1675 Boundary Rd	Mabton	WA	98935	Yakima
Sunny Dene II & IV - Sunny Dene at Windcrest	1675 Boundary Rd	Mabton	WA	98935	Yakima
Sunny Dene II & IV - Sunny Dene at Windcrest	1675 Boundary Rd	Mabton	WA	98935	Yakima
Sunny Dene II & IV - Sunny Dene at Windcrest	1675 Boundary Rd	Mabton	WA	98935	Yakima
Hidden Valley Dairy	PO Box 646	Mabton	WA	98935	Yakima
Hidden Valley Dairy	PO Box 646	Mabton	WA	98935	Yakima
Newhouse Dairy	700 Wendell Phillips Rd	Sunnyside	WA	98944	Yakima
Golob Dairy Inc	500 Nelson Rd	Granger	WA	98932	Yakima

Golob Dairy Inc	500 Nelson Rd	Granger	WA	98932	Yakima
Bron Dairy #1	640 Nelson Rd	Granger	WA	98932	Yakima
Bron Dairy #1	640 Nelson Rd	Granger	WA	98932	Yakima
Bron Dairy #1	640 Nelson Rd	Granger	WA	98932	Yakima
Sunnyside Dairy #1 and #2	4581 Maple Grove Rd	Sunnyside	WA	98944	Yakima
Sunnyside Dairy #1 and #3	4582 Maple Grove Rd	Sunnyside	WA	98945	Yakima
Sunnyside Dairy #1 and #4	4583 Maple Grove Rd	Sunnyside	WA	98946	Yakima
Sunnyside Dairy #1 and #5	4584 Maple Grove Rd	Sunnyside	WA	98947	Yakima
Sunnyside Dairy #1 and #6	4585 Maple Grove Rd	Sunnyside	WA	98948	Yakima
Sunnyside Dairy #1 and #7	4586 Maple Grove Rd	Sunnyside	WA	98949	Yakima
Sunnyside Dairy #1 and #8	4587 Maple Grove Rd	Sunnyside	WA	98950	Yakima
Sunnyside Dairy #1 and #9	4588 Maple Grove Rd	Sunnyside	WA	98951	Yakima
Sun Valley Dairy LLC #1	PO Box 689	Sunnyside	WA	98944	Yakima
Sun Valley Dairy LLC #2	PO Box 689	Sunnyside	WA	98944	Yakima

Sun Valley Dairy LLC #3	PO Box 689	Sunnyside	WA	98944	Yakima
Sun Valley Dairy LLC #3	PO Box 689	Sunnyside	WA	98944	Yakima
Smeenk Bros Dairy #2	451 Wendell Phillips Rd	Sunnyside	WA	98944	Yakima
Smeenk Bros Dairy LLC	451 Wendell Phillips Rd	Sunnyside	WA	98944	Yakima
Mensonides Dairy LLC	305 S Fisher Rd	Mabton	WA	98935	Yakima
Mensonides Dairy LLC	305 S Fisher Rd	Mabton	WA	98935	Yakima
Mensonides Dairy LLC	305 S Fisher Rd	Mabton	WA	98935	Yakima
Mensonides Dairy LLC	305 S Fisher Rd	Mabton	WA	98935	Yakima
Mensonides Dairy LLC	305 S Fisher Rd	Mabton	WA	98935	Yakima
Double P Dairy	1741 Holaday Rd	Mabton	WA	98935	Yakima
Familia Salazar Dairy	1070 Buss Rd	Mabton	WA	98935	Yakima
Familia Salazar Dairy	1070 Buss Rd	Mabton	WA	98935	Yakima
Riverview Ranch	1220 Vance Rd	Mabton	WA	98935	Yakima
Riverview Ranch	1220 Vance Rd	Mabton	WA	98935	Yakima
Cherry Hill Dairy Inc	PO Box 268	Granger	WA	98932	Yakima

Cherry Hill Dairy Inc	PO Box 268	Granger	WA	98932	Yakima
John Prins Dairy #1	1690 Hudson Rd	Granger	WA	98932	Yakima
John Prins Dairy #2	1690 Hudson Rd	Granger	WA	98932	Yakima
DeVries Family Dairy	15720 SR 24	Moxee	WA	98936	Yakima
DeVries Family Dairy	15720 SR 24	Moxee	WA	98936	Yakima
DeVries Family Dairy	15720 SR 24	Moxee	WA	98936	Yakima
Klompe Dairy	771 Hornby Road	Grandview	WA	98930	Yakima
Klompe Dairy	771 Hornby Road	Grandview	WA	98930	Yakima
Frieslandia	771 Hornby Road	Grandview	WA	98930	Yakima
Den Hoed Dairy	1831 N County Line Rd	Grandview	WA	98930	Yakima
Den Hoed Dairy	1831 N County Line Rd	Grandview	WA	98930	Yakima
Udder View Dairy LLC	31 Robinson Rd	Grandview	WA	98930	Yakima
Swager Dairy	2221 Alexander Ext	Grandview	WA	98930	Yakima
Swager Dairy	2221 Alexander Ext	Grandview	WA	98930	Yakima
T & D Dairy	611 Ferson Rd	Sunnyside	WA	98944	Yakima
Destiny Dairy & T & D Dairy	611 Ferson Rd	Sunnyside	WA	98944	Yakima
View Point Dairy	1400 Lewandowski Rd	Sunnyside	WA	98944	Yakima
View Point Dairy	1400 Lewandowski Rd	Sunnyside	WA	98944	Yakima
View Point Dairy	1400 Lewandowski Rd	Sunnyside	WA	98944	Yakima
View Point Dairy	1400 Lewandowski Rd	Sunnyside	WA	98944	Yakima

Skyridge Farm #1 and #2	4701 Scoon Rd	Sunnyside	WA	98944	Yakima
Skyridge Farm #1 and #2	4701 Scoon Rd	Sunnyside	WA	98944	Yakima
Skyridge Farm #1 and #2	4701 Scoon Rd	Sunnyside	WA	98944	Yakima
Skyridge Farm #1 and #2	4701 Scoon Rd	Sunnyside	WA	98944	Yakima
J & K Dairy LLC #1 & #2	1641 Harrison Road	Sunnyside	WA	98944	Yakima
J & K Dairy LLC #1 & #2	1641 Harrison Road	Sunnyside	WA	98944	Yakima
J & K Dairy LLC #1 & #2	1641 Harrison Road	Sunnyside	WA	98944	Yakima
J & K Dairy LLC #1 & #2	1641 Harrison Road	Sunnyside	WA	98944	Yakima
J & K Dairy LLC #1 & #2	1641 Harrison Road	Sunnyside	WA	98944	Yakima
C & L Dairy (R & L Dairy)	3280 Sheller Rd	Sunnyside	WA	98944	Yakima
C & L Dairy (R & L Dairy)	3280 Sheller Rd	Sunnyside	WA	98944	Yakima
JLS Dairy	7190 Sheller Rd	Sunnyside	WA	98944	Yakima
Harrison Road Dairy	4001 Bethany Rd	Sunnyside	WA	98944	Yakima
J & L Rollinger Farms	840 E Allen Rd	Sunnyside	WA	98944	Yakima
Majestic Farms	2320 Gurley Rd	Outlook	WA	98938	Yakima
Majestic Farms	2320 Gurley Rd	Outlook	WA	98938	Yakima
Majestic Farms	2320 Gurley Rd	Outlook	WA	98938	Yakima
Deruyter Bros Dairy 1 & 2	PO Box 338	Outlook	WA	98938	Yakima
Deruyter Bros Dairy 1 & 2	PO Box 338	Outlook	WA	98938	Yakima
Deruyter Bros Dairy 1 & 2	PO Box 338	Outlook	WA	98938	Yakima
Deruyter Bros Dairy 1 & 2	PO Box 338	Outlook	WA	98938	Yakima
Deruyter Bros Dairy 1 & 2	PO Box 338	Outlook	WA	98938	Yakima

Snipes Mountain Dairy	PO Box 636	Outlook	WA	98938	Yakima
Snipes Mountain Dairy	PO Box 636	Outlook	WA	98938	Yakima
Snipes Mountain Dairy	PO Box 636	Outlook	WA	98938	Yakima
Suncrest Farms	4300 Beam Rd	Zillah	WA	98953	Yakima
Suncrest Farms	4300 Beam Rd	Zillah	WA	98953	Yakima
Tuxedo Dairy LLC	16041 Yakima Valley Hwy	Zillah	WA	98953	Yakima
Maple Grove Dairy	3620 Independence Rd	Sunnyside	WA	98944	Yakima
Maple Grove Dairy	3620 Independence Rd	Sunnyside	WA	98944	Yakima
Maple Grove Dairy	3620 Independence Rd	Sunnyside	WA	98944	Yakima
Maple Grove Dairy	3620 Independence Rd	Sunnyside	WA	98944	Yakima
J & L Rollinger Farm #2	840 E Allen Rd	Sunnyside	WA	98944	Yakima
J & L Rollinger Farm #2	840 E Allen Rd	Sunnyside	WA	98944	Yakima
A & C Sytsma	6160 Van Belle Rd	Sunnyside	WA	98944	Yakima
A & C Sytsma	6160 Van Belle Rd	Sunnyside	WA	98944	Yakima
A & C Sytsma Dairy # 2	6160 Van Belle Rd	Sunnyside	WA	98944	Yakima
A & C Sytsma Dairy # 2	6160 Van Belle Rd	Sunnyside	WA	98944	Yakima

# of Lagoons	Lagoon ID	Lat	Long	% Capacity at time of inspection	Liq Level below embankment or spillway (ft)	Weather	Temp (°F)	Soil moisture
1	Main	46.42982	-120.23638	33	4	Sunny	57	moist
2	#1	46.43733	-120.31256	75	0	Sunny	64	dry
	#2	46.43585	-120.31358	5	5	Sunny	65	dry
2	#1	46.36977	-120.14422	100	0	Sunny	65	moist
	#2	46.36932	-120.14439	33		Sunny	65	moist
	Main	46.36136	-119.92479	100	3	Sunny	54	moist
3	Main	46.29539	-119.97044	40	4	Overcast	54	moist
	SP #1	46.29562	-119.97021	0	4	Overcast	54	moist
	SP #2	46.29556	-119.97021	90	0.5	Overcast	54	moist

3	Main	46.29064	-119.9845	60	2	Showers	57	moist
	SP #1	46.2908	-119.98406	100	0	Showers	57	moist
	SP #2	46.29079	-119.98434	100	0	Showers	57	moist
1	Main	46.19336	-119.9324	75	4	Sunny	45	dry
1	Main	46.16658	-120.0394	40	12	Sunny	59	dry
5	Pond 1 at Windcrest II	46.19497	-120.0195	2.5	10	Sunny	54	dry
	Heifer/Pond 1 at Windcrest I	46.1946	-120.02205	0.5	6	Sunny	54	dry
	Mixing/Pond 2 at Windcrest I	46.19473	-120.02013	0		Sunny	54	dry
	North Scrape Pit	46.1946	-120.02205	50	3	Sunny	54	dry
	South Scrape Pit	46.1946	-120.02205	50	3	Sunny	54	dry
2	Pond 1	46.1837	-120.01741	100	0	Sunny	60	dry
	Pond 2	46.1837	-120.01741	30	6	Sunny	61	dry
1	Main	46.27106	-120.05655	60	5	Overcast	43	dry
2	Main (west)	46.36552	-120.17748	75	4	Sunny	55	dry

	Settling Pond (east)	46.36573	-120.17655	50	3.5	Sunny	55	dry
3	Main 1	46.36026	-120.17128	30	5	Sunny	55	dry
	Main 2	46.35916	-120.17061			Sunny	55	dry
	Settling Pond	46.36076	-120.17092	75	0	Sunny	55	dry
8	1	46.38958	-120.03831	10	10	Sunny	45	dry
	2	46.3899	-120.03518	25	8	Sunny	45	dry
	3	46.39024	-120.0344	90	0	Sunny	46	dry
	4	46.39069	-120.03516	100	0	Sunny	47	moist
	5, main receiving pond	46.39051	-120.03669	100	2	Sunny	50	moist
	6	46.39096	-120.03738	70	1	Sunny	50	moist
	7	46.39095	-120.03651	0	12	Sunny	50	moist
	8, small dairy pond	46.39154	-120.04611	0	10	Sunny	50	moist
1	Main	46.29915	-119.98694	50	3	Sunny	58	dry
1	Main	46.26654	-119.99075	60	2	Sunny	58	dry

2	Settling Pond 1	46.26556	-119.98535	60	2	Overcast	65	dry
	Settling Pond 2	46.26556	-119.98532	60	2	Overcast	65	dry
1	Main	46.29957	-120.04691	30	3	Sunny	55	dry
1	Main	46.29354	-120.05947	70	2	Sunny	55	dry
5	Main (lined)	46.18602	-119.92813	60	4	Overcast	45	dry
	Pond 1	46.17858	-119.92759	50	6	Overcast	50	dry
	Pond 2	46.17851	-119.92725	60	3	Overcast	50	dry
	Pond 3 (irrigation)	46.17858	-119.92635	60	5	Overcast	50	dry
	Basin above Pond 3	46.18541	-119.93427	0	8	Overcast	50	dry
1	Main	46.25435	-120.03544	50	3	Overcast	50	dry
2	Pond 1	46.19987	-119.93027	75	2.5	Overcast	53	dry
	Settling Pond	46.2004	-119.93005	75	2.5	Sunny	53	dry
2	Pond 1	46.23183	-119.9819	10	6	Overcast	48	dry
	Pond 2	46.23198	-119.98219	10	4	Overcast	48	dry
2	Pond 1	46.33647	-120.16453	75	3.5	Sunny	61	dry

	Pond 2	46.3368	-120.16914			Sunny	61	dry
1	Main	46.35864	-120.15285	0	20	Sunny	57	dry
1	Main	46.33716	-120.14892	10	8	Sunny	63	dry
3	Main	46.49776	-120.18749	50		Overcast	41	moist
	West Settling Pond	46.49754	-120.18762	75		Overcast	41	moist
	East Settling Pond	46.4976	-120.18708	75		Overcast	41	moist
2	1 East	46.27119	-119.96852	90	1	Sunny	52	dry
	2 West	46.27272	-119.96981	0	15	Sunny	52	dry
1	1	46.27468	-119.96152	90	1	Sunny	50	dry
2	1	46.28766	-119.88277	100	0	Sunny	53	dry
	2	46.28753	-119.88317	0	15	Sunny	53	dry
1	1	46.22329	-119.8924	50	3	Sunny	53	dry
2	1	46.30315	-119.88055	95	1	Sunny	65	dry
	2	46.30318	-119.88094	0	5	Sunny	67	dry
1	1-south	46.29835	-119.94248	50	5	Sunny	45	dry
1	2-north	46.29888	-119.94182	50	4	Sunny	45	dry
4	1	46.37807	-119.94036	100	0	Sunny	67	dry
	2	46.37738	-119.9411	100	0	Sunny	67	dry
	3	46.37675	-119.94175	75	5	Sunny	67	dry
	4	46.37707	-119.93983	95	1	Sunny	67	dry

4	Primary / SB	46.38654	-120.02643	100	0	Sunny	38	dry
	1	46.38634	-120.02592	35	8	Sunny	38	dry
	2	46.38585	-120.02657	0	12	Sunny	38	dry
	3	46.38602	-120.02737	10	12	Sunny	38	dry
3	1	46.32671	-119.89309	25	5	Sunny	60	dry
	2	46.32896	-119.90514	0	12	Sunny	60	dry
	Catch Basin	46.33175	-119.90433	0	10	Sunny	60	dry
2	3	46.33387	-119.90344	0	10	Sunny	60	dry
	4	46.3342	-119.90347		5	Sunny	60	dry
2	1	46.33286	-119.96574	100	0	Sunny	45	dry
	2 North	46.33295	-119.96579	90	2	Sunny	45	dry
1	1	46.3339	-119.88017	20	6	Sunny	47	dry
1	1	46.32622	-119.91718	75	3	Sunny	47	dry
1	1	46.30645	-119.96053	0	10	Sunny	35	dry
3	1	46.37318	-120.14439	95	1	Cloudy	55	dry
	2	46.37276	-120.1444	75	3	Cloudy	55	dry
	3	46.37257	-120.14478	0	20	Cloudy	55	dry
5	1	46.34893	-120.06909	80	3	Cloudy	57	dry
	2	46.34899	-120.0691	95	1	Cloudy	57	dry
	3	46.34944	-120.06945	0		Cloudy	57	dry
	4	46.35039	-120.06889	0		Cloudy	57	dry
	5	46.35059	-120.06871	0		Cloudy	57	dry

3	5	46.33414	-120.07892	90	1	Cloudy	50	dry
	6	46.33328	-120.07869	95	1	Cloudy	50	dry
	7	46.33673	-120.08012	75	2	Cloudy	50	dry
2	1	46.34177	-120.1266	90	2	Cloudy	50	dry
	2	46.34131	-120.13047	50	5	Cloudy	50	dry
1	1	46.37829	-120.21219	50	3	sunny		dry
4	1	46.37093	-120.04942	90	3	Cloudy	60	dry
	2	46.37093	-120.04885	80	2	Cloudy	60	dry
	3	46.37099	-120.04745	15	8	Cloudy	57	dry
	4	46.37012	-120.04845	60	4	Cloudy	57	dry
2	1 North	46.28389	-119.97271	10	6	Sunny	45	dry
	2 South	46.2834	-119.97289	10	6	Sunny	45	dry
2	1	46.34245	-120.04951	80	2	Sunny	67	dry
	2	46.34336	-120.04764	10	4	Sunny	67	dry
2	1	46.3757	-120.05396	75	2	Sunny	67	dry
	2	46.37622	-120.05412	20	8	Sunny	67	dry

Damage from burrowing animals	Evidence of Over-topping	Soil erosion on bank	Pond transfer pip/sturcture is clear	Trees or Woody Veg	WSP access is fenced and properly marked?	Interior erosion near waste inlet?	Interior erosion near agitation equip access?	General erosion of liner material?	Damaged liner material?
no	no	no	yes	no	NA	yes	no	no	no
No	No	NA	Yes	No	NA	No	No	No	No
No	No	NA	Yes	No	NA	Yes	No	Yes	No
No	No	NA	Yes	No	NA	NE	NE	NA	NA
No	No	No	Yes	No	NA	Yes	No	No	No
Yes	Yes	Yes	Yes	No	NA	NE	NE	NE	NE
Yes	No	No	Yes	No	NA	No	No	No	No
No	No	No	Yes	No	NA	No	No	No	No
No	No	No	Yes	No	NA	NE	NE	NE	NE

Yes	No	No	Yes	No	NA	No	No	No	No
No	NA	No	Yes	No	NA	NE	NE	NE	NE
No	No	No	Yes	No	NA	NE	NE	NE	NE
No	No	No	Yes	No	NA	No	No	No	No
No	No	No	Yes	No	NA	No	No	No	No
No	No	No	Yes	No	NA	No	No	No	No
No	No	No	Yes	No	NA	No	Yes	No	No
No	No	No	Yes	No	NA	No	No	No	No
No	No	No	Yes	No	NA	Yes	No	No	No
No	No	No	Yes	No	NA	Yes	No	No	No
No	No	NA	No	No	NA	NE	NE	NE	NE
No	No	No	No	No	NA	No	No	No	No
No	No	No	Yes	No	NA	No	No	No	No
No	No	No	Yes	No	NA	No	No	No	No

No	No	No	Yes	No	NA	No	No	No	No
No	No	No	Yes	No	NA	No	No	No	No
No	No	No	Yes	No	NA	No	No	No	No
No	No	No	Yes	No	NA	No	No	No	No
No	No	No	Yes	No	NA	No	No	No	No
No	No	No	Yes	No	NA	Yes	No	No	No
No	No	No	Yes	No	NA	No	No	NE	NE
No	No	No	Yes	No	NA	No	NE	NE	NE
No	No	No	Yes	No	NA	No	No	NE	NE
no	No	No	Yes	No	NA	No	No	No	No
No	No	No	Yes	No	NA	No	No	No	No
no	No	No	Yes	No	NA	Yes	No	No	No
Yes	No	Yes	Yes	No	NA	Yes	No	No	No
Yes	No	No	Yes	No	NA	Yes	No	Yes	No

Yes	No	Yes	Yes	No	NA	NE	NE	NE	NE
Yes	No	Yes	Yes	No	NA	NE	NE	NE	NE
Yes	No	No	Yes	No	NA	No	No	Yes	No
No	No	No	Yes	No	NA	No	No	No	No
No	No	No	Yes	No	NA	No	No	No	No
Yes	No	No	Yes	No	NA	No	No	No	No
No	No	No	Yes	No	NA	No	No	No	No
No	No	No	Yes	No	NA	No	No	No	No
Yes	No	No	Yes	No	NA	No	No	No	No
No	No	No	Yes	No	NA	Yes	No	No	No
Yes	No	Yes	Yes	No	NA	Yes	No	Yes	No
Yes	No	Yes	Yes	No	NA	Yes	Yes	No	No
No	No	No	Yes	No	NA	No	No	No	No
No	No	No	Yes	No	NA	Yes	No	No	No
No	No	No	Yes	No	NA	No	No	No	No

Yes	No	Yes	Yes	No	NA	No	No	Yes	No
No	No	No	Yes	No	NA	Yes	No	No	No
No	No	No	Yes	No	NA	No	No	No	No
No	No	No	Yes	No	NA	No	No	No	No
No	No	No	Yes	No	NA	No	No	No	No
No	No	No	Yes	No	NA	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	Yes	No	No	No	No
Yes	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	Yes	No
No	No	No	Yes	No	No	No	No	No	No
Yes	No	No	Yes	No	No	No	No	No	No
Yes	No	Yes	Yes	No	No	Yes	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
Yes	No	No	Yes	No	No	No	No	No	No

No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No		Yes	No	No	No	No	Yes	No
No	No	Yes	Yes	No	No	Yes	Yes	No	No
No	No	No	NA	No	No	No	No	No	No
No	No	No	Yes	No	Yes	No	No	No	No
Yes	No	No	Yes	No	Yes	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	Yes	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
Yes	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	Yes	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	Yes	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No

No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No
No	No	No	Yes	No	No	No	No	No	No

All pumps and transfer pipes functional ?	All recycling pumps and transfer pipes functional ?	Downwind odor from WSP strong?	NOTES	Any abnormal condition requireing corrective action?
yes	yes	no	some errosion near inlet pipe	No
Yes	Yes	No		No
Yes	Yes	No	Weed obstruct view of interior bank. If cleaning out pond this year, remove weeds.	No
Yes	Yes	No	Full pond - can't evaluate interior	No
Yes	Yes	No	some errosion near inlet pipe. Add concrete or something to create a spillway - inlet for freshwater also shows some erosion.	No
Yes	Yes	No	Lots of rodent activity. Evidence of overtopping into corral. Lots of weeds. Need to spray.	Yes, Major
Yes	Yes	No	Minimal evidence of rodent activity on south edge of pond	No
Yes	Yes	No	Some wind erosion near top	No
Yes	Yes	No	Pond full - difficult to evaluate	No

Yes	Yes	No	Few spots of rodent holes	No
Yes	Yes	No	Pond is full	No
Yes	Yes	No	Pond was full, could not evaluate liner	No
Yes	Yes	No		No
Yes	Yes	No	22' dam wall built per dam safety specs	No
Yes	Yes	No	Plastic liner, ? Mil	No
Yes	Yes	No	Some erosion near inlet	No
Yes	Yes	No		No
Yes	Yes	No	Some erosion on south edge of first pond (north of corrals) at inlet pipe	No
Yes	Yes	No		No
Yes	Yes	No	Could not evaluate as pond was over capacity	Yes, Minor
Yes	Yes	No	Transfer b/w pond 2 & 2 was plugged - has been excavated and will be replaced	No
Yes	Yes	No		No
Yes	Yes	No	Some narrowing of top bank	No

Yes	Yes	No	Inside SE edge some wind erosion	No
Yes	Yes	No	Some wind erosion on east end	No
Yes	Yes	Yes	Some old kosha and Russian thistle skeletons piling uip in end of pond	No
Yes	Yes	No	Concrete settling cells overtopped	No
Yes	Yes	No	Minor erosion on NE bank by ramp	No
Yes	Yes	No	Minor erosion near south inlet structure	No
Yes	Yes	No	Could not evaluate interior liner, WSP is full	No
Yes	Yes	No	Pond is full, cannot evaluate liner	No
Yes	Yes	No	Pond is full, cannot evaluate liner	No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No	Some erosion on south bank and near inlet - not significant - Big banks!	No
Yes	Yes	No	Some rodents on SE side	No
Yes	Yes	No		No

Yes	Yes	No	Weeds were too heavy to evaluate interior	Yes, Major
Yes	Yes	No	Weeds were too heavy to evaluate interior	Yes, Major
Yes	Yes	No		Yes, Major
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No	Some rodent holes on south edge by wier	No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No	Minimal evidence of rodent activity on south edge of pond	No
Yes	Yes	No	Possible rodent activity inside bank. Erosion near irrigation water inlet	No
Yes	Yes	No	Some rodent activity b/w pond 1 & settling pond, and some wind erosion on east bank	No
Yes	Yes	No	Agitation and inlet areas show signs of erosion	No
Yes	Yes	No	Some wind erosion on SW edge near corrals	No
Yes	Yes	No	Some erosion at inlet	No
Yes	Yes	No		No

Yes	Yes	No	Minimal - saw two rodent holes - weeds inside bank	No
Yes	Yes	No	Inlet from storm runoff collection pit - some erosion in SW corner	No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No	Settling pond cleaned in fall and applied	No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No	General erosion on south bank	No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		Yes, Minor
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No

Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No	Minor	No
NA	NA	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No	Trees ouside of dike	Yes, Minor
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No	Olive bush in between L1 & L2	Yes, Minor
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No

Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No	This lagoon no longer used. Producer building new lagoon ASAP.	No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No	Weeds are grown up	No
Yes	Yes	No		No
Yes	Yes	No		No
Yes	Yes	No		No

NOTES	Liner Type	Evidence of liner slumps, bulges, boils, or whales?	Are perimeter drains plugged or blocked?	Evidence of cracks in embankment soils	Evidence of seepage on the embankment slope?	Evidence of differential (uneven) settlement of bank?
	Compacted Clay	No	NA	No	No	No
	Compacted Clay	No	NA	No	NA	NA
	Bentonite Amendment	No	NA	No	NA	NA
	Compacted Clay	NA	NA	No	NA	NA
	Compacted Clay	No	NA	No	No	No
Need to bring WSP bank on S/SW edge back into design compliance. Low edge allows water /manure to flow b/w corral and WSP	Unknown	NE	NA	NA	NA	Yes
	Bentonite Amendment	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No

	Bentonite Amendment	No	NA	No	No	No
	Bentonite Amendment	NE	NA	No	No	No
	Bentonite Amendment	NE	NA	No	No	No
	Flexible Membrane	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Flexible Membrane	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Bentonite Amendment	No	No	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
Replace culver/spillway b/w pond 1 and 2	Bentonite Amendment	NE	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Compacted Clay	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No

	Unknown	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Compacted Clay	No	NA	No	No	No
	Bentonite Amendment	No	No	No	No	No
	Bentonite Amendment	NE	NA	No	No	No
	Bentonite Amendment	NE	NA	No	No	No
	Bentonite Amendment	NE	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No

Exterior bank look like excavated solids - large cracks in bank slope - but no evidence of sepage. Heavy weeds	Bentonite Amendment	NE	NA	Yes	No	No
Heavy solids piled on outside of bank w/cracks. Should be evaluated for sructural integrity and rodent control	Bentonite Amendment	NE	NA	Yes	No	No
Manure from Pen 25 runs overland to lagoon - Need settling pond b/w Pen 25 and lagoon	Bentonite Amendment	No	NA	No	No	No
	Flexible Membrane	No	NA	No	No	No
	Flexible Membrane	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Flexible Membrane	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Compacted Clay	No	NA	No	No	No
	Compacted Clay	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No

	Bentonite Amendment	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Bentonite Amendment	No	NA	No	No	No
	Compacted Clay	NA	Yes	No	No	No
	Flexible Membrane	No	Yes	No	No	No
	Compacted Clay	NA	Yes	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No

	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	Yes	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No

	Compacted Clay	NA	Yes	No	No	No
	Compacted Clay	NA	Yes	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Flexible Membrane	No	NA	No	No	No
	Flexible Membrane	No	NA	No	No	No
	Flexible Membrane	No	NA	No	No	No
	Flexible Membrane	No	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	Yes	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No
	Compacted Clay	NA	NA	No	No	No

Evidence of sand boils on slope, along the toe or near the toe?	Interior Erosion due to wave action?	Interior erosion from rainfall?	NOTES	WSP - Inside Top - AVG width (ft)	WSP - Inside Top - AVG length (ft)	WSP Storage Capacity (cu ft)
No	No	No				
NA	No	No	This is a pit pond. Weed obscured interior. Could not evaluate.			
NA	No	No	Pit pond/weeds obscure inside bank			
NA	NE	NE	Full pond, so no evaluation of liner - pit pond so no embankment			
No	No	No				
NA	NE	NE	Pond full - could not evaluate interior			
No	No	No		201	146	316991
No	Yes	No	Some erosion near top of edge	75	35	9152
No	Yes	No	Some erosion 6" to top of bank. Pond was full	70	30	7172

No	Yes	No	Minimal erosion on east side of main near top	286	201	402402
No	Yes	No	minimal erosion near top of bank - possibly due to aggressive agitation. Pond was full	24	88	9627
No	Yes	No	Minimal erosion near top of south edge of pond	24	88	9627
No	No	No		267	267	695960
No	No	No		264	464	1180640
No	No	No		289.6	382.6	1065234
No	No	No		128	138	134488
No	Yes	No	Some erosion near clean water inlet	98	978	938293
No	No	No		22.9	132.9	12046
No	No	No		22.3	162.3	14947
No	NE	NE	Could not evaluate interior because full to capacity (no free board)	180	280	344937
No	No	No		411	306	1825710
No	No	No	Native Clay liner	184	234	296025
No	No	No		282	277	703026

No	No	No		82	282	208116
No	No	No	Kosha build up on east end of pond - some spraying has occurred	302	356	614160
No	No	No	Som errosion on interior east end	232	247	428971
No	No	No		76	166	42533
No	No	No		322	212	887231
No	No	No		200	365	1258115
No	Yes	No	Minor erosion at top of south edge of WSP. WSP full could not evaluate liner	187	172	447781
No	No	No	Pond is full, cannot evaluate liner	187	162	424791
No	Yes	No	Minimal erosion along E and N edge of lagoon top from wave/wind - could not evaluate liner	135	305	445743
No	No	No		211.8	211.8	873659
No	No	No		62.2	671.2	764246
No	No	No		115	285	398007
No	Yes	No	SE side of lagoon shows bank erosion and wind/wave erosion. Some rodent activity	213	318	611888
No	Yes	No	Erosion around interior of bank on all sides - also rodent holes b/w main and Walters pond	133	258	326608

No	NE	NE	Could not evaluate interior due to weeds	95	225	127656
No	NE	NE	Could not evaluate interior. Cracks in solid layer on exterior bank.	95	225	127656
No	No	No	Some erosion on SE edge	185	215	276090
No	No	No		170	220	287493
No	No	No		250	413	3668647
No	No	No		128	572	1458576
No	No	No		138	528	2485350
No	No	No		98	528	1908910
No	No	No		77	91	148709
No	Yes	No	Easte side of lagoon interior signes of wind erosion	148	247	329004
No	Yes	No	Wind erosion on east bank	110	57	380113
No	Yes	No	Wind erosion on east bank	22	92	7170
No	Yes	No	SW edge - similar to pond 2, some erosion	138	168	226688
No	Yes	No	On SW edge - winder erosion	168	168	270848
No	No	No		77	177	139356

No	No	No	Interior erosion from pumping manure in from alley vac	133	283	276645
No	No	No		144	136	209381
No	No	No		86	206	270864
No	No	No		408	408	6096384
No	No	No		170	310	417924
No	No	No		190	315	512278
No	No	No		300	280	914112
No	No	No		200	310	668403
No	No	No		175	550	623633
No	No	No		90	130	68340
No	No	No		185	220	407280
No	No	No		130	160	163872
No	Yes	No	Interior erosion on south bank	80	150	71893
No	No	No		150	125	96147
No	No	No		160	300	406000
No	Yes	No	East side of lagoon has eroded	155	310	406000
No	No	No		220	315	420415
No	No	No		220	315	420415
No	No	Yes	Irrigation overflow on west bank	220	315	420415
No	No	No		225	225	371853

No	No	No		165	185	185190
No	No	No		204	288	508440
No	No	No		265	190	432642
No	No	No		400	400	1992349
No	Yes	No	Minor	410	390	577748
No	No	Yes	Irrigation but minor	300	450	1379712
No	No	No		120	210	102305
No	No	No		105	360	229460
No	No	No		120	360	254170
No	No	No		102	145	71820
No	No	No		87	185	67375
No	No	No		150	130	275213
No	No	No		55	510	124363
No	No	No		124	300	237600
No	No	No		145	140	174000
No	No	No		140	165	174000
No	No	No		50	240	63936
No	No	No		360	140	419832
No	No	No		350	140	419832
No	No	No		330	300	769500
No	No	No		320	430	1360333
No	No	No		410	440	1769472

No	No	No		170	295	388608
No	No	No		190	290	388608
No	No	No		170	340	421088
No	No	No		62	150	60204
No	No	No		85	190	60000
No	No	No		42	165	
No	No	No		125	315	
No	No	No		300	280	
No	No	No		145	340	
No	No	No		220	335	
No	No	No		160	310	216247
No	No	No		160	310	216247
No	No	No		160	500	864000
No	No	No		270	500	1321232
No	Yes	No		180	160	272428
No	No	No		200	260	584168

WSP Storage Capacity (gal)	Embankment - Inside SS (x:1)	Embankment - Outside SS (y:1)	Embankment - Top Width (ft)	Combined Side Slope (outside SS + inside SS)	Embankment - Maximum fill height (ft)	Maximum Excavation Depth (ft)	Total Pond Depth (ft)	Liner Type and Thickness (in)
0	3:1	3:1	8					Bentonite Amendment
0	3:1	NA	NA/12' b/w pond and Settling Pond					Compacted Clay
0	1:1? Steep	NA	NA					Bentonite Amendment
0	No evaluation	NA	16 b/w #1 & #2					Compacted Clay
0	2:1	3:1	16 to 8					Compacted Clay
0		NA	18					Unknown
2371258			16 to level		12	14	13	Bentonite Amendment
68461.72	3:1	3:1	8		5	7	6	Bentonite Amendment
53650.29	3:1	3:1	8		5	7	6	Bentonite Amendment

3010176		5:1 to 3:1	8 to 12		7	9	8	Bentonite Amendment
72014.97		3:1	8		6	8	7	Bentonite Amendment
72014.97		3:1	8		6	8	7	Bentonite Amendment
5206143	2:1 to 3:1	3:1	12		11	13	12	Flexible Membrane
8831801	3:1 ?	4:1 to gully	NA		12	15	14	Bentonite Amendment
7968504	3:1	level			9.8	11.8	10.8	Flexible Membrane
1006040	3:1	Level	NA		8	10	9	Bentonite Amendment
7018920	2:1	level	NA		10	12	11	Bentonite Amendment
90110.34	3:1	level	9 b/w ponds		4.7	6.7	5.7	Bentonite Amendment
111811.3	3:1	level	9 b/w ponds		4.9	6.9	5.9	Bentonite Amendment
2580308		level	16		8	10	9	Bentonite Amendment
13657260	3:1 to 4:1	level with scrape out	16		16	18	17	Bentonite Amendment
2214421	2:1	3:1 to 5:1	14		8	10	9	Compacted Clay
5259000	3:1	3:1 to 2:1	9.5		9	11	10	Bentonite Amendment

1556816	3:1	3:1 to 2:1	12		9	11	10	Unknown
4594236	2:1 to 3:1	3:1	16 to 11		7	9	8	Bentonite Amendment
3208926	2:1 to 3:1	3:1	11		9	11	10	Bentonite Amendment
318169	3:1	3:1	16		4.5	6.5	7.5	Bentonite Amendment
6636949	2:1	2:1	10		12	14	13	Bentonite Amendment
9411354	2:1	2:1	8		15	17	16	Bentonite Amendment
3349635	2:1	2:1	8 to 14		12	14	13	Bentonite Amendment
3177658	2:1	2:1 to level	8 to 20		12	14	13	Bentonite Amendment
3334389	2:1	2:1 to 3:1	8 to 16		10	12	11	Bentonite Amendment
6535424	3:1	3:1	20		14.7	16.7	15.7	Bentonite Amendment
5716957	3:1	2:1 to 3:1	12		12.3	14.3	13.3	Bentonite Amendment
2977299	3:1	3:1	20		10	12	11	Bentonite Amendment
4577240	2:1	3:1	30 to 16		8	10	9	Bentonite Amendment
2443198	2:1	2:1 to level	8 b/w main and Walters		8	10	9	Bentonite Amendment

954933.3	2.5:1	4:1	7 to 8		5	7	6	Bentonite Amendment
954933.3	2.5:1	4:1 w/manure solids	7 to 8		5	7	6	Bentonite Amendment
2065297	2.5:1	3:1 to 5:1 towards Pen 25	12		8	10	9	Bentonite Amendment
2150597	2:1	no slope	12 to level		11	13	12	Flexible Membrane
27443387	4:1	3:1	16		24	28	26	Flexible Membrane
10910907	3:1	4:1	20		15	17	16	Bentonite Amendment
18591710	3:1	3:1	20		22	24	23	Bentonite Amendment
14279639	3:1	3:1 to level	20		22	24	23	Bentonite Amendment
1112421	3:1	3:1 to level	16		12	14	13	Flexible Membrane
2461121	2:1	3:1 to 5:1	16		9	11	10	Bentonite Amendment
2843443	1.5:1	level	8 b/w ponds		6	8	7	Compacted Clay
53635.33	1:1	level	8		4	6	5	Compacted Clay
1695744	2:1	level	8 to 16		8	10	9	Bentonite Amendment
2026084	2:1	5:1	16		8	10	9	Bentonite Amendment
1042455	2:1	3:1	11		11.5	13.5	12.5	Bentonite Amendment

2069448	2:1	3:1	9		8.5	10.5	9.5	Bentonite Amendment
1566279	2:1	2:1 to 5:1	8 to 13		8.5	10.5	9.5	Bentonite Amendment
2026204	2:1	2:1 to 3:1	8 to 11		11	13	12	Bentonite Amendment
45604122	4:1	3:1			24	26	25	Bentonite Amendment
3126289	4:1	3:1			19	21	20	Bentonite Amendment
3832106	4:1	3:1			17	19	18	Bentonite Amendment
6838033	3:1	4:1	12	7:1	11	13	12	Compacted Clay
5000002	4:1	3:1	15	7:1	12	11	13	Flexible Membrane
4665099	3:1	2:1	20	5:1	7.5	9.5	8.5	Compacted Clay
511218.7	NE	Level	8		15	17	16	Compacted Clay
3046666	2:1	Level	10		15	17	16	Compacted Clay
1225848	2:1	Level	20	3:1	13	15	14	Compacted Clay
537797	3:1	4:1	20	7:1	10	12	11	Compacted Clay
719229.6	4:1	3:1	12	7:1	9	11	10	Compacted Clay
3037091	4:1	4:1	15	8:1	9	11	10	Compacted Clay
3037091	3:1	4:1	15	7:1	9	11	10	Compacted Clay
3144923	NE	4:1	20		7	9	8	Compacted Clay
3144923	NE	3:1	20		7	9	8	Compacted Clay
3144923	4:1	4:1	20	8:1	7	9	8	Compacted Clay
2781654	4:1	4:1	12	8:1	9	11	10	Compacted Clay

1385317	NE	Level	15		15	17	16	Compacted Clay
3803396	3:1	4:1	12	7:1	15	17	16	Compacted Clay
3236387	3:1	Level	15	3:1	14	16	15	Compacted Clay
14903807	4:1	Level	20	4:1	19	21	20	Compacted Clay
4321855	4:1	5:1	10	9:1	6	8	7	Compacted Clay
10320963	4:1	4:1	12	8:1	12	14	13	Compacted Clay
765294.6	4:1	4:1	10	8:1	7	9	8	Compacted Clay
1716480	4:1	3:1	15	7:1	7	9	8	Compacted Clay
1901324	4:1	4:1	15	8:1	7	9	8	Compacted Clay
537250.9	NE	4:1	10		5	7	6	Compacted Clay
504000	NE	4:1	12		4	6	5	Compacted Clay
2058736	3:1	3:1	12	6:1	8	10	9	Compacted Clay
930299.9	4:1	3:1	15	7:1	5.5	7.5	6.5	Compacted Clay
1777372	3:1	4:1	15	7:1	9	11	10	Compacted Clay
1301610	4:1	Level	12	4:1	9	11	10	Compacted Clay
1301610	4:1	Level	12	4:1	9	11	10	Compacted Clay
478274.5	3:1	3:1	12	6:1	8	10	9	Compacted Clay
3140562	3:1	4:1	15	7:1	9.5	11.5	10.5	Compacted Clay
3140562	3:1	4:1	12	7:1	9.5	11.5	10.5	Compacted Clay
5756260	4:1	4:1	12	8:1	8.5	10.5	7.5	Compacted Clay
10175998	4:1	4:1	25	8:1	8.4	10.4	9.4	Compacted Clay
13236571	4:1	4:1	30	8:1	11	13	12	Compacted Clay

2906990	4:1	3:1	20	7:1	7	9	8	Compacted Clay
2906990	3:1	3:1	20	6:1	7	9	8	Compacted Clay
3149957	4:1	4:1	20	8:1	8	10	9	Compacted Clay
450357.2	3:1	3:1	10	6:1	5	7	6	Compacted Clay
448831.2	4:1	4:1	12	8:1	6	8	7	Compacted Clay
0	3:1	Level						Compacted Clay
0	5:1	5:1	12	10:1				Flexible Membrane
0	4:1	Level	20					Flexible Membrane
0	5:1	Level	20					Flexible Membrane
0	4:1	Level	NA					Flexible Membrane
1617640	4:1	4:1	12	8:1	5	7	6	Compacted Clay
1617640	4:1	4:1	12	7:1	5	7	6	Compacted Clay
6463169	3:1	4:1	12	7:1	9	11	10	Compacted Clay
9883502	4:1	4:1	20	8:1	7.5	9.5	8.5	Compacted Clay
2037903	3:1	3:1	10	6:1	12	14	13	Compacted Clay
4369880	4:1	3:1	12	7:1	12	14	13	Compacted Clay

Inlet Type and Location	WSP Interior-Outlet Ramp Slope (z:1)	Distance to Neares Well/Water Depth in well (ft)	Failure Impacts; Farm Building, Homes, Roads, etc	Emptying feature	Distance to nearest home dwelling (ft)	Distance to nearest water course (ft)
8" PVC to cement spillway	5:1	1000 / 500?	Field to SW	pump	1000	2640 Roza upgradient
6" PVC	NA	660	none - pit	pump	660	300 SVID upgradient
6: PVC	5:1	660 / 300 ?	NA - pit	pump	660	300 SVID upgradient
Gravity flow from pen	NA	300 / 280	Fields	pumps	1320	3960 SVID to North
PVC	NA	300 / 280	Field	pumps	1320	3960 SVID to North
PVC	Unknown	660 / ?	Pit pond	pumps	660	Roza canal?
8" PVC to concrete spillway	NA	660 / ?	Field	pump	660	1320, black rock irrigation ditch
8" PVC to concrete spillway	5:1	660 / ?	Field	pump	660	1320, black rock irrigation ditch
8" PVC to concrete spillway	5:1	660 / ?	Field	pump	660	1320, black rock irrigation ditch

PVC to concrete	NA	400 / ?	Fields	pump	330	800, black rock irrigation ditch
PVC to concrete	5:1	400 / ?	Field	pump	330	800, black rock irrigation ditch
8" PVC	5:1	400 / ?	Field	pump	330	800, black rock irrigation ditch
10" PVC	NA	1320 / ?	Corral, then field	pump	2640	21120 Yakima Rvr
PVC	5:1	2640 / ?	To gully and Boundary Road	pump	1320	?
PVC	NA	1320 / ?	Corrals	pump	1320	?
PVC	NA	2640 / ?	Corrals	pump	2640	?
PVC	NA	2640 / ?	Corrals	pump	2640	?
PVC	NA	1320 / ?	Corrals	pump	1320	?
PVC	NA	1320 / ?	Corrals	pump	1320	?
PVC	NA	1320 / ?	Corrals	pump	2640	?
PVC	NA	1320 / ?	Corrals	pump	2640	?
PVC to concrete	NA	1320 / ?	Field	pumps	1320	1320 irrigation lateral
PVC	NA	? / ?	Field	pumps	1320	15840 Granger drain

PVC	NA	? / ?	Field	pumps	1320	15840 Granger drain
PVC	NA	? / ?	Field	pumps	880	15840 Granger drain
PVC	3:1	? / ?	Field	pumps	880	15840 Granger drain
PVC to concrete	3:1	? / ?	Field	pumps	880	15840 Granger drain
6" valved metal pipe	5:1	100 / 600?	Corrals	pump	1000	3960, Roza Irr Canal upgradient
10" PVC	5:1	1000 / 600?	Corrals	pump	1320	3960, Roza Irr Canal upgradient
10" PVC	5:1	3960 / ?	Corrals	pump	3960	5280, Roza and Outlook lateral to the south
10" PVC	5:1	3960 / ?	Corrals	pump	3960	5280, Roza and Outlook lateral to the south
10" PVC	5:1	1320 / ?	Corrals	pump	3960	3960, Roza Irr Canal to North; Outlook lateral 5280 South
PVC to concrete	5:1	1320 / 600?	Corrals	pump	3960	3960, Roza Irr Canal to North; Outlook lateral 5280 South
PVC to concrete	NA	1320 / ?	Corrals	pump	3960	3960, Roza Irr Canal to North; Outlook lateral 5280 South
10" PVC	5:1	1320 / ?	Field towards Merz Rd	pump	1320	2640, Roza upgradient
PVC	NA	660 / ?	Pastures	pump	660	30 irrigation channel
PVC to slope	NA	660	fields	pump	660	10560 to Silver Creek

PVC	NA	5280 / ?	fields	pumps	5280	15840 to Yakima R.?
PVC	NA	5280 / ?	fields	pumps	5280	15840 to Yakima R.?
PVC	NA	1000 / 100?	Pastures	pumps	1000	Yakima R.?
PVC to PVC	NA	1320 / 120	Pit pond	pump	1320	7920 to Yakima R.
PVC to concrete	5:1	5280 / ?	pasture / corral	pump	5280	1200 West, Type V waterway
PVC to concrete	5:1	5280 / ?	pasture	pump	5280	1320, Type V waterway
PVC to concrete	5:1	5280 / ?	pasture / corral	pump	5280	1320, Type V waterway
PVC to concrete	5:1	5280 / ?	pasture / corral	pump	5280	1320, Type V waterway
PVC to concrete	NA	3960 / ?	Feed storage / pasture	pump	3960	1320, Type V waterway
PVC to concrete	NA	1320 / ?	Fields	pump	1320	3960 Sulfer Creek waste way
PVC	NA	150 / ?	Equipment yard	pump	150	15840 Yakima R. N
PVC	NA	150 / ?	Equipment yard	pump	150	15840 Yakima R. N
PVC	NA	1320 / 150	Dry lot / field	pump	1320	2640 to Yakima R.
PVC	NA	1320 / 150	Dry lot / field	pump	1320	2640 to Yakima R.
PVC to concrete	5:1	660 / ?	bermed field	pump	1320	1320, cross freeway to Granger drain

PVC to concrete	5:1	1320 / ?	bermed field	pump	1320	1320, cross freeway to Granger drain
PVC to concrete	5:1		corral and field	pump	1320	15840 to Granger Drain
PVC past bank	NA		bermed field	pump	200	1760 across freeway
PVC to concrete	4:1	200 / 400	Type V stream/ field	pump	3960	350 to Type V stream
PVC to concrete	4:1	200 / 400	Type V stream/ field	pump	3960	600 to Type V stream
PVC to concrete	4:1	200 / 400	Type V stream/ field	pump	3960	600 to Type V stream
PVC	NA	50 / ?	Homes	berm	150	150
PVC	NA	60 / ?	Homes	berm	60	150
PVC	NA	150 / ?	Homes	berm	150	225
PVC	NA	1320	NA	berm	1320	5280
PVC	5:1	1320	NA	berm	1320	5280
PVC	NA	250	NA	in ground	250	2640
PVC	NA	300	water	berm	300	2640 upgradient
PVC	6:1	300	water	berm	300	2640 upgradient
PVC	NA	840	water	berm	1050	2640
PVC	NA	840	water	berm	840	2640
PVC	NE	1500	water	berm	1500	5280
PVC	NE	1500	water	berm	1500	5280
PVC	4:1	1500	water	berm	1500	5280
PVC	NA	1500	water	pipe to L1	1500	5280

PVC	NA	1500	water			
PVC	NA	1500	water			
PVC	NA	1314	water	berm		
PVC	NA	1308	water	berm	1350	1005
PVC	6:1	825	water	berm	825	5280
PVC	5:1	900	water	berm	900	1320
Natural	5:1	60	water	berm	60	2640
PVC	4:1	240	Water		240	
PVC	NA	420	Water	berm	420	495
PVC	NA	150	water	berm	150	69
PVC	NA	150	water	berm	150	69
PVC	5:1	1050	water	berm	1050	900
PVC	5:1	750	water	berm	750	150
PVC	NA		NA	berm	1320	1320
PVC	NA	500	water	berm and emergency Lagoon	500	500
PVC		500		Emergency Lagoon	500	300
PVC	NA	100	water		100	200
PVC	5:1	1500	water	berm	1500	1000
PVC	NA	1500	water	berm	1500	1000
PVC	5:1	1500	water	berm	1500	1000
PVC	5:1	1500	water	berm	1500	1000
PVC	6:1	1500	water	berm	1500	1000

PVC		540	Farm buildings	berm	540	1500
PVC		540	Farm buildings	berm	540	1500
Hose	NA	600		berm	600	1500
PVC		500	water	berm	500	100
PVC	NA	750	Water	berm	750	100
PVC	NA	2352	NA	berm	852	5280
Scrape	6:1	1000	Homes	berm	1000	2640
PVC	NA	1000	Homes	berm	1000	2640
Scrape	6:1	1000	Homes	berm	1000	2640
PVC	5:1	300	Homes	berm	300	2640
PVC	NA	150	Water	berm	150	150
PVC	NA	150	Water	berm	150	150
PVC	NA	450	Water	berm	450	2640
PVC	NA	450	Water	berm	450	2640
PVC	NA	300	Water	berm	300	1320 upgradient
PVC	5:1	360	Water	berm	360	1320 upgradient

WSP Structure Comments / Notes

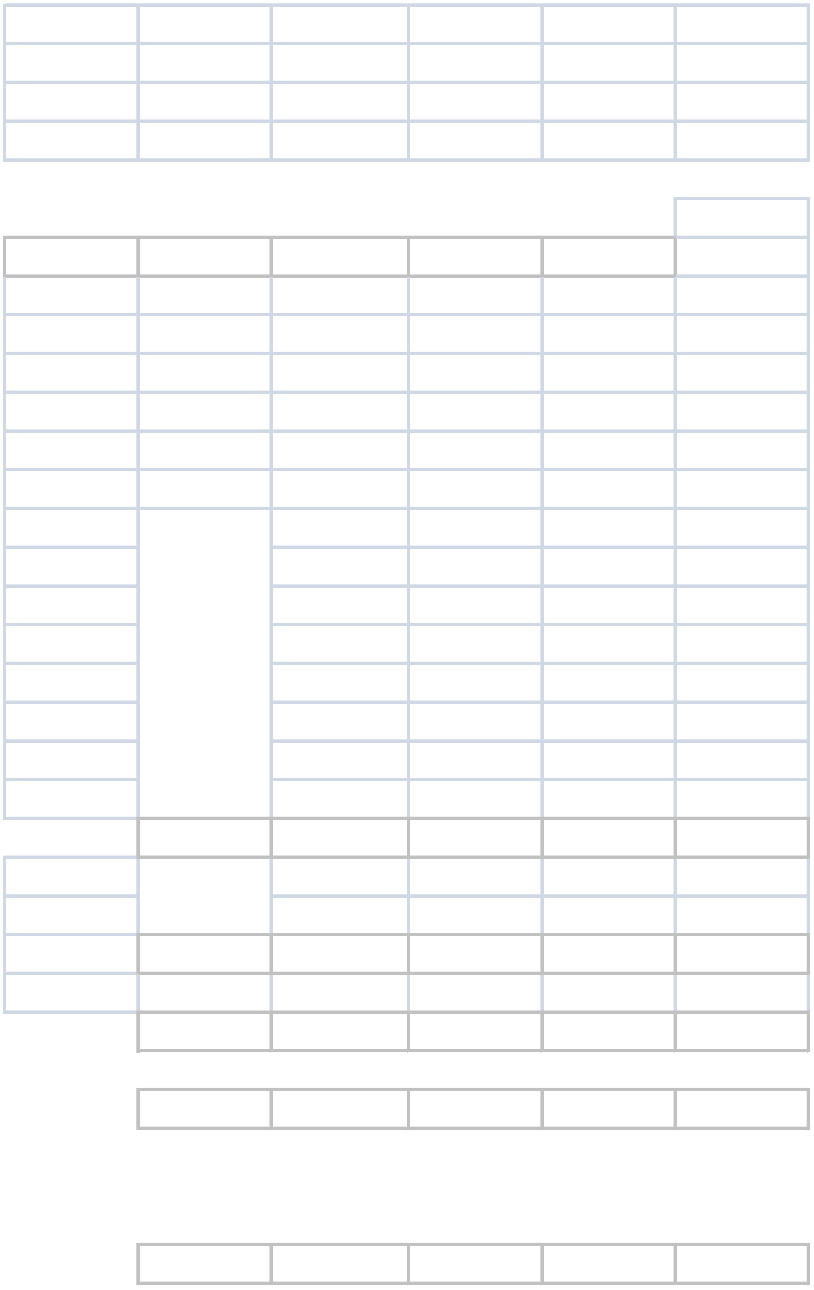
Pizza shaped "mixing" pond adjacent - at N46.19473, W120.0213 - mostly clean water coming in - some erosion near clean water inlet - empty at assessment time.
Pumped from pond 2 to 1 "over full". Pond 1 is over banks between settling pond. Currently applying with big gun.
Some areas of top width narrowing on south bank

Solids piled on exteror bank are cracked - Rodent holes on bank. Heavy weeds = no interior eval

Agi pump can be moved to settling pond to allow for emergency pumping

AgLicID1	FarmName	FacStAddr	FacCity
12	A & C Sytsma Dairy # 2	3471 Independence Rd	Sunnyside
17	Double P Dairy	1741 Holaday Rd	Mabton
50	Riverview Ranch	1220 Vance Rd	Mabton
59	Familia Salazar Dairy	1070 Buss Rd	Mabton
2003	Frieslandia Dairy LLC	2371 Stover Road	Grandview
2008	Destiny Dairy & T & D Dairy	1260 W Puterbaugh Rd	Sunnyside
2020	DeVries Family Farm LLC	15720 Highway 24	Moxee
2021	Highview Inc #2	250 White Rd	Zillah
2052	John Prins Dairy #2	931 Gap Rd	Granger
2056	Mensonides Dairy LLC	305 S Fisher Rd	Mabton
2076	Smeenk Bros Dairy LLC	451 Wendell Phillips Rd	Sunnyside
2094	Skyridge Farm #1 and #2	4701 Scoon Rd	Sunnyside
2097	Sunny Dene Ranch III	2501 Boundary Rd	Mabton
2112	Klompe	650 Hornby Road	Grandview
2114	A & C Sytsma	6160 Van Belle Rd	Sunnyside
2125	J & L Rollinger Farms	840 E Allen Rd	Sunnyside
2171	Sun Valley Dairy LLC #2	340 Den Boer Rd	Grandview
2199	Smeenk Bros Dairy #2	8220 Emerald Rd	Sunnyside
2225	Veldhuis Dairy	26480 State Route 22	Mabton
2239	Suncrest Farms	440 Dekker Rd	Outlook
3090	Majestic Farms	2270 Gurley Rd	Outlook
3875	Newhouse Dairy	1760 Murray Rd	Mabton
3894	Snipes Mountain Dairy	211 Nichols Rd	Outlook
3915	Benjert Farms Inc #1	300 Braden Rd	Sunnyside
3950	Benjert Farms #2	1370 Waneta Rd	Grandview
3951	Den Hoed Dairy	2320 N County Line Road	Grandview
3953	Golob Dairy Inc	500 Nelson Rd	Granger
5607	Sli Dairy	2501 Sli Rd	Sunnyside
5706	Deruyter Bros Dairy 1 & 2	5111 Van Belle Rd	Outlook
7052	Pride & Joy Dairy #1	2145 Liberty Rd	Granger
8005	T & D Dairy	611 Ferson Rd	Sunnyside
8986	Highview Inc #1	3970 Highland Dr	Zillah
9024	Cherry Hill Dairy Inc	101 Gap Rd	Granger
9284	John Prins Dairy #1	1690 Hudson Rd	Granger
9561	Harrison Road Dairy	1860 Harrison Rd	Sunnyside
9659/2086	J & K Dairy LLC #1 & #2	7190 E Edison Rd	Sunnyside
9665	Hidden Valley Dairy	2253 Boundary Rd	Mabton
9801	Bron Dairy #1	640 Nelson Rd	Granger
9831	Swager Dairy	2221 Alexander Ext	Grandview
9863	Sun Valley Dairy LLC #1	2850 Alexander Rd	Sunnyside
9882	View Point Dairy	1400 Lewandowski Rd	Sunnyside
9908	Maple Grove Dairy	3610 Independence Rd	Outlook
9974	C & L Dairy (R & L Dairy)	3280 Sheller Rd	Sunnyside
9983	Udder View Dairy LLC	31 Robinson Rd	Grandview
10048	JLS Dairy	7190 Sheller Rd	Sunnyside
10079	Sunnyside Dairy #1 and #2	4581 Maple Grove Rd	Sunnyside

10083	Tuxedo Dairy LLC	16041 Yakima Valley Hwy	Zillah
10088	Sun Valley Dairy LLC #3	731 Den Boer Rd	Grandview
20100	J & L Rollinger Farm #2	1310 Tear Road	Sunnyside
2195/9844	Sunny Dene Ranch II III IV	1605/1671 Boundary Rd	Mabton



CurrAgLicID1	LandOwnerFirst	LandOwnerLast	Cell Phone:
12	Andrew	Sytsma	(509) 439-9144
17	Aaron	Prins	
50	Gary & Corinne	Visser	(509) 840-4028
59	Arturo Perez	Salazar	(509) 840-4521
2003	Windmill Estates		(509) 840-4929
2008	Tom	Van Ruiten	(509) 840-0111
2020	De Vries Family Farm LLC		(509) 949-9495
2021	HiLand LLC John	Koopmans	(509) 952-4648
2052	John	Prins	(509) 830-4751
2056	Art & Theresa	Mensonides	(509) 840-2508
2076	Scott	Smeenk	
2094	Skyridge Farms Properties	Skyridge Farms Dairy Propertie	(509) 830-4123
2097	Sunny Dene Ranch LLC		(509) 728-8453
2112	Windmill Estates		(509) 840-4929
2114	Herman	Te-velde	(509) 439-9144
2125	Joe	Rollinger	(509) 840-0176
2171	Bill	Scheenstra	(509) 840-0693
2199	Terry	Kamstra	(509) 728-4432
2225	Windmill Estates		(509) 840-4929
2239	Hank	Bosma	(509) 728-2405
3090	Nick	Struikmans	(909) 973-2403
3875	David & Ron	Newhouse	(509) 840-8476
3894	Henry R	Haak	(509) 830-0364
3915	Clarence	Benjert	(509) 840-0396
3950	Clarence	Benjert	(509) 840-0396
3951	Helen	Den Hoed	(509) 840-2078
3953	Robert & Paul	Golob	(509) 830-1818
5607	Helen	Leyendekker	(509) 882-5683
5706	GJD LLC		(509) 840-1957
7052	Pride & Joy Properties LL		(509) 840-2530
8005	Tom	Van Ruiten	(509) 840-0111
8986	HiLand LLC John	Koopmans	(509) 952-4648
9024	East Granger Properties L		(509) 840-9252
9284	John	Prins	(509) 830-4751
9561	Helen	Leyendekker	(509) 837-3372
9659	Tony & Brenda	Veiga	(509) 840-0123
9665	Sid	Leyendekker	(509) 840-1665
9701	George & Margret LLC		(509) 391-0457
9831	Dale	Swager	(509) 830-0294
9863			(509) 840-0693
9882	Bill	DeRuyter	(509) 391-3900
9908	Maple Grove Dairy LLC		(509) 391-1100
9974	Clifford J & Lorene K	Nilles	(509) 830-3568

9983	Frank	De Jong	(509) 391-0038
10048	Jake	Slegers	(559) 920-7634
10079	Sunnyside Dairy LLC		(509) 840-4099
10083	Jim	Stoutjesdyk	(509) 314-0163
10088	Harry	Van Boven	(509) 840-0693
20100	Joe	Rollinger	
2195/9844	Sunny Dene Ranch LLC		(509) 728-8453

Land Phone
(509) 837-4242
(509) 840-3364
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(509) 837-3275
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(509) 469-3443
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(509) 830-4751
(509) 894-9902
(509) 830-0240
(509) 839-4123
(509) 728-8453
(509) 837-3275
(509) 830-4376
(509) 840-0176
(509) 837-2818
(509) 837-3275
(509) 829-5960
(509) 854-2329
(509) 837-2039
(509) 882-1236
(509) 854-1899
(509) 837-7211
(509) 837-2678
(509) 854-1389
(509)837-6587
(509) 882-4337
(509) 830-4751
(509) 837-7211
(509) 839-4393
(509) 840-1665
(509) 837-7783
(509) 882-6455
(509) 391-3900
(509) 836-0040

(559) 920-7634
(509) 837-4779
(509) 378-2962
(509) 728-8453

AgLicID1	Lagoon ID	Lat	Long
8986	Main	46.42982	-120.23638
2021	#1	46.43733	-120.31256
2021	#2	46.43585	-120.31358
7052	#1	46.36977	-120.14422
7052	#2	46.36932	-120.14439
5607	Main	46.36136	-119.92479
3915	Main	46.29539	-119.97044
3915	SP #1	46.29562	-119.97021
3915	SP #2	46.29556	-119.97021
3950	Main	46.29064	-119.9845
3950	SP #1	46.2908	-119.98406
3950	SP #2	46.29079	-119.98434
2225	Main	46.19336	-119.9324
2097	Main	46.16658	-120.0394
2195/9844	Pond 1 at Windcrest II	46.19497	-120.0195
2195/9844	Heifer/Pond 1 at Windcrest I	46.1946	-120.02205
2195/9844	Mixing/Pond 2 at Windcrest I	46.19473	-120.02013
2195/9844	North Scrape Pit	46.1946	-120.02205
2195/9844	South Scrape Pit	46.1946	-120.02205
9665	Pond 1	46.1837	-120.01741
9665	Pond 2	46.1837	-120.01741
3875	Main	46.27106	-120.05655
3953	Main (west)	46.36552	-120.17748
3953	Settling Pond (east)	46.36573	-120.17655
9801	Main 1	46.36026	-120.17128
9801	Main 2	46.35916	-120.17061
9801	Settling Pond	46.36076	-120.17092
10079	1	46.38958	-120.03831
10080	2	46.3899	-120.03518
10081	3	46.39024	-120.0344
10082	4	46.39069	-120.03516
10083	5, main receiving pond	46.39051	-120.03669
10084	6	46.39096	-120.03738
10085	7	46.39095	-120.03651
10086	8, small dairy pond	46.39154	-120.04611
9863	Main	46.29915	-119.98694
2171	Main	46.26654	-119.99075
10088	Settling Pond 1	46.26556	-119.98535
10088	Settling Pond 2	46.26556	-119.98532
2199	Main	46.29957	-120.04691
2076	Main	46.29354	-120.05947

2056	Main (lined)	46.18602	-119.92813
2056	Pond 1	46.17858	-119.92759
2056	Pond 2	46.17851	-119.92725
2056	Pond 3 (irrigation)	46.17858	-119.92635
2056	Basin above Pond 3	46.18541	-119.93427
17	Main	46.25435	-120.03544
59	Pond 1	46.19987	-119.93027
59	Settling Pond	46.2004	-119.93005
50	Pond 1	46.23183	-119.9819
50	Pond 2	46.23198	-119.98219
9024	Pond 1	46.33647	-120.16453
9024	Pond 2	46.3368	-120.16914
9284	Main	46.35864	-120.15285
2052	Main	46.33716	-120.14892
2020	Main	46.49776	-120.18749
2020	West Settling Pond	46.49754	-120.18762
2020	East Settling Pond	46.4976	-120.18708
2112	1 East	46.27119	-119.96852
2112	2 West	46.27272	-119.96981
2112	1	46.27468	-119.96152
3951	1	46.28766	-119.88277
3951	2	46.28753	-119.88317
9983	1	46.22329	-119.8924
9831	1	46.30315	-119.88055
9831	2	46.30318	-119.88094
8005	1-south	46.29835	-119.94248
2008	2-north	46.29888	-119.94182
9882	1	46.37807	-119.94036
9882	2	46.37738	-119.9411
9882	3	46.37675	-119.94175
9882	4	46.37707	-119.93983
2094	Primary / SB	46.38654	-120.02643
2094	1	46.38634	-120.02592
2094	2	46.38585	-120.02657
2094	3	46.38602	-120.02737
9659	1	46.32671	-119.89309
9659	2	46.32896	-119.90514
9659	Catch Basin	46.33175	-119.90433
2086	3	46.33387	-119.90344
2086	4	46.3342	-119.90347
9974	1	46.33286	-119.96574
9974	2 North	46.33295	-119.96579
10048	1	46.3339	-119.88017
9561	1	46.32622	-119.91718
2125	1	46.30645	-119.96053
3090	1	46.37318	-120.14439

3090	2	46.37276	-120.1444
3090	3	46.37257	-120.14478
5706	1	46.34893	-120.06909
5706	2	46.34899	-120.0691
5706	3	46.34944	-120.06945
5706	4	46.35039	-120.06889
5706	5	46.35059	-120.06871
3894	5	46.33414	-120.07892
3894	6	46.33328	-120.07869
3894	7	46.33673	-120.08012
2239	1	46.34177	-120.1266
2239	2	46.34131	-120.13047
10083	1	46.37829	-120.21219
9908	1	46.37093	-120.04942
9908	2	46.37093	-120.04885
9908	3	46.37099	-120.04745
9908	4	46.37012	-120.04845
2125	1 North	46.28389	-119.97271
2125	2 South	46.2834	-119.97289
2114	1	46.34245	-120.04951
2114	2	46.34336	-120.04764
12	1	46.3757	-120.05396
12	2	46.37622	-120.05412

Weather	Soil Surfac	Yes/No	NA	Repair	Liner	
Sunny	dry	Yes	Yes	No	None	Yes
Overcast	moist	No	No	Yes, Minor	Compacted Clay	No
Showers	wet		NA	Yes, Major	Flexible Membrane	NA
Rain	saturated		NE		Bentonite Amendment	NE
	standing water				Unknown	
	frozen					
	snow covered					

Table 3-65: Dairy Cattle Populations and Total Lagoon Surface Area, 2003 Estimates

County	Milkers	Dry	Heifers	Calves	Lagoon m2
Adams	4,121	1,522	1,579	1,168	92,689
Benton	1,467	250	90	145	37,679
Clallam	688	85	365	290	37,147
Clark	3,231	516	803	498	112,217
Cowlitz	645	98	420	165	25,678
Franklin	7,732	1,677	2,121	1,940	183,352
Grant	12,843	1,563	4,780	2,662	344,699
Grays Harbor	5,890	592	776	390	172,720
Island	1,147	139	567	323	38,428
Jefferson	526	68	224	188	34,782
King	10,970	1,280	1,321	1,769	393,239
Kittitas	150	15	80	20	7,610
Klickitat	573	67	230	167	24,627
Lewis	7,699	1,181	1,593	1,442	323,801
Lincoln	91	7	50	30	6,749
Pacific	1,590	212	511	427	77,418
Pierce	3,792	549	411	802	120,408
San Juan	2	0	1	0	5,450
Skagit	13,855	2,186	2,075	2,018	489,564
Snohomish	12,252	1,607	2,935	2,218	417,376
Spokane	1,468	228	649	332	97,318
Stevens	1,281	211	560	373	105,429
Thurston	5,868	923	916	1,088	166,979
Wahkiakum	357	28	96	49	26,894
Whatcom	51,919	7,550	11,436	9,166	1,814,993
Whitman	244	30	155	15	19,283
Yakima	58,822	10,935	13,706	9,184	1,211,127
State Total	**209,223**	**33,519**	**48,450**	**36,869**	**6,387,655**

Hourly meteorology data for 2005 was obtained for several sites. Sites and county assignments are shown in Table 3-66.

Program	State	County	Contract Acres	Code	Practice	Units	Amount	Obligation
EQIP 2008	WA	SKAGIT	13.0	441	Irrigation System, Microirrigation	ac	5.0	$8,051.00
EQIP 2008	WA	SKAGIT	13.0	327	Conservation Cover	ac	5.0	$1,736.75
EQIP 2008	WA	SKAGIT	13.0	449	Irrigation Water Management	ac	12.0	$4,866.81
EQIP 2008	WA	SKAGIT	13.0	449	Irrigation Water Management	ac	12.0	$4,500.00
EQIP 2008	WA	SKAGIT	13.0	449	Irrigation Water Management	ac	12.0	$4,500.00
EQIP 2008	WA	SKAGIT	200.0	106	Forest Management Plan	no	0.0	$2,330.39
EQIP 2008	WA	SKAGIT	6.0	798	Seasonal High Tunnel for Crops	sq ft	2,784.0	$6,664.68
EQIP 2008	WA	SKAGIT	41.0	798	Seasonal High Tunnel for Crops	sq ft	2,178.0	$6,665.00
EQIP 2008	WA	SKAGIT	1.1	374	Farmstead Energy Improvement	no	1.0	$169.36
EQIP 2008	WA	SKAGIT	5.0	798	Seasonal High Tunnel for Crops	sq ft	2,160.0	$6,609.60
EQIP 2008	WA	WHATCOM	14.1	122	Agricultural Energy Management - Headquarters CAP	no	1.0	$1,859.81
EQIP 2008	WA	WHATCOM	270.1	340	Cover Crop	ac	147.3	$7,348.00
EQIP 2008	WA	WHATCOM	270.1	620	Underground Outlet	ft	4,350.0	$40,759.50
EQIP 2008	WA	WHATCOM	270.1	422	Hedgerow Planting	ft	375.0	$1,083.75
EQIP 2008	WA	WHATCOM	270.1	634	Waste Transfer	no	7.0	$70,174.50

EQIP 2008	WA	WHATCOM	270.1	313	Waste Storage Facility	no	1.0	$31,520.00
EQIP 2008	WA	WHATCOM	270.1	360	Waste Facility Closure	no	1.0	$17,217.60
EQIP 2008	WA	WHATCOM	270.1	632	Solid/Liquid Waste Separation Facility	no	1.0	$36,322.82
EQIP 2008	WA	WHATCOM	270.1	634	Waste Transfer	no	1.0	$19,818.00
EQIP 2008	WA	WHATCOM	270.1	634	Waste Transfer	no	1.0	$41,341.84
EQIP 2008	WA	WHATCOM	270.1	634	Waste Transfer	no	1.0	$17,200.00
EQIP 2008	WA	WHATCOM	270.1	590	Nutrient Management	ac	270.1	$4,571.00
EQIP 2008	WA	WHATCOM	7.6	122	Agricultural Energy Management - Headquarters CAP	no	1.0	$1,859.81
EQIP 2008	WA	WHATCOM	12.8	122	Agricultural Energy Management - Headquarters CAP	no	1.0	$2,231.77
EQIP 2008	WA	WHATCOM	15.2	122	Agricultural Energy Management - Headquarters CAP	no	1.0	$1,859.81
EQIP 2008	WA	WHATCOM	131.2	533	Pumping Plant	no	3.0	$31,355.20
EQIP 2008	WA	WHATCOM	131.2	587	Structure for Water Control	no	1.0	$449.92
EQIP 2008	WA	WHATCOM	131.2	393	Filter Strip	ac	0.5	$55.00
EQIP 2008	WA	WHATCOM	131.2	340	Cover Crop	ac	25.5	$1,271.94
EQIP 2008	WA	WHATCOM	131.2	533	Pumping Plant	no	1.0	$3,579.15

EQIP 2008	WA	WHATCOM	131.2	620	Underground Outlet	ft	200.0	$926.00
EQIP 2008	WA	WHATCOM	131.2	634	Waste Transfer	no	2.0	$2,149.80
EQIP 2008	WA	WHATCOM	131.2	634	Waste Transfer	no	1.0	$9,070.63
EQIP 2008	WA	WHATCOM	131.2	313	Waste Storage Facility	no	1.0	$37,824.00
EQIP 2008	WA	WHATCOM	131.2	367	Roofs and Covers	no	1.0	$44,700.00
EQIP 2008	WA	WHATCOM	131.2	533	Pumping Plant	no	1.0	$2,697.05
EQIP 2008	WA	WHATCOM	131.2	632	Solid/Liquid Waste Separation Facility	no	0.0	$34,429.21
EQIP 2008	WA	WHATCOM	131.2	634	Waste Transfer	no	1.0	$6,593.00
EQIP 2008	WA	WHATCOM	131.2	634	Waste Transfer	no	2.0	$3,571.20
EQIP 2008	WA	WHATCOM	131.2	634	Waste Transfer	no	1.0	$19,995.00
EQIP 2008	WA	WHATCOM	131.2	430	Irrigation Pipeline	ft	1,220.0	$7,135.00
EQIP 2008	WA	WHATCOM	131.2	430	Irrigation Pipeline	ft	125.0	$15,846.25
EQIP 2008	WA	WHATCOM	131.2	590	Nutrient Management	ac	131.2	$2,220.00
EQIP 2008	WA	WHATCOM	131.2	395	Stream Habitat Improvement	ac	1.0	$14,762.00
EQIP 2008	WA	WHATCOM	131.2	580	Streambank and Shoreline Protection	ft	50.0	$10,600.00
EQIP 2008	WA	WHATCOM	131.2	582	Open Channel	ft	860.0	$6,502.00
EQIP 2008	WA	WHATCOM	131.2	380	Windbreak/Shelterbelt Est.	ft	860.0	$1,101.00

EQIP 2008	WA	WHATCOM	131.2	422	Hedgerow Planting	ft	860.0	$2,486.00
EQIP 2008	WA	WHATCOM	131.2	620	Underground Outlet	ft	2,010.0	$22,935.00
EQIP 2008	WA	WHATCOM	8.7	374	Farmstead Energy Improvement	no	1.0	$665.46
EQIP 2008	WA	WHATCOM	8.7	374	Farmstead Energy Improvement	no	1.0	$3,112.63
EQIP 2008	WA	WHATCOM	8.7	374	Farmstead Energy Improvement	no	1.0	$2,447.17
EQIP 2008	WA	WHATCOM	8.7	374	Farmstead Energy Improvement	no	1.0	$665.46
EQIP 2008	WA	WHATCOM	8.7	374	Farmstead Energy Improvement	no	1.0	$6,439.93
EQIP 2008	WA	WHATCOM	8.7	374	Farmstead Energy Improvement	no	1.0	$665.46
EQIP 2008	WA	WHATCOM	8.7	374	Farmstead Energy Improvement	no	1.0	$2,661.84
EQIP 2008	WA	WHATCOM	8.7	374	Farmstead Energy Improvement	no	1.0	$6,107.20
EQIP 2008	WA	WHATCOM	8.7	533	Pumping Plant	no	1.0	$33,742.00
EQIP 2008	WA	WHATCOM	8.7	374	Farmstead Energy Improvement	no	1.0	$1,449.00
EQIP 2008	WA	WHATCOM	385.0	643	Restoration and Management of Rare and Declining Habitats	ac	5.0	$18,217.00
EQIP 2008	WA	WHATCOM	15.6	395	Stream Habitat Improvement	ac	15.6	$230,276.90
EQIP 2008	WA	WHATCOM	163.8	590	Nutrient Management	ac	160.4	$2,714.00
EQIP 2008	WA	WHATCOM	163.8	620	Underground Outlet	ft	210.0	$2,396.10

EQIP 2008	WA	WHATCOM	163.8	340	Cover Crop	ac	15.9	$793.09
EQIP 2008	WA	WHATCOM	163.8	620	Underground Outlet	ft	150.0	$1,711.50
EQIP 2008	WA	WHATCOM	163.8	360	Waste Facility Closure	no	1.0	$26,666.60
EQIP 2008	WA	WHATCOM	163.8	313	Waste Storage Facility	no	1.0	$243,790.80
EQIP 2008	WA	WHATCOM	163.8	422	Hedgerow Planting	ft	640.0	$1,849.60
EQIP 2008	WA	WHATCOM	163.8	533	Pumping Plant	no	1.0	$15,476.25
EQIP 2008	WA	WHATCOM	163.8	533	Pumping Plant	no	1.0	$4,127.00
EQIP 2008	WA	WHATCOM	163.8	634	Waste Transfer	no	1.0	$473.00
EQIP 2008	WA	WHATCOM	40.0	326	Clearing and Snagging	ft	25.0	$277.00
EQIP 2008	WA	WHATCOM	40.0	396	Aquatic Organism Passage	mi	1.9	$121,604.00
EQIP 2008	WA	WHATCOM	40.0	584	Channel Bed Stabilization	ft	50.0	$8,131.12
EQIP 2008	WA	WHATCOM	40.0	391	Riparian Forest Buffer	ac	3.8	$5,635.00
EQIP 2008	WA	WHATCOM	30.0	643	Restoration and Management of Rare and Declining Habitats	ac	1.0	$15,703.00
EQIP 2008	WA	WHATCOM	30.0	643	Restoration and Management of Rare and Declining Habitats	ac	1.0	$15,703.00
EQIP 2008	WA	WHATCOM	30.0	643	Restoration and Management of Rare and Declining Habitats	ac	2.0	$31,406.00

EQIP 2008	WA	WHATCOM	30.0	643	Restoration and Management of Rare and Declining Habitats	ac	2.0	$31,406.00
EQIP 2008	WA	WHATCOM	30.0	643	Restoration and Management of Rare and Declining Habitats	ac	3.0	$47,108.00
EQIP 2008	WA	WHATCOM	8.7	122	Agricultural Energy Management - Headquarters CAP	no	1.0	$1,859.81
EQIP 2008	WA	WHATCOM	3.1	798	Seasonal High Tunnel for Crops	sq ft	2,178.0	$6,664.68
EQIP 2008	WA	WHATCOM	2.5	396	Aquatic Organism Passage	mi	2.5	$121,604.00
EQIP 2008	WA	WHATCOM	9.2	313	Waste Storage Facility	no	1.0	$1,198.00
EQIP 2008	WA	WHATCOM	9.2	561	Heavy Use Area Protection	ac	0.1	$2,481.00
EQIP 2008	WA	WHATCOM	9.2	367	Roofs and Covers	no	437.0	$5,362.00
EQIP 2008	WA	WHATCOM	9.2	558	Roof Runoff Structure	no	1.0	$423.60
EQIP 2008	WA	WHATCOM	9.2	620	Underground Outlet	ft	213.0	$1,184.28
EQIP 2008	WA	WHATCOM	9.2	561	Heavy Use Area Protection	ac	0.1	$7,439.00
EQIP 2008	WA	WHATCOM	4.0	326	Clearing and Snagging	ft	40.0	$442.00
EQIP 2008	WA	WHATCOM	4.0	396	Aquatic Organism Passage	mi	0.6	$91,203.00
EQIP 2008	WA	WHATCOM	4.0	500	Obstruction Removal	ac	0.1	$5,538.00
EQIP 2008	WA	WHATCOM	10.0	798	Seasonal High Tunnel for Crops	sq ft	2,160.0	$6,609.60

EQIP 2008	WA	WHATCOM	100.0	422	Hedgerow Planting	ft	350.0	$1,264.00
EQIP 2008	WA	WHATCOM	100.0	430	Irrigation Pipeline	ft	2,540.0	$17,790.16
EQIP 2008	WA	WHATCOM	100.0	326	Clearing and Snagging	ft	10.0	$132.70
EQIP 2008	WA	WHATCOM	100.0	533	Pumping Plant	no	1.0	$2,495.49
EQIP 2008	WA	WHATCOM	100.0	634	Waste Transfer	no	1.0	$4,952.50
EQIP 2008	WA	WHATCOM	100.0	634	Waste Transfer	no	1.0	$30.96
EQIP 2008	WA	WHATCOM	100.0	634	Waste Transfer	no	1.0	$3,390.80
EQIP 2008	WA	WHATCOM	100.0	634	Waste Transfer	no	1.0	$10,098.00
EQIP 2008	WA	WHATCOM	100.0	313	Waste Storage Facility	no	1.0	$22,680.00
EQIP 2008	WA	WHATCOM	100.0	367	Roofs and Covers	no	1.0	$19,416.00
EQIP 2008	WA	WHATCOM	77.9	430	Irrigation Pipeline	ft	80.0	$12,170.40
EQIP 2008	WA	WHATCOM	77.9	430	Irrigation Pipeline	ft	2,730.0	$19,120.92
EQIP 2008	WA	WHATCOM	77.9	516	Pipeline	ft	460.0	$985.00
EQIP 2008	WA	WHATCOM	77.9	561	Heavy Use Area Protection	ac	0.1	$864.00
EQIP 2008	WA	WHATCOM	77.9	614	Watering Facility	no	1.0	$1,026.00
EQIP 2008	WA	WHATCOM	77.9	533	Pumping Plant	no	1.0	$23,680.80
EQIP 2008	WA	WHATCOM	77.9	634	Waste Transfer	no	1.0	$23,781.02

EQIP 2008	WA	WHATCOM	77.9	590	Nutrient Management	ac	77.9	$1,758.00
EQIP 2008	WA	WHATCOM	77.9	380	Windbreak/Shelterbelt Est.	ft	400.0	$260.00
EQIP 2008	WA	WHATCOM	77.9	382	Fence	ft	400.0	$956.00
EQIP 2008	WA	WHATCOM	77.9	620	Underground Outlet	ft	930.0	$12,741.00
EQIP 2008	WA	WHATCOM	2.8	396	Aquatic Organism Passage	mi	3.4	$152,005.00
EQIP 2008	WA	WHATCOM	2.8	584	Channel Bed Stabilization	ft	100.0	$24,450.00
EQIP 2008	WA	WHATCOM	5.1	122	Agricultural Energy Management - Headquarters CAP	no	1.0	$1,860.00
EQIP 2008	WA	WHATCOM	10.0	798	Seasonal High Tunnel for Crops	sq ft	1,600.0	$4,896.00
EQIP 2008	WA	WHATCOM	10.0	558	Roof Runoff Structure	no	1.0	$758.95
EQIP 2008	WA	WHATCOM	10.0	620	Underground Outlet	ft	304.0	$1,690.24
EQIP 2008	WA	WHATCOM	10.0	490	Tree & Shrub Site Preparation	ac	0.3	$75.63
EQIP 2008	WA	WHATCOM	10.0	315	Herbaceous Weed Control	ac	0.3	$39.17
EQIP 2008	WA	WHATCOM	10.0	590	Nutrient Management	ac	8.1	$500.31
EQIP 2008	WA	WHATCOM	10.0	422	Hedgerow Planting	ft	330.0	$1,798.50
EQIP 2008	WA	WHATCOM	14.4	122	Agricultural Energy Management - Headquarters CAP	no	1.0	$1,860.00
EQIP 2008	WA	WHATCOM	10.0	798	Seasonal High Tunnel for Crops	sq ft	2,178.0	$0.00

EQIP 2008	WA	WHATCOM	87.5	533	Pumping Plant	no	1.0	$2,404.00
EQIP 2008	WA	WHATCOM	87.5	533	Pumping Plant	no	1.0	$4,773.00
EQIP 2008	WA	WHATCOM	87.5	533	Pumping Plant	no	1.0	$4,773.00
EQIP 2008	WA	WHATCOM	87.5	422	Hedgerow Planting	ft	380.0	$1,098.20
EQIP 2008	WA	WHATCOM	87.5	393	Filter Strip	ac	1.2	$130.01
EQIP 2008	WA	WHATCOM	87.5	561	Heavy Use Area Protection	ac	0.1	$3,075.00
EQIP 2008	WA	WHATCOM	87.5	634	Waste Transfer	no	1.0	$1,110.00
EQIP 2008	WA	WHATCOM	87.5	620	Underground Outlet	ft	350.0	$3,993.50
EQIP 2008	WA	WHATCOM	87.5	620	Underground Outlet	ft	1,210.0	$13,806.10
EQIP 2008	WA	WHATCOM	87.5	634	Waste Transfer	no	3.0	$2,217.60
EQIP 2008	WA	WHATCOM	87.5	313	Waste Storage Facility	no	1.0	$49,880.40
EQIP 2008	WA	WHATCOM	87.5	367	Roofs and Covers	no	1.0	$47,158.50
EQIP 2008	WA	WHATCOM	87.5	632	Solid/Liquid Waste Separation Facility	no	1.0	$34,430.00
EQIP 2008	WA	WHATCOM	87.5	634	Waste Transfer	no	1.0	$3,956.00
EQIP 2008	WA	WHATCOM	5.6	122	Agricultural Energy Management - Headquarters CAP	no	1.0	$1,860.00
EQIP 2008	WA	WHATCOM	197.6	734	Fish and Wildlife Structure	no	3.0	$710.22

EQIP 2008	WA	WHATCOM	197.6	659	Wetland Enhancement	ac	1.0	$1,846.40
EQIP 2008	WA	WHATCOM	197.6	315	Herbaceous Weed Control	ac	4.0	$2,614.00
EQIP 2008	WA	WHATCOM	197.6	391	Riparian Forest Buffer	ac	4.0	$7,279.46
EQIP 2008	WA	WHATCOM	197.6	395	Stream Habitat Improvement	ac	3.0	$44,284.02
EQIP 2008	WA	WHATCOM	197.6	490	Tree & Shrub Site Preparation	ac	4.0	$550.64
EQIP 2008	WA	WHATCOM	197.6	490	Tree & Shrub Site Preparation	ac	4.0	$2,167.31
EQIP 2008	WA	WHATCOM	197.6	500	Obstruction Removal	ac	16.1	$693.60
EQIP 2008	WA	WHATCOM	197.6	582	Open Channel	ft	1,000.0	$8,621.36
EQIP 2008	WA	WHATCOM	197.6	647	Early Successional Habitat Development and Management	ac	5.0	$208.00
EQIP 2008	WA	WHATCOM	197.6	657	Wetland Restoration	ac	4.0	$1,016.06
EQIP 2008	WA	WHATCOM	197.6	315	Herbaceous Weed Control	ac	9.0	$5,880.00
EQIP 2008	WA	WHATCOM	197.6	326	Clearing and Snagging	ft	60.0	$663.00
EQIP 2008	WA	WHATCOM	197.6	391	Riparian Forest Buffer	ac	9.0	$16,123.13
EQIP 2008	WA	WHATCOM	197.6	395	Stream Habitat Improvement	ac	0.5	$7,380.67
EQIP 2008	WA	WHATCOM	197.6	490	Tree & Shrub Site Preparation	ac	9.0	$1,238.94
EQIP 2008	WA	WHATCOM	197.6	490	Tree & Shrub Site Preparation	ac	9.0	$4,876.44

EQIP 2008	WA	WHATCOM	197.6	647	Early Successional Habitat Development and Management	ac	5.0	$208.00
EQIP 2008	WA	WHATCOM	197.6	578	Stream Crossing	no	1.0	$87,833.20
EQIP 2008	WA	WHATCOM	197.6	644	Wetland Wildlife Management	ac	5.0	$6,130.98
EQIP 2008	WA	WHATCOM	197.6	326	Clearing and Snagging	ft	30.0	$331.50
EQIP 2008	WA	SKAGIT	2.0	122	Agricultural Energy Management Plan-Headquarters (AgEMP)	no	1.0	$1,951.00
EQIP 2008	WA	SKAGIT	13.0	798	Seasonal High Tunnel for Crops	sq ft	2,178.0	$7,558.00
EQIP 2008	WA	SKAGIT	10.0	798	Seasonal High Tunnel for Crops	sq ft	2,178.0	$7,558.00
EQIP 2008	WA	SKAGIT	10.0	798	Seasonal High Tunnel for Crops	sq ft	2,178.0	$7,558.00
EQIP 2008	WA	SKAGIT	1.0	798	Seasonal High Tunnel for Crops	sq ft	2,178.0	$6,317.00
EQIP 2008	WA	WHATCOM	11.1	313	Waste Storage Facility	no	1.0	$39,984.00
EQIP 2008	WA	WHATCOM	11.1	367	Roofs and Covers	no	1.0	$34,532.00
EQIP 2008	WA	WHATCOM	11.1	533	Pumping Plant	no	1.0	$5,231.00
EQIP 2008	WA	WHATCOM	11.1	533	Pumping Plant	no	1.0	$3,351.00
EQIP 2008	WA	WHATCOM	11.1	533	Pumping Plant	no	1.0	$3,351.00
EQIP 2014	WA	WHATCOM	11.1	620	Underground Outlet	ft	100.0	$1,014.00
EQIP 2014	WA	WHATCOM	11.1	634	Waste Transfer	no	1.0	$8,915.00

EQIP	2014	WA	WHATCOM	11.1	634	Waste Transfer	no	1.0	$1,455.00
EQIP	2014	WA	WHATCOM	11.1	634	Waste Transfer	no	1.0	$4,218.00
EQIP	2014	WA	WHATCOM	11.1	634	Waste Transfer	no	1.0	$942.00
EQIP	2014	WA	WHATCOM	225.0	315	Herbaceous Weed Control	ac	2.0	$1,566.00
EQIP	2014	WA	WHATCOM	225.0	391	Riparian Forest Buffer	ac	2.0	$1,910.00
EQIP	2014	WA	WHATCOM	225.0	395	Stream Habitat Improvement	ac	0.3	$10,657.00
EQIP	2014	WA	WHATCOM	225.0	396	Aquatic Organism Passage	mi	1.0	$65,834.00
EQIP	2014	WA	WHATCOM	225.0	580	Streambank and Shoreline Protection	ft	40.0	$1,924.00
EQIP	2014	WA	WHATCOM	225.0	584	Channel Bed Stabilization	ft	100.0	$24,256.00
EQIP	2014	WA	WHATCOM	381.7	521D	Pond Sealing or Lining, Compacted Clay Treatment	no	1.0	$59,115.00
EQIP	2014	WA	WHATCOM	381.7	313	Waste Storage Facility	no	1.0	$65,340.00
EQIP	2014	WA	WHATCOM	381.7	430	Irrigation Pipeline	ft	1,622.0	$27,114.00
EQIP	2014	WA	WHATCOM	381.7	313	Waste Storage Facility	no	1.0	$43,560.00
EQIP	2014	WA	WHATCOM	381.7	360	Waste Facility Closure	no	1.0	$64,800.00
EQIP	2014	WA	WHATCOM	381.7	521D	Pond Sealing or Lining, Compacted Clay Treatment	no	1.0	$59,115.00
EQIP	2014	WA	WHATCOM	381.7	367	Roofs and Covers	no	1.0	$15,696.00

EQIP 2014	WA	WHATCOM	381.7	587	Structure for Water Control	no	2.0	$26,676.00
EQIP 2014	WA	WHATCOM	381.7	620	Underground Outlet	ft	1,855.0	$63,112.00
EQIP 2014	WA	WHATCOM	435.0	340	Cover Crop	ac	87.9	$4,563.00
EQIP 2014	WA	WHATCOM	435.0	587	Structure for Water Control	no	1.0	$1,022.00
EQIP 2014	WA	WHATCOM	435.0	590	Nutrient Management	ac	87.9	$3,132.00
EQIP 2014	WA	WHATCOM	435.0	442	Irrigation System, Sprinkler	ac	23.7	$34,951.00
EQIP 2014	WA	WHATCOM	435.0	634	Waste Transfer	no	1.0	$16,266.00
EQIP 2014	WA	WHATCOM	435.0	313	Waste Storage Facility	no	1.0	$59,733.00
EQIP 2014	WA	WHATCOM	435.0	316	Animal Mortality Facility	no	1.0	$21,528.00
EQIP 2014	WA	WHATCOM	435.0	360	Waste Facility Closure	no	1.0	$28,000.00
EQIP 2014	WA	WHATCOM	435.0	521D	Pond Sealing or Lining, Compacted Clay Treatment	no	1.0	$60,804.00
EQIP 2014	WA	WHATCOM	435.0	533	Pumping Plant	no	1.0	$4,185.00
EQIP 2014	WA	WHATCOM	435.0	533	Pumping Plant	no	1.0	$1,510.00
EQIP 2014	WA	WHATCOM	435.0	634	Waste Transfer	no	1.0	$7,808.00
EQIP 2014	WA	WHATCOM	435.0	634	Waste Transfer	no	1.0	$2,189.00
EQIP 2014	WA	WHATCOM	435.0	634	Waste Transfer	no	1.0	$6,319.00

EQIP 2014	WA	WHATCOM	435.0	634	Waste Transfer	no	1.0	$3,163.00
EQIP 2014	WA	WHATCOM	435.0	430	Irrigation Pipeline	ft	3,332.1	$33,253.00
EQIP 2014	WA	WHATCOM	435.0	441	Irrigation System, Microirrigation	ac	2.0	$3,544.00
EQIP 2014	WA	WHATCOM	435.0	587	Structure for Water Control	no	1.0	$2,223.00
EQIP 2014	WA	WHATCOM	435.0	606	Subsurface Drain	ft	1,103.9	$1,306.00
EQIP 2014	WA	WHATCOM	435.0	606	Subsurface Drain	ft	1,505.7	$3,731.00
EQIP 2014	WA	WHATCOM	435.0	620	Underground Outlet	ft	1,510.8	$39,750.00
EQIP 2014	WA	WHATCOM	435.0	430	Irrigation Pipeline	ft	8,249.7	$71,606.00
EQIP 2014	WA	WHATCOM	435.0	430	Irrigation Pipeline	ft	4,000.0	$25,262.00
EQIP 2014	WA	WHATCOM	1.5	798	Seasonal High Tunnel for Crops	sq ft	2,178.0	$7,558.00
EQIP 2014	WA	WHATCOM	10.0	798	Seasonal High Tunnel for Crops	sq ft	2,178.0	$7,558.00
EQIP 2014	WA	WHATCOM	146.9	442	Irrigation System, Sprinkler	ac	14.5	$34,951.00
EQIP 2014	WA	WHATCOM	146.9	533	Pumping Plant	no	1.0	$10,706.00
EQIP 2014	WA	WHATCOM	146.9	533	Pumping Plant	no	1.0	$13,540.00
EQIP 2014	WA	WHATCOM	146.9	430	Irrigation Pipeline	ft	1,675.0	$23,519.00
EQIP 2014	WA	WHATCOM	146.9	620	Underground Outlet	ft	2,200.0	$41,057.00
EQIP 2014	WA	WHATCOM	10.0	798	Seasonal High Tunnel for Crops	sq ft	2,178.0	$7,558.00

EQIP 2014	WA	WHATCOM	72.0	590	Nutrient Management	ac	71.7	$772.00
EQIP 2014	WA	WHATCOM	72.0	202	Edge of Field Water Quality System Installation	no	2.0	$33,951.00
EQIP 2014	WA	WHATCOM	72.0	201	Edge of Field Water Quality Monitoring Data Collection and Evaluation	ac	15.0	$16,809.00
EQIP 2014	WA	WHATCOM	72.0	201	Edge of Field Water Quality Monitoring Data Collection and Evaluation	ac	15.0	$12,003.00
EQIP 2014	WA	WHATCOM	72.0	201	Edge of Field Water Quality Monitoring Data Collection and Evaluation	ac	15.0	$12,003.00
EQIP 2014	WA	WHATCOM	72.0	201	Edge of Field Water Quality Monitoring Data Collection and Evaluation	ac	15.0	$12,003.00
EQIP 2014	WA	WHATCOM	72.0	201	Edge of Field Water Quality Monitoring Data Collection and Evaluation	ac	15.0	$12,003.00
EQIP 2014	WA	WHATCOM	72.0	201	Edge of Field Water Quality Monitoring Data Collection and Evaluation	ac	15.0	$12,003.00
EQIP 2014	WA	WHATCOM	72.0	201	Edge of Field Water Quality Monitoring Data Collection and Evaluation	ac	15.0	$12,003.00
EQIP 2014	WA	WHATCOM	72.0	201	Edge of Field Water Quality Monitoring Data Collection and Evaluation	ac	15.0	$14,358.00

EQIP 2014	WA	WHATCOM	72.0	362	Diversion	ft	1,282.0	$2,500.00
EQIP 2014	WA	WHATCOM	72.0	412	Grassed Waterway	ac	2.8	$3,262.00
EQIP 2014	WA	WHATCOM	77.5	442	Irrigation System, Sprinkler	ac	11.8	$34,950.89
EQIP 2014	WA	WHATCOM	77.5	340	Cover Crop	ac	31.8	$1,650.42
EQIP 2014	WA	WHATCOM	77.5	620	Underground Outlet	ft	1,250.0	$12,675.00
EQIP 2014	WA	WHATCOM	77.5	634	Waste Transfer	no	3.0	$15,386.00
EQIP 2014	WA	WHATCOM	77.5	533	Pumping Plant	no	1.0	$16,924.00
EQIP 2014	WA	WHATCOM	77.5	533	Pumping Plant	no	1.0	$13,382.00
EQIP 2014	WA	WHATCOM	77.5	533	Pumping Plant	no	1.0	$6,278.00
EQIP 2014	WA	WHATCOM	77.5	558	Roof Runoff Structure	no	1.0	$907.50
EQIP 2014	WA	WHATCOM	77.5	620	Underground Outlet	ft	390.0	$1,931.00
EQIP 2014	WA	WHATCOM	77.5	533	Pumping Plant	no	1.0	$1,510.00
EQIP 2014	WA	WHATCOM	77.5	380	Windbreak/Shelterbelt Est.	ft	470.0	$358.00
EQIP 2014	WA	WHATCOM	77.5	634	Waste Transfer	no	1.0	$3,688.00
EQIP 2014	WA	WHATCOM	77.5	367	Roofs and Covers	no	1.0	$36,624.00
EQIP 2014	WA	WHATCOM	77.5	313	Waste Storage Facility	no	1.0	$25,704.00
EQIP 2014	WA	WHATCOM	77.5	316	Animal Mortality Facility	no	1.0	$7,177.00

EQIP	2014	WA	WHATCOM	77.5	634	Waste Transfer	no	3.0	$2,799.00
EQIP	2014	WA	WHATCOM	77.5	533	Pumping Plant	no	1.0	$1,510.00
EQIP	2014	WA	WHATCOM	77.5	533	Pumping Plant	no	1.0	$4,185.00
EQIP	2014	WA	WHATCOM	77.5	632	Waste Separation Facility	no	1.0	$34,393.00
EQIP	2014	WA	WHATCOM	77.5	634	Waste Transfer	no	1.0	$3,814.00
EQIP	2014	WA	WHATCOM	77.5	587	Structure for Water Control	no	1.0	$2,668.00
EQIP	2014	WA	WHATCOM	77.5	590	Nutrient Management	ac	69.3	$2,470.00
EQIP	2014	WA	WHATCOM	72.8	396	Aquatic Organism Passage	mi	1.0	$29,184.00
EQIP	2014	WA	WHATCOM	72.8	584	Channel Bed Stabilization	ft	20.0	$6,393.00
EQIP	2014	WA	WHATCOM	72.8	584	Channel Bed Stabilization	ft	20.0	$6,393.00
EQIP	2014	WA	WHATCOM	72.8	395	Stream Habitat Improvement	ac	0.2	$0.00
EQIP	2014	WA	WHATCOM	72.8	580	Streambank and Shoreline Protection	ft	225.0	$0.00
EQIP	2014	WA	WHATCOM	459.0	106	Forest Management Plan	no	3.0	$3,497.73
EQIP	2014	WA	SKAGIT	19.7	798	Seasonal High Tunnel for Crops	sq ft	2,178.0	$6,000.00
EQIP	2014	WA	SKAGIT	112.0	590	Nutrient Management	ac	84.9	$447.00
EQIP	2014	WA	SKAGIT	112.0	590	Nutrient Management	ac	84.9	$447.00
EQIP	2014	WA	SKAGIT	112.0	558	Roof Runoff Structure	no	1.0	$466.00

EQIP 2014	WA	SKAGIT	112.0	620	Underground Outlet	ft	340.0	$4,284.00
EQIP 2014	WA	SKAGIT	112.0	634	Waste Transfer	no	2.0	$12,634.00
EQIP 2014	WA	SKAGIT	112.0	561	Heavy Use Area Protection	ac	0.1	$1,498.00
EQIP 2014	WA	SKAGIT	112.0	516	Livestock Pipeline	ft	2,057.9	$4,199.00
EQIP 2014	WA	SKAGIT	112.0	533	Pumping Plant	no	1.0	$1,372.00
EQIP 2014	WA	SKAGIT	112.0	561	Heavy Use Area Protection	ac	0.5	$3,291.00
EQIP 2014	WA	SKAGIT	112.0	614	Watering Facility	no	5.0	$9,870.00
EQIP 2014	WA	WHATCOM	60.0	670	Lighting System Improvement	no	1.0	$2,765.00
EQIP 2014	WA	WHATCOM	60.0	374	Farmstead Energy Improvement	no	1.0	$1,104.00
EQIP 2014	WA	WHATCOM	60.0	374	Farmstead Energy Improvement	no	1.0	$2,058.00
EQIP 2014	WA	WHATCOM	60.0	374	Farmstead Energy Improvement	no	1.0	$1,104.00
EQIP 2014	WA	WHATCOM	60.0	374	Farmstead Energy Improvement	no	1.0	$1,122.00
EQIP 2014	WA	WHATCOM	60.0	374	Farmstead Energy Improvement	no	1.0	$1,104.00
EQIP 2014	WA	WHATCOM	60.0	374	Farmstead Energy Improvement	no	1.0	$4,962.00
EQIP 2014	WA	WHATCOM	60.0	533	Pumping Plant	no	1.0	$31,158.00
EQIP 2014	WA	WHATCOM	60.0	533	Pumping Plant	no	1.0	$4,255.00
EQIP 2014	WA	WHATCOM	60.0	670	Lighting System Improvement	no	1.0	$19,029.00

EQIP 2014	WA	WHATCOM	60.0	374	Farmstead Energy Improvement	no	1.0	$1,104.00
EQIP 2014	WA	WHATCOM	100.0	360	Waste Facility Closure	no	1.0	$25,000.00
EQIP 2014	WA	WHATCOM	100.0	634	Waste Transfer	no	1.0	$6,940.00
EQIP 2014	WA	WHATCOM	100.0	313	Waste Storage Facility	no	1.0	$50,000.00
EQIP 2014	WA	WHATCOM	100.0	521D	Pond Sealing or Lining, Compacted Clay Treatment	no	1.0	$50,000.00
EQIP 2014	WA	WHATCOM	100.0	533	Pumping Plant	no	1.0	$36,447.00
EQIP 2014	WA	WHATCOM	100.0	634	Waste Transfer	no	3.0	$9,114.00
EQIP 2014	WA	WHATCOM	100.0	533	Pumping Plant	no	1.0	$1,036.00
EQIP 2014	WA	WHATCOM	100.0	326	Clearing and Snagging	ft	40.0	$1,901.00
EQIP 2014	WA	WHATCOM	100.0	396	Aquatic Organism Passage	mi	1.0	$75,000.00
EQIP 2014	WA	WHATCOM	100.0	587	Structure for Water Control	no	1.0	$25,000.00
EQIP 2014	WA	WHATCOM	100.0	580	Streambank and Shoreline Protection	ft	150.0	$31,616.00
EQIP 2014	WA	WHATCOM	100.0	422	Hedgerow Planting	ft	1,540.0	$8,440.00
EQIP 2014	WA	WHATCOM	6.7	670	Lighting System Improvement	no	1.0	$2,880.00
EQIP 2014	WA	WHATCOM	6.7	374	Farmstead Energy Improvement	no	1.0	$82,157.00
EQIP 2014	WA	WHATCOM	6.7	533	Pumping Plant	no	1.0	$2,842.00

EQIP 2014	WA	WHATCOM	160.0	374	Farmstead Energy Improvement	no	1.0	$30,312.00
EQIP 2014	WA	WHATCOM	160.0	374	Farmstead Energy Improvement	no	1.0	$17,290.00
EQIP 2014	WA	WHATCOM	160.0	374	Farmstead Energy Improvement	no	1.0	$41,079.00
EQIP 2014	WA	WHATCOM	160.0	533	Pumping Plant	no	1.0	$13,662.00
EQIP 2014	WA	WHATCOM	160.0	533	Pumping Plant	no	1.0	$17,496.00
EQIP 2014	WA	WHATCOM	160.0	533	Pumping Plant	no	1.0	$5,465.00
EQIP 2014	WA	WHATCOM	160.0	533	Pumping Plant	no	1.0	$13,662.00
EQIP 2014	WA	WHATCOM	160.0	533	Pumping Plant	no	1.0	$17,496.00
EQIP 2014	WA	WHATCOM	5.4	798	Seasonal High Tunnel for Crops	sq ft	2,178.0	$6,000.00
EQIP 2014	WA	WHATCOM	403.0	CROP	Cropland Annual Payment	PT	279.5	$4,406.00
EQIP 2014	WA	WHATCOM	403.0	CROP	Cropland Annual Payment	PT	2.5	$452.00
EQIP 2014	WA	WHATCOM	403.0	CROP	Cropland Annual Payment	PT	279.5	$0.00
EQIP 2014	WA	WHATCOM	403.0	CROP	Cropland Annual Payment	PT	2.5	$0.00
EQIP 2014	WA	WHATCOM	403.0	CROP	Cropland Annual Payment	PT	279.5	$0.00
EQIP 2014	WA	WHATCOM	403.0	CROP	Cropland Annual Payment	PT	2.5	$0.00
EQIP 2014	WA	WHATCOM	403.0	CROP	Cropland Annual Payment	PT	279.5	$0.00
EQIP 2014	WA	WHATCOM	403.0	CROP	Cropland Annual Payment	PT	2.5	$0.00

EQIP 2014	WA	WHATCOM	403.0	CROP	Cropland Annual Payment	PT	279.5	$0.00
EQIP 2014	WA	WHATCOM	403.0	CROP	Cropland Annual Payment	PT	2.5	$0.00
EQIP 2014	WA	WHATCOM	35.0	326	Clearing and Snagging	ft	75.0	$3,225.00
EQIP 2014	WA	WHATCOM	35.0	327	Conservation Cover	ac	20.5	$2,740.00
EQIP 2014	WA	WHATCOM	35.0	396	Aquatic Organism Passage	mi	0.3	$51,243.00
EQIP 2014	WA	WHATCOM	35.0	396	Aquatic Organism Passage	mi	0.1	$15,244.00
EQIP 2014	WA	WHATCOM	35.0	422	Hedgerow Planting	ft	2,866.3	$18,832.00

LUMMI INDIAN BUSINESS COUNCIL
2665 KWINA ROAD BELLINGHAM, WASHINGTON 98226 (360) 312-2000
DEPARTMENT_____DIRECT NO. _____

September 3, 2014

Mr. Dennis J. McLerran,
Regional Administrator
U.S. EPA Region 10
Office of the Executive
1200 Sixth Avenue
Seattle, WA 98101

SUBJECT: Nooksack River Basin Water Quality and the Closure of Tribal Shellfish Beds in Portage Bay

Dear Administrator McLerran,

As you may recall, I wrote to you on May 27, 2010 expressing our concerns about the increasing fecal coliform bacteria trends in the Nooksack River and its tributaries. The May 2010 letter and a similar letter dated June 7, 2005 both were seeking further action by the EPA and Washington State agencies to help prevent another closure of tribal shellfish beds in Portage Bay. Although we understand that the EPA took some actions, including working with Washington State to advance the Washington Shellfish Initiative and identifying the Nooksack River watershed as a focus area under the Governor's Initiative, the actions taken by all have proven to be ineffective. At this time, the closure of portions of Portage Bay to commercial harvest due to elevated fecal coliform levels as part of the Washington Department of Health's annual review[1] is a certainty.

Although a commercial shellfish harvest is not scheduled until October or November, harvests for ceremonial and subsistence (C&S) purposes also occur in Portage Bay. As an interim measure, effective immediately the Lummi Nation is voluntarily closing all shellfish harvests in the portion of the shellfish beds that currently do not meet the National Shellfish Sanitation Program (NSSP) standards. Because two additional sampling stations are very close to failing and there is additional water quality sampling being conducted today (September 3), a final decision on the geographic extent of the

[1]Pursuant to the Shellfish Consent Decree (Order Regarding Shellfish Sanitation, *United States v. Washington [Shellfish]*, Civil Number 9213, Subproceeding 89-3, Western District of Washington, 1994), the Washington DOH in consultation with the Lummi Nation is responsible to the federal Food and Drug Administration to ensure that the National Shellfish Sanitation Program (NSSP) standards for certification of shellfish growing waters are met for tribal harvest areas including on-Reservation areas.

voluntary closure will likely be made next week when the latest sample results are available and analyzed. During this interim period we are continuing to urge the Department of Health to seek a reliable relationship between environmental indicators and fecal coliform levels in Portage Bay that will allow for a conditional closure of the shellfish beds rather than a complete closure as was the case from 1996 to 2006.

The closure of Portage Bay shellfish beds reflects the fact that we have collectively failed to permanently change the behavior of community members in the Nooksack River watershed. As a result, tribal members including those on the lowest rungs of the economic ladder will once again be punished for the actions and inactions of others and the Lummi Nation's treaty rights to harvest shellfish will once again be violated.

This closure of a portion of the Portage Bay shellfish beds is particularly frustrating because the community members in the Nooksack River watershed demonstrated their ability to prevent discharges of fecal matter into our shared waterways over the 1999 to 2004 period. During this 5-year period, the fecal coliform bacteria targets established as part of the Lower Nooksack River Bacteria Total Maximum Daily Load (TMDL) were largely achieved and the Portage Bay shellfish beds, which were initially voluntarily closed in November 1996, were on track to re-open. However, since that time and after the shellfish beds were reopened in 2006 there has been considerable backsliding by community members on these accomplishments.

For whatever reasons, community members are making choices that are resulting in the discharge of fecal matter into the waters that we all rely on for various purposes. Because there was a massive infusion of technical assistance and public education following the previous Portage Bay closure, and because this technical assistance, public education, and various financial incentives for implementing best management practices still exist in the community, it is hard to believe that community members are unaware of best management practices that will prevent the discharge of fecal matter to our collective waterways.

Based on the changes in fecal coliform levels in Portage Bay that have occurred over time (see Figure 1), we are convinced that an effective compliance enforcement presence is required to achieve the long-established water quality standards intended to protect beneficial uses. However, the data shown in Figure 1 also indicate that compliance enforcement of existing laws alone is insufficient to achieve water quality objectives.

As shown in Figure 1, water quality in Portage Bay improved markedly starting in 1997 following the initiation of compliance enforcement inspections by the EPA and the issuance of meaningful monetary penalties. This water quality improvement continued following the 1998 passage of the Dairy Nutrient Management Act by the State of Washington and the assignment of two dairy Inspectors to the Washington Department of Ecology (Ecology) field office. As noted in our May 27, 2010 letter, the collected

water quality data indicated that as of February 28, 2004, nine of the ten Lower Nooksack River Bacteria TMDL sample stations achieved their respective TMDL geometric mean targets. One year later, on February 28, 2005, only three of the ten stations achieved their respective TMDL targets. In September 2004, the Washington Department of Health (DOH) reported that 5 of the 11 sampling stations in Portage Bay were close to exceeding the NSSP standards.

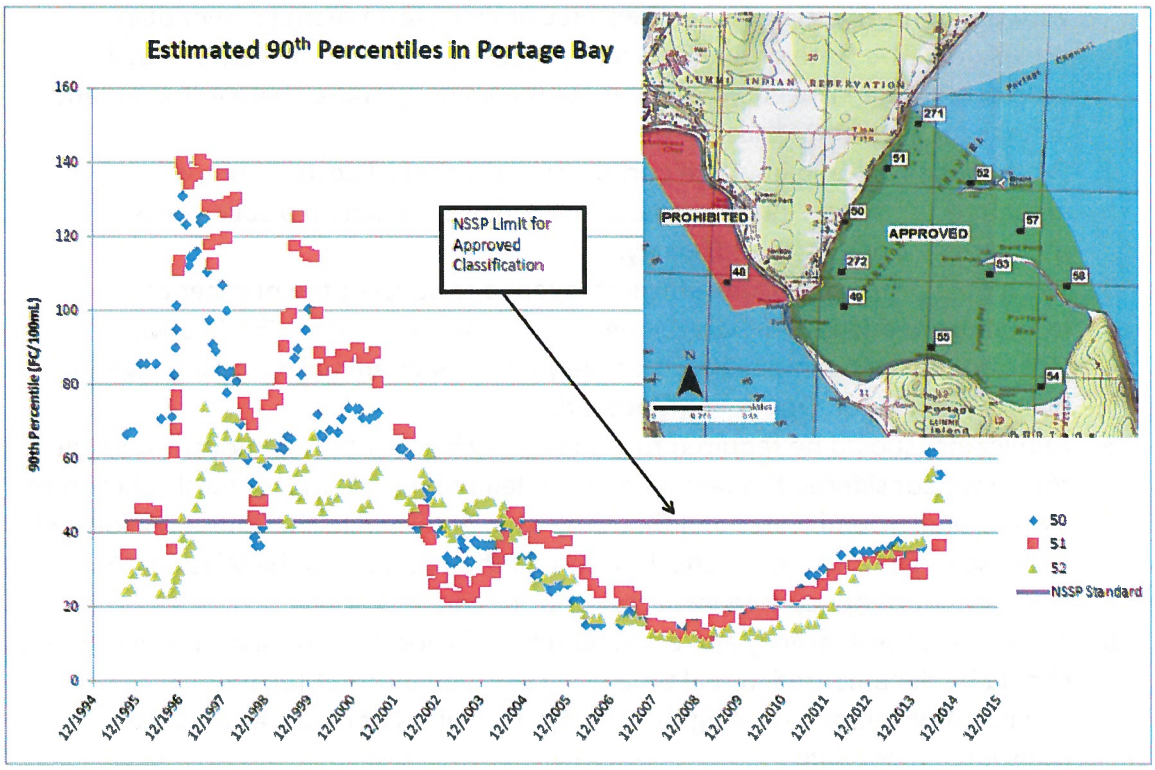

Figure 1. Portage Bay NSSP Compliance Monitoring Stations and Water Quality Sampling Results

Water quality improved again starting in 2005 and in May 2006, nearly 10 years after the voluntary closure in November 1996, all of the Portage Bay shellfish beds were reopened. Starting in approximately 2008 water quality in Portage Bay started to deteriorate again. Even with the 2011 Washington Shellfish Initiative and the associated two additional Ecology compliance enforcement inspectors that started field work in early 2013, water quality in Portage Bay continued to deteriorate. Clearly changes to the existing system are needed so that we all have water quality that supports all beneficial uses and our Treaty rights to harvest salmon and shellfish throughout our usual and accustomed grounds and stations are meaningful.

The evidence before us and the extremely negative consequences associated with the closure of tribal shellfish beds leads us to believe that at least the following additional actions are necessary:

1. All operators that generate, store, and/or land apply animal wastes should be regulated no differently that other industries that generate wastes that are applied to the land (e.g., food processors, apple packers, wastewater treatment plants). That is, they must have a permit from a single state or federal agency with the authority to review and enforce animal waste management plan provisions. The state or federal agency must also have the unfettered ability to conduct routine inspections and initiate meaningful/appropriate enforcement actions for noncompliance.
2. Exemptions to the solid waste permits for anaerobic digesters should be eliminated and these facilities should be required to obtain a solid waste management permit from Ecology.
3. Permit fees must generate sufficient revenue to support the number of inspectors needed to effectively regulate the operators described above.
4. Operators must maintain and effectively implement animal waste management plans designed for their current operation.
5. Applicators should be required to complete a checklist that demonstrates that they have considered the factors that can lead to a discharge of fecal coliform to surface and ground water and that they have determined that there is a low risk of a discharge. This signed checklist should then be sent to the Washington Department of Agriculture inspector prior to an application.
6. To increase transparency and accountability, the location of manure applications should be documented in real time using GPS and internet technology.
7. All land applicators, including third party applicators of manure, should be licensed and bonded.

Existing state laws need to be revised during the 2015 Legislative session. I suggest that a work group be created immediately that is led by the Governor's Legislative Shellfish Policy Advisor and that includes the agency staff participating in the Whatcom Clean Water Program. Based on their experience, this work group of agency staff members should identify needed changes in state nutrient and fecal coliform management laws to achieve existing water quality standards for both surface and ground water. This effort should consider the laws adopted by other states that have had similar nutrient and fecal coliform pollution challenges (e.g., Maryland). As stated in our 2010 letter, we need to shift from reactive to proactive natural resources management in order to avoid repeating past mistakes and impacts to tribal shellfish beds.

As you know, I am meeting with Ecology Director Maia Bellon and other state agency representatives on September 10, 2014 and I understand that you and key staff will join us to discuss the situation in the Nooksack River watershed and develop an action plan to address the degraded water quality in the watershed. Please keep me informed

regarding the actions that your agency takes in response to this request and please notify me (360-410-1706 or merlej@lummi-nsn.gov) or my staff if you need any support from my agency.

Sincerely,

Merle Jefferson, Executive Director
Lummi Natural Resources Department

cc Timothy Ballew II, Lummi Nation Chairman
Elden Hillaire, Lummi Fisheries and Natural Resources Commission Chairman
Leroy Deardorff, Deputy Lummi Natural Resources Department Director
Jeremy Freimund, Lummi Water Resources Manager
Ben Starkhouse, Lummi Harvest Manager
Flavian Point, Lummi Shellfish Manager
Linda Anderson-Carnahan, EPA Office of Ecosystems, Tribal, and Public Affairs
Tom Eaton, EPA Region 10 Washington Office Director
Bill Zachmann, EPA Region 10 Puget Sound Team
Steven Potokar, EPA NPDES Compliance Unit
Westley Foster, EPA Tribal Coordinator
Julie Horowitz, Governor's Shellfish Policy Advisor
Maia Bellon, Washington Department of Ecology Director
Heather Bartlett, Ecology Water Quality Program Manager
Doug Allen, Ecology Bellingham Field Office
Tom Laurie, Ecology Tribal Relations
Don Hover, Washington Department of Agriculture Director
Virginia Prest, Washington Department of Agriculture
Maryanne Guichard, Assistant Secretary of Environmental Public Health
Jerrod Davis, Office of Shellfish and Water Protection Director
Scott Berbells, Growing Area Section Manager
George Boggs, Whatcom Conservation District
Henry Bierlink, Agricultural Preservation Committee
Jay Gordon, Washington Dairy Federation

August 19, 1997

SANITARY SURVEY
OF
PORTAGE BAY

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SANITARY SURVEY
OF
PORTAGE BAY

I. EXECUTIVE SUMMARY

Portage Bay is located in southwestern Bellingham Bay between the southeastern shore of the Lummi peninsula and Portage Island. See Figure 1, Area Map. Although Portage Bay is currently classified as an Approved commercial shellfish growing area, a portion of the bay along the southeastern Lummi peninsula shore was voluntarily closed to shellfish harvest by the Lummi Nation on December 10, 1996, to protect public health. This closure was requested by the Washington State Department of Health, Shellfish Office (DOH) because of elevated fecal coliform levels in water samples collected from a portion of this growing area. Marine water samples were collected from the Portage Bay growing area by DOH and Lummi tribal personnel in accordance with National Shellfish Sanitation Program (NSSP) requirements for monitoring Approved commercial shellfish areas.

An analysis of the 30 most recent water samples collected from Portage Bay indicates that sampling stations 11 & 12, located along the southeastern shore of the Lummi peninsula, fail to meet the NSSP water quality standards for an Approved commercial shellfish area. See Figure 2, Sampling Station Map.

A downgrade in classification from Approved to Restricted is required for the portion of Portage Bay shown in Figure 3, Proposed Reclassification. This downgrade is required under Section C, Part 1 of the NSSP Manual of Operations (1995 Revision), and is based on the results of water samples collected from this area by the DOH Shellfish Office and the Lummi Indian Nation water quality staff.

II. DESCRIPTION OF THE GROWING AREA

A. LOCATION MAP

See Figure 1, Area Map.

B. DESCRIPTION OF AREA

Portage Bay is located in western Bellingham Bay, between Portage Island on the east and south and the southeastern shoreline of the Lummi peninsula on the west, roughly three and a half miles southwest of the Nooksack River delta. Portage Bay measures approximately one and a half miles east to west, by one mile north to south. The north-eastern boundaries to Portage Bay are formed by a long sand spit extending to the north and west from Portage Island, ending at Brant Point, and by Brant Island (or reef) one half mile further north. These two features are fully exposed only at half tide and lower water. The same is true of the narrow land bridge connecting Portage Point (the southern-most point of the Lummi Peninsula) with Portage Island. The intertidal shellfish growing areas in Portage Bay comprise approximately 150 acres.

Although the Portage Bay/Nooksack River watershed, draining some 786 square miles, lies within the boundaries of Whatcom County (with a small section of the south fork in Skagit County), the Portage Bay shellfish growing area is situated entirely within the boundaries of the Lummi Indian Nation. Development along the southeastern shoreline of the Lummi peninsula consists of low density, single-family dwellings in the proposed downgraded area but becomes denser to the south, toward Lummi Point. Most of these dwellings are connected by sewerline to the Lummi wastewater treatment plant at Gooseberry Point, although further investigation is needed to determine the exact number of sites which are not connected to the treatment plant. There is no development on Portage Island.

Pacific oysters (*Crassostrea gigas*) and hardshell littleneck clams (*Tapes semidecussata* and *Protothaca staminea*) are harvested from Portage Bay for commercial sale; oysters, hardshell clams, and butter clams (*Saxidomus giganteus*) are harvested by Lummi tribal members for ceremonial and subsistence (C. and S.) purposes. There is no public access to the Lummi Indian Nation shellfish tidelands.

The principal source of freshwater into Portage Bay is the discharge of the Nooksack River (Comprehensive Study of Water and Related Land Resources, Appendix III, Hydrology and Natural Environment), which enters Bellingham Bay three and a half miles northeast of the shellfish growing area. Because this is a free running river, the flow rate fluctuates widely, from 1,000 cubic feet per second (cfs) during the dry season to over 20,000 cfs during periods of high precipitation and snowmelt. See Section IV, D. River Discharges.

C. HISTORY OF GROWING AREA CLASSIFICATION

1. DATE OF LAST SURVEY

A shoreline survey report of Portage Bay shellfish growing area was conducted by DOH Shellfish staff in March 1996.

2. PREVIOUS CLASSIFICATION

The shellfish growing area in Portage Bay has been classified as **Approved** since the inception of the shellfish sanitation program in Washington State.

III. POLLUTION SOURCE SURVEY

A. SUMMARY of SOURCES and LOCATION

1. **See Figure 4, Pollution Source Map**, showing the location of major sources of actual or potential pollution.

2. **See Table below,** listing pollution sources, brief descriptions, and the probability as an actual source, which is cross referenced to the Figure 4 map showing location of these sources. The probabilties shown in the table below are based upon the best information presently available.

POTENTIAL POLLUTION SOURCES
Showing Probability of Water Quality Impact in Portage Bay

Pollution Source	Description	Probability
1. Domestic Wastes	shoreline houses on sewerline, STP discharge into Hale Passage	Low
2. Storm Water	low fecal coliform levels in storm water discharges, no evidence of impact	Low
3. Agricultural Wastes	**200+ dairy farms, BMP violations, high fecal counts in river**	**High**
4. Wildlife Areas	relatively low concentrations of wildlife in growing area, no evidence of impact	Low
5. Industrial Wastes	discharges remotely located from growing area, no evidence of impact	Low
6. STP Effluents	Ferndale and Lynden; effluent well treated, STP's reliable	Low

B. IDENTIFICATION and EVALUATION of POLLUTION SOURCES

1. DOMESTIC WASTES

Most of the houses situated along Lummi Shore Drive are connected by sewer line to the Gooseberry Point sewage treatment plant (STP), operated by the Lummi Water and Sewer District. This STP is permitted and regulated by the U.S. Environmental Protection Agency (EPA). Secondary sewage treatment is accomplished by an aeration basin and two rotating biological contactors; disinfection is by gaseous chlorination. The plant is attended seven days a week. This facility has operated within the limits of its permit for the past several years, with an average wastewater fecal coliform concentration of 250 colonies per 100ml (well under the permitted limit of 400) at an average discharge of 0.24 million gallons per day (MGD). The monthly average design flow is is 0.375 MGD. Treated effluent from this STP is discharged to the waters of Hale Passage, between Portage Point and Gooseberry Point.

A hydrographic study of the shellfish growing waters of Portage Bay (Cook, DSHS, 1985) was conducted concurrently by the Shellfish Office (then of DSHS) and the U.S. Food & Drug Administration (USFDA) Northeast Technical Services Unit, in April 1985. In this study, a tracer dye was released at the STP outfall site at various tidal stages and the subsequent movement of the dye observed. The purpose of this study was to determine the potential effects of the effluent of the STP on the water quality in the shellfish beds of Portage Bay.

One of the conclusions of this report was: "No dye from any release was observed moving into Portage Bay". Measurements of water levels were performed on either side of Portage Spit, which determined that the level in Portage Bay was higher than in Hale Passage, which thus "account for the persistent flow of water from Portage Bay to Hale Passage **on both ebb and flood tides**". The conclusion reached was "The formation of a weak hydraulic dam takes place within Portage Bay, strong enough to prevent flow from Hale Passage to enter Portage Bay over Portage Spit".

For this reason, the STP discharges into Hale Passage are highly unlikely to enter Portage Bay directly, and subsequently have very little if any effect on the water quality in the shellfish growing areas in Portage Bay.

There are three STP's discharging treated effluent into the Nooksack River: **Ferndale**, about five miles upstream from the river mouth; **Lynden**, about 12 miles upstream from Ferndale; and **Everson-Nooksack**, about five miles upstream from Lynden.

The **Ferndale** STP, serving a population of approximately 6,500 people, generates average monthly flows between one and two million gallons per day (MGD). Secondary treatment is accomplished with large lagoons, which provide reliable and consistent treatment of wastewater, while disinfection of the effluent is accomplished by means of flow-proportional chlorination. The plant is attended seven days a week. Twice-weekly fecal coliform testing of the effluent over the past several years demonstrates reliable and consistent treatment and disinfection.

The Ferndale STP is not considered to be a significant source of fecal coliform concentration in the Nooksack River.

The **Lynden** STP treats wastewater, consisting of domestic sewage and some industrial wastewater, in oxidation ditches, averaging flows of about one MGD. This plant is also attended seven days a week. Disinfection is accomplished by means of flow-proportional chlorination. Routine test results indicate that this plant is not a chronic discharger of significant levels of fecal coliform bacteria into the Nooksack River. However, occasional shock loads from industrial operations, such as the Darigold processing plant, can upset the treatment conditions at this STP.

The STP serving the communities of **Everson** and **Nooksack** is a small extended aeration facility which, due to its location, size, treatment and disinfection system, is not considered to be a significant contributor of fecal coliform bacteria to the Nooksack River

Domestic wastes are a potential pollution source but represent a low probability of being the major source of fecal coliform contamination in Portage Bay.

2. STORM WATER

Storm water which accumulates in the area west of Lummi Shore Drive eventually reaches the receiving waters of Portage Bay by means of a system of ditches and pipes, discharging at several sites in the vicinity of sampling stations 11 & 12. There have been several instances of somewhat elevated fecal coliform levels in samples collected from these discharges, but of insufficient consistency and magnitude to account for the much higher levels recorded in Portage Bay.

Storm water is a potential pollution source but represents a low probability of being the major source of fecal coliform contamination in Portage Bay.

3. AGRICULTURAL WASTES

There are no agricultural activities in the immediate vicinity of the shellfish growing areas of Portage Bay. However, there are many actual and potential sources of fecal coliform contamination, primarily in the form of animal manure, originating in the Nooksack River watershed. Of the 280 dairy farms in Whatcom County, some 200 of these farms are located within the 786 square mile drainage area of this watershed. There are an estimated 50,000 dairy cattle being kept on these 200 farms. At 120 pounds (or 10 gallons) of manure per cow per day, these animals produce some 3,000 tons (or 500,000 gallons) of manure per day. These farm animal wastes can reach the Nooksack River and ultimately Portage Bay by the flooding of fields following manure application, and/or by direct discharge of manure lagoons onto already saturated fields, or into ditches, creeks, or the mainstem of the Nooksack River.

The U.S. Environmental Protection Agency (EPA) is in the process of conducting inspections of the dairy farms located in the Nooksack River watershed. At the time of this report, approximately 60 farms have been inspected

by EPA investigators, resulting in three enforcement actions (fines) due to observed direct discharges of manure to ditches or streams. In the majority of other farms inspected, warning letters have been issued by the EPA for violations of various degrees. The EPA plans to complete the inspection process over the next several months.

The Nooksack River is designated as a Class A river by the Washington State Department of Ecology (DOE). The bacteriological standards for a Class A river are: fecal coliform organisms shall not exceed a geometric mean value of less than 100 organisms /100mL, with not more than 10 percent of samples exceeding 200 organisms /100mL. Because water samples have violated this standard, DOE has further designated the Nooksack River as Impaired for Fecal Coliform Bacteria, a designation which sets in motion a Total Maximum Daily Load (TMDL) investigation, a process which is currently in progress.

Nooksack River water quality has been monitored for fecal coliform concentration on a monthly basis by the Ferndale Water Treatment Plant because the river is the source of their drinking water. Results of this sampling from 12/6/93 through 11/6/96 show that 15 out of 39 samples (38%) exceeded 100 fecal coliform /100mL. These 15 samples violate the Class A river water quality standard, impact water quality in the marine receiving waters of Portage Bay, and definitely confirm the presence of fecal contamination in the Nooksack River. In addition, river water samples have been collected by DOH and Lummi water quality staff at sampling sites downstream from Ferndale, both during rain events and dry periods. The results of these samplings corroborate the results from Ferndale.

The table below shows the results of the Ferndale river samples, and whether there had been more than 0.5 inch of rainfall during any of the previous five days.

FECAL COLIFORM RESULTS

Where Class A River Standard (100) is Exceeded

Monthly Sample Date	Fecal coliform/100ml	Rain >0.5?
5/4/94	280	no
9/6/94	220	no
10/3/94	300	no
2/9/95	170	no
5/3/95	900	no
7/3/95	130	no
10/4/95	240	yes
1/7/96	900	no
4/2/96	240 and 300	yes
6/4/96	500 and 500	no
7/5/96	110	no
8/1/96	300	no
10/2/96	240	no

Agricultural wastes originating in the Nooksack River watershed are an actual, as opposed to a potential pollution source, and represent a high probability of being the principal source of fecal coliform contamination in Portage Bay.

4. WILDLIFE AREAS

Although there are several species of waterfowl found in Portage Bay, especially during the winter months, the populations appear to be low compared with other embayments in western Washington. Wildlife waste is a potential fecal coliform pollution source but represents a very low probability of being the major source of fecal coliform contamination in Portage Bay.

5. INDUSTRIAL WASTES

There is considerable industrial activity along the shoreline of eastern Bellingham Bay (within the City of Bellingham), but none in the immediate vicinity of Portage Bay. There is no evidence that industrial wastes influence levels of fecal coliform bacteria in this growing area. Known industrial and municipal wastewater discharges have very low flows in comparison to the Nooksack River, and are farther removed from the Portage Bay shellfish growing areas.

Industrial wastes are a potential pollution source but represent a very low probability of being the major source of fecal coliform contamination in Portage Bay.

IV. HYDROGRAPHIC AND METEOROLOGICAL CHARACTERISTICS

A. TIDES

1. TYPE

Portage Bay is subject to a mixed tidal pattern, predominantly semi-diurnal (two highs and two lows each tidal day), characterized by a large inequality in the high water heights, low water heights, or both. Although there are usually two high and two low tides each day, occasionally the various factors influencing tidal behavior will cause only one high or one low tide in a single tidal day.

2. AMPLITUDE

Tide levels in Portage Bay (Bellingham Bay) range from an extreme high of approximately +10 feet (10 feet above mean lower low water; MLLW=0 feet), to an extreme low of approximately -2.6 feet (2.6 feet below MLLW). The mean tidal range is 5.2 feet; the mean higher high water (MHHW) is 8.5 feet, and the mean tide is 5.1 feet. The maximum tidal swing in one tidal day is roughly 12 feet, usually occurring in January.

B. RAINFALL

1. AMOUNT

Rainfall information presented in the table below was recorded at the wastewater treatment plant in Lynden, Washington, a site chosen because of its location in the center of the dairy farm concentration in Whatcom County.

2. WHEN

The table below displays the average rainfall (in inches) by month, over the six year period of 1991 to 1996. The **maximum** column displays the greatest rainfall during that month and the year it was recorded.

Month	Average	Maximum (year)
January	**6.1**	**8.3 (92)**
February	3.4	5.1 (95)
March	3.1	4.1 (95)
April	4.5	6.7 (96)
May	2.1	4.4 (93)
June	2.1	3.9 (93)
July	1.6	2.8 (95)
August	1.8	5.1 (91)
September	2.3	4.4 (94)
October	4.6	8.8 (95)
November	**7.6**	**12.7 (95)**
December	**6.5**	**6.9 (94)**

As the above table shows, the greatest rainfall typically occurs during the months of **November (7.6), December (6.5),** and **January (6.1).** The table also shows that heavy rains can occur during usually dry months, such as the 5.1 inches which fell in August 1991 when the average for this month is 1.8 inch.

3. FREQUENCY OF SUBSTANTIAL RAINFALLS

Substantial rainfall events (greater than one inch in 24 hours) occur most frequently during the late fall and winter months of October, November, December, and January. Twenty-four hour rainfall totals greater than one half inch are quite common throughout the year with the exception of the typically dry months of May, June, July, and August. Substantial rainfall events have occurred, however, at all times of year.

C. WINDS - SEASONALITY and EFFECTS on POLLUTION DISPERSION

The wind patterns recorded at the Bellingham airport show considerable seasonal differences. Strong winds from the east, northeast, and especially the southeast characterize the winter season. Sixty percent of summer winds originate in the west, southwest, and south. These differences are shown in the table below: for example, in January winds of less than 15 mph (<15) blow from the **west 3%** of the time. In July winds of less than 15 mph blow from the **west 21%** of the time. In January winds of <15 mph blow from the **east 19%** of the time, while in July winds of <15 blow from the **east 6%** of the time.

Direction Season	West	South West	South	South East	East	North East	NW & North
January	3% <15	13% 18	17% 20	21% 24	19% <15	21% <15	6% <15
July	21% <15	26% 18	18% 16	11% <15	6% <15	3% <15	15% <15
Annual	11% <15	20% 18	17% 20	15% 18	15% 18	11% <15	11% <15

Source: U.S. Department of the Interior, Bonneville Power Administration

Wind velocity and direction appear to materially influence the location and direction of the Nooksack River plume, thereby influencing the dispersion of pollutants originating in the Nooksack watershed. This freshwater discharge is less dense than the saline waters of the bay, and therefore tends to remain at or near the surface.

Strong east or southeast winds tend to blow the river discharge westward against the eastern shore of the Lummi peninsula, which can result in low salinity readings and high fecal coliform concentrations at sampling stations #11 and #12. Strong west or southwest winds tend to blow the plume eastward away from the shore, resulting in higher salinities and lower fecal coliform concentrations at these stations.

Salinities recorded in Bellingham Bay by Collias & Barnes, corroborate that the major freshwater input to the bay is from the Nooksack River, and that the river's fresh water contribution is often concentrated along the western shoreline. (An Oceanographic Survey of the Bellingham-Samish Bay System, Collias & Barnes, 1962).

D. RIVER DISCHARGES

1. VOLUMES

The Nooksack River is the principal source of fresh water flowing into Portage Bay, draining an area of approximately 786 square miles, and discharging, on average, from 1,000 to 15,000 cubic feet per second (cfs), at various times of the year. River flow is influenced by two main meteorological factors. These factors are the intensity of rainfall in the watershed, and the rate of snowmelt in the higher elevations. When these two factors coincide, the flow rate can rise quickly to over 25,000 cfs, often remaining between 15,000 and 20,000 cfs for days at a time. Because the Nooksack is a free-flowing river, these widely fluctuating flow rates can cause severe flooding conditions along the lower reaches, materially affecting the distribution of pollutants originating in the watershed.

2. SEASONAL

River flow rates greater than 15,000 cfs typically occur during the rainy season (October, November, December, January) and in the spring months when the freezing level rises in the uplands (March, April, May, June). These flow rates were obtained via the InterNet from the U.S. Geological Survey, Water Resources of Washington State.

E. SUMMARY DISCUSSION concerning actual or potential effects of transport of pollution to the harvest area

Because Brant Point spit, Brant Island, and Portage Spit are submerged at high tide and exposed at low, the hydrographic characteristics of Portage Bay are extremely complex. At high tide, surface water flows over these spits and low lying ground, whereas at low tide the flow of water is completely blocked by these structures. Under the ever-changing driving forces of wind, river current, and tidal forces, the velocity and direction of horizontal flow of the freshwater layer in Portage Bay varies enormously, as these driving forces vary. (See Collias & Barnes, 1962).

A worst-case scenario would include the following: high river flow (20,000 cfs), flooding of low-lying fields in the watershed, high fecal coliform concentrations present in the river due to runoff and discharge of manure onto saturated soil and into ditches, creeks, and the river itself, and a strong southeasterly wind blowing the river plume westward over the shellfish beds in Portage Bay.

V. WATER QUALITY STUDIES

A. MAP OF SAMPLING STATIONS

See **Figure 2, Sample Station Map.**

B. SAMPLING PLAN AND JUSTIFICATION

1. ADVERSE POLLUTION CONDITION SAMPLING (APC)

Water quality data were first analyzed using the method prescribed for Systematic Random Sampling (SRS); only when the data were broken out by rainfall or tidal phase was Adverse Pollution Condition (APC) sampling analysis used.

2. SYSTEMATIC RANDOM SAMPLING (SRS)

The initial analysis of water quality data was conducted using the method prescribed for Systematic Random Sampling. This analysis yielded the conclusions of this report.

C. SAMPLE DATA ANALYSIS and PRESENTATION

The table below displays the frequency and tidal stage of the water quality sampling which was done in Portage Bay during the time period of the data shown in Table 1, Marine Water Data. See Tables 4 and 5 for presentation of water quality by tidal phase.

	1992	1993	1994	1995	1996	1997
JAN		1/13:eb 1/14:eb			1/18:fl	1/9:eb 1/15:eb
FEB			2/10:fl	2/9:fl		2/12:eb
MAR		3/2:eb			3/7:fl	
APR			4/21:fl	4/12:fl		
MAY		5/13:eb			5/30:fl	
JUN						
JUL	7/9:fl	7/8:eb	7/20:fl	7/19:fl	7/11:fl	
AUG			8/25:eb			
SEP				9/20:fl 9/21:fl		
OCT	10/7:fl 10/28:eb	10/13:fl	10/27:fl		10/9:fl	
NOV				11/16:fl	11/19:eb 11/20:eb	
DEC					12/18:eb	

DOH and Lummi water quality personnel collected marine water samples from Portage Bay in accordance with National Shellfish Sanitation Program (NSSP) requirements for monitoring an Approved commercial shellfish growing area. The collection of water samples follows the Systematic Random Sampling (SRS) protocols described in Part I, Section C.10 of the 1995 NSSP Manual of Operations.

DOH and Lummi water quality personnel use the following procedures when collecting water samples from commercial shellfish growing areas:

> Water samples are collected from approximately six inches below the surface using 100ml, sterile plastic bottles. Samples are immediately placed in an iced, insulated cooler, and transported to the Washington State Public Health Laboratory in Seattle for processing within 30 hours of collection. Samples are tested for fecal coliform concentration using the American Public Health Association (APHA) A-1 Modified (5 tube/3 dilution) Method. Surface water temperature, salinity, tidal phase, and sampling time are recorded at each sampling site.

The water quality information summarized in this report was collected between July 9, 1992 and February 12, 1997. Water sampling was conducted randomly with regard to weather conditions. The sample results summarized in this report represent a wide variety of rainfall and tidal conditions.

1. - STATION BY STATION ARRAY

Table 1; Marine Water Data (SRS), summarizes all water samples collected from Portage Bay between 7/9/92 and 2/12/97. This sampling period contains the minimum of 30 of the most recent water samples collected from each of the Portage Bay sampling stations required under Systematic Random Sampling (SRS) protocols. The SRS water quality standards described in Part I, Section C.10 of the 1995 NSSP Manual of Operations have been used in the Table 1 data summary.

The Table 1 data summary indicates that sampling **stations #11 and #12 exceed** the second part of the NSSP water quality standard (estimated 90th percentile **not greater than 43** fecal coliform organisms/100ml), with values of **114** and **107**, respectively.

Table 2; Marine Water Data (APC), displays all water samples collected during relatively dry weather conditions between July 9, 1992 and February 12, 1997.

This summary includes only samples collected when the twenty-four hour rainfall total recorded on the sampling date, or any one of the three days preceding the sampling date, was 0.49 of an inch or less.

The Adverse Pollution Condition (APC) water quality standards defined in the NSSP Manual of Operations Section C. have been applied to the water data used in the Table 2 summary.

The Table 2 data summary indicates that sampling station #11 does not meet the APC water quality standards for an Approved classification, even under these relatively dry conditions.

Table 3; 24 Hour Rainfall Records, shows the 24 hour rainfall conditions under which water samples were collected between July 9, 1992 and February 12, 1997.

The 24 hour rainfall total recorded at 0800 on each sampling date is shown in the DAY 0 column. The 24 hour totals for each of the preceding seven days are shown in the DAY 1 through DAY 7 columns. The sampling dates that are included in the Table 2 data summary are indicated in bold type in Table 3.

Water samples were collected from Portage Bay under a wide range of weather conditions between July 9, 1992 and February 12, 1997. Samples collected on eleven out of the thirty-two sampling dates listed in Table 3 followed 24 hour rainfall events of 0.25 inch or more, as reported on the sampling date or one of the three days preceding the sampling date.

There were ten sampling days when the rainfall on that day and on each of the preceding three days was zero. Some rainfall less than 0.25 inch was documented on the remaining eleven sampling days, and the three preceding days .

2. DAILY SAMPLING RESULTS

The daily sampling results for stations 10, 11, 12, 13, 14, 15, and 16 are presented following Table 5. These results show the sample date, time of

collection, tidal stage, fecal coliform concentration, surface water temperature and salinity at each sample station. At the bottom of each page is listed the number of samples, the range of fecal coliform values, the geometric mean of that range, and the estimated 90th percentile.

3. OVERALL COMPLIANCE WITH NSSP CRITERIA

The data presented in Table 1 demonstrates that not all stations in the Portage Bay growing area meet the NSSP criteria for Approved area classification. The Table 2 data summary shows that not all stations meet the second part of the APC water quality standard. This information indicates a lack a predictable relationship between rainfall and declines in marine water quality. Therefore, a portion of Portage Bay does not meet NSSP criteria for a Conditionally Approved area classification.

4. CLASSIFICATION OF STATIONS

Stations 11 and 12 do not meet the NSSP standards for Approved area classification. Station 13 demonstrates marginal water quality but does meet Approved area criteria. All other stations are properly classified as Approved.

VI. - INTERPRETATION OF DATA in determining area classification

A. - EFFECTS OF METEOROLOGIC and HYDROGRAPHIC CONDITIONS

The water quality data presented in this report indicates an active non-point source or sources of pollution within the Portage Bay/Nooksack River watershed. The most probable sources of fecal coliform contamination lie within the drainage area of the Nooksack River and its tributaries, as the result of inadequate farm animal waste management practices.

This conclusion is based on the following observations:

1. Water quality samples collected from the Nooksack River by DOH Shellfish, Lummi Water Quality, and the cities of Ferndale and Lynden have shown intermittent but frequent high fecal coliform concentrations. These concentrations are particularly noteworthy when considering the high flow rate of the river, and consequently the high fecal loading. Investigations by the U.S. Environmental Protection Agency and others have revealed numerous actual and potential violations in farm animal manure management practices in the Nooksack River watershed.

2. Water quality samples collected from the various storm water discharges to Portage Bay (especially in the vicinity of sampling stations 11 & 12) have shown some elevated fecal coliform concentrations but not of sufficient consistency or magnitude to suggest a major pollution source.

3. Additionally, most of the houses along Lummi Shore Drive are connected to the sewerline leading to the Lummi wastewater treatment plant, which discharges its effluent into the waters of Hale Passage, between Portage Point and Gooseberry Point.

No predictable relationship is demonstrated between substantial rainfall and degraded water quality at all stations in Portage Bay.

B. VARIABILITY OF DATA

Water quality at station 11 consistently fails to comply with the NSSP water quality standards regardless of rainfall condition, as shown in Tables 1, 2, and 3. Water quality at station 12 appears to be more correlated with meteorological conditions than station 11. However, both stations fail the SRS criteria for Approved area classification.

Stations 11 and 12 also fail during both ebb and flood tide conditions, as shown in Tables 4 and 5. Although only 13 samples are represented, Stations 13 and 14 also fail during ebb tide conditions. The geometric mean values for all stations shown in Tables 4 and 5 do not show a meaningful difference in water quality due to tidal phase. However, since flood and ebb tide samples were collected on different sampling days, it is not possible to accurately assess tidal influence.

VII. CONCLUSIONS & RECOMMENDATIONS

A downgrade in the classification from **Approved** to **Restricted** for portions of Portage Bay is required by the NSSP Manual of Operations, Part I Section C, Classification of Growing Areas. This conclusion is based on a summary of the 30 most recent water samples collected from sampling stations located within Portage Bay which shows that sampling stations 11 and 12, located in the western portion of Portage Bay, fail the NSSP water quality standards for an Approved commercial shellfish area.

A classification of Conditionally Approved is not appropriate for this portion of Portage Bay. This conclusion is based on the summary of water quality data which shows that elevated fecal coliform levels in Portage Bay occur unpredictably, exhibiting insufficient correlation with precipitation to be managed as a Conditionally Approved area based on rainfall.

The area north of the proposed Restricted area shall remain unclassified, considered Prohibited. Classification of the shellfish growing area adjacent to stations 11 and 12 as a Restricted area is acceptable according to NSSP criteria. The principal sources of fecal coliform pollution in this growing area are apparently agricultural in origin. This area of Bellingham Bay lies closer to the mouth of the Nooksack River, and therefore would be more directly impacted by sources of pollution originating in the Nooksack watershed.

Figure 3, Proposed Reclassification Map, shows the location of the recommended Restricted area in Portage Bay. The Restricted area comprises approximately 60 acres, including that portion of Portage Bay located between the eastern shore of the Lummi Peninsula and the sanitary line indicated in Figure 3. The southern boundary of the Restricted area is defined as an east-west line extending from the shore at **48° 43' 27"** north latitude (2279 Lummi Shore Drive), and the northern boundary as an east-west line extending from the shore at **48° 43' 49"** north latitude (no equivalent address on shore). The eastern boundary of the Restricted area is defined by the extreme lower low water tide line. Clearly identifiable markers will need to be placed on the shore at these boundary lines, the positions and type of marker to be jointly agreed upon by DOH and the Lummi Indian Nation.

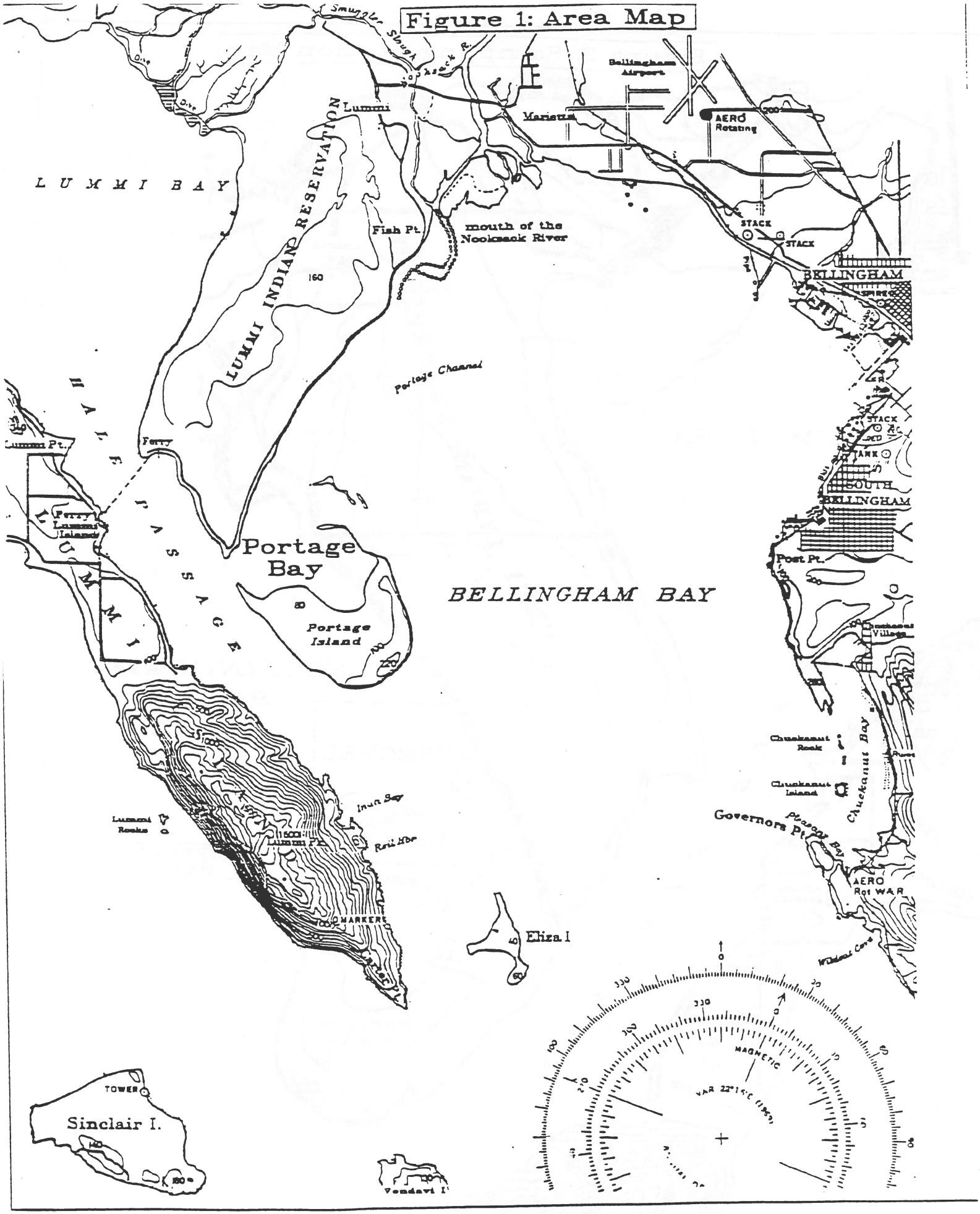


Figure 1: Area Map

Figure 2: Sampling Station Map

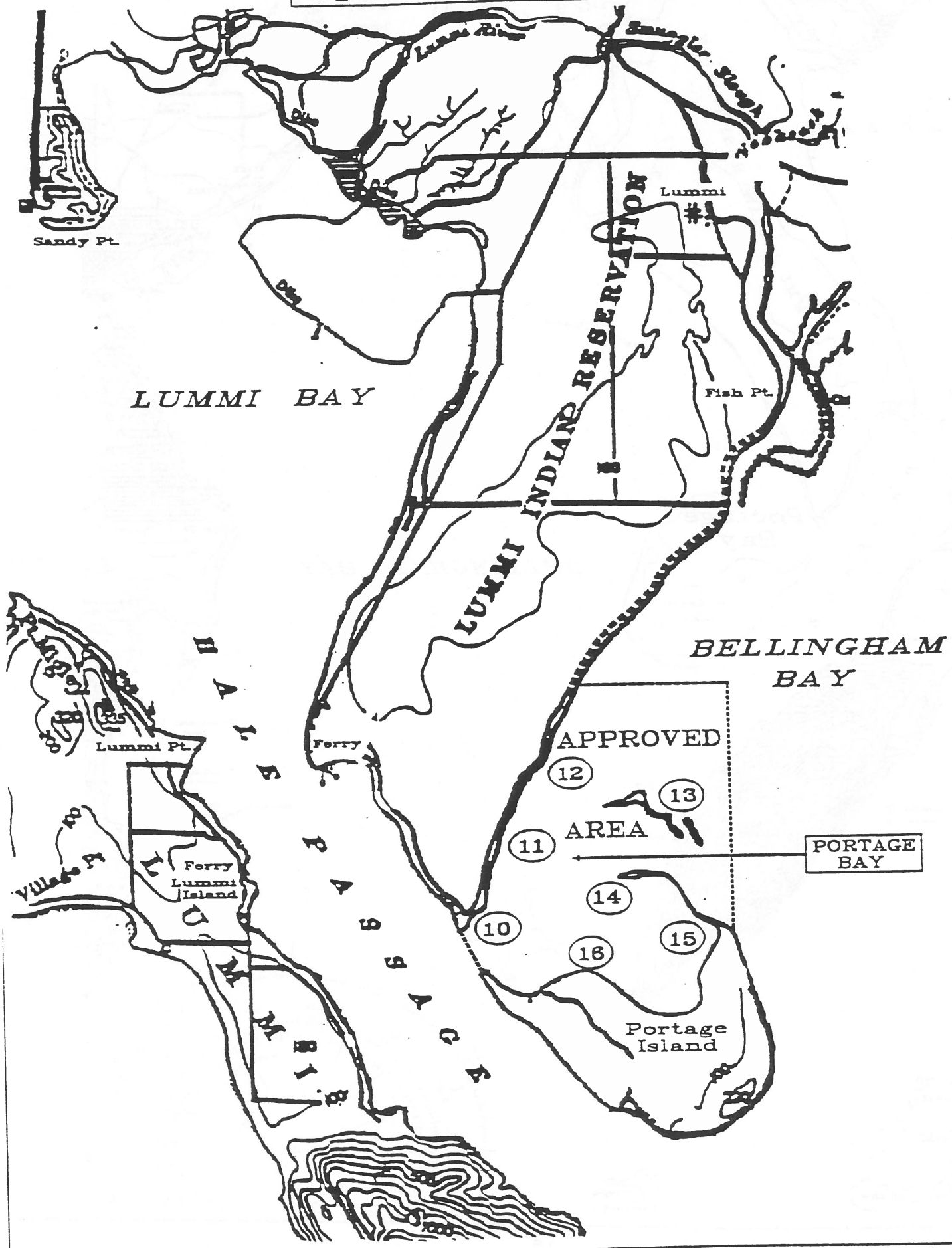
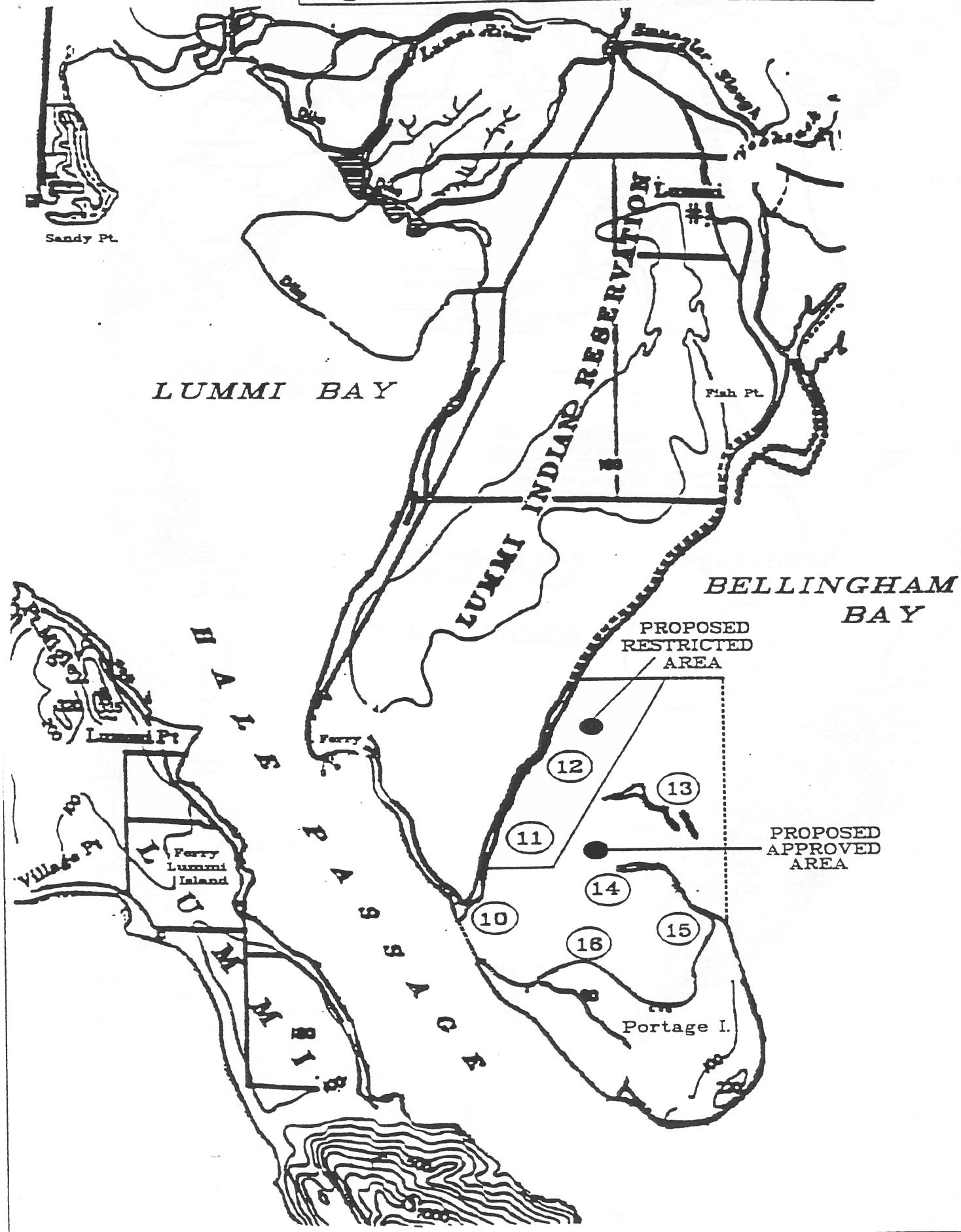


Figure 3: Proposed Reclassification



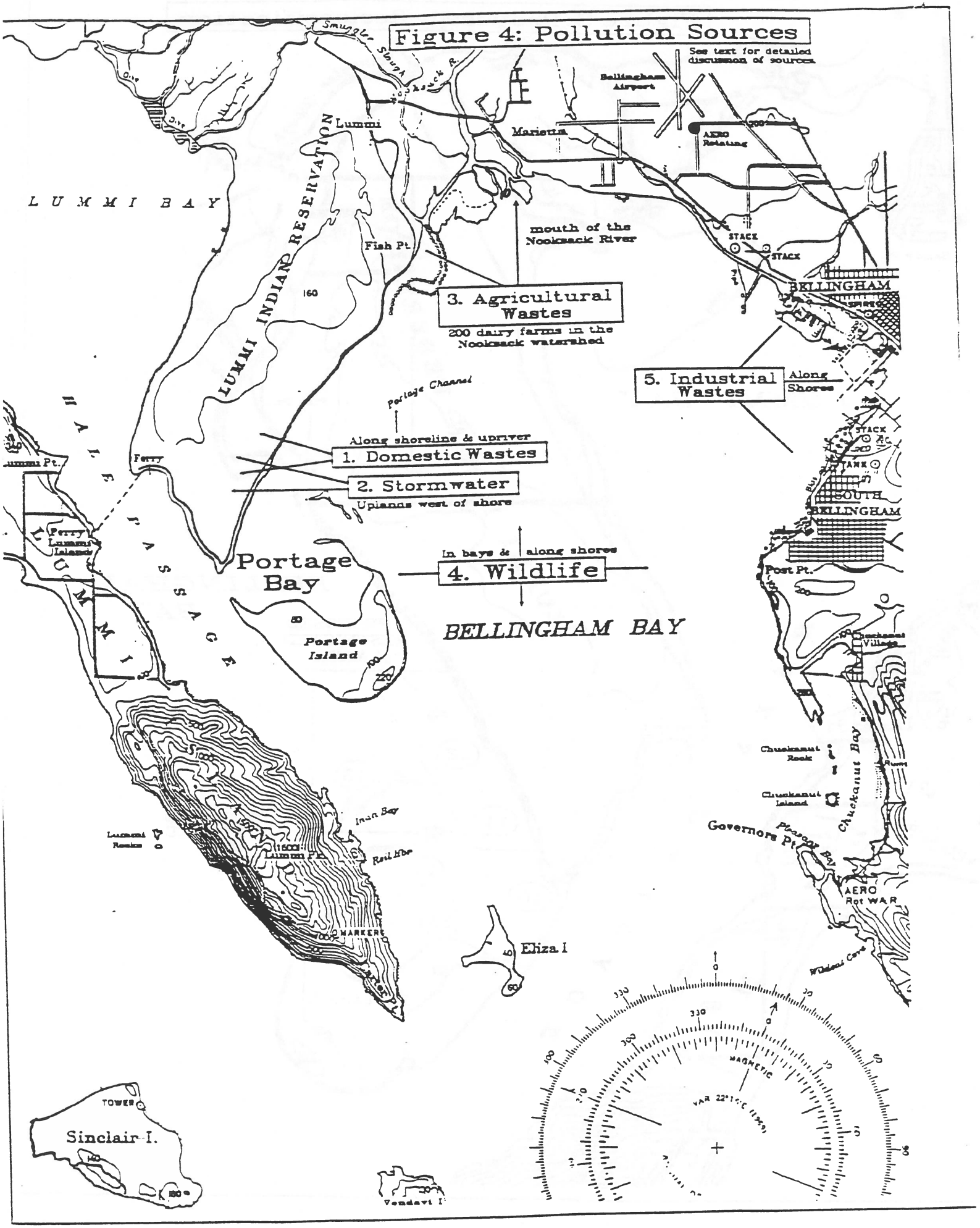


Figure 4: Pollution Sources
See text for detailed discussion of sources
Bellingham Airport
AERO Refining
Marietta
Lummi
LUMMI INDIAN RESERVATION
LUMMI BAY
Fish Pt.
mouth of the Nooksack River
STACK
STACK
BELLINGHAM
3. Agricultural Wastes
200 dairy farms in the Nooksack watershed
5. Industrial Wastes
Along Shores
Portage Channel
Along shoreline & upriver
1. Domestic Wastes
2. Stormwater
Uplands west of shore
Ferry
Lummi Pt.
Ferry
Lummi Island
HALE PASSAGE
LUMMI
Portage Bay
Portage Island
In bays & along shores
4. Wildlife
BELLINGHAM BAY
STACK
TANK
SOUTH BELLINGHAM
Post Pt.
Chuckanut Rock
Chuckanut Island
Chuckanut Bay
Governors Pt.
Pleasant Bay
AERO
Rot WAR
Lummi Rocks
Lummi Pt.
Inati Bay
Red Mtn
MARKERS
Eliza I
Sinclair I.
TOWER
Vendavi I.
MAGNETIC
VAR 22°15'E (1990)

TABLE 1

MARINE WATER DATA (SRS)
AREA: PORTAGE BAY

From: (07/09/92) To: (02/12/97)
Fecal Coliform Organisms/100 ml

Station	Num.of Samples	Range	Geo. Mean	Est.90th Percentile	Meets Standard
--	--	----------	----	---	---
10	31	1.7 - 170.0	5.2	24	YES
11	**34**	**1.7 - 350.0**	**12.3**	**114**	**NO**
12	**34**	**1.7 - 920.0**	**10.9**	**107**	**NO**
13	31	1.7 - 260.0	5.6	34	YES
14	31	1.7 - 170.0	4.7	27	YES
15	30	1.7 - 170.0	4.5	23	YES
16	31	1.7 - 79.0	5.1	27	YES

All tides information is presented.

The standard for approved shellfish growing waters is fecal coliform geometric mean not greater than 14 organisms/100 ml and an estimate of the 90th percentile not greater than 43 organisms/100 ml. The above table shows bacteriological results in relation to program standards.

TABLE 2

MARINE WATER DATA (APC)
AREA: PORTAGE BAY

From: (07/09/92) To: (02/12/97)
FECAL COLIFORM ORGANISMS/100 ML

Rainfall Information is DAY_0 for 3 days prior between 0.000 and 0.49

Station	Num of Samples	Range	Geometric Mean	% samples >43
10	23	1.7 - 33.0	4.1	0.0
11	**23**	**1.7 - 110.0**	**7.0**	**13.0**
12	23	1.7 - 49.0	5.0	4.3
13	23	1.7 - 70.0	4.5	8.6
14	23	1.7 - 79.0	3.5	4.3
15	22	1.7 - 23.0	3.1	0.0
16	23	1.7 - 79.0	4.2	8.6

All tides information is presented.

The standards for Approved shellfish growing waters is fecal coliform geometric mean not greater than 14 organisms/100 ml with **not more than 10 percent greater than 43 organisms/100 ml.** The above table shows bacteriological results in relation to program standards.

TABLE 3

24 HOUR RAINFALL RECORDS
AREA: PORTAGE BAY
NOAA: Lynden Wastewater Treatment Plant
Observation Time: 08:00
From: (07/09/92) To: (02/12/97)

SAMPLE DATE	DAY 0	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
07/09/92	0.030	0.000	0.110	0.040	**0.750**	**1.350**	0.000	0.000
10/07/92	0.000	0.000	0.000	0.000	0.000	0.000	0.130	0.000
10/28/92	0.190	0.000	0.000	0.000	0.000	0.150	**0.750**	0.250
01/13/93	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
01/14/93	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
03/02/93	0.100	0.030	0.000	0.000	0.000	0.000	0.000	0.000
05/13/93	0.000	0.000	0.000	0.000	0.400	0.050	0.300	0.150
07/08/93	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.000
10/13/93	0.020	0.050	0.010	0.000	0.000	0.000	0.000	0.020
02/10/94	0.210	0.150	0.100	0.300	0.040	0.030	0.160	**0.740**
04/21/94	0.100	0.090	0.000	0.050	0.000	0.000	0.000	0.090
07/20/94	0.000	0.000	0.000	0.130	0.000	0.000	0.000	0.000
08/25/94	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10/27/94	0.180	**0.850**	0.430	0.000	0.000	0.110	0.050	0.300
02/09/95	0.000	0.000	0.030	0.130	0.150	0.020	0.160	0.190
04/12/95	0.230	0.000	**0.550**	0.000	0.050	0.410	0.120	0.030
07/19/95	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
09/20/95	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.000
09/21/95	0.000	0.000	0.000	0.010	0.000	0.000	0.000	0.000
11/16/95	0.360	0.280	0.040	**0.570**	0.300	0.100	**1.530**	0.010
01/18/96	0.020	0.000	0.000	**0.590**	**0.850**	**1.500**	0.250	0.000
03/07/96	0.100	0.010	0.030	0.000	0.210	0.000	0.000	0.000
05/30/96	0.000	0.010	0.000	0.000	0.030	0.000	0.000	0.000
07/11/96	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10/29/96	0.000	**0.880**	**1.250**	0.000	0.050	**0.60**	**0.550**	0.050
11/13/96	0.050	**0.650**	0.000	0.000	0.000	0.010	**0.640**	0.100
11/19/96	0.000	0.000	0.000	0.400	0.050	0.350	0.050	**0.650**
11/20/96	0.000	0.000	0.000	0.000	0.400	0.050	0.350	0.050
12/05/96	0.430	**0.750**	0.100	0.300	0.150	**0.500**	0.150	0.100
01/09/97	0.000	0.230	0.050	**0.850**	0.050	0.040	0.110	0.450
01/15/97	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
02/12/97	0.050	**1.000**	0.000	0.000	0.000	0.000	0.000	0.000

TABLE 4
EBB TIDE

MARINE WATER DATA (SRS)
LUMMI/HALE/PORTAGE
SUBAREA: **PORTAGE ISLAND**
AMBIENT MONITORING
From: (07/09/92) To: (02/12/97)
FECAL COLIFORM ORGANISMS/100 ML

Station	Number of Samples	Range	Geometric Mean	Estimated 90th Percentile
10	13	1.7 - 49.0	6.7	29
11	**13**	**1.7 - 130.0**	**12.4**	**114**
12	**13**	**1.7 - 240.0**	**11.9**	**64**
13	**13**	**1.7 - 260.0**	**8.2**	**70**
14	**13**	**1.7 - 170.0**	**6.8**	**44**
15	12	1.7 - 170.0	5.7	34
16	13	1.7 - 79.0	6.4	39

Ebb tide information only.

The standard for approved shellfish growing waters is fecal coliform geometric mean not greater than 14 organisms/100 ml and an estimate of the 90th percentile not greater than 43 organisms/100 ml. The above table shows bacteriological results in relation to program standards.

TABLE 5
FLOOD TIDE

MARINE WATER DATA (SRS)
LUMMI/HALE/PORTAGE
SUBAREA: **PORTAGE ISLAND**
AMBIENT MONITORING
From: (07/09/92) To: (02/12/97)
FECAL COLIFORM ORGANISMS/100 ML

Station	Number of Samples	Range	Geometric Mean	Estimated 90th Percentile
10	18	1.7 - 170.0	4.3	21
11	**21**	**1.7 - 350.0**	**12.2**	**120**
12	**21**	**1.7 - 920.0**	**10.3**	**143**
13	18	1.7 - 49.0	4.3	19
14	18	1.7 - 79.0	3.6	19
15	18	1.7 - 79.0	3.9	18
16	18	1.7 - 70.0	4.3	20

Flood tide information only.

The standard for approved shellfish growing waters is fecal coliform geometric mean not greater than 14 organisms/100 ml and an estimate of the 90th percentile not greater than 43 organisms/100 ml. The above table shows bacteriological results in relation to program standards.

Tables 4 and 5 present the summarized results of water samples collected under Ebb and Flood tide conditions respectively. The geometric mean values for all stations shown in the two tables do not suggest a significant difference in water quality due to tidal phase. However since all of the sampling events presented in Tables 4 and 5 represent ebb tide and flood tide samples collected on different dates, it is not possible to accurately assess the influence of tide phase on water quality.

DAILY MARINE WATER DATA
MONITORING AREA: PORTAGE BAY
SAMPLING STATION NUMBER: 10

Sample Date	Sample Time	Tide	Fcoli/100ml	Temperature	Salinity
07/09/92	14:52	F	6.8	20.00	15.00
10/07/92	13:34	F	4.0	13.00	28.00
10/28/92	11:08	E	17.0	11.00	20.00
01/13/93	10:00	E	6.8	4.00	26.00
01/14/93	13:10	E	4.5	4.00	28.00
03/02/93	11:20	E	2.0	7.00	6.00
05/13/93	13:56	E	1.7	13.00	25.00
07/08/93	14:33	E	1.7	17.00	25.00
10/13/93	12:57	F	4.5	13.00	28.00
02/10/94	13:58	F	1.7	8.00	28.00
04/21/94	11:17	F	1.7	11.00	26.00
07/20/94	13:23	F	4.5	19.00	24.00
08/25/94	10:08	E	11.0	15.00	25.00
10/27/94	8:44	F	1.7	11.00	25.00
02/09/95	10:52	F	7.8	6.00	10.00
04/12/95	11:05	F	2.0	8.00	8.00
07/19/95	11:56	F	2.0	21.00	18.00
09/20/95	13:59	F	7.8	17.00	26.00
09/21/95	13:38	F	2.0	16.00	30.00
11/16/95	**10:17**	**F**	**170.0**	**9.00**	**6.00**
01/18/96	**10:15**	**F**	**49.0**	**5.00**	**16.00**
03/07/96	14:16	F	1.7	8.00	16.00
05/30/96	16:00	F	2.0	15.00	12.00
07/11/96	13:47	F	1.7	19.00	25.00
10/09/96	13:16	F	4.5	15.00	24.00
11/19/96	14:49	E	13.0	4.00	16.00
11/20/96	**14:08**	**E**	**33.0**	**6.00**	**24.00**
12/18/96	13:45	E	11.0	5.00	16.00
01/09/97	**9:22**	**E**	**49.0**	**4.00**	**12.00**
01/15/97	12:35	E	4.5	5.00	18.00
02/12/97	9:47	E	1.7	6.00	26.00

NUMBER OF SAMPLES: 31
GEOMETRIC MEAN: 5.210

RANGE: 1.7 - 170.0
ESTIMATED 90TH PERCENTILE: 24.644

DAILY MARINE WATER DATA
MONITORING AREA: PORTAGE BAY
SAMPLING STATION NUMBER: 11

Sample Date	Sample Time	Tide	Fcoli/100ml	Temperature	Salinity
07/09/92	14:57	F	13.0	20.00	15.00
10/07/92	13:50	F	1.7	13.00	26.00
10/28/92	**11:12**	**E**	**79.0**	**11.00**	**18.00**
01/13/93	10:17	E	2.0	4.00	25.00
01/14/93	13:30	E	33.0	3.00	26.00
03/02/93	**11:30**	**E**	**49.0**	**7.00**	**5.00**
05/13/93	13:50	E	4.5	13.00	25.00
07/08/93	14:31	E	1.7	18.00	25.00
10/13/93	12:35	F	1.7	13.00	28.00
02/10/94	14:14	F	4.5	5.00	10.00
04/21/94	11:05	F	1.7	12.00	24.00
07/20/94	13:03	F	1.7	18.00	25.00
08/25/94	**10:21**	**E**	**110.0**	**18.00**	**15.00**
10/27/94	**08:58**	**F**	**79.0**	**11.00**	**22.00**
02/09/95	11:10	F	33.0	6.00	4.00
04/12/95	10:50	F	33.0	8.00	8.00
07/19/95	11:24	F	11.0	22.00	14.00
09/20/95	13:54	F	23.0	17.00	26.00
09/21/95	13:34	F	1.7	17.00	30.00
11/16/95	**10:03**	**F**	**79.0**	**9.00**	**0.00**
01/18/96	**10:25**	**F**	**350.0**	**5.00**	**16.00**
03/07/96	14:13	F	1.7	7.00	18.00
05/30/96	16:17	F	4.5	15.00	12.00
07/11/96	13:45	F	1.7	19.00	25.00
10/09/96	13:32	F	13.0	14.00	12.00
10/29/96	**14:55**	**F**	**70.0**		
11/13/96	**15:09**	**F**	**49.0**	**10.50**	**18.50**
11/19/96	14:46	E	23.0	5.00	20.00
11/20/96	14:20	E	33.0	5.00	20.00
12/05/96	**10:40**	**F**	**240.0**	**6.00**	**5.00**
12/18/96	13:40	E	2.0	4.00	15.00
01/09/97	**09:20**	**E**	**130.0**	**4.00**	**8.00**
01/15/97	11:58	E	2.0	1.00	6.00
02/12/97	09:42	E	2.0	6.00	22.00

NUMBER OF SAMPLES: 34
GEOMETRIC MEAN: 12.312

RANGE: 1.7 - 350.0
ESTIMATED 90TH PERCENTILE: 114.147

DAILY MARINE WATER DATA
MONITORING AREA: PORTAGE BAY
SAMPLING STATION NUMBER: 12

Sample Date	Sample Time	Tide	Fcoli/100ml	Temperature	Salinity
07/09/92	15:02	F	1.7	17.00	25.00
10/07/92	13:56	F	1.7	13.00	26.00
10/28/92	11:19	E	13.0	11.00	18.00
01/13/93	10:20	E	11.0	4.00	24.00
01/14/93	13:35	E	7.8	3.00	26.00
03/02/93	11:32	E	13.0	7.00	3.00
05/13/93	13:45	E	7.8	13.00	25.00
07/08/93	14:28	E	1.7	18.00	25.00
10/13/93	12:31	F	1.7	14.00	28.00
02/10/94	14:17	F	1.7	6.00	25.00
04/21/94	11:01	F	2.0	12.00	24.00
07/20/94	13:00	F	1.7	19.00	20.00
08/25/94	**10:25**	**E**	**49.0**	**18.00**	**20.00**
10/27/94	**9:01**	**F**	**49.0**	**11.00**	**24.00**
02/09/95	11:14	F	22.0	6.00	2.00
04/12/95	10:46	F	23.0	9.00	14.00
07/19/95	11:20	F	33.0	22.00	15.00
09/20/95	13:50	F	4.0	17.00	28.00
09/21/95	13:30	F	4.5	17.00	30.00
11/16/95	**9:58**	**F**	**130.0**	**9.00**	**0.00**
01/18/96	**10:28**	**F**	**70.0**	**5.00**	**16.00**
03/07/96	14:10	F	1.7	8.00	20.00
05/30/96	16:21	F	1.7	15.00	20.00
07/11/96	13:42	F	1.7	19.00	25.00
10/09/96	13:38	F	4.5	14.00	10.00
10/29/96	**14:47**	**F**	**920.0**		
11/13/96	15:01	F	49.0	10.50	17.40
11/19/96	14:40	E	33.0	5.00	20.00
11/20/96	14:24	E	13.0	5.00	25.00
12/05/96	**10:10**	**F**	**540.0**	**6.00**	**3.00**
12/18/96	13:35	E	13.0	4.00	18.00
01/09/97	**9:17**	**E**	**240.0**	**4.00**	**5.00**
01/15/97	11:49	E	1.7	0.00	2.00
02/12/97	9:38	E	4.5	6.00	22.00

NUMBER OF SAMPLES: 34 RANGE: 1.7 - 920.0
GEOMETRIC MEAN: 10.917 **ESTIMATED 90TH PERCENTILE: 107.607**

DAILY MARINE WATER DATA
MONITORING AREA: PORTAGE BAY
SAMPLING STATION NUMBER: 13

Sample Date	Sample Time	Tide	FColi/100ml	Temperature	Salinity
7/09/92	15:05	F	2.0	20.00	20.00
10/07/92	14:03	F	2.0	13.00	25.00
10/28/92	11:21	E	7.8	11.00	18.00
01/13/93	10:25	E	33.0	4.00	25.00
01/14/93	13:40	E	23.0	3.00	26.00
03/02/93	11:34	E	2.0	8.00	14.00
05/13/93	13:41	E	1.7	13.00	22.00
07/08/93	14:24	E	2.0	19.00	22.00
10/13/93	12:27	F	2.0	14.00	28.00
02/10/94	14:20	F	2.0	6.00	25.00
04/21/94	10:55	F	1.8	12.00	28.00
07/20/94	12:53	F	4.5	20.00	16.00
08/25/94	**10:28**	**E**	**70.0**	**17.00**	**15.00**
10/27/94	9:06	F	2.0	10.00	25.00
02/09/95	11:18	F	7.8	6.00	5.00
04/12/95	10:43	F	33.0	8.00	12.00
07/19/95	**11:15**	**F**	**49.0**	**22.00**	**12.00**
09/20/95	13:47	F	4.5	17.00	30.00
09/21/95	13:24	F	1.7	17.00	30.00
11/16/95	9:54	F	33.0	9.00	2.00
01/18/96	10:33	F	17.0	6.00	16.00
03/07/96	14:03	F	1.7	7.00	24.00
05/30/96	16:23	F	1.7	14.00	25.00
07/11/96	13:38	F	1.7	18.00	25.00
10/09/96	13:44	F	4.5	15.00	28.00
11/19/96	15:08	E	22.0	6.00	22.00
11/20/96	14:30	E	7.8	6.00	25.00
12/18/96	14:14	E	2.0	4.00	16.00
01/09/97	**9:13**	**E**	**260.0**	**4.00**	**2.00**
01/15/97	11:39	E	1.7	3.00	10.00
02/12/97	10:03	E	2.0	6.00	24.00

NUMBER OF SAMPLES: 31 RANGE: 1.7 - 260.0
GEOMETRIC MEAN: 5.696 ESTIMATED 90TH PERCENTILE: 34.905

DAILY MARINE WATER DATA
MONITORING AREA: PORTAGE BAY
SAMPLING STATION NUMBER: 14

Sample Date	Sample Time	Tide	Fcoli/100ml	Temperature	Salinity
07/09/92	15:09	F	21.0	20.00	14.00
10/07/92	13:45	F	1.7	13.00	26.00
10/28/92	11:26	E	2.0	11.00	26.00
01/13/93	10:10	E	7.8	2.00	25.00
01/14/93	13:25	E	4.0	2.00	28.00
03/02/93	11:27	E	1.7	8.00	29.00
05/13/93	14:08	E	4.0	13.00	25.00
07/08/93	14:49	E	2.0	19.00	24.00
10/13/93	12:40	F	2.0	13.00	28.00
02/10/94	14:10	F	1.7	7.00	28.00
04/21/94	11:08	F	1.7	11.00	27.00
07/20/94	13:07	F	1.7	17.00	25.00
08/25/94	**10:19**	**E**	**79.0**	**18.00**	**15.00**
10/27/94	8:54	F	1.7	11.00	25.00
02/09/95	11:04	F	1.7	8.00	25.00
04/12/95	10:54	F	6.1	8.00	10.00
07/19/95	11:28	F	17.0	22.00	10.00
09/20/95	14:12	F	2.0	17.00	28.00
09/21/95	13:49	F	2.0	17.00	30.00
11/16/95	**10:07**	**F**	**49.0**	**10.00**	**4.00**
01/18/96	**10:23**	**F**	**79.0**	**6.00**	**19.00**
03/07/96	14:28	F	1.7	8.00	16.00
05/30/96	16:14	F	1.7	15.00	22.00
07/11/96	13:53	F	1.7	19.00	26.00
10/09/96	13:29	F	2.0	15.00	30.00
11/19/96	14:56	E	11.0	4.00	16.00
11/20/96	14:17	E	17.0	5.00	20.00
12/18/96	13:57	E	7.8	4.00	12.00
01/09/97	**9:30**	**E**	**170.0**	**5.00**	**14.00**
01/15/97	12:19	E	2.0	2.00	7.00
02/12/97	9:57	E	2.0	6.00	24.00

NUMBER OF SAMPLES: 31
GEOMETRIC MEAN: 4.767

RANGE: 1.7 - 170.0
ESTIMATED 90TH PERCENTILE: 27.993

DAILY MARINE WATER DATA
MONITORING AREA: PORTAGE BAY
SAMPLING STATION NUMBER: 15

Sample Date	Sample Time	Tide	FColi/100ml	Temperature	Salinity
07/09/92	15:11	F	7.8	20.00	14.00
10/07/92	13:42	F	1.7	16.00	28.00
10/28/92	11:29	E	4.0	11.00	30.00
01/13/93	10:07	E	1.7	2.00	25.00
01/14/93	13:20	E	2.0	0.00	28.00
03/02/93	11:25	E	1.7	8.00	28.00
05/13/93	14:06	E	7.8	13.00	25.00
07/08/93	14:46	E	1.7	19.00	24.00
10/13/93	12:47	F	1.7	13.00	28.00
02/10/94	14:06	F	1.7	6.00	28.00
04/21/94	11:11	F	1.7	11.00	27.00
07/20/94	13:11	F	2.0	18.00	25.00
08/25/94	10:15	E	23.0	18.00	15.00
10/27/94	8:51	F	4.5	11.00	25.00
02/09/95	11:00	F	11.0	8.00	30.00
04/12/95	10:57	F	1.7	8.00	8.00
07/19/95	11:32	F	6.8	21.00	20.00
09/20/95	14:08	F	7.8	17.00	26.00
09/21/95	13:45	F	2.0	17.00	30.00
11/16/95	**10:10**	**F**	**79.0**	**10.00**	**2.00**
01/18/96	**10:20**	**F**	**49.0**	**5.00**	**16.00**
03/07/96	14:25	F	2.0	7.00	16.00
05/30/96	16:10	F	1.7	15.00	20.00
07/11/96	13:51	F	1.7	19.00	25.00
10/09/96	13:25	F	1.7	16.00	24.00
11/20/96	14:13	E	11.0	5.00	20.00
12/18/96	13:52	E	13.0	4.00	13.00
01/09/97	**9:28**	**E**	**170.0**	**4.00**	**14.00**
01/15/97	12:24	E	1.7	2.00	7.00
02/12/97	9:53	E	4.5	6.00	24.00

NUMBER OF SAMPLES: 30 RANGE: 1.7 - 170.0
GEOMETRIC MEAN: 4.558 ESTIMATED 90TH PERCENTILE: 23.484

DAILY MARINE WATER DATA
MONITORING AREA: PORTAGE BAY
SAMPLING STATION NUMBER: 16

Sample Date	Sample Time	Tide	FColi/100ml	Temperature	Salinity
7/09/92	15:14	F	11.0	20.00	15.00
10/07/92	13:37	F	2.0	13.00	26.00
10/28/92	11:32	E	7.8	11.00	28.00
01/13/93	10:03	E	2.0	3.00	26.00
01/14/93	13:15	E	7.8	2.00	28.00
03/02/93	11:23	E	1.7	8.00	29.00
05/13/93	14:02	E	2.0	13.00	25.00
07/08/93	14:41	E	1.7	18.00	24.00
10/13/93	12:53	F	1.7	13.00	28.00
02/10/94	14:02	F	1.7	7.00	28.00
04/21/94	11:14	F	1.7	11.00	26.00
07/20/94	13:15	F	2.0	18.00	25.00
08/25/94	**10:12**	**E**	**49.0**	**18.00**	**20.00**
10/27/94	8:48	F	1.7	10.00	25.00
02/09/95	10:56	F	4.5	8.00	30.00
04/12/95	11:00	F	7.8	9.00	6.00
07/19/95	11:50	F	7.8	21.00	18.00
09/20/95	14:03	F	23.0	17.00	26.00
09/21/95	13:41	F	4.5	17.00	30.00
11/16/95	**10:14**	**F**	**46.0**	**9.00**	**2.00**
01/18/96	**10:17**	**F**	**70.0**	**4.00**	**14.00**
03/07/96	14:21	F	1.7	8.00	18.00
05/30/96	16:06	F	1.7	15.00	20.00
07/11/96	13:49	F	1.7	19.00	25.00
10/09/96	13:21	F	2.0	15.00	25.00
11/19/96	**14:52**	**E**	**79.0**	**3.00**	**15.00**
11/20/96	14:10	E	14.0	6.00	22.00
12/18/96	13:49	E	4.5	3.00	12.00
01/09/97	**9:25**	**E**	**46.0**	**4.00**	**15.00**
01/15/97	12:30	E	2.0	1.00	6.00
02/12/97	9:50	E	2.0	6.00	24.00

NUMBER OF SAMPLES: 31 RANGE: 1.7 - 79.0
GEOMETRIC MEAN: 5.131 ESTIMATED 90TH PERCENTILE: 27.142

STATE OF WASHINGTON

DEPARTMENT OF AGRICULTURE

P.O. Box 42560 • Olympia, Washington 98504-2560 • (360) 902-1800

June 27, 2014

CERTIFIED MAIL/RETURN RECEIPT REQUESTED AND FIRST CLASS MAIL
7010 2780 0000 5135 1853

Seth Snook
Snookbrook Dairy
6804 Kickerville Road
Ferndale, WA 98248-5401

RE: Notice of Penalty Incurred and Due Number 14AGRDNMP5004

Dear Mr. Snook:

Enclosed is Notice of Penalty Number 14AGRDNMP5004.

On January 31, 2014, Inspector Michael Isensee with the Washington State Department of Agriculture Dairy Nutrient Management Program (WSDA) initiated an investigation of Snookbrook Dairy based on elevated fecal coliform levels in the Terrell watershed. Investigations from January 31, 2014 through April 11, 2014 confirmed that discharges occurred from dairy at multiple sources. The discharges resulted in elevated fecal coliform levels in the Kickerville Road and Grandview Road ditches which drain to Terrell Creek. Terrell Creek is a tributary to Birch Bay.

Under RCW 90.48.080 of the Water Pollution Control Act, a violation of the Act occurs when organic matter is discharged that causes or tends to cause pollution of any waters of the state. The Department is issuing this notice under RCW 90.48.144 which authorizes the Department to assess civil penalties for violations of the provisions of RCW 90.48.080.

In addition, please be advised RCW 90.48.160 states, in part, "any person who conducts a commercial or industrial operation of any type which results in the disposal of solid or liquid waste material into the waters of the state, … shall procure a permit" with the Washington Department of Ecology. The federal Concentrated Animal Feeding Operation ("CAFO") rule also requires that "the owner or operator of a CAFO must seek coverage under an NPDES permit if the CAFO discharges". 40 CFR 122.23(d). Additional information regarding the Concentrated Animal Feeding Operation permit is available on the Department of Ecology

website at http://www.ecy.wa.gov/programs/wq/permits/cafo/index.html. You can also contact Jon Jennings, Ecology CAFO permit coordinator, at (360) 407-6283.

If you wish to contest this Notice of Penalty, please follow the instructions in the enclosed Notice of Rights and Opportunity for Hearing. All other correspondence relating to this document should be directed to Chery Sullivan, Dairy Nutrient Management Program, Washington State Department of Agriculture, P.O. Box 42560, Olympia, WA 98504-2560.

Sincerely,

Virginia Prest

Virginia Prest, Program Manager
Dairy Nutrient Management Program
Washington State Department of Agriculture

cc: Kristen Mitchell, Office of the Attorney General
Michael Isensee, Dairy Nutrient Management Inspector
Chris Clark, Whatcom Conservation District
Doug Allen, Department of Ecology, Bellingham Field Office
Jon Jennings, Department of Ecology, CAFO permit coordinator
Steven Potokar, Region 10, Environmental Protection Agency

Enclosures
Exhibit A: Immediate Action Order 14AGRDNMP8001

STATE OF WASHINGTON
DEPARTMENT OF AGRICULTURE

IN THE MATTER OF PENALTY ASSESSMENT AGAINST Mr. Seth Snook	)))	NOTICE OF PENALTY INCURRED AND DUE NO. 14AGRDNMP5004

To: Seth Snook

6804 Kickerville Road
Ferndale, WA 98248-5401

For the site located at:
Snookbrook Dairy
6804 Kickerville Road
Ferndale, WA 98248-5401

Notice is given that the Washington State Department of Agriculture (Department) has assessed a penalty against you in the amount of twenty-four thousand dollars ($24,000.00) for violation of Chapter 90.48 RCW, Water Pollution Control Act (Act), at the location known as Snookbrook Dairy (dairy). RCW 90.48.144 and a memorandum of understanding adopted pursuant to RCW 90.48.260 authorize the Department to issue civil penalties.

The Department's determination to issue a civil penalty under RCW 90.48.144 is based on the following facts:

Discharge Violations

On January 31, 2014, Inspector Michael Isensee with the Washington State Department of Agriculture Dairy Nutrient Management Program (WSDA) initiated an investigation of Snookbrook Dairy (dairy) based on elevated fecal coliform levels in the Terrell watershed as reported by Whatcom County Public Works.

On February 1, 2014, WSDA noted extensive growth of *sphaerolitis*, a bacterium commonly associated with elevated nutrients from silage or wastewater, in the Grandview Road ditch adjacent to Field 1 managed under the Snookbrook Dairy Nutrient Management Plan and family ownership. The *sphaerolitis* growth appeared to originate at the Snookbrook dairy tile outlet to Grandview Road ditch.

On February 1, 2014, based on elevated fecal coliform levels in Terrell Creek, Whatcom County Health Department closed the beach at the mouth of Terrell Creek and posted a sign, "CLOSED: WATER CONTAMINATED! STAY OUT OF THE WATER".

On February 3, 2014, WSDA observed dark brown, manure colored water in the Kickerville Road ditch from manure flowing through Field 1 (a bare corn field) and into the ditch.

WSDA inspected the facility and based on evidence, identified two discharge points; 1) the Grandview tile outlet draining Field 1 to the Grandview Road ditch, and 2) overflowing manure from the dairy's manure storage structures (including an underground pit and solids storage structure) resulting in manure running through Field 1 to the Kickerville Road ditch.

Seth Snook, the operator of the dairy, acknowledged that all three of the dairy's manure storage systems (an underground pit, a solids storage structure, and an upright Slurrystore tank) were full. The operator was also aware of the underground pit overflowing into Field 1, but was not aware that manure had flowed to the Kickerville Road ditch.

Table 1. On February 3, 2014, WSDA collected water samples from Terrell Creek and Grandview and Kickerville roadside ditches to be analyzed for fecal coliform.

Sample Identification	Log Number	Method	Sample Results	Units
07: Downstream of discharge; Grandview Road ditch at the dairy's field tile drain outlet.	04734224	SM9222D	130,000*	FC/100mL
05: Downstream of discharge; Grandview Road ditch, upstream (east) of junction with Kickerville Road.	04734221	SM9222D	75,000*	FC/100mL
05D: Downstream of discharge; Grandview Road ditch, upstream (east) of junction with Kickerville Road. *(Duplicate)*	04734222	SM9222D	57,000	FC/100mL
06: Downstream of discharge; Kickerville Road ditch below overland flow from dairy's underground pit and solids storage.	04734223	SM9222D	14,000,000*	FC/100mL
04: Downstream of discharge; Kickerville Road ditch north of Grandview Road, downstream of confluence of Grandview Road ditch.	04734220	SM9222D	3,800,000*	FC/100mL
02: Downstream of discharge; Kickerville Road Ditch 230 feet upstream of confluence with Terrell Creek.	04734219	SM9222D	99,000*	FC/100mL
01: Downstream of discharge; Terrell Creek, west of Kickerville Road and downstream of inflow from Kickerville Road ditch.	04734218	SM9222D	980	FC/100mL

*Due to sample dilution, the number of colonies counted is outside the desired yield of 20 to 60 colonies per plate; the calculated sample result is an estimation of the actual number of coliforms/100mL

The Kickerville and Grandview Road ditches drain to Terrell Creek which discharges to Birch Bay. Birch Bay's Use Designations for marine waters is considered Extraordinary Aquatic Life Uses as it is part of North Puget Sound west of longitude 122°39'W. As a tributary to Birch Bay, Terrell Creek is protected for the designated uses of Core summer salmonids habitat and extraordinary primary contact recreation (WAC 173-201A-600(1)(a)(iv)).

The fecal coliform standard for extraordinary primary contact recreation waters listed in WAC 173-201A Table 200(2)(b) states that fecal coliform organism levels must not exceed a geometric mean value of 50 colonies/100ml, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 100 colonies/100 ml.

The water sample results on February 3, 2014 indicate that fecal coliform in the water discharged from the dairy's field violated the water quality standard.

A review of water sampling data collected by Whatcom County Public Works from December 18, 2013 through February 3, 2014, showed no elevated fecal coliform levels upstream of the dairy.

On February 5, 2014 and February 13, 2014, WSDA inspected the dairy and identified three discharge points as sources of elevated fecal coliform levels in the Grandview and Kickerville Road ditches;
1) the manure storage structures (upright Slurrystore, underground manure pit, solids storage),
2) the animal confinement area, and
3) the ditch spoils where manured sediment had been removed from Kickerville and Grandview Road ditches on February 8, 2014.

On February 18, 2014, WSDA observed the underground pit overflowing and discharging manure which flowed through the berm built by the dairy to contain the discharge, through Field 1, and into the Kickerville Road ditch. Manured runoff also flowed through and from the dredged Kickerville Road ditch spoils and discharged into the Kickerville and Grandview Road ditches.

Table 2. On February 18, 2014, WSDA collected water samples from Terrell Creek, Grandview and Kickerville roadside ditches, and ponded water downstream from the dairy to be analyzed for fecal coliform.

Sample Identification	Log Number	Method	Sample Results	Units
09: Downstream of discharge; Ponded water in dairy corn field northeast of upright Slurrystore.	05734658	SM9222D	2,000	FC/100mL
09D: Downstream of discharge; Ponded water in dairy corn field northeast of upright Slurrystore. (*Duplicate*)	05734659	SM9222D	2,700	FC/100mL
07: Downstream of discharge; Grandview Road ditch at the dairy's field tile drain outlet.	05734656	SM9222D	4,800	FC/100mL
05: Downstream of discharge: Grandview Road ditch, upstream (east) of junction with Kickerville Road ditch.	05734654	SM9222D	5,800	FC/100mL
06: Downstream of discharge; Kickerville Road ditch below overland flow from dairy's underground pit and solids storage.	05734655	SM9222D	21,000	FC/100mL
04: Downstream of discharge; Kickerville Road ditch north of Grandview road, downstream of confluence of Grandview Road ditch.	05734653	SM9222D	22,000	FC/100mL
01: Downstream of discharge; Kickerville Road Ditch 230 feet upstream of confluence with Terrell Creek.	05734652	SM9222D	2,200	FC/100mL
02: Downstream of discharge; Terrell Creek, west of Kickerville Road and downstream of inflow from Kickerville Road ditch.	05734651	SM9222D	120	FC/100mL

The Kickerville and Grandview Road ditches drain to Terrell Creek which discharges to Birch Bay. Birch Bay's Use Designations for marine waters is considered Extraordinary Aquatic Life Uses as it is part of North Puget Sound west of longitude 122°39'W. As a tributary to Birch Bay, Terrell Creek is protected for the designated uses of Core summer salmonids habitat and extraordinary primary contact recreation (WAC 173-201A-600(1)(a)(iv)).

The fecal coliform standard for extraordinary primary contact recreation waters listed in WAC 173-201A Table 200(2)(b) states that fecal coliform organism levels must not exceed a geometric mean value of 50 colonies/100ml, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 100 colonies/100 ml.

Results from water samples collected by WSDA on February 18, 2014 indicate that water quality standards were violated.

On February 20, 2014, WSDA observed manure flowing from the animal confinement area and combining with manure from the overflowing upright Slurrystore. Manure flowed to the northwest corner of Field 1 and discharged near the point where the Kickerville and Grandview Road ditches join.

Table 3. On February 20, 2014, WSDA collected water samples from Terrell Creek, Grandview and Kickerville roadside ditches, and ponded water downstream from the dairy to be analyzed for fecal coliform.

Sample Identification	Log Number	Method	Sample Results	Units
10: Upstream of discharge; Terrell Creek north of Brown Road	05734818	SM9222D	20	FC/100mL
TER 6.9: Upstream of discharge; Terrell Creek, north of Grandview Road and east of Kickerville Road	05734811	SM9222D	25	FC/100mL
TER 6.3u: Upstream of discharge; Terrell Creek, east of Kickerville Road and upstream of confluence with Kickerville Road ditch	05734814	SM9222D	42	FC/100mL
08: Downstream of discharge; Ponded water in dairy corn field north of tank.	05734819	SM9222D	1,100	FC/100mL
05: Downstream of discharge: Grandview Road ditch, upstream (east) of junction with Kickerville Road ditch.	05734815	SM9222D	4,200	FC/100mL
06: Downstream of discharge; Kickerville Road ditch below overland flow from dairy's underground pit and solids storage.	05734816	SM9222D	240	FC/100mL
06D: Downstream of discharge; Kickerville Road ditch below overland flow from dairy's underground pit. *(Duplicate)*	05734817	SM9222D	200	FC/100mL
01: Downstream of discharge; Kickerville Road Ditch 230 feet upstream of confluence with Terrell Creek.	05734813	SM9222D	600	FC/100mL
TER6.3: Downstream of discharge; Terrell Creek, west of Kickerville Road and downstream of inflow from Kickerville Road ditch.	05734812	SM9222D	44	FC/100mL

The Kickerville and Grandview Road ditches drain to Terrell Creek which discharges to Birch Bay. Birch Bay's Use Designations for marine waters is considered Extraordinary Aquatic Life Uses as it is part of North Puget Sound west of longitude 122°39'W. As a tributary to Birch Bay, Terrell Creek is protected for the designated uses of Core summer salmonids habitat and extraordinary primary contact recreation (WAC 173-201A-600(1)(a)(iv)).

The fecal coliform standard for extraordinary primary contact recreation waters listed in WAC 173-201A Table 200(2)(b) states that fecal coliform organism levels must not exceed a geometric mean value of 50 colonies/100ml, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 100 colonies/100 ml.

Results from water samples collected by WSDA on February 20 show that water quality standards were violated.

On February 27, 2014, WSDA observed manure flowing from the dairy's underground manure pit, past a berm and into Field 1, where it discharged into Kickerville Road ditch. Manure from the confinement area also flowed to Field 1. WSDA observed the Grandview tile line discharging into the Grandview Road ditch. Brown foam and high turbidity levels were present in the Kickerville Road ditch, both upstream and downstream of the junction with Grandview Road.

On March 4, 2014 and March 5, 2014, WSDA observed discharges from the Grandview tile into the Grandview Road ditch, from field runoff, and from discharge to the southeast portion of Field 1 where an underground lateral tile (which drains to the Grandview tile) is located, and where excess water flowed north through the field to the Grandview Road ditch. The discharges resulted from a lack of manure storage, runoff from the confinement area, and field runoff through the ditch spoils.

Table 4. On March 5, 2014, WSDA collected water samples from Terrell Creek, Grandview and Kickerville roadside ditches, and field runoff to be analyzed for fecal coliform.

Sample Identification	Log Number	Method	Sample Results	Units
12: Upstream of discharge, Kickerville Road ditch near southern boundary of Snookbrook dairy	05735195	SM9222D	2	FC/100mL
11: Upstream of discharge; Kickerville Road ditch at dairy's roofwater/driveway tile drain outlet.	05735194	SM9222D	840	FC/100mL
6.9: Upstream of discharge; Terrell Creek, north of Grandview Road and east of Kickerville Road	05735192	SM9222D	110	FC/100mL
15: Upstream of discharge; Dairy field runoff originating in dairy grass fields northeast of dairy, draining to Grandview roadside ditch	05735192	SM9222D	280	FC/100mL
14: Downstream of discharge; Flowing water in dairy corn field northeast of upright Slurrystore.	05735191	SM9222D	220,000	FC/100mL
07: Downstream of discharge; Grandview Road ditch at the dairy's field tile drain outlet.	05735	SM9222D	1,200	FC/100mL
05: Downstream of discharge: Grandview Road ditch, upstream (east) of junction with Kickerville Road ditch.	05735	SM9222D	2,000	FC/100mL
13: Downstream of discharge; Corn field runoff prior to entering Grandview Road ditch below field spread sediment excavated from Kickerville Road ditch.	05735190	SM9222D	160,000	FC/100mL
06: Downstream of discharge; Kickerville Road ditch below overland flow from dairy's underground pit and solids storage.	05735	SM9222D	18,000	FC/100mL
04: Downstream of discharge; Kickerville Road ditch north of Grandview road, downstream of confluence of Grandview Road ditch.	05735	SM9222D	17,000	FC/100mL
0.1: Downstream of discharge; Kickerville Road Ditch 230 feet upstream of confluence with Terrell Creek.	05735	SM9222D	17,000	FC/100mL

Table 4. continued: On March 5, 2014, WSDA collected water samples from Terrell Creek, Grandview and Kickerville roadside ditches, and field runoff to be analyzed for fecal coliform

Sample Identification	Log Number	Method	Sample Results	Units
0.1D: Downstream of discharge; Kickerville Road Ditch 230 feet upstream of confluence with Terrell Creek.(Duplicate)	05735185	SM9222D	17,000	FC/100mL
6.3: Downstream of discharge; Terrell Creek, west of Kickerville Road and downstream of inflow from Kickerville Road ditch.	05735183	SM9222D	620	FC/100mL

The Kickerville and Grandview Road ditches drain to Terrell Creek which discharges to Birch Bay. Birch Bay's Use Designations for marine waters is considered Extraordinary Aquatic Life Uses as it is part of North Puget Sound west of longitude 122°39'W. As a tributary to Birch Bay, Terrell Creek is protected for the designated uses of Core summer salmonids habitat and extraordinary primary contact recreation (WAC 173-201A-600(1)(a)(iv)).

The fecal coliform standard for extraordinary primary contact recreation waters listed in WAC 173-201A Table 200(2)(b) states that fecal coliform organism levels must not exceed a geometric mean value of 50 colonies/100ml, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 100 colonies/100 ml.

Results from water samples collected by WSDA on March 5, 2014 show that water quality standards were violated.

On March 19, 2014, WSDA observed a discharge from the dairy's Grandview tile line. Mats of *sphaerolitis* bacteria had come loose from within the tile line and were in various locations in the Grandview Road ditch.

Table 7. On March 19, 2014, WSDA collected water samples from Terrell Creek and Grandview and Kickerville roadside ditches to be analyzed for fecal coliform.

Sample Identification	Log Number	Method	Sample Results	Units
11: Upstream of discharge; Kickerville Road ditch at dairy's roofwater/driveway tile drain outlet.	05735720	SM9222D	25	FC/100mL
13: Downstream of discharge; Corn field runoff prior to entering Grandview Road ditch below field spread sediment excavated from Kickerville Road ditch.	05735722	SM9222D	23,000	FC/100mL
07: Downstream of discharge; Grandview Road ditch at the dairy's field tile drain outlet.	05735719	SM9222D	1,400	FC/100mL
05: Downstream of discharge: Grandview Road ditch, upstream (east) of junction with Kickerville Road ditch.	05735717	SM9222D	8,600	FC/100mL
06: Downstream of discharge; Kickerville Road ditch below overland flow from dairy's underground pit and solids storage.	05735718	SM9222D	190,000	FC/100mL
06D: Downstream of discharge; Kickerville Road ditch below overland flow from dairy's underground pit and solids storage *(Duplicate)*	05735721	SM9222D	220,000	FC/100mL
04: Downstream of discharge; Kickerville Road ditch north of Grandview road, downstream of confluence of Grandview Road ditch.	05735716	SM9222D	50,000*	FC/100mL
01: Downstream of discharge; Kickerville Road Ditch 230 feet upstream of confluence with Terrell Creek.	05735715	SM9222D	20,000*	FC/100mL
Ter 6.3: Downstream of discharge; Terrell Creek, west of Kickerville Road and downstream of inflow from Kickerville Road ditch.	05735714	SM9222D	1,000	FC/100mL

*Due to sample dilution, the number of colonies counted is well outside the desired yield of 20 to 60 colonies per plate; the calculated sample result is an estimation of the actual number of coliforms/100mL

The Kickerville and Grandview Road ditches drain to Terrell Creek which discharges to Birch Bay. Birch Bay's Use Designations for marine waters is considered Extraordinary Aquatic Life Uses as it is part of North Puget Sound west of longitude 122°39'W. As a tributary to Birch Bay, Terrell Creek is protected for the designated uses of Core summer salmonids habitat and extraordinary primary contact recreation (WAC 173-201A-600(1)(a)(iv)).

The fecal coliform standard for extraordinary primary contact recreation waters listed in WAC 173-201A Table 200(2)(b) states that fecal coliform organism levels must not exceed a geometric mean value of 50 colonies/100ml, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 100 colonies/100 ml.

Results from water samples collected by WSDA on March 19, 2014 show that water quality standards were violated.

On April 11, 2014, Whatcom County Public Works conducted water quality sampling in the Kickerville Road ditch system. Results showed all sites meeting water quality standards.

These conditions resulted in discharge of pollutants into waters of the state as observed and supported by elevated fecal coliform results from water samples on the following days. Under WAC 16-611-300, a median penalty of four thousand dollars ($4,000.00) is assessed for first time violations. Under RCW 90.48.144, each violation, and every day's continuance is a separate violation:

- February 3, 2014: WSDA observed discharge to the Kickerville Road ditch originating from the underground manure pit and the upright Slurrystore tank. Fecal coliform levels downstream of the discharge points ranged from 980 FC/100mL to 14,000,000 FC/100mL. ($4,000)
- February 18, 2014: WSDA observed the underground pit overflowing and discharging manure which flowed through Field 1, and into the Kickerville Road ditch. WSDA also observed manured runoff flowed through and from the dredged Kickerville Road ditch spoils and discharge into the Kickerville and Grandview Road ditches. Fecal coliform levels downstream of the discharge points ranged from 120 FC/100mL to 22,000 FC/100mL. ($4,000)
- February 20, 2014: WSDA observed manure flowing from the confinement area and combining with manure from the overflowing upright Slurrystore. Manure flowed to the northwest corner of Field 1, and discharged at the point where Kickerville and Grandview Road ditches join. Fecal coliform levels downstream of the discharge points ranged from 44 FC/100mL to 4,200 FC/100mL. ($4,000)

- March 5, 2014: WSDA observed discharges from the Grandview tile into the Grandview Road ditch, from field runoff, and from discharge to the southeast portion of Field 1 where an underground lateral tile (which drains to the Grandview tile) is located, and where excess water flowed north through the field to the Grandview Road ditch. Fecal coliform levels downstream of the discharge points ranged from 1,200 FC/100mL to 220,000 FC/100mL. ($4,000)
- March 19, 2014: WSDA observed discharge from the dairy's Grandview tile line. WSDA also observed evidence that an additional discharge of manure occurred from the underground storage pit on March 19, 2014. Fecal coliform levels downstream of the discharge points ranged from 1,400 FC/100mL to 220,000 FC/100mL. ($4,000)

Immediate Action Order Violation

On February 28, 2014, WSDA issued an **Immediate Action Order 14AGRDNMP8001** (IAO) requiring the dairy to take immediate action to stop the discharge of pollutants to waters of the state and to take actions to prevent future discharges by:

- Moving a minimum of 25,000 gallons of liquid manure to alternative off-site storage by March 3, 2014.
- Controlling field erosion by March 7, 2014
- Developing a plan for immediate implementation by March 7, 2014 to provide adequate liquid and solid manure storage capacity.

A copy of the Order is included as Exhibit A.

On March 1, 2014, WSDA delivered a hard copy of IAO to the operator. Twenty-three thousand gallons of liquid manure, 2,000 gallons short of the Immediate Order, were transferred to an off-site storage facility.

On March 7, 2014, WSDA inspected the dairy and documented that the requirements of the IAO were not met. The dairy did not stop the discharge of pollutants to waters of the state immediately by providing adequate storage for manure, controlling erosion from Field 1 at the corner of Kickerville and Grandview Roads, and implementing a plan to provide adequate liquid and solid manure storage as required by the IAO. The failure to comply with the IAO resulted in subsequent manure discharges to surface waters of the state. ($4,000)

Therefore the Department intends to impose a penalty of twenty-four thousand dollars ($24,000.00).

RCW 90.48.144, the Water Pollution Control Act, states that "Every person who: (1) violates the terms or conditions of a waste discharge permit issued pursuant to RCW 90.48.180 or 90.48.260 through 90.48.262, or (2) conducts a commercial or industrial operation or other point source discharge operation without a waste discharge permit as required by RCW 90.48.160 or 90.48.260 through 90.48.262, or (3) violates the provisions of RCW 90.48.080, or other sections

of this chapter or chapter 90.56 RCW or rules or orders adopted or issued pursuant to either of those chapters, shall incur, in addition to any other penalty as provided by law, a penalty in an amount of up to ten thousand dollars a day for every such violation."

RCW 90.48.144 further states that "Each and every such violation shall be a separate and distinct offense, and in case of a continuing violation, every day's continuance shall be and be deemed to be a separate and distinct violation" and "The penalty amount shall be set in consideration of the previous history of the violator and the severity of the violation's impact on public health and/or the environment in addition to other relevant factors."

RCW 90.48.080 Water Pollution Control Act states that "It shall be unlawful for any person to throw, drain, run, or otherwise discharge into any of the waters of this state, or to cause, permit or suffer to be thrown, run, drained, allowed to seep or otherwise discharged into such waters any organic or inorganic matter that shall cause or tend to cause pollution of such waters according to the determination of the department, as provided for in this chapter."

RCW 90.48.010 requires the use of all known available and reasonable methods by industries and others to prevent and control the pollution of the waters of the state.

RCW 90.48.020 defines lakes, rivers, ponds, streams, inland waters, underground waters, salt waters and all other surface waters and watercourses within the jurisdiction of the state of Washington as being "waters of the state".

RCW 90.48.030 gives the Department jurisdiction to control and prevent the pollution of streams, lakes, rivers, ponds, inland waters, salt waters, water courses, and other surface and underground waters of the state of Washington.

WAC 173-226-020 states no pollutants may be discharged to waters of the state from any point source, except as authorized by a State Waste Discharge Permit or National Pollution Discharge Elimination System (NPDES) Permit.

For the reasons stated above, and in accordance with Chapter 90.48 RCW, IT IS ORDERED that you or your representative are penalized in the amount of twenty-four thousand dollars ($24,000.00). The penalty is due and payable by you within thirty (30) days of your receipt of this Notice. Please send your penalty payment to:

Washington State Department of Agriculture
Attn: Fiscal Office
P.O. Box 42591
Olympia, WA 98504-2591

Dated this 27th day of June, 2014 at Olympia, Washington.

Don R. Hover, Director
Washington State Department of Agriculture

NOTICE OF RIGHTS AND OPPORTUNITY FOR HEARING

You have the right to request a hearing to determine whether the foregoing allegations are true and to contest the imposition of a civil penalty. **Your request for a hearing must be in writing and must be received by the Pollution Control Hearings Board (PCHB) within thirty (30) days of receipt of this notice**. [Date of receipt is defined in RCW 43.21B.001(2).]

You must file your appeal and a copy of this Notice of Penalty with the PCHB and the Department of Agriculture (see addresses below). "Filing" means actual receipt by the PCHB during regular business hours either by mail or by delivery in person.

You must also serve a copy of your appeal and this Notice of Penalty on the Washington State Department of Agriculture either by mail or by delivery in person. You may request a hearing by completing the enclosed request for hearing form and returning it to BOTH of the addresses below:

Pollution Control Hearings Board
PO Box 40903
Olympia, WA 98504-0903
OR
Deliver in Person to:
1111 Israel Road, Suite 301
Tumwater, WA 98501

Dairy Nutrient Management
Washington State Department of Agriculture
1111 Washington St SE
PO Box 42560
Olympia, WA 98504-2560

If you do not request a hearing or if your hearing request is not received in writing by both the PCHB and Department, within thirty (30) days of receipt of this Notice of Penalty, this will constitute a waiver of your right to a hearing and means you do not contest this Notice of Penalty.

Failure to comply with this Notice of Penalty may subject you to an action to enforce the terms of this Notice of Penalty including legal action to collect the amount of the penalty owed.

BEFORE THE POLLUTION CONTROL HEARINGS BOARD

IN THE MATTER OF PENALTY ASSESSMENT AGAINST:	)	Penalty Number: **14 AGRDNMP-5004**
	)	**REQUEST FOR HEARING**
Seth Snook Snookbrook Dairy 6804 Kickerville Road Ferndale, WA 98248-5401	)	

[ ] **I request an administrative hearing in this matter, at a time to be arranged.**

At the hearing:

[ ] I will not be represented by an attorney.

[ ] I will be represented by an attorney. The name, address and phone number of my attorney is:

_____

_____

_____ Phone:_____

[ ] To preserve my rights if negotiations fail, I do request a hearing in this matter, but am interested if permitted, in pursuing a settlement with the Department of Agriculture. Please see explanation and my settlement proposal, attached.

[ ] **I do not contest the allegations and waive my right to a hearing in this matter.**

Complete, sign, and either mail or deliver this form *and* a copy of the Notice of Penalty to both:

Mail:
Pollution Control Hearings Board
P.O. Box 40903
Olympia, WA 98504-0903

OR

Deliver in Person to:
Pollution Control Hearings Board
1111 Israel Rd, Suite 301
Tumwater, WA 98501

Dairy Nutrient Management Program
Washington State Department of Agriculture
1111 Washington St. SE – 2nd Floor
P.O. Box 42560
Olympia, WA 98504-2560

Your request for hearing must be received by the Pollution Control Hearings Board and the Department within thirty (30) days of receipt of this notice of penalty.

Signature: _____

Print Name: _____

Date: _____ Phone Number:_____

DEPARTMENT OF ECOLOGY
MAY 26 2010
WATER QUALITY PROGRAM

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF
WATER AND WATERSHEDS

MAY 25 2010

Mr. Kelly Susewind, Manager
Water Quality Program
Department of Ecology
PO Box 47600
Olympia, Washington, 98504-7600

Re: State Technical Standards for Concentrated Animal Feeding Operation

Dear Mr. Susewind:

The purpose of this letter is to ask the Department of Ecology (Ecology) and Washington Department of Agriculture (WSDA) to work together with EPA to ensure that Washington has the technical standards needed to ensure proper implementation of the concentrated animal feeding operations (CAFOs) National Pollutant Discharge Elimination System (NPDES) rules. Each State Director was required by 40CFR 123.36 to establish technical standards that meet the requirements of 40CFR Part 412.4(c)(2) within one or two years of the date of promulgation of the 2003 CAFO regulations. While this requirement was established by the 2003 CAFO rule, it is all the more important following the promulgation of the 2008 rule, since these standards form the basis for critical elements of the site-specific "terms of the NMP" for each CAFO covered by an NPDES permit.

As part of EPA's oversight responsibility of the State NPDES programs for CAFOs, the Water Permits Division in EPA's Office of Water will review all State approved technical standards. EPA plans to complete this national review of State technical standards by December 31, 2010. We are asking each State to provide to their respective Regions, written confirmation identifying your technical standards along with a copy of the applicable technical standards by June 15, 2010. Only those documents which are identified by the Director and submitted by you will be used in EPA's review. I have enclosed for your information, the criteria which will be used to evaluate and review all standards across the country. (Note: This is a checklist to be used by contractors during the review).

Following the review, EPA will provide feedback to Washington on the sufficiency of their standards. Suggestions and guidance for addressing any inadequacies will be provided to revise existing standards or incorporate necessary additional documentation. Where standards are established as regulations or in permits, which may not be revised prior to the December 31, 2010 deadline, EPA will expect States to address any necessary actions. We would like to work with you to not only ensure the adequacy of technical standards, but to make them publicly available as well.

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As a reminder, EPA has yet to receive a response to a December 15, 2009, letter requesting Washington to submit a regulatory package and a completed regulatory crosswalk for EPA approval. In that same letter, EPA asked for Washington to include, in the submission of the regulatory package, a revised program description that describes the current division of labor in implementing Washington's NPDES program responsibilities. Additionally, EPA requested information to understand how Ecology addresses CAFO complaints and compliance and asked Ecology to provide EPA with an inventory of the CAFO universe in Washington.

Thank you for the effort you and your staff are making to assure that technical standards are in place, adequate and approved. If you have any questions or need additional clarification please contact, Nicholas Peak, of my staff at (208)-378-5765.

Sincerely,

Michael A. Bussell, Director
Office of Water & Watersheds

Enclosure

cc: Melissa Gildersleeve, Ecology

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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

October 8, 2010

Mr. Michael Bussell, Director
Office of Water and Watersheds
EPA Region 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

RE: Rule-Making and State Technical Standards for Concentrated Animal Feeding Operations (CAFOs)

Dear Mr. Bussell:

I am responding to your December 15, 2009, and May 25, 2010 letters regarding Washington State's implementation of Federal Concentrated Animal Feeding Operation (CAFO) regulations. You have requested the following:

1. A "regulatory package" consisting of: 1) our final CAFO regulations; 2) a revised state program description; and 3) an Attorney General statement outlining the authorities of the state program (December 15, 2009 letter).
2. Completion of EPA's regulatory crosswalk documenting the Department of Ecology's (Ecology) authority to implement the federal CAFO regulation (December 15, 2009 letter).
3. A description of the current division of implementation of the National Pollutant Discharge Elimination System (NPDES) program between Ecology and the Washington Department of Agriculture (December 15, 2009 letter).
4. An inventory of the CAFO universe in the state of Washington, including dairy and cattle feedlots and swine and poultry facilities (December 15, 2009 letter).
5. Identification and copies of the technical standards that Ecology is using for CAFO operations (May 25, 2010 letter).

Before responding specifically to your requests, I would like to provide EPA with some perspective. Ecology has ample authority to fully implement the new federal CAFO regulations without the need to change state law or regulations.

Ecology uses a range of technical information to evaluate nutrient management plans, including guidance developed by NRCS, EPA, independent researchers, and universities. The most common technical guidance for CAFO operations are the NRCS field office technical guides (FOTGs). NRCS technical guidance plays an important role in nutrient management planning and the development of best management practices to protect water quality. We use these documents to support our review of nutrient management plans. With that said, Ecology has determined that NRCS FOTGs and NRCS technical guidance do not provide the level of protection necessary to assure compliance with Washington State's Water Quality Standards or Water Pollution Control Act, and do not ensure that the effluent limitations of the CAFO permit will be met. Therefore, Ecology does not consider NRCS FOTGs and NRCS guidance to be technical standards for CAFO operations seeking permit coverage.

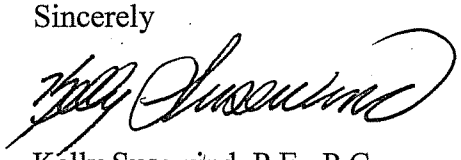
It has been Ecology's experience that many plans submitted for CAFO permit coverage are inadequate and do not provide the level of protection required by the CAFO permit even though these plans are claimed to meet NRCS practice standards. Ecology's CAFO permit mirrors the current federal rule in that it requires an *approved* nutrient management plan before permit coverage can be issued. As previously mentioned, Ecology conducts a thorough review of submitted nutrient management plans and often determines them to be inadequate and not approvable. This results in an iterative process of requesting applicants to update and resubmit plans for review and approval by Ecology. This has become a very time and resource consuming process.

Ecology understands the importance of technical standards and the need to develop them to better implement our CAFO permit. We are currently working on checklists to help permit applicants produce approvable nutrient management plans. Ecology also plans to develop implementation guidance for the CAFO permit and establish CAFO technical standards. Permit implementation guidance and Ecology-developed technical standards will improve the chances of receiving approvable nutrient management plans and streamline the permitting process. We would greatly appreciate EPA's support as we develop these necessary tools.

In the future, we would also like to address the ongoing issue of CAFOs transporting manure offsite from their operations to avoid regulations and oversight. This loophole severely limits the effectiveness of the CAFO rule. Ecology would find it helpful if EPA developed rules that governed how manure generated at CAFOs must be handled and land-applied.

If you have any questions, or need additional clarification, please contact me at (360) 407-6405, or at kelly.susewind@ecy.wa.gov. You may also contact Bill Moore of my staff at (360) 407-6460, or at bill.moore@ecy.wa.gov.

Sincerely



Kelly Susewind, P.E., P.G.
Water Quality Program Manager

Enclosures (5)

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
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May 12, 2014

Mark Clark
Washington State Conservation Commission
P.O. Box 47721
Olympia, WA 98504-7721

Dear Mr. Clark:

We wish to thank the Washington State Conservation Commission (WCC) for organizing the May 2, 2014, "Managing Dairy Nutrients for Stewardship" symposium, and for including Ecology groundwater scientists on the steering committee and as presenters.

The purpose of the symposium was to 1) learn about the latest research on the effects of winter manure application on groundwater and surface water quality, 2) identify areas of scientific agreement and disagreement on this research, and 3) develop next steps.

In our opinion, a full and meaningful discussion of ongoing areas of scientific disagreement on the water quality consequences of winter manure application did not occur at the symposium. We think it is important to clarify that we did not see technical evidence presented at the symposium that winter manure application can be conducted in a manner that is protective of both groundwater and surface water. No "scientific consensus" was reached on this point at the symposium.

Information presented during the symposium, in fact, indicated that there can be significant negative impacts to groundwater quality in the late winter, even on fields where winter manure application has not occurred. Several of the presenters presented strong evidence that nitrate mineralization and nitrate losses to groundwater do occur during wintertime, even under low temperature conditions. Other studies presented at the meeting either did not involve a

groundwater component, or included data that has not been peer reviewed by the larger scientific community.

We believe that a more detailed and focused discussion and analysis of the available data is needed before a common understanding of the complex dynamics and implications of applying dairy manure to the land surface in the wintertime. We look forward to a continued scientific dialogue with the WCC and other stakeholders on this important topic.

Sincerely,

Martha Maggi

Martha Maggi, LHG
Barb Carey, LHG BC
Charles Pitz, LHG CP
Environmental Assessment Program/Groundwater Unit

Cc: (via email pdf)
Shabtai Bittman, Agriculture & Agri-Food Canada
Laura Blackmore, Cascadia Consulting
Tom Eaton, EPA-Washington Operations Office
Nichole Embertson, Whatcom Conservation District
Melissa Gildersleeve, Ecology Water Quality Program
Jay Gordon, Washington Dairy Federation
Bonda Habets, NRCS
Joe Harrison, Washington State University
Thomas Harter, University of California-Davis
Karla Heinitz, Washington State Conservation Commission
Will Kendra, Washington State Department of Ecology, Environmental Assessment Program
Roylene Rides at the Door, NRCS
Dan Sullivan, Oregon State University
Jim Trull, Sunnyside Valley Irrigation District

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF WASHINGTON

COMMUNITY ASSOCIATION FOR THE RESTORATION OF THE ENVIRONMENT, a Washington nonprofit corporation, Plaintiff, v. NELSON FARIA DAIRY, INC., Defendant.	No. CV-04-3060-LRS **MEMORANDUM OF DECISION**

A bench trial was conducted in this matter from November 15 to November 17, 2011. This "Memorandum of Decision" represents the court's findings of fact and conclusions of law pursuant to Fed. R. Civ. P. 52(a)(1) based on the record existing prior to trial, testimony presented at trial, and exhibits admitted at trial.

I. BACKGROUND

Smith Brothers Farms, Inc. ("Smith Brothers") owned and operated the dairy facility (the "Dairy") located at 11792 Road 12.5 SW, near Royal City, Washington.

On June 7, 2004, Community Association For The Restoration Of The Environment (CARE) filed a complaint against Smith Brothers in the Federal

District Court for the Eastern District of Washington, alleging violations of the Clean Water Act (CWA), 33 U.S.C. § 1251 *et seq.*, Comprehensive Environmental Response, Liability, and Compensation Act (CERCLA), 42 U.S.C. § 9601 *et seq.*, and the Emergency Planning and Community Right-to-Know Act (EPCRA), 42 U.S.C. § 11004 *et seq*. (ECF No. 1).

On March 24, 2006, CARE and Smith Brothers Farms, Inc., entered into a proposed Consent Decree in settlement of CARE's claims. (ECF No. 39). The Court approved and entered the Consent Decree on May 23, 2006. (ECF No. 40).

Defendant Nelson Faria Dairy, LLC ("Faria") purchased the Dairy and its underlying assets from Smith Brothers on October 2, 2006. (ECF No. 58 at 4).

Beginning on October 2, 2006, Faria became solely responsible for compliance with the Consent Decree. (ECF No. 40 at ¶¶ 3, 37).

Pursuant to ¶¶ 7-8 of the Consent Decree, on December 15, 2008, CARE provided Faria with notice of its intent to inspect the Dairy on December 17, 2008.

On December 17, 2008, representatives from CARE, including Mike Brown, Gary Christensen, and Rick Carter, inspected the Dairy.

Pursuant to ¶ 9 of the Consent Decree, on December 22, 2008, CARE notified Faria of four conditions which CARE alleged could cause or lead to an imminent discharge of pollutants from the Dairy facility in violation of applicable legal requirements, including the Clean Water Act. (ECF No. 58 at 6-8).

The issues alleged in CARE's December 22, 2008 letter included: (1) over-application of lagoon waste to the "Hebdon Field" which caused ponding along an area adjacent to the south side of an irrigation canal; (2) significant ponding of manure water in a field just north of the Dairy; (3) applications to a field directly east of the Dairy when the ground was frozen, snow covered, and with no active cropping; (4) application of manure wastes to a field south of the Dairy which had no crop currently growing. (*See id.*)

On January 30, 2009, CARE provided another letter to Faria alleging ten

other violations of the Consent Decree. (*Id*. at 10-12).

CARE attempted to negotiate a settlement with Faria regarding the alleged Consent Decree violations over the course of the next 18 months. (Plaintiff's Ex. 72).

On May 17, 2010, CARE filed a Motion for an Order to Show Cause For Failure to Comply with Consent Decree. (ECF No. 55). The Court granted CARE's motion on May 18, 2010. (ECF No. 60). In doing so, the court extended the Consent Decree indefinitely pending further order. Accordingly, the Consent Decree remains in effect and has not expired.[1]

CARE's Motion for an Order to Show Cause, (ECF No. 55), alleged numerous instances of non-compliance. In an order dated January 7, 2011 (ECF No. 123), the court found eight instances of non-compliance.

Faria's non-compliance with the Consent Decree began no later than November 1, 2006, when Faria failed to properly prepare its water balances. (ECF No. 123 at 3; Ex. 51 at 5 (incorrect water balance for period from October-November, 2006)).

II. INSTANCES OF NON-COMPLIANCE PREVIOUSLY FOUND BY COURT

This court previously found eight separate instances of non-compliance by

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[1]The Consent Decree was entered on May 23, 2006 (ECF No. 40) and by its terms, was to expire three years from the date of its entry. (Paragraph 37). The Consent Decree was extended three separate times by order of the court following joint motions from the parties (ECF Nos. 48, 50 and 54). The last of these three orders extended the life of the decree to May 25, 2010.

Defendant with the Consent Decree. See January 7, 2011 "Order Re Motion For Order Of Contempt," (ECF No. 123), which is fully incorporated herein. Pending trial, the court reserved determination of whether those instances of non-compliance constituted contempt. The court now concludes these instances of non-compliance did not amount to "substantial compliance" with the Consent Decree and therefore, Defendant is in contempt with regard to those eight violations of the Consent Decree. "Substantial compliance" is a defense to civil contempt and is not vitiated by a "few technical violations" where every reasonable effort has been made to comply. *In re Dual-Deck Video Cassette Recorder Antitrust Litig.*, 10 F.3d 693, 695 (9th Cir. 1993). The eight instances of non-compliance recited in the court's January 7, 2011 order do not amount to a "few technical violations" and the Defendant did not make every reasonable effort to comply with the specific terms of this very detailed Consent Decree.

Defendant's alleged "good faith" and lack of willfulness is irrelevant. "Good faith" does not excuse civil contempt. *Id.*[2] Technical or inadvertent violations are not a defense to contempt if the defendant has failed to take all reasonable steps to compliance. *General Signal Corp. v. Donallco, Inc.*, 787 F.2d 1376, 1379 (9th Cir. 1986). The court questions Defendant's good faith in light of Mr. Faria's testimony that he read the very detailed and technical requirements in the 26 page Consent Decree only once after he purchased the dairy and

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[2] A good faith and reasonable interpretation of the terms of the Decree is a different matter, *In re Dual Deck Video Cassette Recorder Antitrust Litig.*, 10 F.3d 693, 695 (9th Cir. 1993), and essentially constitutes "substantial compliance." Defendant does not assert, nor does the evidence support, that it acted or failed to act pursuant to a good faith and reasonable interpretation of terms of the Decree.

furthermore, did not seek the assistance of counsel and/or other professional help to insure he fully understood his obligations and what exactly he needed to do in order to comply with those obligations. The evidence bears out there was never any reasonable effort by Defendant to comply with the specific terms of the Consent Decree. Defendant may sincerely believe it improved the Dairy through changes it made and in doing so, complied with the "spirit" of the Consent Decree. That, however, is not adequate. Since January 7, 2011, the Defendant has not purged its contempt in any meaningful way with regard to the eight violations of the Consent Decree previously found by the court.

A party may have an equitable defense to a remedy ordered by the court, but the only defense to a violation of a consent decree must be found within the four corners of the decree. *Cook v. City of Chicago*, 192 F.3d 693, 695 (7th Cir. 1999). Defendant has not met its burden of establishing any equitable defense to its violations of the Consent Decree. Mr. Faria at no time gave notice of nor communicated with anyone else associated with CARE, including Cindy Carter, prior to making changes to the Dairy operations. Mr. Faria's interactions with Carter, which are best be described as no more than casual, do not constitute reasonable reliance on the part of Defendant that it did not have to comply with the very specific terms of the Consent Decree, particularly so when those terms include: 1) that "this Decree may not be modified except by written amendment agreed to by the Parties and approved by the Court;" 2) that counsel for CARE, in addition to Cindy Carter, was to be provided with all notices required under the Decree; and 3) that "CARE shall act as a single legal entity with respect to all notices, decisions, and other actions taken under this Decree," and Defendant "shall not be answerable to individual CARE members in complying with this Decree." (ECF No. 40 at Paragraphs 34, 38 and 39). Cindy Carter did not, indeed could not by herself, waive violations of the Consent Decree. Hence, there was no waiver by CARE and it is not equitably estopped from seeking to hold Defendant

in contempt for these violations of the Consent Decree.

The fact CARE members, pursuant to the terms of the Decree (ECF No. 40 at Paragraphs 7-10), did not formally inspect the dairy until December 2008 does not give rise to a laches defense. Defendant cannot claim any prejudice in light of its failure to make any reasonable effort to comply with the Consent Decree from the moment it purchased the dairy.

III. NPDES PERMIT

In its January 7, 2011 order, the court reserved determination of whether Defendant's failure to have a NPDES permit constituted a violation of the Consent Decree.

Paragraph 5 of the Consent Decree states that "[i]n operating the Dairy, the Defendants shall abide by CERCLA, EPCRA, CWA, and **any applicable** Washington National Pollution Discharge Elimination System ("NPDES") permit and the Dairy's nutrient waste management plan." (Emphasis added). The plain language- "any applicable permit" -suggests there may be no applicable permit.

Washington courts apply the "context rule" which permits a court to look to extrinsic evidence to discern the meaning or intent of words or terms used by contracting parties, even when the parties' words appear to be clear and unambiguous. *Hollis v. Garwall, Inc.*, 137 Wn.2d 683, 695, 974 P.2d 836 (1999). Extrinsic evidence includes the subject matter and objective of the contract, all the circumstances surrounding the making of the contract, the subsequent acts and conduct of the parties, and the reasonableness of the respective interpretations urged by the parties. *Hearst Communications, Inc v. Seattle Times Co.*, 154 Wn.2d 493, 502, 115 P.3d 262 (2005). Extrinsic evidence may not, however, be used to "'show an intention independent of the instrument' or to 'vary, contradict or modify the written word.'" *Id*. at 503, quoting *Hollis*, 137 Wn.2d at 695-96. Moreover, extrinsic evidence of a party's subjective, unilateral intent as to the

contract's meaning is not admissible. *Id*. Nor is it admissible under the parol evidence rule to add to the terms of a fully integrated written contract. *Brogan & Anensen, LLC v. Lamphiear*, 165 Wn. 2d 773, 775, 202 P.3d 960 (2009).

Based on the extrinsic evidence presented at trial, the court concludes the mutual intent of the parties who entered into the Consent Decree (Smith Brothers and CARE) was that the term "any applicable permit" referred to a general permit or to an individual NPDES permit. These parties did not intend there might be no applicable permit at all. At the time the Consent Decree was filed (May 23, 2006), Smith Brothers was operating under a general NPDES permit and expressed its intention to continue to operate under such a permit through the period of the Consent Decree. In a March 2005 letter from counsel for Smith Brothers to the Plaintiff, counsel for Smith Brothers urged the term of the Consent Decree be limited to three years in consideration of the fact "the Dairy will be under the State of Washington's new CAFO (Concentrated Animal Feeding Operation) permit which is much more restrictive than the General Permit for Dairy Operations" and that "[t]hese and other applicable regulatory requirements will extend beyond the term of the consent decree." (Plaintiff's Ex. 62 at p. 30). In the same letter, counsel for Smith Brothers indicated the dairy "will soon be subject to the State of Washington's CAFO NPDES and Waste Discharge General Permit" and that "the Dairy's overall nutrient-management program will incorporate the combined groundwater protection requirements of the settlement, the Nutrient Management Plan, and the CAFO permit." (*Id*. at 22). The testimony at trial of Scott Highland, president of Smith Brothers, corroborated it was Smith Brothers' understanding that pursuant to the Consent Decree, it would need to have a NPDES permit.

The objective of the Consent Decree establishes that having a NPDES permit was a requirement of the Decree. The primary focus of CARE's lawsuit against Smith Brothers was to obtain compliance with the Clean Water Act. CARE made clear in correspondence with Smith Brothers that obtaining a NPDES

permit was "of course, also a necessary component[]" of any acceptable settlement. (ECF No. 78 at 4). CARE stated that its settlement proposal was "generally intended to help assess and ensure future compliance with the Clean Water Act." (*Id*. at 11). In a later letter to Smith Brothers, CARE insisted that some sort of Clean Water Act penalties be paid since the "facility has been operating without the required NPDES permit since the operations started." (*Id*. at 15).

The fact Mr. Faria was not involved in the negotiations regarding the Consent Decree and was not an original party to the Decree is of no significance. See *Newport Yacht Club v. City of Bellevue*, 2010 WL 1286860 at *4 (W.D. Wash. 2010)("More importantly, Helland was not a party to the contract, making her interpretation of the Settlement Agreement- even if contradictory- irrelevant"). It is the mutual intent of CARE and Smith Brothers which is of significance. Were it otherwise, the successor or assign of a Consent Decree could easily circumvent the mutual intent of the parties to the Consent Decree. Furthermore, it bears noting that there is evidence in the record indicating Faria Dairy was aware that a NPDES permit was required. In November 2008, Faria Dairy sold off ½ of its assets to Allred Brothers, LLC. The "Agreement For Purchase And Sale Of Real Property, And Livestock, Bill Of Sale And Escrow Instructions," (Plaintiff's Ex. 63 at 00560), contains a provision, Paragraph 13(b), stating the buyer acknowledged reviewing "the Application for and Final Order for Concentrated Animal Feeding Operations NPDES" and the "State Waste Discharge General Permit applications." It is also noted that Mr. Faria maintains an ownership interest in at least six other dairies, five located in Texas and one in New Mexico. Some of these dairies have CAFO NPDES permits and are subject to regulatory controls similar to those in Washington.

Based on the aforementioned extrinsic evidence, a reasonable interpretation of the Consent Decree is that Paragraph 5 required Smith Brothers Dairy and its

successor, Faria Dairy, to "abide by" (operate), and therefore necessarily have, a NPDES Permit. Extrinsic evidence is not used here to show an intention independent of the Decree or to "vary, contradict or modify the written word." The court does not rely on extrinsic evidence of any party's subjective, unilateral intent and its interpretation does not add to the terms of the "fully integrated" Decree. (See ECF No. 40 at Paragraph 34).

Since it purchased the dairy, Defendant has not operated the Dairy under a NPDES permit. It has not complied or "substantially complied" with Paragraph 5 of the Consent Decree and it has no equitable defenses to compliance. Because Paragraph 5 of the Consent Decree was sufficiently clear by an objective standard which takes into account the context in which it was issued[3], it is appropriate to find the Defendant in contempt for not obtaining a NPDES permit. Defendant has not offered a good faith and reasonable interpretation of Paragraph 5 so as to justify its failure to procure a NPDES permit.

IV. OTHER ALLEGED INSTANCES OF NON-COMPLIANCE WITH DECREE

A. APPLICATIONS TO "NORTH FIELD"

Faria owns the land identified as the "North Field," which encompasses all of Unit 10, Block 83. Ex. 11. This land is located just north of the Dairy.

From November 18, 2008 to December 11, 2008, Faria applied 2,142,000 gallons of liquid manure to the North Field. Ex. 26. The application was conducted by Northwest Liquid Transport, Inc. *Id*.

An additional 74,000 gallons of liquid manure was applied to the North Field between November 18, 2008 and December 21, 2008. Ex. 28.

Between November, 2007 and March, 2009, a total of 7,287,400 gallons of liquid manure was applied to the North Field. *Id*.

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[3] See *United States v. Young*, 107 F.3d 903, 908 (D.C. Cir. 1997).

Sometime during the November-December 2008 manure applications, a ponded area formed along the north side of the North Field. Gary Christensen, CARE member, photographed the ponded area in an aerial fly-over in December 2008. Ex. 24.

Immediately north and adjacent to the ponded area is an irrigation canal. *Id*.

The ponded area froze over the during the winter of 2008-2009.

On February 25, 2009, Cascade Analytical, Inc., a certified environmental laboratory, took water quality samples from the then-thawed ponded area. Ex. 25.

The results of those water quality samples indicated that the liquid contained in the ponded area was contaminated with manure. *Id*.

In March 2009, Faria removed 272,000 gallons of the ponded liquid manure using a 4,000-gallon "Honey Vac." Ex. 29. The manure was removed from an area described as "Ponded water at North-East corner of field." *Id*. The manure was then reapplied to a field. *Id*. David Rollema, who prepared the "Honey Vac Cleanup Applications" document, indicated that the field on which the ponded water was removed was Unit 10, Block 83 (the North Field), and not Unit 14, Block 83, as reported on the application report.

Ponded water was observed in the North Field up to June 5, 2009. Para. 5 of the Consent Decree requires Faria to abide by its Dairy Nutrient Management Plan ("NMP"). Faria's NMP prohibits the application of liquid manure under conditions that allow contaminated waters to run off fields and into surface waters, or to be allowed to infiltrate to ground water. Ex. 2, p. 22, 25; Ex. 3, p. 21, 25. The NMP also prohibits the application of manure if there is a potential for ponding. *Id*.

The ponding of manure water in the North Field caused, or threatened to cause, a discharge of pollutants into surface waters and/or ground water.

The ponding of manure water in the North Field between November, 2008 and June, 2009 was a violation of Faria's NMP and Para. 5 of the Consent Decree.

B. APPLICATIONS TO "HEBDON FIELD"

Faria has installed and maintains a series of underground pipes for the transport of liquid manure from its lagoons to off-site fields. The pumping and control mechanism for determining whether, and how much, manure is transported through these pipes is located at the Dairy.

One of the fields that receives liquid manure from Faria's underground pipes is known as the "Hebdon Field."

Sometime in late November or early December 2008, Faria began applying manure water through its underground pipes to the Hebdon Field.

The pipeline leaked twice onto the Hebdon field during this time frame.

During the course of that application, excess manure was applied to the Hebdon Field, in part as the result of two separate leaks in the piping apparatus.

The leaked manure water caused a ponded area to form on the north side of the Hebdon Field. Gary Christensen, CARE member, photographed the ponded area in an aerial fly-over in late November, 2008. Ex. 30. Immediately north and adjacent to the ponded area is an irrigation canal. *Id*.

On February 25, 2009, Cascade Analytical conducted soil sampling on the Hebdon Field. The results of this sampling revealed excessively high levels of nitrate and phosphorus. Ex. 31 at 11-20.

These excessively high levels of nitrate and phosphorus are consistent with over-applications of manure to the Hebdon Field.

Para. 5 of the Consent Decree requires Faria to abide by its NMP. ECF No. 40 at 3. Faria's NMP prohibits the application of liquid manure under conditions that allow contaminated waters to run off fields and into surface waters, or to be allowed to infiltrate to ground water. Ex. 2, p. 22, 25; Ex. 3, p. 21, 25. The NMP also prohibits the application of manure if there is a potential for ponding. *Id*. The NMP further prohibits application of manure unless post-harvest soil test results justify a need for nutrients, or at rates higher than the planned crop will use

during the season. *Id*.

The ponding of manure water in the Hebdon Field caused, or threatened to cause, a discharge of pollutants into surface waters and/or ground water.

The over-application of manure to the Hebdon Field caused, or threatened to cause, a discharge of pollutants to ground water.

The ponding of manure water in the Hebdon Field between November and December, 2008, was a violation of Faria's NMP and Para. 5 of the Consent Decree.

Faria's over-application of manure to the Hebdon Field, as evidenced by elevated nitrate and phosphorus levels, was a violation of Faria's NMP and Para. 5 of the Consent Decree.

C. APPLICATIONS TO "DYKES FIELD"

The "Dykes Field" is a field to which Faria has applied manure. It is located east of the Dairy and is identified as Unit 6, Block 83.

Sometime between November 18 and December 11, 2008, Faria applied 3,892,000 gallons of liquid manure to the Dykes Field. Ex. 26.

These applications occurred when the ground was frozen and/or snow covered, as depicted by CARE member Gary Christensen's photograph of the Dykes Field. Ex. 32.

At the time of the applications, there was no active cropping on the Dykes Field. *Id*.

Subsequent soil sampling conducted by Cascade Analytical on February 25, 2009 revealed excessively high levels of nitrates and phosphorus in the Dykes Field. Ex. 31, pp. 1-8.

These excessively high levels of nitrate and phosphorus are consistent with over-applications of manure to the Dykes Field.

Para. 5 of the Consent Decree requires Faria to abide by its NMP. ECF No.

40 at 3. Faria's NMP prohibits the application of liquid manure under conditions that allow contaminated waters to run off fields and into surface waters, or to be allowed to infiltrate to ground water. Ex. 2, p. 22, 25; Ex. 3, p. 21, 25. The NMP also prohibits the applications of manure to bare ground or when the ground is frozen, saturated, or snow covered. *Id*. The NMP further prohibits application of manure unless post-harvest soil test results justify a need for nutrients, or at rates higher than the planned crop will use during the season. *Id*.

The over-application of manure to the Dykes Field caused, or threatened to cause, a discharge of pollutants to ground water.

The application of manure to the Dykes Field when there was no active cropping and when the ground was frozen and snow covered caused, or threatened to cause, of discharge of pollutants to ground water.

Faria's application of manure to the Dykes Field while the ground was frozen, snow-covered, and without active cropping was a violation of Faria's NMP and Para. 5 of the Consent Decree.

Faria's over-application of manure to the Dykes Field, as evidenced by elevated nitrate and phosphorus levels, was a violation of Faria's NMP and Para. 5 of the Consent Decree.

D. MANURE ON ROADWAY

Faria uses trucks to haul liquid and solid manure off-site for application to nearby fields. Some of these trucks receive manure from Faria's storage lagoons via a pumping mechanism, which transports liquid manure to the truck loading station.

There have been instances of liquid manure being spilled by Faria's trucks onto public roadways since June 15, 2009. Exs. 37, 38. Several of these spills have been photographed by CARE members. Ex. 35.

Para. 5 of the Consent Decree requires Faria to abide by its NMP. ECF No.

40 at 3. Faria's NMP instructs that Dairy staff shall inspect and clean all vehicles that come in contact with manure. Ex. 2 at 36; Ex. 3 at 33.

The inspection and cleaning of vehicles that come in contact with manure helps fulfill one of the primary objectives of the NMP, which is to prevent wastewater discharges to streams, drainage ditches, and the underlying aquifer. Ex. 2 at 6; Ex. 3 at 4.

The presence of manure on public roadways caused, or threatened to cause, a discharge of pollutants into surface water and/or ground water, including drainage ditches located adjacent to the roadways on which Faria's trucks travel. Ex. 48, p. 21.

Faria's past failure to inspect and clean manure-laden vehicles leaving the Dairy property was a violation of Faria's NMP and Para. 5 of the Consent Decree.

E. FAILURE TO DREDGE LAGOON PURSUANT TO BEST MANAGEMENT PRACTICES

Para. 13(d) of the Consent Decree requires Faria to periodically dredge its storage lagoon consistent with best management practices. ECF No. 40 at 7. Faria's NMP requires the Dairy to maintain the storage capacity of both its lagoons by regularly cleaning and agitating the lagoons to remove solid deposits. Ex. 2 at 29; Ex. 3 at 24. Faria is required to abide by its NMP pursuant to the Consent Decree. ECF No. 40 at 3.

Faria did not dredge its lagoons in 2007 and 2008. ECF No. 67, ¶11. This significantly reduced the storage capacity of the lagoons, as a substantial amount of sediment and solids were allowed to build up over that time frame.

Faria's failure to clean and agitate both lagoons, and to periodically dredge the storage lagoon in accordance with best management practices, increases the possibility of a release of manure from the lagoons during a significant precipitation event.

Faria's failure to clean or agitate its lagoons and to periodically dredge the storage lagoon during 2007 and 2008 was a violation of Faria's NMP and Paras. 5 and 13(d) of the Consent Decree, which required Faria to abide by its NMP and maintain its lagoons in accordance with best management practices.

F. TEARS IN LAGOON LINERS

Faria's storage and treatment lagoons are lined with a synthetic PVC plastic liner. This liner is intended to help prevent liquid manure from seeping into the ground and, potentially, infiltrating the groundwater.

When the lagoons were first constructed, prior to the installation of the lagoon liners, water was seen seeping into the lagoons. Ex. 47. The Washington Department of Ecology noted, in a 2001 letter to Smith Brothers, that the water seepage possibly originated from the nearby irrigation canal, which borders the northern part of Faria's property. *Id*.

A number of tears in the storage lagoon liner were discovered during one of CARE's inspections of the Dairy facility. CARE photographed these tears and warned Faria of the dangers they could pose if manure water was allowed to infiltrate the local groundwater. Ex. 33.

Faria discovered these tears as early as February, 2009. Ex. 34 at 4. Mr. Rollema, who was later put in charge of Faria's manure management practices, first noticed the tears after the 2009 fall "draw-down" of the lagoons. Repairs were not made to the tears until after the spring 2010 draw-down.

Para. 5 of the Consent Decree requires Faria to abide by its NMP. ECF 40 at 3. One of the primary objectives of the NMP is to prevent migration of contaminants from the dairy facility to the underlying aquifer. Ex. 2 at 6; Ex. 3 at 4. To accomplish this objective, the NMP instructs Faria to "maintain and repair any damage to [the] PVC liner *as it occurs* to prevent ground water contamination." Ex. 2 at 19; Ex. 3 at 14 (emphasis added).

Faria's failure to repair lagoon liner tears as they occurred was a violation of Faria's NMP and Para. 5 of the Consent Decree.

G. GROUNDWATER CONTAMINATION

Nitrogen, one of the substances of concern found in manure, is highly mobile. It can readily convert to nitrate and leach through the unsaturated (or vadose) zone of soils and into the local aquifer. For this reason, it is imperative that liquid manure is applied to fields only in amounts that the current crop can completely utilize.

Once nitrates leach below the root zone of crops, it is destined to reach groundwater, unless conditions suitable to denitrification exist. Denitrification is the process whereby nitrate is converted to harmless nitrogen gas. It can only occur in poorly drained soils or organic soils where oxygen is depleted in the root zone.

The major soil type near the Faria Dairy is identified as Kennewick loamy fine sands. Ex. 3 at 18. Such soils are well drained, *Id*. at App. B, and are therefore not conducive to the denitrification process. This means that excess nitrates are rapidly transported through the soil and into local groundwater.

Between December 1 and December 3, 2010, CARE installed three environmental groundwater monitoring wells along the northern border of Faria's property and one reference well nearby. Ex. 9 (installation logs); Ex. 13 at 2 (map of well locations; environmental monitoring wells identified as A, B, C, & D; wells E and F are pre-existing domestic wells). Delos Boyce, a Washington-licensed driller, installed the wells in consultation with CARE's groundwater expert, Dr. Byron Shaw. Ex. 12.

To date, Cascade Analytical has conducted three rounds of water quality sampling from the wells. *See* Exs. 18-20.

The first sampling occurred on December 7, 2010. Ex. 18. The results of

that sampling event revealed nitrate concentrations in all four wells that were in excess of the 10 mg/L maximum contaminant level established by the EPA (U.S. Environmental Protection Agency). *Id*.

The second round of sampling occurred on January 3, 2011. Ex. 19. The results of that sampling event revealed nitrate concentrations in all four wells that were in excess of the 10 mg/L maximum contaminant level established by the EPA. *Id*.

The third round of sampling occurred on July 27, 2011. Ex. 20. The results of that sampling event revealed lower nitrate concentrations in wells A, B, and C. *Id*. Well D still had nitrate concentrations in excess of the 10 mg/L maximum contaminant level. *Id*.

The lower nitrate levels observed in Wells A, B, and C during the July, 2011 sampling event are the result of dilution from seepage from the irrigation canal located immediately adjacent to the wells. All three wells had a significantly higher water level than in the previous two sampling events. Ex. 20. Furthermore, water quality samples taken from the irrigation canal directly upstream and downstream of the monitoring wells show that the water in the canal is chemically similar to that contained in the wells. *Id*.

Data from these three sampling events and related information indicates that groundwater flows down and away from the Dairy in a north-northwesterly direction, toward CARE's environmental monitoring wells and nearby residences and farms.

Faria's manure management practices are the predominant source of the nitrate contamination found in the monitoring wells and, correspondingly, local groundwater. These practices include consistent over-application of manure to fields located adjacent to, and nearby, the Dairy.

Under the Washington General CAFO NPDES permit, dairies are prohibited from applying agricultural wastes if such applications will cause or contribute to a

violation of the State Ground Water Quality Standards, Chapter 173-200 Washington Administrative Code ("WAC").

Pursuant to WAC 173-200-040 (Table 1), the ground water quality standard for nitrate is 10 milligrams per liter (mg/L).

Faria's manure management practices have caused or significantly contributed to the excessive nitrate contamination of the local groundwater, as observed and documented by CARE's monitoring wells.

V. REMEDIES

"A consent decree is no more than a settlement that contains an injunction." *In re Masters Mates & Pilots Pension Plan and IRAP Litigation*, 957 F.2d 1020, 1025 (2nd Cir. 1992). As such, it is subject to modification like any injunction. A court retains continuing jurisdiction to modify an injunction. This well-recognized principle is codified in Fed. R. Civ. P. 60(b)(5) which provides that a court may relieve a party from a final judgment or order if "it is no longer equitable that the judgment should have prospective application." "The continuing responsibility of the issuing court over its decrees is a necessary concomitant of the prospective operation of equitable relief and has its roots in the historic power of chancery to modify or vacate its decrees 'as events may shape the need.'" Wright, Miller & Kane, *Federal Practice and Procedure*, Civil 2d §2961 at 392 (2nd Ed. 1995), quoting *U.S. v. Swift & Co.*, 286 U.S. 106, 114, 52 S.Ct. 460 (1932). Accordingly, "wide discretion" resides with the district court when it considers modification of a decree. *System Fed'n No. 91, Ry. Employees' Dept., AFL-CIO v. Wright*, 364 U.S. 642, 648, 81 S.Ct. 368 (1961). See also *Earth Island Institute, Inc. v. Southern California Edison*, 166 F.Supp.2d 1304, 1309 (S.D. Cal. 2001) (broad "power to modify the Consent Decree derives from principles of equity and exists independent from any express authorization within the Decree or the parties' request). "Inasmuch as an injunctive decree is drafted in

light of what the court believes will be the future course of events, a court must be continually willing to redraft the order at the request of the party who obtained equitable relief in order to insure that the decree accomplishes its intended result." Wright, Miller & Kane, *Federal Practice and Procedure*, Civil 2d §2961 at 393 (2nd Ed. 1995). Consistent therewith, the Supreme Court has articulated requirements for modification of a consent decree as follows: (1) "a significant change in facts or law warrants revision;" and (2) "the proposed modification is suitably tailored to the changed circumstance." *Rufo v. Inmates of Suffolk County Jail*, 502 U.S. 367, 393, 112 S.Ct. 749 (1992).

Here, because of Defendant's failure to comply with the Consent Decree from the very outset of its operation of the dairy, the Decree has not accomplished "its intended result." Accordingly, modification is warranted. The failure of the Defendant to comply with the Consent Decree constitutes a significant change of circumstances which justifies a temporal extension of the Decree. *Labor/Community Strategy Center v. Los Angeles County Metropolitan Transportation Authority*, 564 F.3d 1115, 1120-21 (9th Cir. 2009). Defendant's non-compliance with the decree is not *de minimis*, but rather amounts to the "near total," if not total, non-compliance which other courts have concluded warrants extension of a consent decree. *Id*. at 1123. The court will therefore extend the Decree for a period of three (3) years from the date of the forthcoming "Order On Relief." Defendant's non-compliance also warrants certain non-temporal revisions to the Decree which will be set forth in detail in the forthcoming "Order On Relief." All of these revisions are remedial in nature, not punitive. They better achieve the purpose of the original Consent Decree and in doing so, serve the public interest. *Earth Island Institute*, 166 F.Supp.2d at 1309-1310. The revisions are suitably tailored to the changed circumstances in that they insure greater accountability and better oversight of Defendant.

An award of attorney's fees and costs for civil contempt is within the

discretion of the court. *Harcourt Brace v. Multistate Legal Studies*, 26 F.3d 948, 953 (9th Cir. 1994). A finding of willfulness is not required. *Perry v. O'Donnell*, 759 F.2d 702, 705 (9th Cir. 1985). An award of fees and costs is independent of an award of compensatory damages. *Id*. As set forth in the forthcoming "Order On Relief," the court is awarding Plaintiff its reasonable past attorney fees and costs incurred in this matter. The court, however, declines to obligate Defendant to pay reasonable future attorney fees and costs incurred by Plaintiff. Therefore, Paragraph 70 of Plaintiff's "Proposed Order On Relief" (ECF No. 179) will be omitted.

The court also declines to include Paragraph 71 of the "Proposed Order On Relief" pertaining to "Contempt Payments." This provision appears to assume that any violation of the "Order On Relief" will constitute contempt. The forthcoming "Order On Relief" incorporates the proposed provisions concerning "Dispute Resolution" (Paragraphs 72 and 73 in the "Proposed Order On Relief"). If Plaintiff believes the Defendant is in contempt, it will need to file a Motion For Contempt, in addition to or in lieu of a "petition for judicial resolution of the dispute" provided for in the forthcoming "Order On Relief". This insures that Plaintiff is held to its continuing burden to prove any contempt by clear and convincing evidence. *Federal Trade Comm'n v. Affordable Media, LLC*, 179 F.3d 1228, 1239 (9th Cir. 1999).

IT IS SO ORDERED. The District Court Executive is directed to enter this Memorandum Of Decision and provide copies of the same to counsel of record. Judgment will be entered at the time the "Order On Relief" is filed.

DATED this 30th day of December, 2011.

s/Lonny R. Suko

LONNY R. SUKO
United States District Judge

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF THE
REGIONAL
ADMINISTRATOR

DEC 0 4 2012

Ted Sturdevant, Director
Department of Ecology
300 Desmond Drive Southeast
Lacey, Washington 98503

Dan Newhouse, Director
Department of Agriculture
1111 Washington Street Southeast
Olympia, WA 98504

Dear Mr. Sturdevant and Mr. Newhouse:

I understand that your agencies are working on proposals to modify the requirements for livestock operations and would like EPA's perspectives regarding protection of groundwater which is used as a source of drinking water. Our primary goal in this regard is to reduce risk to human health from nitrate contamination in underground sources of drinking water. We believe there are three main areas that the current requirements, as we understand them, could be significantly improved

First, the state should prohibit in most instances the construction of manure lagoons on sites that have a significant risk of nitrate transport to groundwater that serves as a source of drinking water. Where there are no feasible alternatives to the construction of such lagoons, the state should prescribe requirements for liner design, construction, review and certification that will prevent groundwater contamination. Existing manure lagoons in areas with documented groundwater quality problems should be assessed to determine if they are discharging to groundwater and brought up to new standards if needed. My staff can provide more detail on programs from other states that could be looked to as a model.

Second, the state should require that livestock operations and third party recipients of waste that land apply liquid and/or solid waste take additional steps to ensure that manure application fields are not a source of nitrate to the groundwater. It is our understanding that the application of manure that has been transferred to a third party is currently not regulated. All parties applying manure or manure in combination with synthetic fertilizer, including third parties, should implement annual nutrient management plans based on current, annual soil and waste analysis, and application rates should be limited to agronomic rates. Irrigation management practices should also be prescribed to prevent downward migration of nitrates.

Third, the state should impose groundwater-monitoring requirements on large livestock operations that are potential significant sources of nitrates to a drinking water aquifer. The specific monitoring system should be designed by a licensed hydrogeologist and include both upgradient and downgradient monitoring. Where nitrate contamination is detected by the monitoring system, the state should require the facility to take additional steps to address the sources. Additional steps should include reduced application rates of nutrients as determined by on site analysis.

The EPA believes that having safe drinking water and a healthy agricultural economy are complementary goals that can be achieved. My technical staff is available to provide more details if needed. Please contact me directly or have your staff contact Tom Eaton, Director of our Washington Operations Office at (360) 753-8086 or by email at eaton.thomas@epa.gov.

Sincerely,

Dennis J. McLerran
Regional Administrator

cc: Mark Clark, Executive Director
Washington State Conservation Commission

bcc: Tom Eaton
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IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF WASHINGTON

COMMUNITY ASSOCIATION FOR RESTORATION OF THE ENVIRONMENT, INC., a Washington Non-Profit Corporation *and* CENTER FOR FOOD SAFETY, INC., a Washington, D.C. Non-Profit Corporation, Plaintiffs, v. COW PALACE, LLC, a Washington Limited Liability Company, THE DOLSEN COMPANIES, a Washington Corporation, and THREE D PROPERTIES, LLC, a Washington Limited Liability Company, Defendants.	NO. CV-13-3016-TOR PLAINTIFFS' COMBINED REPLY IN SUPPORT OF PLAINTIFFS' MOTION FOR SUMMARY JUDGMENT (ECF No. 211)

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Plaintiffs respectfully submit this Combined Reply to both Cow Palace and The Dolsen Companies' Opposition Briefs, ECF Nos. 256 & 279, respectively. The Court previously found that manure could be a discarded "solid waste" if over-applied to fields in ways that negate or exceed its potential "beneficial" use or leaked from lagoons. ECF No. 72 at 11. The undisputed facts show that Cow Palace violated its DNMP and applied manure without regard to crop fertilization needs. The facts also show that Cow Palace's lagoons and compost area leak manure into the ground, where it cannot be used beneficially. Cow Palace thus "disposed of, th[rew] away, or abandoned" its manure. Defendants' experts have admitted that the Dairy contributes nitrate to the aquifer. There is no genuine dispute that the current nitrate contamination, no matter who is responsible for it, presents an imminent and substantial endangerment, at least to human health.

In their various briefing, Defendants do nothing more than rehash arguments that this Court already decided in denying the motion to dismiss. Recently added Defendants, The Dolsen Companies and Three D Properties, grossly misstate the statutory language of RCRA as it applies to agricultural wastes. No genuine issues of material fact exist concerning the issues on which Plaintiffs have moved. And while Defendants have sought to keep the DNMP, and hundreds of other documents, confidential, nowhere is the *Kamakana* "compelling reasons" standard discussed in their briefs. *See* ECF No. 82 at 12. Confidentiality is thus waived.

ARGUMENT

I. THE UNDISPUTED FACTS SHOW THAT MANURE WAS NOT PUT TO BENEFICIAL USE BY COW PALACE.

Cow Palace's DNMP describes exactly how to put the Dairy's manure to beneficial use as a crop fertilizer. ECF No. 211-1, Plaintiffs' Statement of Material Facts ("PSF") ¶ 65.[1] Mr. Boivin testified that he was in charge of compliance with the DNMP and understood the DNMP's requirements. PSF ¶¶ 65-67 (undisputed). Nonetheless, Cow Palace applied manure in direct violation of the DNMP by, *inter alia*, failing to base applications on current lagoon nutrient sampling, failing to take into account existing residual soil nitrate levels, and failing to calculate application rates based on actual crop yields. PSF ¶ 68. These points are undisputed. *See* ECF No. 256-01 at ¶ 68(a) (Cow Palace Response to Plaintiffs' PSF) (no dispute of failure to use lagoon nutrient sampling); ¶ 68(b) (incorrectly

[1] Cow Palace submitted a 93-page "response" to the PSF, in which it rehashes the arguments in its briefs instead of citing where the identified factual statement is actually disputed. ECF No. 256-1. In most instances, Cow Palace only points back to its expert reports and new declarations. *See, e.g., id*. at ¶¶ 29, 32-36, 77, 93, 97, 99, 101-102, 106, 110. Plaintiffs' factual statements, however, are based on the deposition testimony that was actually given *by those experts and witnesses*. Plaintiffs dispute Cow Palace's responses, standing by the PSF.

labeled 59(b)) (asserting applications on a "N basis," but not disputing failure to base applications on residual nitrate in the soil); ¶ 68(c) (incorrectly labeled 59(c)) (no dispute of failure to base applications on three-to-five year average crop yields).

Cow Palace's response to ¶ 68(d) provides a good illustration: the soil sample for Field 1 showed 280 lbs./ac nitrate in the top foot and 245 lbs./ac in the second foot of the soil column (525 lbs./ac total), already *more* than the 480 lbs./ac nitrate the DNMP indicates an alfalfa crop can use. *Id*. at ¶ 59(d) (incorrectly labeled). If Cow Palace had followed its DNMP, no more manure would have been applied. Instead, the Dairy applied ***7,680,000 gallons*** of manure onto Field 1 after receiving this soil sample, wasting, by Defendants' (incorrect) estimate, 153.6 lbs./ac nitrogen. *Id*. This is not a "beneficial" application of manure, for the soil already had *more* nitrogen than the crop could possibly use. In fact, as Dr. Shaw extensively describes in his expert report, Cow Palace *consistently* made such non-agronomic manure applications. *See, e.g.,* ECF No. 237-2 at ¶¶ 76-78 (February 27, 2007 soil sample for Field 1 showed 480 lbs./ac nitrogen available; alfalfa crop had capacity to use 480 lbs./ac per initial DNMP estimate, yet manure applied on May 15-26, June 19, June 27, and November 5); ¶¶ 83-84 (September 5, 2008 soil sample for Field 1 showed 269 lbs./ac nitrogen available; triticale crop had capacity to use 250 lbs./ac per initial DNMP estimate, yet manure applied

September 17-26); ¶ 101 (similar); ¶ 107 (applied 612,000 gallons after soil test showed no more fertilizer needed); ¶ 109 (2.562 million gallons applied after soil test showed no more fertilizer needed); ¶ 133 (similar); ¶ 138 (2.160 million gallons); ¶ 144 (2.4 million gallons); ¶ 147 (1.236 million gallons); ¶ 149 (3.0465 million gallons); ¶ 155(k) (5.994 million gallons); ¶ 155(m) (3.6 million gallons); ¶ 156(e) (2.016 million gallons); 156(f) (4.224 million gallons); ¶ 156(k) (780,000 gallons); ¶ 157(b) (1.260 million gallons); ¶ 157(h) (3.258 million gallons). Based on just these examples (there are countless more), the Dairy applied an astounding ***33,148,500 gallons*** of manure after receiving soil samples that showed no need for additional fertilization. None of Cow Palace's experts contested these opinions, discussed at pages 31-151 of Dr. Shaw's expert report, and both Dr. Melvin and Mr. Stephen admitted that Cow Palace's past manure applications were not agronomic. PSF ¶ 80. Defendants' experts also testified that applying manure in these situations was wasteful. *See id*. at ¶¶ 79; 81(c)-(d).

Cow Palace studiously ignores Mr. Boivin's admissions concerning DNMP violations in its Response Brief (ECF No. 256) ("Br."), instead claiming that Mr. Boivin "always calculated manure applications with reference to the amount of nitrogen the crop would need, as listed in the DNMP[]" and that he "always applied *less* manure than he calculated the crop would need[.]" Br. at 11-12. But Mr. Boivin's "method," if that is even an appropriate moniker, is not compliant

with the DNMP and did not result in the beneficial application of manure, for Cow Palace *never* adjusted its manure application rate based on the amount of nitrate already present in the soil *or* its past three-to-five year average crop yields. *See* ECF No. 286-3, Sec. Snyder Decl. Ex. 1 at 137:18-143:7 (Stephen admitting that his tables, which Cow Palace relies on to argue that it applied less manure than crop needs, did not take into account residual soil nitrogen; taking that into consideration, Dairy applied more manure than crop could beneficially use); PSF ¶ 68(c) (undisputed failure to vary applications based on crop yields). And while Mr. Boivin may believe that he "did the best he could do," such post-hoc rationalization is irrelevant to liability. What matters is what Cow Palace *actually did*: dump manure onto fields in amounts that exceeded crop fertilization needs.

Cow Palace admits that the excessively high nitrogen levels in its fields show "that Cow Palace might have achieved its crop production while calculating its manure applications differently," but nonetheless argues that soil sampling is not proof of a "discard." Br. at 13-14. First, this argument ignores directly relevant case law from this district. *CARE v. Nelson Faria Dairy, LLC*, 2011 WL 6934707 at *6 (E.D. Wash. 2011) (elevated soil nitrate and phosphorus levels evidence of over-application of manure). Second, neither Cow Palace nor its experts dispute Dr. Shaw's detailed analysis of Cow Palace's soil sampling or his opinions that excessively high levels of soil nitrate, phosphorus, and potassium are

direct evidence that manure applications were not agronomic. ECF No. 237-2 at pp. 31-151; PSF ¶ 77; ECF No. 256-1 at ¶ 77.

Cow Palace introduces yet another declaration to try to misdirect this Court from its manure applications to bare fields and applications that ended only when lagoons were empty. Br. 12-13; Second Boivin Decl. First, as to bare fields, Cow Palace misrepresents both the content of the DNMP and the science behind mineralization. Br. at 13. The DNMP states that "some nutrients are available immediately" after a manure application but notes, through mineralization, additional nutrients will also become available over time. ECF No. 226-1, Snyder Decl. at Ex. 5, COWPAL000477. The DNMP further explains this point:

> **Through mineralization, nitrogen from previous applications becomes available independent of additional application. Caution should be taken when applying manure to fields with long histories of manure application.**

Id. at COWPAL000480 (emphasis in original). The DNMP also instructs that the Dairy should "[a]void applying manure to bare ground…[t]his may cause nitrogen to leach into the ground water." *Id*. at COWPAL000482; *see also id.* at COWPAL000577. Mr. Boivin's testimony that "[a]pplication before a crop is planted ensures that nutrients are available for the crop to use when needed for growth" is thus contrary to the DNMP and should be stricken, given that Mr. Boivin has never been identified as an expert witness in this case. ECF No. 256-16

at ¶ 20:10-12. Cow Palace's choice to use a "big gun" does not excuse applying manure in a way that violates the DNMP, negating the manure's beneficial use; the Dairy could have applied manure *at the right time* using any one of other manure application methods, such as a honey wagon, wheel line, or truck.

Second, Cow Palace does not dispute that certain manure applications ended when a lagoon was empty, ECF No. 256-1 at ¶ 71, only that the supposed "calculations" for how much manure to apply were not included on the referenced logbook. But Defendants produce *no documentation* that these calculations ever occurred, and even if they did, they were plainly in violation of the DNMP and resulted in applications that were not agronomic or beneficial. *See* ECF No. 286 at 10-14 (explaining how Mr. Boivin's "method" violated DNMP, agronomic principles, and did not put manure to beneficial use). For instance, Mr. Boivin claims one of these applications put down less nitrogen than the crop needed. ECF No. 256-16 at ¶¶ 17-18. But again, Mr. Boivin ignores the residual soil nitrate levels in the field, which showed no need for more manure. ECF No. 237-2 at ¶ 88 (352 lbs./ac nitrogen available for fertilization; crop needed 250 lbs./ac per initial DNMP estimate, yet Dairy applied 243 lbs./ac more nitrogen).

Concerning the lagoons, Cow Palace finally admits, as it must (although its recent answers to RFAs ordered by the Court continue to evade the request), that the lagoons leak and are *designed* to leak. Br. at 13-14. The Dairy then argues that

Plaintiffs are asking the Court "to transform this case into a CERCLA enforcement action." This argument is meritless. Plaintiffs ask the Court to find, as a matter of law, that manure which is placed in lagoons that were designed *by Cow Palace* to leak, and which actually leaks into the environment where it cannot be beneficially used, constitutes a discarded and disposed solid waste. The same is true for leakage from the compost areas. Such a finding is in accordance with RCRA's plain language. 42 U.S.C. § 6903(3) ("disposal" includes "leaking" of a solid waste "so that such solid waste…or any constituent thereof may enter the environment or be…discharged into any waters, including ground waters."). Cow Palace cannot use manure that leaks from lagoons or compost areas for any beneficial use, and it is therefore discarded. *Zands v. Nelson*, 779 F. Supp. 1254, 1262 (S.D. Cal. 1991). Whether or not Cow Palace's lagoons meet NRCS guidelines – and they are guidelines only, not regulations that have gone through rulemaking scrutiny – the lagoons leak; Plaintiffs have only taken discovery about *this* Dairy and its lagoons, and seek a ruling that *these* lagoons leak. Additionally, Plaintiffs have adduced undisputed evidence that Cow Palace's lagoons were not properly maintained, PSF ¶¶ 90-91, as required by the DNMP. *Id.*; ECF No. 226-1 at COWPAL000488 (remove solids from lagoon "taking care not to break the existing manure[] seal"); COWPAL000490-91 (NRCS maintenance

recommendations for lagoons include, *inter alia*, repairing areas where erosion has occurred and repairing lagoon walls that have settled or cracked).

Finally, Cow Palace re-argues the same cases that this Court dealt with in deciding Defendants' Motion to Dismiss. Br. at 3-9; ECF No. 72 at 10-13. Plaintiffs have again responded to the characterization of these cases in their Response to Cow Palace's Motion for Summary Judgment, ECF No. 286 at 4-9, despite that the law of the case prevails. *See Guadiana v. State Farm Fire & Cas. Co.*, 2009 WL 3763693 at *6 (D. Ariz. 2009) (law of case prevails where party makes same rejected arguments at motion to dismiss stage at summary judgment). The Court now has before it the "argument" and "evidence" concerning "whether the manure was put to its intended use and/or used for beneficial purposes by Defendants under the circumstances unique to this case." ECF No. 72 at 13. Cow Palace's legal arguments need not be reconsidered in light of the undisputed facts.

II. COW PALACE CONTRIBUTES TO GROUNDWATER CONTAMINATION, AND THAT CONTAMINATION PRESENTS AN IMMINENT AND SUBSTANTIAL ENDANGERMENT.

Whether Cow Palace contributes to the nitrate contamination of the groundwater is undisputed: Cow Palace's own experts admitted that it was more likely than not that Cow Palace could be a cause of the contamination, and that it was "certainly possible" that Cow Palace could be a source of contamination. PSF ¶ 131. The EPA just issued an update that concludes that the data collected under

the AOC supports its prior finding that the Dairies are the chief source of nitrate contamination in the area. Third Snyder Decl., Ex. 4 at 7-9. The "70 year" theory that Cow Palace proffers, Br. at 15-16, is based not on actual data, but rather on Dr. Melvin's dissertation from 1969. Third Snyder Decl., Ex. 1 at 219:21-24. That dissertation, never scientifically validated or replicated, cautioned against using its predictive model because it could be wrong by up to an order of magnitude. *Id*. at 220:18-222:18. In fact, when faced with the actual data obtained from monitoring wells, Dr. Melvin agreed groundwater recharge was "probably" "occurring much quicker than 70 years." PSF ¶ 127. Cow Palace's theory that the sampling data shows the tail end of some "historic nitrate plume" is also unsupportable. This theory, not in any of Cow Palace's expert reports, had its genesis during the deposition of Mr. Trainor. Third Snyder Decl., Ex. 2 at 116:24-117:2. Mr. Trainor only came up with the theory after the depositions of Dr. Melvin and Plaintiffs' experts (which Trainor attended) had concluded (when Dr. Melvin testified it was more likely than not that Cow Palace could be a source of contamination), and only after he had dinner with both Adam and Bill Dolsen the night before his deposition. *Id*. at 117:3-13. Mr. Trainor apparently abandoned this theory during his later deposition in the *Bosma* matter, when he testified that Cow Palace application fields ***were a source of contamination*** observed in monitoring wells. Third Snyder Decl., Ex. 3 at 77:10-18. Based on this testimony, that of Cow

Palace's other experts, and the overwhelming evidence in the PSF, it cannot be meaningfully disputed that Cow Palace contributes nitrates to groundwater. PSF ¶¶ 126-131; *see also* Third Snyder Decl., Ex. 4 at 9 (EPA concludes that past agricultural operations are not source of contamination). Cow Palace's arguments about Plaintiffs' sampling around lagoons are not supportable in light of Defendants' experts' testimony. PSF ¶¶ 100-106.

Cow Palace faults Plaintiffs for not providing an estimate on the time it takes for nitrates to migrate from the soil and into groundwater, or the magnitude of loading from Cow Palace Dairy. Br. at 15-16. Cow Palace does not understand RCRA's relaxed causation standard. The courts have held that the "imminence" element requires only a showing that there is a *risk* of *threatened* harm. *Price v. U.S. Navy*, 39 F.3d 1011, 1019 (9th Cir. 1994). An example from the First Circuit is useful: "if there is a reasonable prospect that a carcinogen released into the environment today may cause cancer twenty years hence, the threat is near-term even though the perceived harm will only occur in the distant future." *Maine People's Alliance v. Mallinckrodt, Inc.*, 471 F.3d 277, 280 n.1 (1st Cir. 2006). Here, the "imminent" threat of endangerment occurs at the time that Cow Palace's manure is discarded in such a way that the nitrates contained therein cannot be used as a plant fertilizer. After that, excess nitrate *will* reach groundwater – a point on which all of Cow Palace's experts agree. PSF ¶ 37. While Cow Palace argues

that some limited denitrification could occur from truck compaction in some of its fields, it has no evidence to back that up. ECF No. 256-1 at ¶¶ 35 & 37. Dr. Shaw's opinion is that no denitrification occurs within and below root zones – an opinion validated by EPA's argon gas testing. ECF No. 237-2 at ¶ 22. Defendants' proffer no evidence to the contrary and at least one of their experts agrees with Plaintiffs. *See* Third Snyder Decl., Ex. 3 at 77:19-79:14.

Accepting Cow Palace's arguments would render the word "may" superfluous in 42 U.S.C. § 6972(a)(1)(B). Congress used the word "may" to mean that "a plaintiff need not establish an incontrovertible 'imminent and substantial' harm to health and the environment." *Kara Holding Corp. v. Getty Petroleum Mktg., Inc.,* 67 F. Supp. 2d 302, 310 (S.D.N.Y. 1999) (external citation omitted). Showing the magnitude of loading from Cow Palace is also not required, because the term "contribution" is liberally construed, including conduct that gave a defendant "a share in any act or effect" giving rise to the disposal of the wastes that may present an endangerment. *See U.S. v. Aceto Agric. Chems. Corp.*, 872 F.2d 1373, 1383-84 (8th Cir. 1989). Furthermore, Mr. Erickson's rebuttal report calculates that the loadings from the Dairy far exceed any possible loadings from septic systems. ECF No. 239-2, Carter Decl. Ex. 9 at 565-7. EPA's update, released on December 18, 2014, found the same. Third Snyder Decl., Ex. 4 at 8.

Cow Palace also suggests that the nitrate contamination of the aquifer at levels that exceed the MCL does not present an imminent or substantial endangerment. Br. at 17. This argument is not in accordance with RCRA case law, as discussed above and at length in Plaintiffs' Motion for Summary Judgment, ECF No. 211 at 13-15. There is absolutely no requirement that Plaintiffs establish or quantify the actual harm to a segment of the population or the environment. *Id.* *Apache Powder Co. v. U.S.*, 968 F.2d 66, 68-69 (D.C. Cir. 1992) says nothing about nitrates as a "solid waste" or whether they can be subject to a citizen suit brought under 42 U.S.C. § 6972; instead, that case discusses whether EPA can regulate nitrate as a hazardous substance under Subtitle C of RCRA, an issue not before this Court. Finally, an imminent and substantial endangerment citizen suit may be premised on both present *and past* conduct, per the plain language of the statute. 42 U.S.C. § 6972(a)(1)(B). Cow Palace's argument that it does not "today" pose a threat is not only misplaced, but is again refuted by EPA's recent update. Third Snyder Decl., Ex. 4 at 1 ("[n]itrate is an acute contaminant, which means an immediate (within hours or days) health effect may result from exposure….High nitrate levels may increase the risk of spontaneous abortion or certain birth defects.") Dr. Lawrence debunks Defendants' argument even more thoroughly. *See, e.g.*, ECF No. 213 at ¶¶ 5-9, 18 ("no doubt" about present health risks); ¶¶ 15, 17 (reverse osmosis systems not fully protective from exposure).

III. ANTI-DUPLICATION WAS NOT PROPERLY RAISED.

Cow Palace failed to raise anti-duplication as a defense in its cross-motion for summary judgment and cannot do so now. Even in its response, Cow Palace advances no substantive argument or case citation supporting its request that the Court "look at this issue in light of the regulatory context." The Court should deem this argument waived. *See Navellier v. Sletten*, 262 F.3d 923, 948-49 (9th Cir. 2001) (issue not supported by argument or citation to authorities is waived). In any event, there is authority permitting RCRA lawsuits and SDWA actions to proceed simultaneously, *Vernon Village, Inc. v. Gottier,* 755 F. Supp. 1142, 1154 (D. Conn. 1990), and Cow Palace offers no explanation for how the "substances and activities addressed in the Consent Order and the Amended Complaint are in fact inconsistent in this case." ECF No. 72 at 16. RCRA does not include state law or the NRCS non-regulatory guidelines in the anti-duplication provision, only specific federal laws, in situations not in play here. 42 U.S.C. § 6905(a).

IV. COW PALACE OFFERS NO SUBSTANTIVE RESPONSE TO PLAINTIFFS' OPEN DUMPING CLAIM.

Cow Palace does not meaningfully respond to Plaintiffs' open dumping claim. Defendants merely proffer that RCRA's "open dumping" regulations do not apply to "agricultural wastes, including manure…returned to the soil as fertilizers or soil conditioners." Br. at 20. That same argument was made in regard to

whether manure constitutes a solid waste, which the Court already decided. ECF No. 72 at 12-13. The Court now has before it the argument and evidence necessary to find that Cow Palace has handled its manure in such a manner that makes it a discarded "solid waste," and that the nitrates found in that waste have moved off the Cow Palace site boundary, thus meeting the requirements of an open dump.

V. THE DOLSEN COMPANIES AND THREE D PROPERTIES ARE LIABLE UNDER RCRA.

Two key areas of common ground have emerged in the Parties' briefs – one legal and one factual – that confirm that The Dolsen Companies and Three D Properties (collectively "Dolsen Co.") are liable. First, the Parties agree that the controlling case on this issue is *Hinds Investments, L.P. v. Angioli*, 654 F.3d 846 (9th Cir. 2011), and agree on the language that forms the case's holding. *Compare* ECF 279 at 3 *with* ECF 281 at 9. Second, the Parties agree on the key facts that establish liability pursuant to *Hinds*, namely: The Dolsen Companies is the owner of Cow Palace, LLC and is listed as owner/operator in the Dairy's DNMP; Bill Dolsen is the final authority for the Dairy's employees, including Jeff Boivin; Bill and Adam Dolsen represent the Dairy in state and federal regulatory matters concerning its manure operations; and Bill and Adam Dolsen have repeatedly exercised their authority as principals of the Dolsen Companies to direct and oversee various aspects of Cow Palace. *See* ECF 220-1 Ex. 5, 279 12-14, 16.

Defendants' response attempts to qualify and rephrase other factual assertions, but Defendants either directly concede these facts or decline to dispute them.

The only true disputes separating the Parties are the correct application of the conceded facts to the *Hinds* standard and whether the facts support the two Defendants' contention that they are passive landowners. As to *Hinds*, Defendants' arguments are wrong as a matter of law because they improperly read one phrase in the holding of *Hinds* – "actively involved" – as a condition precedent for finding liability under another part of the holding – "a measure of control" – an error Plaintiffs have pointed out several times in their briefing. ECF 281 at 9-10. Defendants' attempts to evade *Hinds* liability by painting themselves as "passive" landowners are directly contrary to the facts conceded by Defendants.

A. Defendants' Grossly Mischaracterize RCRA and Related Case Law.

Dolsen Co. mischaracterizes both RCRA and related case law as requiring "ongoing" practices causing endangerment. Br. at 4-5. The statute has no such requirement. 42 U.S.C. § 6972(a)(1)(B). The cases Dolsen Co. lists – without any pinpoint citation – pertain to *Clean Water Act* case law requiring that a "discharge" of a "pollutant" be ongoing to confer federal subject matter jurisdiction. *See Connecticut Coastal Fishermen v. Remington Arms*, 989 F.2d 1305, 1312, 1314-15 (2d Cir. 1993) (no CWA jurisdiction because no allegation was made of ongoing discharge; drawing distinction between need to show ongoing Subtitle C regulatory

violations and imminent and substantial endangerment claims); *Pennenvironment v. PPG Indus., Inc.*, 964 F. Supp. 2d 429, 471-72 (W.D. Pa. 2013) (refusing to dismiss CWA claims on requirement that there be an "ongoing" violation); *Jones Creek Investors, LLC v. Columbia County, Ga.*, 2013 WL 1338238 (S.D. Ga. 2013) (similar). The Supreme Court specifically cited 42 U.S.C. § 6972(a)(1)(B) as the type of statutory provision that *does* allow for suit based on past conduct. *Gwaltney of Smithfield, Ltd. v. Chesapeake Bay Found.*, 484 U.S. 49, 57 n. 2 (1987). Defendants also ignore that "solid waste" includes materials from "agricultural operations[,]" such as Defendants' manure. 42 U.S.C. § 6903(27).

B. "Active Involvement" is not a Condition Precedent to the *Hinds* Test.

Under *Hinds*, a party is liable if they "had a measure of control over the waste at the time of its disposal ***or*** was otherwise actively involved in the waste disposal process." *Hinds*, 654 F.3d at 852 (emphasis added). The Court discussed two separate lines of RCRA case law immediately preceding this holding. In one line of cases, no liability was found when there were no allegations of "active involvement by defendants." *See Hinds*, 654 F.3d at 851 (citing *Sycamore Indus. Park Assocs. v. Ericsson, Inc.*, 546 F.3d 847 (7th Cir. 2008) and *Interfaith Cmty. Org. v. Honeywell Int'l*, 263 F. Supp.2d 796 (D.N.J. 2003)). In the second, there was "some allegation of defendants' continuing control over waste disposal." *Hinds*, 654 F.3d at 851. *U.S. v. Aceto Agr. Chems. Corp.* provides a good example.

There, the defendant was strictly liable under RCRA because it contracted with another company to manufacture pesticides and retained ownership of them throughout the manufacturing process, which resulted in the generation and disposal of waste. 872 F.2.d at 1375, 1383. The *Aceto* court was unconcerned that the liable party was not "actively involved" in the disposal. It was sufficient that it maintained ownership of the pesticides and control over the operations.

Hinds also relied on *U.S. v. Valentine*, which arguably sets an even lower standard for liability. There the court held that a company that transported waste to a facility which improperly disposed of it could be liable because "it is not necessary that a party have control over the ultimate decisions concerning waste disposal or over the handling of materials at a site in order to be found to be a contributor within the purview of RCRA." *Valentine*, 885 F. Supp. 1506, 1512 (D. Wyo. 1995). Because the facts demonstrate that Dolsen Co. has a measure of control over Cow Palace, their argument that Plaintiffs must prove that they were "actively involved" with the waste disposal therefore fails as a matter of law.

C. Dolsen Co. and Three D are not Passive Landowners.

Defendants' frame themselves as mere "passive landowners," with no knowledge or control of what occurs at the Dairy. *See* ECF 279 at 7-9. This framing distorts reality. *See Nat'l Exch. Bank & Trust v. Petro-Chem. Sys., Inc.*, 2012 WL 6020023 at *4 (E.D. Wis. Dec. 3, 2012) ("isolated statements" made by

the defendants "might tend to support [its] view of the law, the plain text of the statute does not"). Plaintiffs have laid out the factual bases for Dolsen Co.'s liability in two briefs. *See* ECF No. 211, pp. 32-37 & ECF No. 281, pp. 2-7.

While Dolsen Co. attempts to qualify some of Plaintiffs' factual assertions, they do not address the most damaging: the Dairy's managers called Bill and Adam Dolsen for guidance when a waste management emergency arose, that Bill and Adam Dolsen approved the AOC and met with state agencies on behalf of the Dairy, that agents for Three D installed filtration systems because of nitrate pollution on their properties *for dairy employees*. *See* ECF No. 281-1 at ¶¶ 10, 16, 21-22 (Plfs.' Suppl. Statement of Facts). Nor can The Dolsen Companies dispute that it is the Dairy's owner and operator, per the DNMP. *See* ECF 226-1 Ex. 5 (COWPAL000459). Defendants were *not* ignorant or passive landowners.

Unlike the situation here, the cases cited by Defendants involve landowners that had no nexus to the alleged disposal: i.e., they either did not own the land at the time of the alleged disposals, or if they did, had no authority to control the entities allegedly causing the disposals. *See* ECF 281 (Plfs.' Opp. Brief) at 13-15, 15 n.4 (responding to cases). Dolsen Co., with interconnected management and active engagement during the time of the disposal, cannot now feign ignorance.

In the only case Dolsen Co. cites, Br. at 7, the court specifically found that the lack of any evidence of control was the factor that saved the party from RCRA

liability. *See Aurora Nat'l Bank v. Tri Star Mktg.*, 990 F. Supp. 1020, 1034 (N.D. Ill. 1998). Plaintiffs here are not seeking liability against an unsuspecting third party after the Dairy had ceased operating and sold the land. Dolsen Co. is not a passive landowner of the type that have avoided liability in other cases.

Dolsen Co. cannot hide behind their subordinates by claiming ignorance of practices that occur every day on land that they own or owned. In one case, a defendant was liable when it owned a building that was causing PCB leaks even though it never touched the ballasts that caused the disposal. *NY Commun. for Change v. NYC Dep't of Educ.*, 2012 WL 7807955 at *23-26 (E.D.N.Y. Aug. 29, 2012). The defendants' claim that "active involvement" was necessary for RCRA liability was denied. *Id*. at *24, 26.

D. Defendants' Corporate Veil Arguments are Irrelevant.

Defendants' new argument is that the corporate veil doctrine shields them from liability. These arguments are inapposite because Plaintiffs do not need to hold the officers of a corporation vicariously liable for the corporation's conduct, because the two *Defendants* are directly liable for their contributions to the solid waste disposal happening at the Dairy, as *Hinds* and the undisputed facts establish. Plaintiffs also point to the responsible corporate officer doctrine as a further basis for liability against Dolsen Co. as previously briefed. *See* ECF 281 at 15-17.

CONCLUSION

For the reasons stated herein, Plaintiffs' respectfully request that their motion for summary judgment be granted.

Respectfully submitted this 22nd Day of December, 2014.

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CERTIFICATE OF SERVICE

I hereby certify that on December 22, 2014 I filed a true and correct copy of the foregoing document with the Clerk of Court using the CM/ECF system, which will automatically generate service to the following:

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May 27, 2010

Mr. Dennis J. McLerran,
Regional Administrator
U.S. EPA Region 10
Office of the Executive
1200 Sixth Avenue
Seattle, WA 98101

SUBJECT: Nooksack River Basin Water Quality, Tribal Shellfish Beds, and the Management of Animal Wastes in Washington State

Dear Administrator McLerran,

I am writing to (1) express my concerns regarding deteriorating water quality in the Nooksack River watershed in northwestern Washington; (2) to provide you a brief history on Nooksack River water quality, impacts of the degraded water quality on tribal shellfish beds in Portage Bay on the Lummi Indian Reservation, and previous actions taken; and (3) to seek further action by the EPA to address these concerns.

Deteriorating Water Quality in the Nooksack River Watershed: Water quality monitoring focused on fecal coliform levels in the Nooksack River watershed has been conducted since at least 1997. Initially, the sampling was conducted by the Washington Department of Ecology (Ecology) as part of the Lower Nooksack River Bacteria TMDL (Ecology 2002). The Whatcom Conservation District used Ecology grant funding to expand this sampling program from 21 stations to 65 stations over the 1998 to 2000 period. Sampling at these 65 stations was continued by the Lummi Natural Resources Department using grant funding from the EPA and Ecology through 2005 as part of the TMDL Implementation Monitoring in WRIA 1[1] Project. The Lummi Nation has also used grant funding from the EPA to sample, analyze, and report on Nooksack River water quality at the location where the river flows onto the Reservation since 1997 as part of our ambient water quality monitoring program.

The collected water quality data indicated that as of February 28, 2004, nine of the ten Lower Nooksack River Bacteria TMDL sample stations achieved their respective TMDL

[1] Washington State has divided the state into 62 Water Resources Inventory Areas (WRIAs). WRIA 1 is the Nooksack River basin and certain adjacent streams including Lake Whatcom.

geometric mean targets. One year later, on February 28, 2005, only three of the ten stations achieved their respective TMDL targets. In September 2004, the Washington Department of Health (DOH) reported that 5 of the 11 sampling stations in Portage Bay were close to exceeding the National Shellfish Sanitation Program (NSSP) standards. Poor water quality over parts of tribal shellfish beds in Portage Bay necessitated a temporary closure of a portion of these beds during January through March of 2005. A review of the EPA files will demonstrate that I sent a letter to one of your predecessors (Ron Kreizenbeck) on June 7, 2005 regarding our concerns at that time.

Unfortunately, the deteriorating water quality trends that we wrote about during 2005 have continued. As shown in Figure 1 through Figure 9, the TMDL targets and/or the applicable water quality criteria for fecal coliform bacteria are not being achieved at the monitoring stations. Figure 1 through Figure 8, which were developed by Ecology staff, show a marked reversal of the previously declining fecal coliform levels in the Nooksack River tributaries starting in 2003 and an increasing trend in fecal coliform levels for all of the tributaries except for Tenmile Creek. As you may know, on July 1, 2003 the Livestock Management Program within the Washington State Department of Ecology was eliminated and the responsibility to implement the Dairy Nutrient Management Act was transferred to the Washington State Department of Agriculture (WSDA). The WSDA only addresses animal wastes from dairy farms – not beef cattle or hobby farms.

In Figures 1 through Figure 8, if the TMDL targets were being achieved, the geometric mean line (black line) would be at or below the last pink circle. If the applicable water quality standards were being achieved, the geometric mean line would be below the solid green line <u>and</u> the dotted black line would be below the dotted green line.

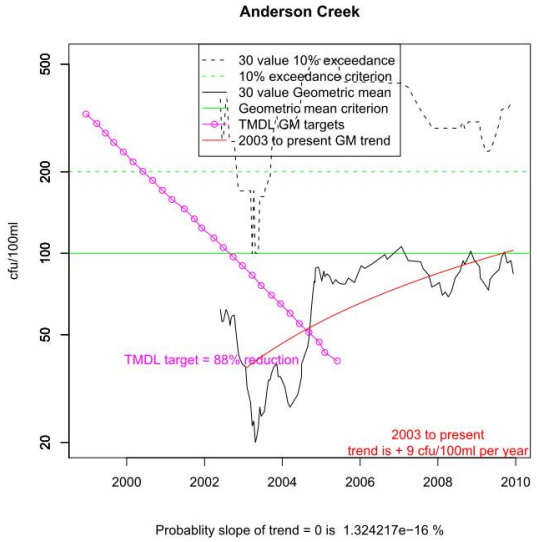

Figure 1. Fecal Coliform Trends in Nooksack River Tributaries: Anderson Creek

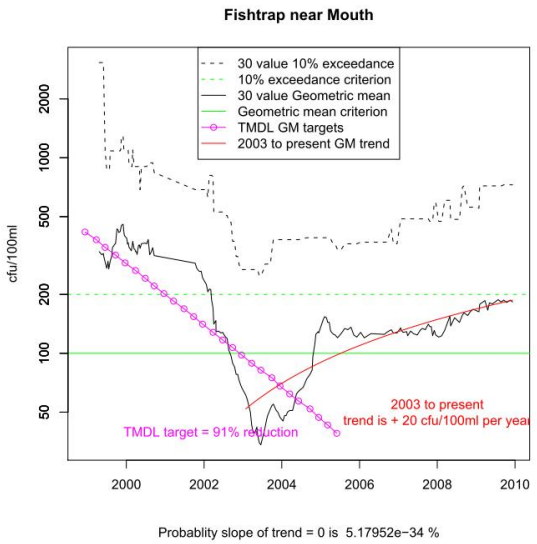

Figure 2. Fecal Coliform Trends in Nooksack River Tributaries: Fishtrap Creek Near Mouth

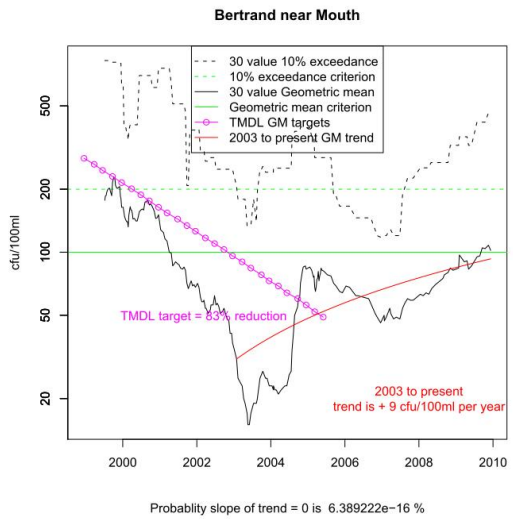

Figure 3. Fecal Coliform Trends in Nooksack River Tributaries: Bertrand Creek Near Mouth

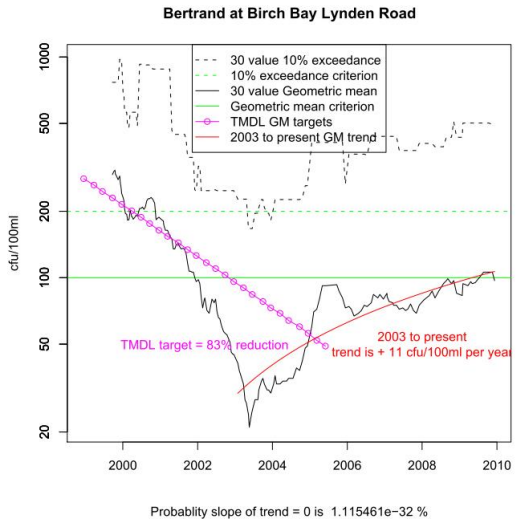

Figure 4. Fecal Coliform Trends in Nooksack River Tributaries: Bertrand Creek At Birch Bay Lynden Road

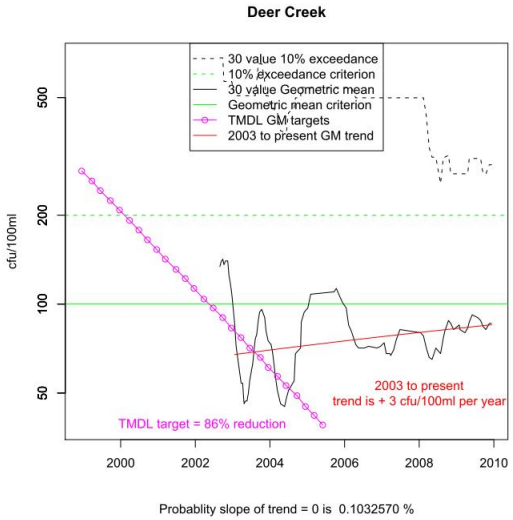

Figure 5. Fecal Coliform Trends in Nooksack River Tributaries: Deer Creek

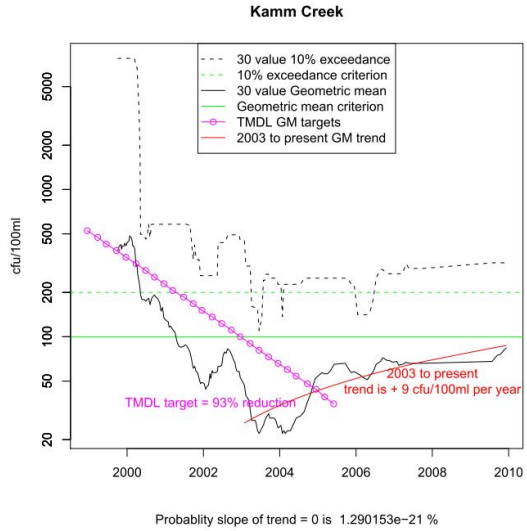

Figure 6. Fecal Coliform Trends in Nooksack River Tributaries: Kamm Creek

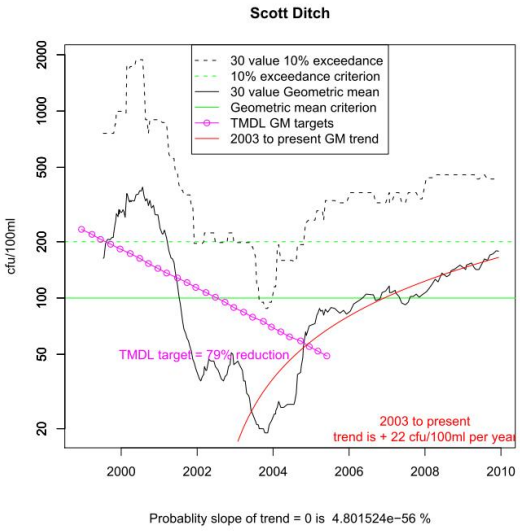

Figure 7. Fecal Coliform Trends in Nooksack River Tributaries: Scott Ditch

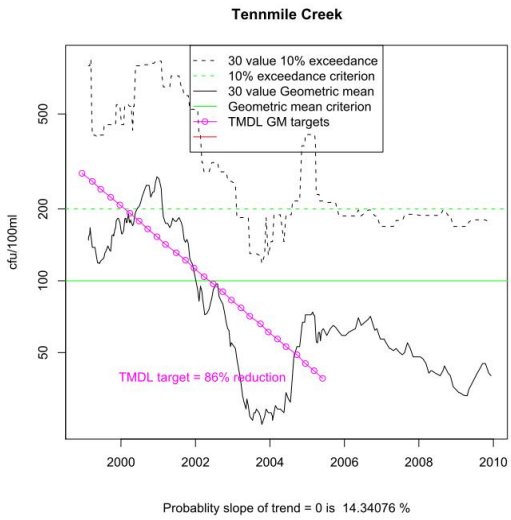

Figure 8. Fecal Coliform Trends in Nooksack River Tributaries: Tenmile Creek

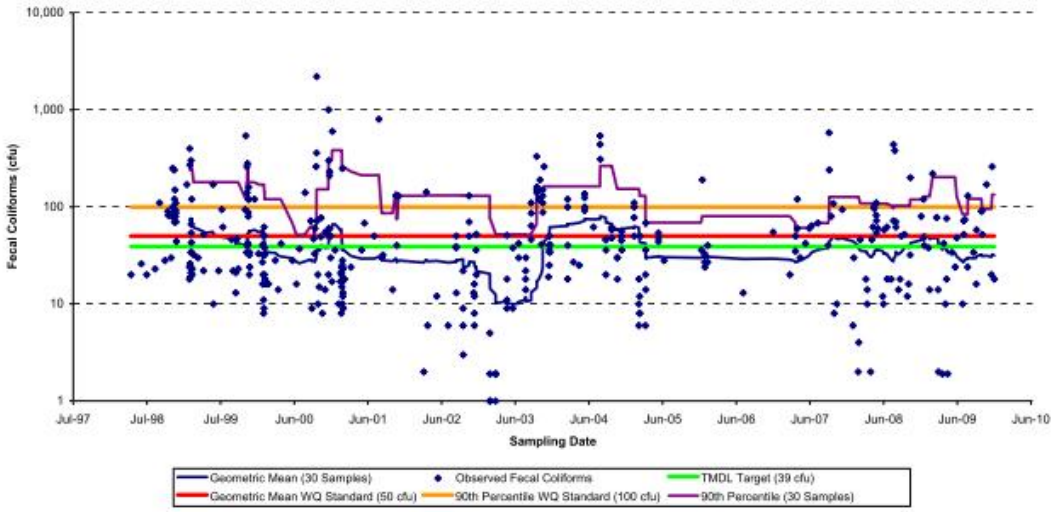

Figure 9. Fecal Coliform Trends in Nooksack River at Marine Drive Bridge

Figure 9 is a summary of the measured fecal coliform levels from the Lummi Natural Resources Department ambient water quality monitoring program at a site where the Nooksack River discharges to the Reservation (Marine Drive). Figure 9 shows that the fecal coliform geometric mean is currently below both the TMDL target and the applicable water quality standards but, since the 90th percentile currently exceeds the applicable water quality standard for fecal coliform, the tribal water quality criteria are not achieved. As can be seen in Figure 9, both the TMDL target and the water quality criteria were exceeded shortly after June 2003.

Brief History, Impacts of Degraded Water Quality, and Previous Actions: Pursuant to the Shellfish Consent Decree (Order Regarding Shellfish Sanitation, *United States v. Washington [Shellfish]*, Civil Number 9213, Subproceeding 89-3, Western District of Washington, 1994), the Washington DOH in consultation with the Lummi Nation is responsible to the federal Food and Drug Administration to ensure that the National Shellfish Sanitation Program (NSSP) standards for certification of shellfish growing waters are met for tribal harvest areas including on-Reservation areas. In consultation with the Washington DOH, the Lummi Nation closed portions of the tribal shellfish beds in Portage Bay in December 1996 (60 acres) and August 1998 (120 additional acres) when the NSSP standards for certification of shellfish growing waters were exceeded. Washington DOH formally reclassified these growing areas from "Approved" to "Restricted" in August 1997 and September 1999 respectively.

These closures directly affected approximately 200 tribal shellfish harvesters and their families. Ceremonial and subsistence uses of these shellfish resources were also impacted, as was the tribal commercial shellfish enterprise. The economic impact of these closures has been estimated to be in excess of $850,000 per year. Although the Lummi Nation and its members did not cause the downgrade of our shellfish beds, we have been the ones who have suffered due to the actions and inactions of others and have received no compensation for our losses.

The sanitary survey conducted by the Washington DOH following the initial downgrade found that farm animal wastes originating in the Nooksack River watershed are an actual, as opposed to a potential, pollution source and represent a high probability of being the principal source of fecal coliform contamination in the Portage Bay shellfish beds. At the request of the Lummi Nation, the EPA conducted compliance and enforcement actions during 1997 and 1998. In our view, these EPA compliance inspections and enforcement actions were the key to initiating the local actions and needed changes to state laws.

Following the initial and subsequent downgrades of tribal shellfish beds in Portage Bay, in addition to the EPA enforcement actions, several federal, tribal, and state agencies and numerous individuals took a variety of steps to address identified pollutant sources (not all of which were related to agricultural activities). I believe that most people would agree that the three key actions were: (1) technical and financial assistance (in excess of $8 million) to the dairy industry, private land owners, and municipalities that discharge wastes to the Nooksack River; (2) compliance inspections to enforce provisions of the federal Clean Water Act; and (3) water quality monitoring to identify pollution sources and monitor improvements. These three key actions, along with interagency collaboration, resulted in a reclassification of approximately 75 percent of the "Restricted" shellfish growing beds in Portage Bay to "Approved" status in November 2003 and the reclassification of all of the shellfish growing areas in Portage Bay as "Approved" in May 2006 – nearly 10 years after the initial closure.

Unfortunately these three key actions have not continued at the levels that existed prior to 2003 and, as a result, whether or not all of the tribal shellfish beds in Portage Bay and Lummi Bay will remain classified as "Approved" in the coming years and decades is an open question. As you may know, first Ecology eliminated their Livestock Management Program and their compliance inspection and enforcement responsibilities were transferred to the WSDA. The effect of this management change was a reduction from two Ecology dairy waste inspectors based in Bellingham and focused on Whatcom and Skagit counties to a single WSDA inspector focused on Whatcom, Skagit, Snohomish, Island, and part of King County. This change has also resulted in regulatory gaps in that the EPA delegated the administration of Section 402 of the Clean Water Act to Ecology (not to the WSDA), the WSDA mandate is to address dairy operations only (not beef cattle operations, hobby farms, or direct animal access to streams), and because the single WSDA position was initially vacant and then has been vacated for various intervals over the years as personnel changes occurred.

Due to budget constraints and programmatic limitations, the TMDL implementation monitoring program was reduced from semi-monthly (two times per month) to monthly sampling during 2004-2005. Funding for this program ended in February 2005 and efforts to obtain state funding during the 2005 legislative session were unsuccessful. Currently, the monitoring program continues at 21 sites at a reduced frequency. I am not certain what has happened to the technical and financial assistance to the agricultural community, but I understand that this too has been reduced. Based on past experience, without continued technical assistance, compliance inspection activities, and water quality monitoring and source identification in the Nooksack River watershed, the likelihood of continued or future downgrades of tribal shellfish beds in Portage Bay is significantly increased. The same is true for the Lummi Bay watershed.

Requested Actions: Another closure of tribal shellfish beds in Portage Bay due to fecal coliform contamination would have a substantial negative impact on the Lummi Nation. The previous Portage Bay shellfish bed closure, which was largely attributed to poor animal waste management in the Nooksack River watershed, lasted nearly 10 years and had an estimated monetary impact of over $8.5 million on Lummi tribal members and their families. The impact to tribal ceremonial and subsistence harvest in this area is not measureable. These losses have never been compensated. We feel that we communicated our concerns about the deteriorating water quality in the Nooksack River watershed and the impacts and threats to our shellfish beds in our June 7, 2005 letter and provided the local agricultural community an opportunity to take local action at that time. As evident from the water quality data presented above, the current animal waste management practices are not effectively reducing fecal coliform contamination. We need to shift from reactive to proactive natural resources management in order to avoid repeating past mistakes and impacts to tribal shellfish beds.

My staff has discussed animal waste management practices with federal and state agency staff members and there seems to be a general consensus that the current Washington State program for managing animal wastes is broken. We have heard a number of ideas of how the current program could be fixed that, in our opinion, have merit and could be expected to reduce the likelihood of future closures to the tribal shellfish beds due to animal waste management practices. These ideas include:

1. All operators that generate, store, and/or land apply animal wastes should be regulated no differently that other industries that generate wastes that are applied to the land (e.g., food processors, apple packers, wastewater treatment plants). That is, they must have a permit from a single state or federal agency with the authority to review and enforce animal waste management plan provisions. The state or federal agency must also have the unfettered ability to conduct routine inspections and initiate meaningful/appropriate enforcement actions for noncompliance.
2. Permit fees must generate sufficient revenue to support the number of inspectors needed to effectively regulate the operators described above.
3. Operators must maintain and effectively implement animal waste management plans designed for their current operation.

In addition to pursuing the ideas described above with the affected parties, we would like your agency to report on the steps taken in response to the actions that we requested in our June 7, 2005 letter. The requested actions were the following:

1. Conduct a review of inspections conducted by the Department of Ecology from July 1998 to June 2003 and by the Department of Agriculture since July 2003 in the Nooksack River watershed to determine the number of inspections conducted each month, what was found, what actions were taken, what were the results of the actions, and evaluate the relative regulatory presence and effectiveness of the two agencies.
2. Conduct a review to determine if any inspections have been conducted by any state or federal agency to evaluate the effectiveness of nutrient management plan (a.k.a. farm plan) implementation. The purpose of this evaluation is to determine if the nutrient management plans are being effectively implemented and updated appropriately as animal units fluctuate, conditions change, and experience dictates modifications such as providing increased manure storage.
3. Based on the experience over the 2004-2005 winter months when many manure lagoons were at capacity by January, advocate to revise the manure lagoon design standards so that the lagoons can store anticipated manure generation (solids and liquids) plus the seasonal rainfall volume expected to be exceeded 10 percent of the time in the area that contributes to the lagoon plus the 24-hour, 25-year rainfall event.
4. Ensure that contingency plans for manure management are incorporated in the farm plans to avoid a repeat of what occurred in January 2005.

5. Conduct an evaluation to identify other potential non-point pollution sources including beef cattle operations and hobby farms. Specifically locating and mapping areas where there is direct animal access to waterways.
6. Conduct additional compliance inspections and take enforcement actions as warranted to ensure a level economic playing field for dairy producers and beef cattle operations.
7. Provide financial support to revive the water quality sampling, analysis, and reporting necessary to identify sources and monitor progress.

In summary, collectively we need to continue compliance inspections and enforcement actions, water quality monitoring to identify sources and track progress, and continue to support the effective implementation of nutrient management plans for the dairy industry and for all other operators that apply animal wastes to the landscape. The last thing anyone wants is to have the shellfish beds closed again in the future. We need the EPA and Washington State to be proactive environmental stewards rather than reactive stewards – history has shown that a reactive management approach leads to closed shellfish beds. The water quality data are indicating that there is a growing threat to our shellfish beds, the adaptive management approach dictates that action is needed before it is too late.

I would like to meet with you and/or your key staff to discuss both the issues in this letter and the degraded water quality in the Lummi Bay watershed, which threatens our shellfish beds in Lummi Bay. Please keep me informed regarding the actions that your agency takes in response to this request and please notify me (360-384-2225 or merlej@lummi-nsn.gov) or my staff if you need any support from my agency.

Sincerely,

Merle Jefferson

Merle Jefferson, Executive Director
Lummi Natural Resources Department

cc Mike Bussell, EPA Office of Water and Watersheds Director
Karma Anderson, EPA Regional Agriculture Advisor
Rick Parkin, EPA Acting Director, Office of Ecosystems, Tribal, and Public Affairs
Tom Eaton, EPA Washington Office
Robin Slate, EPA Tribal Coordinator
Ted Sturdevant, Washington Department of Ecology Director
Dan Newhouse, Washington Department of Agriculture Director
Richard Grout, Washington Department of Ecology Bellingham Field Office
Nora Mena, Washington Department of Agriculture
George Boggs, Whatcom Conservation District
Henry Bierlink, Agricultural Preservation Committee
Jay Gordon, Washington Dairy Federation

LUMMI INDIAN BUSINESS COUNCIL
2665 KWINA ROAD BELLINGHAM, WASHINGTON 98226 (360) 312-2000
DEPARTMENT_____DIRECT NO. _____

October 9, 2014

Honorable Governor Jay Inslee
Office of the Governor
PO Box 40002
Olympia, WA 98504-0002

SUBJECT: Portage Bay Tribal Shellfish Beds Closure Response – Support Needed

Dear Governor Inslee:

As you almost certainly know, the Lummi Nation recently closed 335 acres of shellfish beds in Portage Bay on the Lummi Reservation voluntarily due to elevated fecal coliform bacteria levels that exceed the National Shellfish Sanitation Program (NSSP) standards at two of the regularly monitored water quality sampling stations. As several of the other water quality monitoring stations are close to exceeding the NSSP standards, the closed area may need to be expanded further depending on the results of on-going water quality sampling.

The current closure, which affects approximately 200 tribal families and our nearly 5,000 Lummi members that rely on these shellfish beds for ceremonial, subsistence, and commercial harvest purposes, is reminiscent of the Portage Bay shellfish closure during the period from 1996 to 2006. The elevated fecal coliform levels are attributed to manure and land management practices in the Nooksack River watershed, which discharges to Portage Bay.

On September 10, 2014 your Department of Ecology Director (Maia Bellon) hosted a meeting at the request of our Natural Resources Department Director (Merle Jefferson) and his key staff where they were joined by her key water quality staff, EPA Region 10 Administrator Dennis McLerran and his key staff, Rob Duff and Julie Horowitz from your office, and representatives from the Washington Department of Health and the Washington Department of Agriculture.

The meeting participants agreed that the re-closure of the Portage Bay shellfish beds makes it clear that there are systemic problems in the current environmental regulatory structure and that new tools and new approaches are needed to address manure management and associated water contamination. All of the meeting participants further agreed that the single action that would have the most benefit for preventing contamination of both surface water (fecal coliform) and ground water (nitrates) would be to change the existing state law concerning manure applications so that all land applicators of manure must be licensed or

permitted. The provision could be modeled on the existing pesticide applicator license program administered by the Department of Agriculture and a similar manure applicator licensing program instituted in Maryland.

Since it is reportedly past the calendar date for state agencies to propose legislation for the 2015 session, such a bill would have to originate from the Governor's Office or a specific legislator. Your Legislative Affairs and Policy Office staff indicated that they would look into this recommended action. I am seeking your support and leadership for this legislative approach and offer whatever you need from my office to make it happen during the 2015 legislative session.

Please do not hesitate to contact me if you have any questions regarding our request or if you need the Lummi Nation to take additional steps to support this effort to protect all shellfish growers and shellfish harvesters throughout Puget Sound and prevent the degradation of our shared water resources.

Sincerely,

Tim Ballew II, Chairman
Lummi Nation

cc: Elden Hillaire, Lummi Fisheries and Natural Resources Commission Chairman
Merle Jefferson, Lummi Natural Resources Department Director
Maia Bellon, Director, Washington Department of Ecology
Don Hover, Washington Department of Agriculture Director
Maryanne Guichard, Assistant Secretary of Environmental Public Health (DOH)
Dennis McLerran, Region 10 Administrator, EPA
Senator Doug Ericksen
Representative Vincent Buys
Senator Kevin Ranker
Representative Kristine Lytton
Representative Frank Chopp
Bill Dewey, Taylor Shellfish
Jay Gordon, Washington Dairy Federation
George Boggs, Whatcom Conservation District
Henry Bierlink, Agricultural Preservation Committee

From: "Weisman, Kitty (DOH)" <Kitty.Weisman@DOH.WA.GOV>
To: "dkk@givenspursley.com" <dkk@givenspursley.com>, "Elisabeth Holmes" <EHolmes@CenterforFoodSafety.org>, "Snoey, Janis (ATG)" <JanisS@ATG.WA.GOV>
Cc: "Alexanian, Dan A (DOH)" <Dan.Alexanian@DOH.WA.GOV>, "Means, Mike J (DOH)" <mike.means@DOH.WA.GOV>, "Chess, Alexandra J (DOH)" <Alexandra.Chess@DOH.WA.GOV>
Subject: Draft CAFO permit documents you requested - later version

Here is the later version of the draft CAFO permit and fact sheet that you requested (see attached).

Kitty Weisman
Source Water Protection Program Manager
Office of Drinking Water
WA Dept. of Health
PO Box 47822
Olympia, WA 98504-7822
(360) 236-3114
Kitty.Weisman@doh.wa.gov<mailto:Kitty.Weisman@doh.wa.gov>
Source Water Protection Website<http://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater/SourceWater/SourceWaterProtection.aspx>

From: Jennings, Jonathan (ECY)
Sent: Wednesday, March 07, 2012 11:03 AM
To: Weisman, Kitty (DOH)
Subject: Most Current DRAFTS of CAFO Permit

Hi Kitty,

Here are my most recent drafts of the CAFO permit and fact sheet. They should be more polished than the last ones I sent. Let me know if you have questions.

Jon Jennings
Aquatic Pesticides and CAFOs
Water Quality Program
WA State Dept. of Ecology

Phone: 360.407.6283
Fax: 360.407.6426
Email:
jonathan.jennings@ecy.wa.gov<mailto:jonathan.jennings@ecy.wa.gov>

From: "Weisman, Kitty (DOH)" <Kitty.Weisman@DOH.WA.GOV>
To: "dkk@givenspursley.com" <dkk@givenspursley.com>, "Elisabeth Holmes" <EHolmes@CenterforFoodSafety.org>, "Snoey, Janis (ATG)" <JanisS@ATG.WA.GOV>
Cc: "Alexanian, Dan A (DOH)" <Dan.Alexanian@DOH.WA.GOV>, "Means, Mike J (DOH)" <mike.means@DOH.WA.GOV>, "Chess, Alexandra J (DOH)" <Alexandra.Chess@DOH.WA.GOV>
Subject: Draft CAFO permit documents you requested - earlier version

Here are the draft CAFO permit and fact sheet documents from Ecology that you requested (see attached). There is a later version also, which I will send you in a minute.

Kitty Weisman
Source Water Protection Program Manager
Office of Drinking Water
WA Dept. of Health
PO Box 47822
Olympia, WA 98504-7822
(360) 236-3114
Kitty.Weisman@doh.wa.gov<mailto:Kitty.Weisman@doh.wa.gov>
Source Water Protection Website<http://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater/SourceWater/SourceWaterProtection.aspx>

From: Jennings, Jonathan (ECY)
Sent: Thursday, January 26, 2012 9:03 AM
To: Weisman, Kitty (DOH)
Subject: RE: CAFO permit

Here's the draft permit and fact sheet as they currently stand. Thanks for your input!

Jon Jennings
Aquatic Pesticides and CAFOs
Water Quality Program
WA State Dept. of Ecology
Phone: 360.407.6283
Fax: 360.407.6426
Email:
jonathan.jennings@ecy.wa.gov<mailto:jonathan.jennings@ecy.wa.gov>

From: Weisman, Kitty (DOH)
Sent: Thursday, January 26, 2012 8:26 AM
To: Jennings, Jonathan (ECY)
Subject: RE: CAFO permit

Hi Jon,

Thanks for the quick reply! It would not be a problem for me to keep the draft private – I am the only one in my agency who would read it at the moment. I am interested in this from a drinking water protection perspective. As you know, CAFO's can be a significant threat to drinking water. I imagine you're already addressing all relevant issues related to groundwater and surface water protection, but would love an opportunity to take a look at the draft if you are so inclined.

Thanks for considering this!

Sincerely,

Kitty Weisman, Source Water Protection Program Lead
Washington State Dept. of Health
Office of Drinking Water
PO Box 47822
Olympia, WA 98504-7822
(360) 236-3114 (phone)
Kitty.Weisman@doh.wa.gov<mailto:Kitty.Weisman@doh.wa.gov>
DOH Source Water Protection
Website<http://www.doh.wa.gov/ehp/dw/sw/default.htm>

From: Jennings, Jonathan (ECY)
Sent: Thursday, January 26, 2012 8:21 AM
To: Weisman, Kitty (DOH)

Subject: RE: CAFO permit

Hi Kitty,

Yes, I am currently working on redeveloping the CAFO permit. It is currently still very much a draft, so we've asked WSDA not to share it outside of the agency. The reason being is that we are still developing our thinking on some of the issues, and we don't want preliminary thinking getting mixed up with what we eventually go public with. Would keeping the drafts internal to your agency or yourself be an issue?

That said, I welcome many different perspectives as I think it helps create a more balanced product.

Jon Jennings
Aquatic Pesticides and CAFOs
Water Quality Program
WA State Dept. of Ecology
Phone: 360.407.6283
Fax: 360.407.6426
Email:
jonathan.jennings@ecy.wa.gov<mailto:jonathan.jennings@ecy.wa.gov>

From: Weisman, Kitty (DOH)
Sent: Thursday, January 26, 2012 8:08 AM
To: Jennings, Jonathan (ECY)
Cc: Morgan, Laurie (ECY)
Subject: CAFO permit

Hi John,

I learned from Nora Mena over at Dept. of Agriculture that you're developing the CAFO permit. I was wondering where you are in that process, and if there is any way that I can provide feedback or input at all?

Thanks so much!

Kitty Weisman, Source Water Protection Program Lead
Washington State Dept. of Health
Office of Drinking Water
PO Box 47822

Olympia, WA 98504-7822
(360) 236-3114 (phone)
Kitty.Weisman@doh.wa.gov<mailto:Kitty.Weisman@doh.wa.gov>
DOH Source Water Protection
Website<http://www.doh.wa.gov/ehp/dw/sw/default.htm>

From:	Prest, Virginia (AGR)
To:	Fisher, Ralph; Jim Trull
Subject:	RE: GWAC - IAWG
Date:	Wednesday, May 20, 2015 1:37:23 PM
Attachments:	image001.png

Boy no kidding

Thanks

From: Fisher, Ralph [mailto:fisher.ralph@epa.gov]
Sent: Wednesday, May 20, 2015 1:34 PM
To: Prest, Virginia (AGR); Jim Trull
Subject: RE: GWAC - IAWG

Got ya. I understand its all in the "air"

Ralph

From: Prest, Virginia (AGR) [mailto:VPrest@agr.wa.gov]
Sent: Wednesday, May 20, 2015 1:26 PM
To: Fisher, Ralph; Jim Trull
Subject: RE: GWAC - IAWG

Ralph

I am sharing with this email BUT I want to advise – we have not gotten the money yet so please do be cautious when sharing this information.

Ginny

From: Fisher, Ralph [mailto:fisher.ralph@epa.gov]
Sent: Wednesday, May 20, 2015 12:23 PM
To: Prest, Virginia (AGR)
Subject: RE: GWAC - IAWG

Sounds good. Would you mind if I (or you) share that with Jim Trull. He is asking us to revise the BMP list for the GWMA. It might be good for him to know the general direction the Dept. of Ag wants to take. It help coordinate their activities with theirs.

Ralph

From: Prest, Virginia (AGR) [mailto:VPrest@agr.wa.gov]
Sent: Wednesday, May 20, 2015 12:57 PM
To: Fisher, Ralph
Subject: RE: GWAC - IAWG

Ralph

Below is my official answer I have been handing out. Lots of thoughts about how and what I should be doing. Course we have ideas as well and that is what help me put together the budget and proposal.

> I can give you an idea of DNMP's plans are if we successfully receive the two year funding for additional activities in counties that are impacted by poor water quality. The funding will be used to fund
> : additional inspector for two years in the Puget Sound Region
> : agronomic expertise in Eastern WA Region
> And training for farmers in subjects like
> : nutrient management training specific to right amount at right time in the right place (weather forecasts, recordkeeping)
> : irrigation water management and
> : other related subjects like feed management, on-farm composting, and others
> : and based on most recent court case, how to operate and maintain a lagoon with poly liner

We will be contracting the training for individual segments with conservations districts, land grant, and other technical service providers but I plan to have several little pots contracted out versus one big pot.

I hope this helps. If you have questions, give me a call.

Virginia "Ginny" Prest, Program Manager
Dairy Nutrient Management Program
Washington State Department of Agriculture
Office (360) 902-2894
Cell (360) 529-7422
vprest@agr.wa.gov
http://agr.wa.gov/FoodAnimal/Livestock-Nutrient/

From: Fisher, Ralph [mailto:fisher.ralph@epa.gov]
Sent: Wednesday, May 20, 2015 11:05 AM
To: Prest, Virginia (AGR); Peters, R Troy; Trull, Jim; (lc@sycd.us)
Subject: RE: GWAC - IAWG

So Ginny, if approved, how will funds be made available? Are they intended for cost sharing of individual practices or for educational meetings and training sessions? If they are available for individual practices do the practices have to be those listed in the NRCS FOTG, or can "component" practices be cost shared that do not fit within an existing NRCS practice?

Ralph

From: Prest, Virginia (AGR) [mailto:VPrest@agr.wa.gov]
Sent: Friday, May 08, 2015 11:19 AM

To: Peters, R Troy; Trull, Jim; (lc@sycd.us); Fisher, Ralph
Subject: RE: GWAC - IAWG

Cross your fingers and toes
If the proviso makes it through the session
We may have some finds to help.
Sent from my Windows Phone

From: Peters, R Troy
Sent: 5/8/2015 10:15 AM
To: Trull, Jim; (lc@sycd.us); Prest, Virginia (AGR); Ralph Fisher (fisher.ralph@epamail.epa.gov)
Subject: RE: GWAC - IAWG

Here are some of my ideas.

Troy

****

Cost Share for Irrigation Scheduling

Cost Share with Farmers for Irrigation Scheduling. This is a large money consumer. What level of cost share we should offer is going to be hotly debated. However as a starting point, most consultants charge from $12-$15/acre for doing irrigation scheduling (?). This runs from $1,000-$2,000 per field or site. The cost share would probably be something less than this. We should also come up with a protocol for what is required for pay-out. Ideally this would be some sort of evidence that the grower viewed and responded to the information throughout the season.

Training

One other thing that could be done that would provide a large benefit in return for low costs is for the GWAC to sponsor training events for irrigators. Growers could be trained in nutrient and water management. An estimated costs of these would be $3,000/event (?) mostly just to buy lunch for the attendees to encourage them to attend. They could be put on in conjunction with other grower meetings and the training could be done by the Benton County CD and/or WSU Agricultural Extension.

Make Soil Moisture Sensors Less Expensive

Soil moisture sensors could be provided to growers to use. This should be done on a cost-share basis instead of simply gifting the sensors so that the grower values the sensors and the information that they provide. Training is very important for the grower to know how to properly install the sensors, collect the data, and how to interpret the data to make good management decisions. Simple sensors can be purchased for about $250 for three depths and a reader, up to $2,000 for more sophisticated systems with telemetry and automatic reporting online.

ET-Based Irrigation Scheduling on Your Phone

There is a free irrigation scheduling app that runs on mobile phones http://weather.wsu.edu/ism. It automatically pulls weather data from the selected weather station and does ET-based irrigation scheduling. It synthesizes all of this information to tell the grower how much water to apply, or how long to run their irrigation system. It is freely available and in their pockets. ET-based irrigation scheduling has been shown to provide very similar benefits as soil moisture-based irrigation scheduling and is often more accurate. Additional education and outreach to show growers how to use this effectively needs to be done. Although this is a good idea and is headed in the right direction, additional work needs to be done to make it more intuitive and user friendly based on interviews with growers who are trying to use it.

Mobile Irrigation Lab

This consists of an employee that does irrigation system audits or evaluations throughout the valley. They will evaluate irrigation systems for efficiency and/or uniformity and give the grower

a report of their system operation and make suggestions for improvement. They will also provide training on nutrient management and irrigation scheduling options and techniques that are tailored to that operation or individual. This might be done on a cost-share basis for a small fee (to make it more valuable to the grower). It would be staffed by one trained individual who knows how to do the evaluations, and one temporary helper that would serve as an extra set of hands. They would need a pickup truck that contains the necessary hardware to do the evaluations. It would cost an estimated $35,000/year for the trained person, and $18,000/year for the helper. This assumes they work 8 months/year. The vehicle and fuel costs would be an estimated $6,500/year, and goods and services would be about $3,000/year. This comes to a total of an estimated $62,500/year.

From: Trull, Jim [mailto:trullj@svid.org]
Sent: Wednesday, May 06, 2015 11:34 AM
To: Peters, R Troy; (lc@sycd.us); Ginny Prest (VPrest@agr.wa.gov); Ralph Fisher (fisher.ralph@epamail.epa.gov)
Subject: GWAC - IAWG

Hi:

At various times I have had individual conversations with each of you on Irrigation Water Management and would like to develop some collective thoughts on a possible way to proceed. We are frustrated by wanting to solve problems while currently being tasked with developing a plan to solve problems. I am hopeful we can find a way to do both.

Last fall, Troy proposed a mobile lab which didn't get funded because it was viewed as implementation rather than fact finding. At the last meeting and following Ralph suggested the need to be gathering data on Irrigation Water Management parallel with our efforts on Nutrient Management. Ginny mentioned to me a possible source of finding for Irrigation Water Management which we should explore.

I want to have a Workgroup Meeting to work on BMPs (See earlier email of that issue) and on Irrigation Water Management. It won't be productive to start at ground zero at a meeting. I would like to have some basic proposals which we can refine at the meeting. I plan to schedule a meeting for some time in the next two to three weeks so could your send me your thoughts about BMPs and IWM by Monday May 18th?

I hate to burden you with extra work but you are the experts – if anyone will figure it out, it will have to be you folks!

Thanks! Jim

In The Matter Of:

CARE, et al.

vs.

Cow Palace, et al.

Deposition of

Thomas Tebb

February 26, 2014

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1 IN THE UNITED STATES DISTRICT COURT

2 FOR THE EASTERN DISTRICT OF WASHINGTON

3

4 COMMUNITY ASSOCIATION FOR RESTORATION OF THE ENVIRONMENT, INC., a Washington Non-Profit Corporation and CENTER FOR FOOD SAFETY, INC., a Washington, D.C. Non-Profit Corporation

Plaintiffs,

vs.

COW PALACE, LLC, a Washington Limited Liability Company,

Defendant.

) No. CV-13-3016-TOR

CERTIFIED COPY

COMMUNITY ASSOCIATION FOR RESTORATION OF THE ENVIRONMENT, INC., a Washington Non-Profit Corporation and CENTER FOR FOOD SAFETY, INC., a Washington, D.C. Non-Profit Corporation

Plaintiffs,

vs.

GEORGE & MARGARET, LLC, a Washington Limited Liability Company and GEORGE DERUYTER & SON DAIRY, LLC, a Washington Limited Liability Company

Defendants.

) No. CV-13-3017-TOR

COMMUNITY ASSOCIATION FOR RESTORATION OF THE ENVIRONMENT, INC., a Washington Non-Profit Corporation
and
CENTER FOR FOOD SAFETY, INC., a Washington, D.C. Non-Profit Corporation
Plaintiffs,

vs.

D & A DAIRY, a Washington Partnership
and
D & A DAIRY, LLC, a Washington Limited Liability Company,
Defendants.

) No. CV-13-3018-TOR

COMMUNITY ASSOCIATION FOR RESTORATION OF THE ENVIRONMENT, INC., a Washington Non-Profit Corporation
and
CENTER FOR FOOD SAFETY, INC., a Washington, D.C. Non-Profit Corporation
Plaintiffs,

vs.

HENRY BOSMA DAIRY, a Washington Proprietorship, aka HANK BOSMA DAIRY, aka BOSMA DAIRY,
and
LIBERTY DAIRY, LLC,
Defendants.

) No. CV-13-3019-TOR

DEPOSITION UPON ORAL EXAMINATION OF
THOMAS TEBB
February 26, 2014
Tumwater, Washington

Taken Before:
Laura A. Gjuka, CCR #2057
CENTRAL COURT REPORTING 1-800-442-DEPO
Seattle - Bellevue - Yakima - Wenatchee

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25

EXAMINATION INDEX

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Ms. Kristensen	72	

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1 BE IT REMEMBERED that on the 26th of February,
2 2014, at 7141 Cleanwater Drive SW, Tumwater, Washington,
3 before LAURA A. GJUKA, CCR# 2057, Washington State
4 Certified Court Reporter residing at University Place,
5 authorized to administer oaths and affirmations pursuant
6 to RCW 5.28.010.
7 WHEREUPON the following proceedings were had,
8 to wit:
9 * * * * * *
10
11 THOMAS TEBB, having been first duly sworn by
12 the Court Reporter, deposed as follows:
13
14 EXAMINATION
15 BY MR. TEBBUTT:
16 Q Mr. Tebb, would you please state your full name and
17 address for the record?
18 A Yes. My name is Gordon Thomas Tebb. Would you like me
19 to spell that or --
20 Q Sure, please.
21 A G-o-r-d-o-n, T-h-o-m-a-s, T-e-b-b. My address is
22 13001 South 1538 PRSW Prosser, Washington 93550. My
23 business address is 15 West Yakima Avenue, suite 200,
24 Yakima, Washington 98902. My phone number at my office
25 is area code (509) 574-3989. Do you need my cell

1 number?
2 Q That's good. You can stop right there. I'm just going
3 to go over some basics first. Have you ever been
4 deposed before?
5 A Yes.
6 Q How many times?
7 A Probably three times.
8 Q In what type of cases?
9 A A variety of pollution cases associated with my
10 business --
11 Q So all in your role as an employee of the Department of
12 Ecology?
13 A Correct.
14 Q Can you tell me the names of those cases?
15 A They were over a decade ago, so I can't. But they
16 were -- I want to say one was associated with the
17 Hanford Nuclear Reservation, one was associated with a
18 water quality permit when I was a water quality section
19 manager at our Yakima office, I can't recall the case.
20 Q Have you ever testified at trial?
21 A I have not.
22 Q Okay. Just so you know, just to go over some ground
23 rules -- by the way, I'm Charlie Tebbutt and I represent
24 Community Association for Restoration of the Environment
25 and the Center for Food Safety in four actions involving

1 Research Conservation and Recovery Act claims for
2 imminent and substantial endangerment to human health in
3 the environment due to the groundwater contamination in
4 the Yakima Valley.
5 Just basic ground rules. Please wait until I finish
6 my question before you answer. Try not to anticipate.
7 Please give audible answers to every question, yeses and
8 nos. Shakes of the head and those sorts of things don't
9 work -- in this situation it's fine because I haven't
10 asked you a question, but when I ask you a question,
11 please give an audible answer. If you don't understand
12 a question of mine, please say that. Otherwise, I will
13 believe that you understood the question and the record
14 will reflect that. If for some reason it is confusing,
15 please say, "I don't understand the question."
16 You may hear some objections interposed either by
17 your counsel or Ms. Kristensen, the counsel for the
18 defendants in the case. That does not mean that you
19 don't have to answer the question, you still have to
20 answer the question.
21 This testimony, as you know, is taken under oath.
22 It can be used at trial later, either by itself or for
23 other purposes, such as refreshing recollection or other
24 things.
25 Any questions at this point?

A No, sir.
Q All right. If you need to take a break, please let me know. That's fine. It's no problem taking a break, you just can't take a break in the middle of a question, while a question is pending, okay?
A I understand.
(Exhibit No. 44 marked for identification.)
MR. TEBBUTT: We are continuing on from yesterday, so we are starting at 44.
BY MR. TEBBUTT:
Q Mr. Tebb, you have seen this document before that's sitting in front of you, Exhibit 44?
A Yes, I have. I believe this was the notice for me to be deposed.
Q Okay. The very last page of this document, Exhibit 44, requests four categories of documents to be produced today. Can you tell me what categories of documents of these four have been produced on the CD that was provided by your counsel Ms. Barker (sic) to us just prior to the start of this deposition?
A I can tell you what we did in terms of trying to produce those documents. I have not been able to actually observe what is on the CD as they were being collected, as I was in travel status. Essentially, I have been here for two days on other business, and so I can tell

1 you what we attempted to produce as a result --
2 Q Okay. Let's do that. Why don't you tell me what you
3 have attempted to produce so far and what --
4 A Sure.
5 Q -- still needs to be produced --
6 A So --
7 Q -- to the extent you know.
8 A When we received this request, I notified our public
9 information officer, Roger Johnson. He works with all
10 of us, our staff at the Yakima office, as well as myself
11 and my assistant, and went through a process where we
12 reviewed all of my e-mail files back to the date, I
13 think it was 2005 was the request date backwards, as
14 well as my folder files, which I keep fairly regular
15 correspondence and information as a working file.
16 Q Is that an electronic folder file?
17 A No. Those are some of the hardcopies that you have
18 received. So I think those were produced. Also,
19 anything else that I had had in terms of notes and
20 things of that sort, I didn't really have a lot there.
21 So we basically looked at everything I had and tried to
22 produce it in respect to this request.
23 Q Okay. Do you know what --
24 A May I get some glasses?
25 Q Sure.

A I should have brought them to the table, I apologize. I'm getting a little older to where I need them.
Q I understand and appreciate that.
A Thank you. Excuse me.
Q No problem. Take your time.
A Yeah.
Q So do you know what categories of documents have not been produced yet?
A I do not.
MR. TEBBUTT: I will ask your counsel, Ms. Barker.
MS. BARNEY: Barney.
MR. TEBBUTT: Barney, sorry. What do you know has been produced and what hasn't been produced? We talked about it before at the start of the deposition.
MS. BARNEY: We did. My understanding is that, from Mr. Johnson on the phone yesterday, was that the disks produced today has approximately 80 percent of the material. It contains e-mails responsive to the third and fourth bullet points from a variety of Ecology employees. It's identified on the disk as folder name by those individual's names.
There is additional material in the second disk that we hope will arrive this morning that continues the

1 production of e-mails. And there is a third disk due
2 early next week because there was an Ecology employee --
3 one Ecology employee's parent had passed away and she
4 was not in the office to do her e-mail searches, and it
5 also contains the material from Ecology headquarter's
6 employee Jon Jennings, because he had a great deal of
7 material in terms of his e-mails, and they were having
8 difficulty downloading all of that down to the disk
9 yesterday. So the decision was made to produce as much
10 as possible on the disk to be here this morning,
11 arriving this morning, to give you the most material,
12 but then those two things are following on.
13 BY MR. TEBBUTT:
14 Q All right. And may I ask who the employee is who was
15 not available to produce her file?
16 A I can respond to that. Her name is Melanie Redding, and
17 she is a hydrogeologist with our water quality program
18 here at headquarters.
19 Q All right. Thank you.
20 Mr. Tebb, could you please explain your educational
21 background?
22 A Sure. I graduated from Toppenish High School in 1978.
23 I went to Yakima Valley Community College, received my
24 AA degree. I subsequently transferred to Western
25 Washington University where I studied environmental

1 geology. And then I -- at that time I graduated with a
2 bachelor of science degree in 1984. I have pursued a
3 master's of engineering work at Cal Berkeley when I
4 moved down there for employment. I have attended the
5 Dan Evans School, University of Washington just --
6 Q Let me stop you for a sec. Did you complete your
7 master's?
8 A I did not.
9 Q How much of it did you complete?
10 A I had about a year.
11 Q And what type of classes did you take?
12 A Geotechnical engineering and civil engineering. The
13 firm that I worked for was a geotechnical firm and it
14 supplemented my work experience.
15 Q All right. You were beginning to tell me about some
16 other education you received after the master's work --
17 A Yeah. Subsequently, as part of my career here at
18 Ecology, I pursued a variety of trainings, particularly
19 most recently several quarters at the University of
20 Washington, Dan Evans School of Business. Actually, the
21 public administration program.
22 Q All right. Is that the extent of your education?
23 A It is.
24 Q I noticed you have some initials after your name.
25 A Uh-huh.

1 Q Tell me what "LHG" stands for.
2 A Sure. I'm a licensed engineering geologist in the state
3 of Washington, also a geologist in the state of
4 Washington and a hydrogeologist. I possess all three of
5 those licenses, license No. 408.
6 Q And so you are certified in the state of Washington as a
7 hydrogeologist?
8 A Yes, sir.
9 Q And an engineer as well?
10 A No, engineering geologist.
11 Q Okay. And when did you -- how long have you been
12 licensed as a hydrogeologist in the State of Washington?
13 A When the state of Washington instituted its
14 hydrogeology, engineering geology, and geology
15 licenses -- I believe it was about a decade ago when
16 they instituted the licensing requirements in this
17 state, I was one of the first -- obviously my license
18 No. 408 represents I was one of the first in the process
19 to be licensed.
20 Q All right. I would like to go over your work history a
21 little bit with you.
22 A Sure.
23 Q Let's start with present and then work our way back.
24 A Okay.
25 Q What's your present -- who is your present employer and

what's your job title?
A I work for the Washington State Department of Ecology in our Yakima regional office. I'm the regional director for the Department of Ecology in that office. I have been in that position since 2008.
Q And what position were you in before 2008?
A From 2008 to 2005, I was our water resources section manager in the Department of Ecology central regional office.
Q And were you employed with the Department of Ecology before 2005?
A Yes.
Q In what capacity?
A I have been employed with the Department of Ecology from 2005 to 1998 as a -- excuse me, there is two positions in there. I was a water quality section manager for Department of Ecology, central regional office after my water resources stint, for two years. So I believe that would take us to 2003.

And then from 2003 to 1998 I worked as our shorelands environmental section manager out of our Spokane and Yakima offices.

And prior to that, from '98 to '92, I worked in the Washington State Department of Ecology's nuclear waste program in Kennewick Washington on the Hanford Nuclear

1 Reservation.
2 Q Have you had your radiation levels checked now and
3 again?
4 A Not lately, sir.
5 Q I don't mean to make light of that.
6 A Yeah, it's a mess out there.
7 Q Prior to '92, where were you employed?
8 A I was employed for the firm that I mentioned. It was
9 Subsurface Consultants, an engineering company out of
10 San Francisco, Washington -- San Francisco, California.
11 Q What was the name of that?
12 A It's name was subsurface Consultants.
13 Q What kind of work did you do for them?
14 A It was basically I was hired as a geologist, and I
15 worked with a variety of clients, everything from the
16 Navy, working on a degaussing range that they had in the
17 bay, San Francisco Bay, as well as building ponds for
18 water storage in the Napa Valley. So anything kind of
19 soil related or engineering related to soil, that was
20 what I did.
21 Q And what years did you work for them?
22 A I worked for them from 1985 to 1992, right after I
23 graduated from college.
24 Q I just want to ask you about a couple of people who I
25 know used to work at Ecology and ask if they are still

working there. Max Linden?
A Max Linden no longer works for the Department of Ecology.
Q Do you know when he moved on?
A I believe he moved on almost -- I want to say seven to eight years ago.
Q Fair enough. Bob Rayforth?
A Bob Rayforth no longer works for the Department of Ecology.
Q Do you know when he left ecology?
A I would say about five years ago.
Q Have you been involved at all with reviewing the EPA study on groundwater that came out in September of 2012 concerning the Lower Yakima Valley?
A I have read the study. I have not been involved in an official capacity per se.
Q And so when did you first become aware of the contamination of groundwater in the Lower Yakima Valley with nitrates?
MS. KRISTENSEN: Objection, vague.
MR. TEBBUTT: Go ahead and answer.
THE WITNESS: I believe I became aware of it when I was in the capacity as a water quality section manager for the Department of Ecology in the Yakima office.

BY MR. TEBBUTT:
Q Let me just stop you for a second. Try to go slow. The court reporter's fingers only move so fast. So try to go as slow as you can. There is no rush here.
A Okay. It had to do with an enforcement action that we were working with. I can't recall exactly what the enforcement issue was. I can't recall if it was the Port of Sunnyside or some other groundwater -- some sort of surface discharge to ground where we were analyzing contaminants, but I believe we began noticing there was a nitrate problem. And as part of the enforcement work -- now I may have this mixed up -- but the bottom line is that it was an enforcement action that resulted in a penalty. The penalty was used for a study to essentially fund a small study to do some groundwater sampling in the Lower Yakima Valley to determine whether we had a nitrate problem.
Q Do you recall the approximate year?
A I want to say it was in the 2005 era, that era.
Q Okay.
A I know I brought this issue up to our executive management team and all three directors that I worked for in my current capacity.
Q Okay. Do you recall a study done by the Valley Institute for Research and Education on groundwater

contamination in the Lower Yakima Valley?
A Yes, that was the study I was referring to. I couldn't recall the name. It was a man, a professor. It was a small group, and I believe his partner, I don't know if they were married or not.
Q Okay. So that wasn't something that Ecology commissioned; it was commissioned as a result of settlements of other cases, enforcement actions by citizens against some of the dairies in the area; correct?
A Correct.
MS. BARNEY: Objection, misstates. Go ahead.
THE WITNESS: I think that is correct.
BY MR. TEBBUTT:
Q Okay. And so if I told you that that study came out in 2002, would that refresh your recollection when that study actually came out?
A I wouldn't be surprised. I deal with a lot of information and my memory probably isn't that sharp.
Q So did you review that study when it came out?
A Yes, I did.
Q Were you aware of another study that was done by Heritage College at the time, a similar type of study of groundwater contamination in the Lower Yakima Valley?

A I was aware of it. And I believe the work that we attempted to work with the Valley Institute or the firm that you referenced was to build off that study and to get a wider expansion and notice of the groundwater.
Q Did you read the Heritage College study?
A I did not.
Q Did you assist the Valley Institute of Research and Education, and when I say "you," Department of Ecology, with reviewing quality assurance protocols for that proposed study?
A Yes. Again, I was acting in the capacity of a manager, so I believe it was my staff. Whether it was Bob or -- Bob Rayforth or others that were involved in the previous enforcement action, yes, to have data and information that we can use, quality assurance project plans are performed.
Q Right. So your staff was satisfied that the quality assurance that was part of the -- I will call it VIRE, V-I-R-E -- the VIRE study, it was satisfactory to meet Ecology's standards?
A That is my recollection. Yes.
Q And they were not enforcement actions by the Department of Ecology against the dairies; right? It was money that came from citizens' suit settlements; correct?
A I don't recollect it that way.

Q Sir, I ask -- okay. How do you recollect it?
A I recollect it -- I just wrote down the name of the firm there.
Q I would ask that you not write on the exhibits.
A Oh.
Q If you would like to have a separate pad of paper to write on for your own purposes, please do. But the exhibits --
A I apologize.
Q -- should not -- just so you know, there is handwriting that says "VIRE study 2002/citizen" on the last page of Exhibit 44.
A Sorry.
Q One of those protocols.
A I will scribble over here.
Q Feel free to scribble all you want.
A Okay. To answer your question, I don't recall it exactly as the funding source. I seem to recall it as a penalty that a portion of was used to fund the study. That's how I recollect it.
Q Right. But it wasn't penalties assessed by the Department of Ecology, was it?
A I believe so.
Q Have you had occasion to review other reports done by Ecology employees about groundwater contamination in the

Lower Yakima Valley related to the dairy industry?
A Could you be more specific about the nature of the reports? Because they -- what I'm trying to say is, often in the job of permitting different facilities, there are reports that are done to support those permits.
Q On an individual facility basis?
A Yeah.
Q I'm talking more generally about studies done, scientific studies by the staff at the Department of Ecology about groundwater contamination, and I will start first in the Lower Yakima Valley.
A I don't recall a particular study that we have funded. Now, that's not to say that one exists. I don't recall that the environmental assessment program or -- I don't recall a comprehensive study that was performed by our agency in that regard.
Q Have you reviewed other studies done by the Department of Ecology about groundwater contamination generally in the state of Washington from dairy facilities?
A I have reviewed a report associated with the Whatcom nitrate study recently, as it relates to a study that was performed by the Department of Ecology's environmental assessment program. That is probably the freshest on my mind. I deal with a lot of information,

so it's hard for me to answer your question as accurately as --

MR. TEBBUTT: We will get down to some more specifics then.

(Exhibit No. 45 marked for identification.)

BY MR. TEBBUTT:

Q Mr. Tebb, you have in front of you Exhibit 45, an issue paper on construction of dairy lagoons below the seasonal high groundwater table done by Melanie Kimsey, a hydrogeologist with the Department of Ecology. Do you know Ms. Kimsey?

A Yes, I do. I believe Melanie Kimsey is now Melanie Redding. I believe that was her maiden name. Or if I -- again, I'm -- this is my understanding.

Q So she now works in the central office in Yakima?

A No. She works in the headquarters office in Lacey.

Q All right.

A For the water quality program.

Q All right.

A And she often does work for the regional offices.

Q Okay. Can you tell me if this study looks familiar at all to you?

A It does.

Q So you reviewed it before?

A I have.

Q Did you have any input into the either the development -- well, let's start with the development of this work.
A No, not specifically.
Q Did you have any input into this study as it was being produced?
A Just as one of several reviewers. The recommendations and the options are typical with the type of construction requirements that I, as a geotechnical engineer, would recommend for water retention or other types of facilities.
Q Is it fair to say that you agree with the findings and recommendations in this study?
A Professionally, I would.
Q Okay. Take a look at the third page of the study down at the bottom, the last paragraph. Just read it to yourself, if you would.
Are you all done?
A Yes.
Q Would you agree with the statement that the liquid contained in the dairy lagoon is untreated manure?
A I would.
MS. KRISTENSEN: Objection, that's not exactly what it says. It talks about lagoons constructed below the seasonal high groundwater table,

not all lagoons. So I object that it misstates this document.

MR. TEBBUTT: We will let the record speak for itself.

BY MR. TEBBUTT:

Q Would you also agree with the statement that Ecology does not allow the direct discharge of contaminated wastewater or highly treated wastewater into groundwater for other activities?

A I would agree with that.

Q What other activities does ecology prohibit direct discharge of contaminated water or highly treated wastewater into groundwater, what kind of activities?

A Activities such as state waste discharge to ground.

Q From what kind of facilities?

A A variety of facilities. It could be everything from an individual pouring -- or not changing his oil correctly, to a fairly sophisticated wastewater treatment plant that applies its wastewater to an alfalfa field.

Q Like a municipal sewage treatment system, for instance?

A Yeah. Typically those discharge to surface water.

Q But there are situations where there are municipal wastewater treatment holding ponds; correct?

A Correct. And there are also very large scale Department of Health, I guess, sewage systems, if you

will.
Q Right. And those are not allowed to discharge to groundwater; correct?
A They are intended to be designed so that the effluent that is discharged is essentially cleaned through the biological reaction of the soil.
Q Right. And are you familiar with the strength of municipal waste, versus the strength of, for instance, manure waste?
MS. KRISTENSEN: Objection, vague.
BY MR. TEBBUTT:
Q Do you understand the question?
A I believe I do, and I don't have specific -- I don't have a specific sense of one facility versus manure. I think manure can be applied in such a manner that it is taken up in --
Q But let me ask the question more specifically. Raw human sewage has a certain type of range of contaminant concentration; correct?
A Yes.
Q And manure from dairy cows has another range of strength of concentration?
A Correct.
Q Is it fair to say that manure from dairy facilities has higher strength of contaminant concentration than human

sewage?

MS. KRISTENSEN: Objection, vague. Calls for speculation.

THE WITNESS: I think in the way that it's measured in terms of E. coli counts for nutrients or nitrogen loading, yes. I think because manure often is collected and concentrated in the manner that it is handled, that, yes, it would be at a higher concentration of contaminants.

Q So is it fair to say it is stronger, if you will? It has more contaminants, more nutrients than human waste?

MS. KRISTENSEN: Same objection.

THE WITNESS: Again, I think it has to do with how it is handled and managed and concentrated. I think if it is distributed across the soil --

BY MR. TEBBUTT:

Q But we are not going there, we are just talking about storage in a lagoon, in a liquid sense. We are comparing the human waste that's in a municipal sewage --

A Yes.

Q -- lagoon versus a dairy lagoon. Is it fair to say that the dairy lagoon waste would be stronger than what is in a human waste lagoon?

MS. KRISTENSEN: Objection, incomplete

1 hypothetical, calls for speculation.
2 MS. BARNEY: Join.
3 THE WITNESS: I believe that's correct.
4 BY MR. TEBBUTT:
5 Q On the fifth page of Exhibit 44, there is an option 2.
6 It says, and I read, "Construct a non-discharging lagoon
7 by designing a double membrane lined lagoon with a leak
8 detection system. This option achieves containment of
9 the dairy wastewater and creates a non-discharging
10 lagoon." Would you agree with that statement?
11 MS. KRISTENSEN: Objection, calls for
12 speculation.
13 THE WITNESS: I'm sorry, could you draw my
14 attention to that statement again?
15 BY MR. TEBBUTT:
16 Q Yes, option 2, the first two sentences.
17 A I would agree with that.
18 Q And have you -- strike that.
19 You have been involved in the regulation of dairy
20 waste now for how long, sir, in your capacity with the
21 Department of Ecology?
22 A Well, being refreshed with the VIRE study of 2002, I
23 would say that in my capacity, both as a section manager
24 and as a regional director, since that time.
25 Q And these options that are provided in Exhibit 44, which

is a January 18th, 2002 report, provide some options for the Department of Ecology to regulate certain types of dairy lagoons; correct?

MS. BARNEY: Objection, the witness hasn't had the opportunity to read the entire document.

BY MR. TEBBUTT:

Q Would you like to take some time to look at the document to refresh your recollection, Mr. Tebb?

A I would.

Q Please do.

A Okay.

Q All right. So is it fair to say that this study was designed to deal with lagoons that are built in or near a high water table?

A This study looks to be providing an analysis associated with that phenomena, where lagoons had been built or will be built in areas of high water table.

Q And Ecology proposed two options for addressing such lagoons; correct?

A That is correct.

Q Which of the two options, option 1 or option 2, do you think is more protective of the environment?

A Option 2.

Q And Ecology, also in this proposal, disagreed with the NRCS proposal for how to deal with lagoons in high water

1 table areas; correct?
2 MS. BARNEY: I'm going to interpose an
3 objection here just to state for the record that
4 Mr. Tebb was not issued a 30(b)(6) subpoena. So he is
5 speaking here in his capacity as an ecology employee and
6 to his knowledge as an ecology employee. He is not
7 speaking for -- in an official capacity for the
8 Department of Ecology as it would be under a 30(b)(6).
9 BY MR. TEBBUTT:
10 Q Go ahead and answer.
11 A Could you restate the question, please.
12 MR. TEBBUTT: Would you mind reading back
13 the question?
14 (Pending question read back.)
15 THE WITNESS: That's correct. Well, I
16 would say the author of this study disagreed with NRCS.
17 BY MR. TEBBUTT:
18 Q And you reviewed this study, you said?
19 A Yes.
20 Q And do you disagree with that statement, that it's --
21 A No, I do not.
22 Q On the last page, page 7 of Exhibit 44, there is a list
23 of additional concerns. The second bullet point talks
24 about discrepancy between construction standards for
25 dairy lagoons and standards required for all wastewater

1 impoundments. Do you agree there is still a discrepancy
2 between dairy lagoons and other types of wastewater
3 impoundments in the state of Washington?
4 A Yes, I agree with that.
5 Q So the requirements for dairy lagoons are less strict
6 than for other impoundments; correct?
7 MS. KRISTENSEN: Objection, vague. Calls
8 for speculation.
9 THE WITNESS: The dairy lagoons are
10 designed under the NRCS standards.
11 Q Which you believe are less protective than the
12 Chapter 173-240 WAC standards for other lagoons?
13 A In my professional opinion as a hydrogeologist and
14 engineering geologist, yes.
15 Q Are you familiar with -- if you take a look at the last
16 page of Exhibit 44, the sixth reference, "Groundwater
17 Quality Assessment, Hornby Dairy Lagoon,
18 Sunnyside Washington, publication 1992." Are you
19 familiar with that study?
20 A No, I am not.
21 Q I have been misspeaking about the exhibit we were just
22 talking to, it's Exhibit 45, that's the Construction of
23 Dairy Lagoons Below the Seasonal High Groundwater Table.
24 It is Exhibit 45, not Exhibit 44, as I have been
25 referring to it. Exhibit 44 is the notice of deposition

1 and the request for production of documents that we
2 talked about in the beginning of the deposition.
3 Do you recall a woman by the name of Marci Ogden,
4 Mr. Tebb?
5 A Yes, I do.
6 Q And what do you recall about Ms. Ogden?
7 A I recall that Marci was a homeowner who had high levels
8 of E. coli and bacteria in her well water and was very
9 concerned that the agricultural practices that were
10 occurring adjacent to her home were affecting her
11 drinking water well. And I had numerous conversations
12 with her over the phone and possibly even via e-mail
13 with her about this subject.
14 MR. TEBBUTT: All right.
15 (Exhibit No. 46 marked for identification.)
16 BY MR. TEBBUTT:
17 Q Sir, you have in front of you Exhibit 46 to your
18 deposition. E-mails from 2005 in which you are copied
19 on at least some of them -- actually, all of them -- and
20 one in which you were the author; correct?
21 A Yes, that is correct.
22 Q And Exhibit 46, is this the first time that you obtained
23 information about Marci Ogden, if you recall?
24 A I believe so. That is correct. There may have been a
25 phone call ahead of this discussion.

Q From Ms. Ogden?
A Yes.
Q So you do recall speaking with her on one or more occasions?
A Yes, I do.
Q Was it multiple occasions you spoke with her?
A I believe so.
Q Did you ever meet with her in person?
A I think I did. Again, I --
Q Did you go out to her house?
A I don't think so.
Q On page 2 of Exhibit 46 you made a comment at the top of the page about your discussion with her, that she was concerned about having to drink contaminated water from her well as a result of a neighbor involved in the dairy or feed lot industry. And your statement was, "I tend to agree with her." Do you still agree with that statement today?
A I do.
Q And you made a series of eight recommendations on page 2. Who did you make those recommendations to?
MS. KRISTENSEN: Objection, there is nothing about recommendations. The document says "questions." Misstates this document.
BY MR. TEBBUTT:

Q Well, I will rephrase my question. You listed eight questions for, you say, "We need to think about." Are you referring -- when you say "we," are you referring to the Department of Ecology?
A That is correct.
Q And so those were questions that you asked in your role as a Department of Ecology employee; correct?
A That is correct.
Q Have you come to any answers to those questions as the Department of Ecology?
A We have made some progress on this issue. For example, we have -- there is a formation of the Lower Yakima Valley groundwater management area, which is, I believe, question four on this e-mail that I wrote. I do also believe the agency is in review of the CAFO permit, and I think we continue to work with our other state agencies, particularly the Department of Ag on our respective roles/responsibilities, and that has evolved over time.
Q I'm going to ask you specifically about question three. You say, "What about high nitrate levels? How do we address those?" What has the Department of Ecology done to address those since 2005, if anything?
A Within the current configuration of our CAFO permit and the activities that we have with the Department of

1 Agriculture and responding to citizen complaints or
2 activities associated with dairy operations, we have --
3 we continue to work on those issues, which I believe is
4 improving the management of manure. It's not perfect.
5 The relationship and the coordination between our
6 respective agency is it is sort of a delicate dance
7 about who does what when. And I think the staff at the
8 lower level have a better sense of that than I do, now
9 that I'm in a different capacity. But I -- it has
10 always been a challenge.
11 Q Around this time, around 2005, a responsibility for
12 overseeing the dairy regulatory side was given from
13 Ecology to Department of Agriculture, wasn't it?
14 A I believe that is correct, yes.
15 Q So Ecology essentially abdicated its role to the
16 Department of Agriculture to undertake the regulatory
17 structure?
18 MS. KRISTENSEN: Objection as to the word
19 "abdicated."
20 THE WITNESS: I would say that the
21 Washington State legislature provided a different
22 regulatory framework from which the Department of
23 Ecology and the Department of Agriculture would work on
24 this issue.
25 BY MR. TEBBUTT:

1 Q Did EPA approve that delegation of authority from
2 Department of Ecology to Department of Agriculture?
3 A I don't believe they have received the Clean Water Act
4 delegation. I believe they are obligated to pursue
5 that, and I don't know the status of that.
6 Q So you say that the agencies are -- you said generally
7 trying to address the high nitrate levels, but what
8 specifically has Ecology done to forward the ball on
9 reducing nitrate levels since 2005?
10 A We have -- I don't have a specific program or activity,
11 other than the general activities I have mentioned, to
12 provide.
13 Q And the groundwater management area, GWMA, the GWMA that
14 you discussed in this e-mail in 2005, did you have
15 discussions with anyone in Yakima County about
16 implementing a GWMA?
17 A I have had numerous discussions with Yakima County
18 officials, Vern Redifer with Public Works, director,
19 Yakima County. I have probably had conversations with
20 Yakima County commissioners. Mike Lieta, Rand Elliott,
21 and Kevin Bouchey, and their predecessors. I have had
22 conversations with Senator Honeyford,
23 Representative Chandler.
24 Q Did you discuss the possibility of a GWMA with
25 Yakima County in 2005?

A That's entirely possible. I have felt that -- I think as my e-mail illustrates, we have more work to do here.
Q Yeah, that's fine. Let's hold off on that for now.
In your initial discussions with Yakima County officials, did they decline to enter into any kind of GWMA?
A I think there was a funding question and a "How are you going to do this" kind of question that they just weren't prepared to answer at that time.
Q Was there political pushback about whether to do a GWMA because of the importance of the dairy industry to the economy in Yakima County?
MS. KRISTENSEN: Objection, vague. Lack of foundation.
BY MR. TEBBUTT:
Q Go ahead and answer.
A I think in all aspects of the work that the Department of Ecology does there is always a political factor in our decision-making.
Q What did Representative Honeyford tell you about the GWMA? Did you have discussions with him about that?
A It's Senator Honeyford. The discussions were primarily around whether the Environmental Protection Agency or the Department of Ecology, a state agency, or the State would have a more leading role. And I believe also I

had this conversation with Representative Bruce Chandler.

Q What was Senator Honeyford's position, do you recall?

A I believe Senator Honeyford and Representative Chandler's positions were that the State should remain the primacy regulatory agency on this issue.

Q Asking you about question No. 6 on page 2 of Exhibit 46, you say, "Why is it that we have no direct course of action (between agencies) to resolve this issue for the affected public." Has this question ever been answered to your satisfaction?

A Partially.

Q Okay. Can you explain that for me, please?

A Yeah, as I mentioned, with the formation of the GWMA, the review of the CAFO permit, and some of the discussions about the issue of nitrate in groundwater generally across the state, there is a heightened awareness, both at the political level and at the executive level, as well as the technical level. So I think progress has been made since 2002, and maybe 2005 when this was written, but we are not there yet.

Q Okay. So let's say someone like Marci Ogden were to call today with the same kind of problem: I have nitrates in my well in excess of the maximum contaminant

level, what do I do? And she called you, what would you tell her?

A I would have her contact Yakima County, groundwater management area, and they actually have a well water testing program. And depending upon the results of those tests, an opportunity or an option for drinking water.

Q For an alternative drinking water source?

A Correct.

Q And there is funding for that?

A There is a limited amount of funding for that.

Q How much funding is available?

A It is part of the recent funding that Senator Honeyford provided for the groundwater management area. As of the last biennial budget, the 2013 budget, there was a grant that was provided for the GWMA, but it went through the Department of Ecology's contracting process. And so we have a contract with Yakima County to do this work. And as an element within that contract, there is a water quality testing and potential off-the-shelf technology options. And subsequently, depending upon the issue and sort of where she falls on a criteria list, an opportunity for replacement water.

Q Do you know how much the fund --

A I want to say in the order of a hundred thousand

1 dollars. I don't know the exact figure.
2 Q Do you know if anyone has applied to that fund at this
3 point?
4 A I do. I believe we have had two rounds of that process.
5 There was the initial round where we had an extensive
6 mail-out program with Yakima County. We had -- the
7 Department of Health worked with us. We had a variety
8 of workshops that we held throughout the Lower Yakima
9 Valley, both in English and in Spanish. Those workshops
10 were moderately attended.
11 I think we are continuing to try to improve our
12 outreach and our ways to communicate with the affected
13 community. And then subsequently that funding -- that
14 initial funding went away and then we got the 2013
15 funding, the formation of the GWMA, and then we
16 reinstituted the program. So there is another round of
17 it.
18 So we are in the second round of that. And there is
19 similarly an outreach program, there is a website you
20 can go to, you can call a number now, and it's a little
21 bit -- it's much better than it was, let me put it that
22 way.
23 Q Is that on the Department of Ecology's website?
24 A No, this is on Yakima County's website.
25 Q Okay. And so the information about how that process is

working and how much has been funded, is that available in the Yakima County website?

A It's not readily available on the website, but that's information we can get. It's associated with our contract with Yakima County to move forward and then you can see how we have divvied out the work tasks.

Q That's information within the possession of Department of Ecology?

A Yes.

MS. BARNEY: Charlie are you at a breaking point?

MR. TEBBUTT: Want to take a break?

MS. BARNEY: We have been going for about an hour.

MR. TEBBUTT: Would you like to take a break? It's a good time.

THE WITNESS: Sure.

(Short break taken.)

BY MR. TEBBUTT:

Q Mr. Tebb, just for the record, you understand you are still under oath?

A Yes, sir.

Q A little before the break we talked about Exhibit 45 and options for protecting groundwater from dairy lagoon waste. You are both a hydrologist and a soils

scientist, would you agree with that statement?
A I'm a licensed hydrogeologist and a licensed engineering geologist. A soil scientist is slightly a different --
Q As a --
A So the physical properties and how they react to soil and water, as opposed to the biological property, like a soil scientist would be more familiar with.
Q From the engineering point of view, a lagoon built into earth would not be an impermeable lagoon, would it?
MS. KRISTENSEN: Objection, vague. Incomplete hypothetical, calls for speculation.
THE WITNESS: A lagoon built on earth, if not properly constructed, would leak.
BY MR. TEBBUTT:
Q Is there a way that a constructed lagoon, built into the earth, with only using native soils, could be impermeable?
A Not to my knowledge.
Q It would have to have some kind of synthetic liner in order to potentially keep water from seeping through the bottoms of the lagoons?
A That is correct.
Q And even then there is questions about whether the liners leak?
MS. KRISTENSEN: Objection, calls for

1 speculation. Incomplete hypothetical.
2 THE WITNESS: That is correct.
3 BY MR. TEBBUTT:
4 Q And that's why the recommendation in Exhibit 45 is to
5 have a double-lined system with a leak detection system
6 between the two liners, correct, to see if those two
7 liners are performing as required?
8 MS. KRISTENSEN: Objection, calls for
9 speculation. He didn't write this paper. He doesn't
10 know why she included that or not included that.
11 MR. TEBBUTT: Speaking objections are not
12 necessary.
13 MS. BARNEY: My objection is it misstates
14 the document, the question.
15 BY MR. TEBBUTT:
16 Q You understood the question, didn't you, Mr. Tebb?
17 A Yes. In my professional opinion, option 2 is probably
18 the most appropriate and protective constructed lagoon
19 at the current industry standards.
20 Q Now, you were involved with the -- what became the 2006
21 Concentrated Animal Feeding Operation, NPDES, and State
22 Waste Discharge General Permit, were you not?
23 A Again, I believe my staff or staff that I worked with
24 were primary authors or the assignment. As a manager, I
25 was involved and provided review, but didn't generate

the documents.

(Exhibit No. 47 marked for identification.)

BY MR. TEBBUTT:

Q You have in front of you Exhibit 47, 2006 CAFO general permit, NPDES, and State Waste Discharge Permit; correct?

A That is correct.

Q So you said you were involved in reviewing it; correct?

A That is correct.

Q Do you believe that this permit provides -- strike that. Are you familiar with the original recommendations from the staff about requiring groundwater monitoring around dairies?

A That is correct.

Q And the final version did not have groundwater monitoring, did it, as a requirement?

A It did not.

Q In your professional opinion, is that an adequate response to the concerns you have of the potential for leaking lagoons and over-application of manure to fields and dairy facilities?

MS. KRISTENSEN: Objection, vague. Calls for speculation.

THE WITNESS: In my professional opinion, the option that was identified in Melanie Kimsey's

1 report, option 2, is the highest protective option. And
2 while this permit doesn't require that, in my
3 professional opinion, if you were to provide an
4 absolutely -- a program that provided minimal, if any,
5 opportunity for leakage, that would be the option to
6 pursue.
7 BY MR. TEBBUTT:
8 Q Take a look at page 9 of the permit. There is a section
9 near the top begins, "Process Wastewater Discharges," if
10 you will read that section. Feel free to read the whole
11 section about S1, Effluent Limitations, if you would
12 like. But this is particularly S1(b), "Groundwater
13 Effluent Limitations." It starts at the very bottom of
14 page 8, which is the subtitle of that section, and
15 continues about halfway onto page 9, if you will read
16 that to yourself.
17 Are you done?
18 A Yes, I am done.
19 Q That section talks about, (as read) "Process wastewater
20 discharges, including seepage from waste storage
21 facilities, may not reduce existing groundwater quality
22 except in certain circumstances," and it lists two
23 circumstances; correct?
24 A That is correct.
25 Q Can you envision any situation where, number one, an

1 overriding consideration of the public interest would be
2 served by discharges into groundwater from storage
3 facilities?
4 A I guess I would answer that if there was some sort of
5 alternative that required protection of human health
6 and/or property. In other words, if there was some sort
7 of natural disaster and there was just no other option,
8 that maybe -- that may fall under this notion of
9 overriding concern for the public interest.
10 Q But not a daily operation of a dairy lagoon in eastern
11 Washington, that wouldn't fall into the overriding
12 consideration of public interest, would it?
13 A Not in my professional opinion.
14 Q Do you know anyone who has ever applied to the
15 Department of Ecology for an exception that fits these
16 two criteria on page 9 of Exhibit 47?
17 A I personally do not.
18 Q And under any circumstances, do you agree that
19 discharges may not cause or contribute to a violation of
20 state groundwater quality standards?
21 MS. KRISTENSEN: Objection, vague.
22 THE WITNESS: I agree with that statement,
23 if that's the nature of your question.
24 MR. TEBBUTT: That is the nature of my
25 question.

(Exhibit No. 48 marked for identification.)

BY MR. TEBBUTT:

Q Sir, you have in front of you Exhibit 48, a series of e-mails about soil column testing. Can you tell me a little bit more about the context of the questions that you asked in this series of e-mails? Take your time and review it.

A Yes, I have read it.

MR. TEBBUTT: Can you read my question back please.

(Pending question read back.)

THE WITNESS: I think this e-mail is in reference to enforcement action in the nature of a letter of warning to DeRuyter Brothers Dairy, and it was in regards to soil testing to see if in fact the soil was being overly loaded with nutrients and/or nitrate. And my understanding was that we had the authority and the permit to do that as a measure of protection in contrast to groundwater monitoring.

And let me just say that, even if you had a groundwater monitoring well, in my professional opinion, as I understand how nitrate and contamination moves in the soil, it may indicate a problem but may not indicate when that problem was essentially discharged below the root zone. Water really pushes that loading, and what

you will see over time is that loading will move; that is, not taken up through the root zone. It will move through the soil column. And this was a measure of compliance in the vadose zone --

Q V-a-d-o-s-e?

A It's a term of art in the profession where everything above the water table to, I guess, the surface of the soil essentially constitutes the vadose zone. So it was a measure of being able to determine if there was a history of over-application.

Q So the vadose zone is the unsaturated area, essentially; is that right?

A That's correct.

Q So if there is saturation between a surface impoundment all the way down to groundwater, the vadose zones would essentially not be in existence in that situation, in the scientific definition; correct?

MS. KRISTENSEN: Objection, calls for speculation. Beyond the scope of this notice of deposition. He has not been noticed as an expert.

BY MR. TEBBUTT:

Q Go ahead and answer.

A That is my understanding.

Q And you are familiar with the nitrogen cycle?

A Yes.

Q So when manure is applied, it has nitrogen in it, elemental nitrogen?
A (Witness nods head.)
Q And it transforms in the soil and mineralizes to become nitrate that is then usable potentially by crops; correct?
A Correct.
MS. KRISTENSEN: I just want to object. Again, beyond the scope of this deposition. And Charlie is testifying in this case. So object to the form of the question.
MR. TEBBUTT: These are foundational questions, and I don't appreciate your speaking objections.
BY MR. TEBBUTT:
Q So when the nutrient is in the soil and it gets below the root zone or the crop, it has nowhere to go but down towards groundwater; correct?
MS. KRISTENSEN: Objection, calls for speculation, assumes facts not in evidence, incomplete hypothetical.
BY MR. TEBBUTT:
Q Go ahead and answer.
A Yes.
Q So the means for carrying that -- carrying the nitrate

1 down to groundwater would be water itself, because
2 nitrate is very soluble in water; correct?
3 MS. KRISTENSEN: Same objection.
4 THE WITNESS: Application of irrigation
5 water or precipitation from the sky would drive material
6 down through the soil column that wasn't taken up by the
7 plant and eventually into the vadose zone, and
8 eventually into groundwater potentially.
9 BY MR. TEBBUTT:
10 Q So in your e-mail in Exhibit 48, you were concerned
11 about the levels of nitrate in the soil column; is that
12 correct?
13 MS. KRISTENSEN: Objection, leading.
14 Assumes facts not in evidence.
15 THE WITNESS: I was attempting to provide
16 a request that we would take soil samples to determine
17 the loading of nitrate in the soil column.
18 BY MR. TEBBUTT:
19 Q So how far down did you want to take the tests?
20 A Typically, we would take a deep soil sample up to six
21 feet.
22 Q Okay. Why would you do that?
23 A Because it would provide a historical record, if you
24 will, of application of -- or, if you will, loading of
25 nitrogen and nitrate in the soil column at various

1 depths within the soil. It would infer to us either an
2 over-application on the field or some other problem
3 essentially.
4 Q And that would be a more recent history, the six feet
5 would give you an indication of the more recent history
6 of applications of manure; is that correct?
7 A I think that's hard to say exactly because it depends on
8 how often the field is farmed, the amount of water
9 that's been on over time. The nitrogen actually can get
10 locked up if the field hasn't been irrigated or farmed
11 for sometime. It can just sit there until some time the
12 field gets cultivated and again the water drives it. So
13 it's hard exactly to make a one-for-one correlation
14 there.
15 Q Sure. But if it's a field that's regularly cultivated,
16 regularly irrigated, would you be concerned that the
17 nitrate would be driven down to the groundwater from
18 those regular activities?
19 A Yes.
20 MS. KRISTENSEN: Same objections.
21 THE WITNESS: Yes, I would be concerned.
22 BY MR. TEBBUTT:
23 Q And you could tell by testing in the top six feet, if
24 you will, what recent activity has impacted those top
25 six feet, wouldn't you?

1 A With the normal scenario that we described of a regular
2 cultivated field with a regular irrigation application,
3 that is my assumption.
4 Q And with manure application records that would be
5 available for the dairy facilities that are required by
6 the dairy nutrient management plans; is that correct?
7 A That is correct.
8 (Exhibit No. 49 marked for identification.)
9 BY MR. TEBBUTT:
10 Q You have in front of you Exhibit 49, which includes an
11 e-mail from you to other people at the Department of
12 Ecology. And was this an e-mail related to the e-mail
13 that we just discussed in Exhibit 48, at least in part
14 related to Exhibit 48?
15 A I'm sorry, can you restate the question now?
16 Q Yes, I will restate the question. Exhibit 48 was
17 involving a letter of warning issued to
18 DeRuyter Brothers Dairy; correct?
19 A Exhibit 48, yes, that's correct.
20 Q And this Exhibit 49 includes some reference for the
21 attorney for DeRuyter Brothers Dairy; correct?
22 A I believe that is correct. I simply -- Lori Terry
23 Gregory, who was a Foster Pepper attorney, I can't
24 recall exactly if she was the DeRuyter attorney or not.
25 Q But it says right here in the third line about

1 DeRuyter Dairy; is that correct?
2 A Yes, that is correct.
3 Q What I want to ask you about is not so much about that,
4 but the second paragraph where it says, (as read) "I
5 share your concern and perspectives on the optics.
6 Furthermore, I don't really have a good sense or
7 understanding on where we are headed (as a state and
8 agency) with the Lower Valley Yakima County ground
9 nitrate problem other than to kick the can down the road
10 more."
11 What do you mean by kicking the can down the road
12 more there?
13 A I felt as a professional geologist, hydrogeologist, and
14 engineering geologist that we could be doing more around
15 providing monitoring and basically understanding of the
16 system in our permit. And as you saw in the Exhibit 47,
17 we did not require groundwater monitoring as part of
18 that.
19 Q So it is your belief that the Department of Ecology
20 should require groundwater monitoring?
21 A Yes, I do.
22 Q And this e-mail was, at least in part, a response to a
23 Washington Court of Appeals decision in CARE versus
24 Department of Ecology where the 2006 permit was upheld
25 by the Court of Appeals; correct? And this is your

1 response to that?
2 A Yes, that is my response to that.
3 Q So in the next paragraph, you say, "This one is tough
4 for me because it seems like four years ago all over,
5 when we acknowledged we had a problem but due to
6 priorities chose not to do anything."
7 What were the priorities that caused Ecology not to
8 do anything?
9 A I can't recall exactly, but I think they were probably
10 more focused on storm water and other activities that
11 the water quality program was embarking upon.
12 Q So essentially Ecology let this problem fester for years
13 because of its failure to adequately require monitoring
14 in the 2006 permit; correct?
15 MS. KRISTENSEN: Objection, calls for
16 speculation.
17 THE WITNESS: I believe the Department of
18 Ecology has been wrestling with this issue for a number
19 of years.
20 BY MR. TEBBUTT:
21 Q And you believe they were remiss in their duties in not
22 requiring more strict permitting in the 2006 permit;
23 correct?
24 A In my professional opinion, I would agree. I do not
25 speak for the agency --

1 Q I understand that. Thank you.
2 Mr. Tebb, are you familiar with the new draft permit
3 that has been circulating for the CAFO general permit,
4 NPDES, and waste discharge general permit?
5 A I'm familiar that we are in the process of renewing that
6 permit. I have not read it.
7 Q Have you seen it?
8 A I have not.
9 Q Has your staff seen it?
10 A That's entirely possible, yes.
11 Q So are you familiar with it at all; have you talked with
12 anyone about what proposals are listed in the draft
13 permit?
14 A Not specifically, no. My duties have been more focused
15 on water resource issues over the past several years.
16 Q Do you know if the present draft permit or have you had
17 any discussions with anyone about whether the present
18 draft permit requires groundwater monitoring?
19 A I think there have been discussions at the policy level
20 and at the technical level within the agency, but I have
21 not been aware and have not participated in those
22 discussions.
23 Q Do you know whether groundwater monitoring is a
24 component of the present draft permit as it sits?
25 A My understanding is that it is not a component.

Q Have you made any comments to anyone within Ecology about the failure to require groundwater monitoring?
A I have not.
Q Why not?
A I believe I have expressed my professional opinion on this matter at the previous cycle. I believe that the Department is working with a sister agency, the Department of Agriculture, to come up with a program that provides that protection in a different manner.
Q Do you believe it is your responsibility, as someone with a professional opinion, that groundwater monitoring is necessary to give your input into the present permit process?
MS. KRISTENSEN: Objection, argumentative, calls for speculation, lack of foundation.
THE WITNESS: If I understand your question to ask should the Department of Ecology ask me as a professional hydrogeologist for my opinion on this matter?
BY MR. TEBBUTT:
Q Yes.
A If they did, I would provide it, and it would be that groundwater monitoring should be required.
Q My question is a little bit different. As a professional manager, as the head of the central office,

as someone who has worked for the Department of Ecology now for 22 years, do you feel that it's your duty to give your advice to your staff and to the water quality management division without them having to ask for it?

A Yes, I would.

Q And you haven't done that yet?

A I have not. I have been remiss in that.

Q I appreciate your honesty, sir.

When EPA released its report on Yakima groundwater quality in the fall of 2012, you were provided with an advance copy of that study; correct?

A Yes, I was.

(Exhibit No. 50 marked for identification.)

BY MR. TEBBUTT:

Q Sir, you have in front of you Exhibit 50. It's an e-mail from Marie Jennings at EPA, conveying the EPA groundwater report on the Yakima Valley; correct?

A That is correct.

Q Did you participate in the briefing that EPA did that's referenced in this e-mail?

A Yes, I did.

Q Did you ask questions of EPA about the scientific protocols they used in conducting the study and coming to the conclusions they did in the report?

A I recall at the briefing a robust discussion on a

variety of topics, some of which had to do with the data that was collected, the nature of how it was collected, and the information that was produced.

Q Have you reviewed the study yourself?

A I have read it.

Q Do you take issue with any of the findings in the study?

A I think there are issues of debate around how the Environmental Protection Agency made its conclusions and how it sort of, if you will, its sampling strategy. But I was not surprised by the results or the conclusions of the study.

Q When you say you are not surprised by the results or conclusions, why is that?

A Because of my professional opinion, I believe that groundwater contamination has/is occurring at these locations.

Q Around the dairies?

A Correct.

Q In your opinion, is part of the reason why the 2006 permit was changed from originally having groundwater monitoring required to not having groundwater monitoring required, was the political pressure from the dairy industry a part of that equation?

MS. KRISTENSEN: Objection, lack of foundation. Calls for speculation.

1 THE WITNESS: I think there were a variety
2 of conversations, both the policy and technical level,
3 around whether groundwater monitoring was the best
4 mechanism to determine whether a grower or a person who
5 is applying the application of manure, how to provide
6 that information to the dairy or to the feed lot.
7 BY MR. TEBBUTT:
8 Q Right, but that's not my question. My question is:
9 Were you aware of -- I will rephrase my question -- were
10 you aware of the pressure from the dairy industry on
11 Department of Ecology and Department of Ag to not
12 require groundwater monitoring?
13 MS. KRISTENSEN: Same objection.
14 THE WITNESS: I was aware of, I guess I
15 would say, conversations with the dairy industry with
16 our agency. I can't say whether that was pressure or
17 not. I'm not sure the nature of the word pressure.
18 BY MR. TEBBUTT:
19 Q Did you have any discussions with anyone in the dairy
20 industry about the permit requirements in 2006 or the
21 2006 permit requirements?
22 A Not to my recollection.
23 Q Have you had any discussions with anyone in the dairy
24 industry about the new proposed permit?
25 A I have not.

Q Have you ever had discussions with any of the principals of the Bosma dairies?
A I have not.
Q Have you ever met Mr. Henry Bosma?
A It is entirely possible.
Q You don't recall specifically?
A I don't recall specifically. There is a variety of meetings I attend, and they may be on a variety of topics, or I'm engaged with the local community and business and farmers and things of that sort.
Q Were you in attendance at a meeting with a number of people from Department of Ecology in 1997, shortly after the dairies received notices of intent to sue from CARE, my client, over the Clean Water Act discharges?
A I was aware of your lawsuit. I was actually the shorelands and environmental assistant section manager at the time, so I was focused on shoreland issues and wetland issues in Eastern Washington as a whole.
Q So you didn't participate in any of those meetings between Ecology and the dairy industry?
A No, sir.
Q Do you know Jay Gordon?
A Yes, I do.
Q What interactions have you had with Jay Gordon?
A Very minor. They are typically at a very high level,

either in conversations with the dairy federation locally or the farm bureau, but they are typically -- he is a participant at a function or at a meeting and it could be a conference, it could be a variety of things.

Q Have you had any discussions with him about the regulation of the dairy industry in the state of Washington?

A Me personally?

Q Yes.

A No.

Q How about the same question with respect to Dan Wood?

A I'm sorry, I don't know --

Q Do you know Dan Wood?

A I don't know Dan Wood.

Q Okay. Do you know Bill or Bob Dolsen?

A It sounds like a dairy family.

Q Dolsen's Cow Palace, do you know them at all?

A I know the Cow Palace and I have heard of the name.

Q But you haven't met them?

A I haven't met them.

Q How about George DeRuyter, have you ever met George DeRuyter?

A I have not met Mr. DeRuyter but I have probably met relations of DeRuyter.

Q Have you met Dan DeRuyter, his son?

A I believe so.
Q Do you know in what context?
A I believe he is a participant on the Groundwater Management Area as an advisory board member.
Q Do you participate in the Groundwater Management Area?
A I do; I'm an alternate.
Q So you are not there all the time?
A I try to be there as much as I can, but I'm not there all the time.
MR. TEBBUTT: Why don't we take a short break. We are having some more copies made of some documents today. I'm getting close to done.
MS. BARNEY: Okay.
(Discussion held off the record.)
MR. TEBBUTT: Let me go on the record right now and we will take care of this before I forget, that if there are documents that we receive later after this deposition is concluded this morning, I would like to reserve my right to ask Mr. Tebb some additional questions about documents that we receive after we conclude this deposition today.
MS. BARNEY: Well, Ecology would object to leaving the deposition open, even for that limited purpose, but maybe we could -- there might be a way that we could have a written, perhaps, response.

1 MR. TEBBUTT: What I would suggest is that
2 we just continue by telephonic deposition so that we can
3 not have to appear in person, we can just ask some
4 follow-up questions, if any, telephonically.
5 MS. BARNEY: On specific documents and for
6 that limited purpose?
7 MR. TEBBUTT: Yes. Not that it's left
8 open for us to go back, but just for documents that we
9 receive after -- that we receive after the disk that we
10 receive this morning.
11 MS. BARNEY: For that limited purpose
12 then?
13 MR. TEBBUTT: Yes.
14 MS. BARNEY: Okay.
15 MR. TEBBUTT: All right. Let's take a
16 break.
17 (Short break taken.)
18 MR. TEBBUTT: On the record, any
19 additional documents that we find that are produced
20 today, we can ask questions about with follow-up
21 questions.
22 (Exhibit No. 51 marked for identification.)
23 BY MR. TEBBUTT:
24 Q Mr. Tebb, you have in front of you Exhibit 51, an agenda
25 draft for a meeting that you attended; correct?

A Yes.
Q And did you make a presentation on the Yakima River Basin at this meeting?
A Yes, I did.
Q Was it a PowerPoint presentation?
A I believe so.
Q Do you know if that PowerPoint presentation has been provided on the disk provided today?
A I do not know. I would be glad to provide it, though, if it is missing.
Q We would like to see that PowerPoint presentation.
Did you have other notes that you would have made to help you present on that day?
A The notes and materials would primarily have been what the USGS provided in the context of the John Vaccaro report in its relationship to illustrating and demonstrating the hydrologic continuity of surface and groundwater.
Q Right. But my question is: Did you prepare separate notes to help you make a presentation?
A Typically, those would be part of just sort of the making of the presentation itself. There might be, but I don't -- I don't recall a specific set of notes for this particular presentation.
Q Could you search to see if you have notes --

A I will.
Q -- from that presentation?
A Yeah, it's not my normal style. I kind of do it as I'm creating the presentation, but I can look.
Q So you normally would do the presentation, and just use that as the outline --
A Yeah, I would have my reference materials and I would just start building the presentation.
Q I understand. I do something very similar when I do them myself.
A Okay.
Q The USGS study that you are referring to, did it come out right around this time?
A Yes, it did.
Q And what were its conclusions, do you recall?
A Its conclusions were significant in that the Department of Ecology was required as part of a settlement to help fund and participate in the development and creation of this report, both by funding as well as participating in some of the technical reviews.

The report basically concluded that groundwater and surface water are hydrologically connected, which means there is a relationship.
Q It's not a stunning scientific finding, is it, as a hydrogeologist yourself?

A It is not a stunning finding, but you would be surprised how information and methods of doing business were different without that information in the context of how we managed water quantity. We managed water quantity and issued permits in two separate buckets, groundwater and surface water. And this report basically said we shouldn't be doing that, that in fact the water in the Yakima basin is a single resource.

Q And so if, for instance, an entity like the dairy industry is polluting the groundwater, it will be hydrologically connected to the surface waters in that area; correct?

MS. KRISTENSEN: Objection, incomplete hypothetical, assumes facts not in evidence.

BY MR. TEBBUTT:

Q Isn't that a fair inference?

A I think that's a fair inference. It would be dependent upon space and time. There is a timing difference as it relates to groundwater when it expresses itself into a surface water body.

Q Right. But the general principle that the aquifer in the Lower Yakima County Valley, what is known as the Granger drain, that is it hydrologically connected to the Yakima River is a fairly certain scientific principle, is it not?

MS. KRISTENSEN: Same objection.
THE WITNESS: That is correct.
BY MR. TEBBUTT:
Q Certainly more likely than not as a scientist you could say that; correct?
MS. KRISTENSEN: Same objection.
THE WITNESS: In my professional opinion, that's correct.
BY MR. TEBBUTT:
Q And even as I said before, it's a far higher degree of certainty than more likely than not, would you agree?
MS. KRISTENSEN: Assumes facts not in evidence, beyond the scope of this deposition notice. He is not an expert in this case.
BY MR. TEBBUTT:
Q Go ahead.
A Reviewing, and in my experience as a licensed hydrogeologist and geologist, engineering geologist, and reviewing the USGS study report that was prepared by doctoral-level geologists from the United States Geological Survey, provides, I think, ample evidence and scientific evidence to make that conclusion.
Q So we talked about one of the bullet points was potential legal impacts. What were the potential legal impacts that you discussed?

A This was more specifically two parts. One was the water quantity issue that I referred to earlier in regards to how water rights are permitted and issued and how they relate to the -- what we call the priority system. In other words, to achieve a water right, the moment that you achieve it, essentially when you file an application, you have what's called a priority date. And so what we basically had was, is we had a series of surface water rights that were issued priority dates. And in the Yakima Basin to be a senior water right you have to have a pre-May 10th, 1905 water right. The groundwater rights that we issued were subsequently after World War II, and therefore largely junior to that senior surface water right. So the relationship that I was speaking of in terms of the legal impacts is the fact that we have gone through a 30-year, 30-million-plus-dollar adjudication in the Yakima Basin, solely focused on the surface water rights. There is almost double the amount of information and process we have to go through to resolve groundwater rights in the context of an adjudication.

So what I was speaking of was my predecessors have created an out-of-priority use of groundwater in the Yakima Basin that's dependent upon a federal irrigation project that basically asks the state of Washington to

1 secure that water for its use as of May 10th, 1905. And
2 so we had this issue here that -- I'm still dealing with
3 it today.
4 Q Let me ask you, the dairies in the Lower Yakima Valley,
5 use -- are you familiar with how much water they use?
6 A I'm familiar that they use a lot of water, I'm not
7 familiar with how much exactly.
8 Q And that they have been given water rights?
9 A They have been given water rights.
10 Q But are they -- are those water uses regulated in any
11 respect?
12 A They are regulated in the context of either the stock
13 water permit -- stock water exemption, or they have an
14 actual groundwater permit. So, in that instance, that's
15 the form of regulation that they have. They are not --
16 if you mean during a time of drought that we would
17 interrupt them, we have not resolved those issues yet.
18 And that was what I was trying to illustrate, that we
19 have, in my opinion, out-of-priority water use that is
20 not being treated under the same regulatory regime that
21 surface water rights are being treated under the
22 Yakima Superior Court.
23 Q So the dairies are the out-of-priority water use that
24 you are referring to? Because they have been subsequent
25 to World War II?

MS. KRISTENSEN: Objection, lack of foundation.

THE WITNESS: In my opinion, they have a junior priority date to the May 10th, 1905 water right that was associated with the Yakima irrigation project.

BY MR. TEBBUTT:

Q Did you discuss any potential legal impacts of the hydrological connection that was found in the study to pollution discharges into the Yakima Basin?

A Yes. I think that was the context of the lower subject here, demonstrating that there was an observed high nitrate contamination in the shallow groundwater in the Yakima Basin, and therefore making a similar conclusion or analogy that this water then subsequently gets into surface water and that's a violation of our state water quality laws, as well as the Clean Water Act.

Q So those discharges to surface water from groundwater would add nutrients to the surface water; correct?

MS. KRISTENSEN: Objection, assumes facts not in evidence, incomplete hypothetical.

THE WITNESS: That was my conclusion.

BY MR. TEBBUTT:

Q And those additional nutrients will change water quality in the Yakima Basin; correct?

MS. KRISTENSEN: Same objection.

THE WITNESS: They will add to the degradation of the quality of the water quality.

BY MR. TEBBUTT:

Q What types of degradation?

A I think in the report some of the things are large E. coli, BOD issues, suspended sediments, chlorine, other kinds of contaminants that are associated with typical manure configuration.

Q So your concern with manure contamination of groundwater and its hydrological connection to surface water included E. coli?

A Potentially.

Q What about other pathogens?

A I would imagine the same for them.

Q Okay. Do you also have concerns about surface water runoff from manure applied to fields?

MS. KRISTENSEN: Same objection, lacks foundation, incomplete hypothetical.

THE WITNESS: I would.

BY MR. TEBBUTT:

Q So the same issues of nutrient contamination, nutrient and loading?

MS. KRISTENSEN: Same objection.

THE WITNESS: Yes.

BY MR. TEBBUTT:
Q And also exposure to pathogens?
A Yes.
Q So humans could be exposed to those pathogens in the surface water?
MS. KRISTENSEN: Objection, calls for speculation, incomplete hypothetical.
THE WITNESS: Yes. Actually, one of the beneficial uses that the water quality criteria provides is recreational use of a water body.
BY MR. TEBBUTT:
Q So if pathogens were affecting the surface waters, those would negatively impact those recreational values; correct?
MS. KRISTENSEN: Same objection.
THE WITNESS: That is my understanding.
BY MR. TEBBUTT:
Q And potentially put people at risk of health impairment?
MS. KRISTENSEN: Calls for speculation, objection.
THE WITNESS: Yes, that is correct.
MR. TEBBUTT: That's all I have. Thank you.
MS. KRISTENSEN: Mr. Tebb, I have a couple of follow-up questions for some of the things that you

were asked about earlier.

(Discussion held off the record.)

EXAMINATION

BY MS. KRISTENSEN:

Q Mr. Tebb, again I'm Deb Kristensen, I'm counsel for the dairy defendants in the four cases that you have been noticed here to appear for. And we have gone through a couple of different documents, and I will ask you to first turn to Exhibit 45.

I know Mr. Tebbutt asked you a bunch of questions about this, but the paper is titled "Issue Paper." Can you tell me what an issue paper is?

A Yes. An issue paper, or white paper depending upon the nomenclature, is typically a paper that would be produced by a professional hydrogeologist or geologist, in this instance, to provide a discussion on what options or approaches, based on science and based on the current standard of practice, would be used to essentially implement or improve our regulations.

Q Do you know why this specific issue paper, Exhibit 45, was written?

A I believe it had to do in the context of whether we would be requiring lined manure lagoons in the context of the CAFO permit.

Q I see the title on Exhibit 45 is a "Construction of Dairy Lagoons Below the Seasonal High Groundwater Table." Do you see that?
A Yes.
Q And then if you turn to page 4 of that same exhibit, under the paragraph that begins with "Options," and before we get to option 1 there, the last sentence says, "There are two main options for designing dairy lagoons in areas where there is a seasonally high groundwater table." Do you see that?
A I do.
Q Is this issue paper meant to address only those lagoons where there is a seasonally high groundwater table?
A That is my understanding.
Q Okay. Is there -- in your opinion, is there a seasonally high groundwater table in the Yakima Valley?
A There can be, based on irrigation-induced, artificially elevating the groundwater table.
Q Do you know where the Cow Palace area is located?
A I do.
Q Do you have an opinion as to whether or not there is a seasonally high groundwater table at the Cow Palace location?
A My professional assessment and judgment of that is that there is not.

1 Q Okay. Do you know where the Liberty Bosma area is?
2 A I believe it is further down in the basin; and I don't
3 know exactly where it is.
4 Q Do you have an opinion as to whether or not there is a
5 seasonally high groundwater table at the Liberty Dairy?
6 A Again, not knowing its exact location, but if it is in
7 the lower portions below, say, the canals, either the
8 Rosa or Sunnyside Canal, that's a potential.
9 Q I will represent to you that the Liberty Dairy is
10 adjacent and close to the Cow Palace Dairy.
11 A Okay.
12 Q Do you know where the DeRuyter, the DNA dairy is
13 located?
14 A I do not.
15 Q Do you know where the George DeRuyter dairy is located?
16 A I do not.
17 Q So do you have an opinion one way or another as to
18 whether the recommendations in Exhibit 45 apply
19 specifically to the lagoons in any of the four dairies
20 at issue here?
21 A I do not have an opinion on that.
22 Q Mr. Tebbutt also asked you about Exhibit 47. And page 9
23 of that report, which has the Bates number CARE 26421 --
24 do you see that one -- yeah, 9 of 34.
25 Mr. Tebbutt asked you about the language there at

the top of that page, and that's under "Effluent Limitations" of S1 and subparagraph B, "Groundwater Effluent Limitations." The top of that sentence that we didn't go over, can you read that out loud?

A On top of page 9, the top sentence?

Q Yes.

A Yes. "The permittee must only apply manure, litter, and processed wastewater to lands as specified in its nutrient management plan."

Q Okay. So what is your understanding of what that language means? If a dairy applies its processed wastewater in accordance with this nutrient management plan, then it's in compliance with this provision?

A That is my --

MR. TEBBUTT: Objection, calls for a legal conclusion.

BY MS. KRISTENSEN:

Q Is that your understanding?

A That is my understanding.

Q In the paragraph below 1 and 2 there, Mr. Tebbutt, again, drew your attention to the first sentence there of that language. The second sentence there reads, "Contaminant concentrations of chemicals and nutrients found in saturated soils that have been applied at agronomic rates for agricultural purposes are exempt

1 from all requirements of," and then it lists chapter
2 173-200 WAC, and it goes on.
3 Do you understand what an "agronomic rate" is as
4 that term is used in that provision?
5 A Yes, I have a basic understanding.
6 Q Can you describe?
7 A My understanding of that is that the materials or the
8 contaminant concentrations of the manure, if you will,
9 is applied to the soil in such a manner and in such a
10 concentration that the crop would basically take that
11 material up in its production --
12 Q Okay. And --
13 A -- as a form of fertilizer.
14 Q On the agronomic rates that are referred to here, are
15 they reflected in the nutrient management plans?
16 A That is my understanding.
17 Q So if a dairy is applying its nutrients at agronomic
18 rates consistent with the nutrient management plan, it
19 is your understanding they are complying with this
20 provision?
21 A That is correct.
22 MR. TEBBUTT: Objection, calls for a legal
23 conclusion.
24 BY MS. KRISTENSEN:
25 Q Turn to Exhibit 50, if you could. This is the e-mail

that Mr. Tebbutt was asking you to get into your conversation about the EPA study that came out in 2012. During the course of your discussion with Mr. Tebbutt, you said words to the effect of -- and I don't want to put words in your mouth -- but something along the lines of that you believe groundwater contamination is occurring around the dairies in the Yakima Valley; is that fair? Is that --

A I think there is a high probability that contamination is potentially coming from those facilities, yes.

Q Do you have an opinion as to whether there are other potential sources of nitrate contamination?

A I do. Yes, I believe there are other sources of contamination such as irrigated crop land, orchards, septic systems, a variety of things.

Q Are there any efforts at the Department of Ecology to identify those potential other sources of nitrate contamination?

A Yes. Under the Groundwater Management Area, advisory board process, we have just embarked upon a process what we are calling a nutrient loading model to determine just that.

Q Okay. How far along is that process? Where is the process?

A Unfortunately, it is not as far along as we would like.

But we just authorized, as of, I believe, last week, funding to be spent on that issue.
Q Is there a lead person in charge of that effort or is it a group effort? Could you describe that --
A Yakima County is the contracting agency as a grant with us, so it would have to be a conversation with Yakima County to determine who is the lead on that.
Q Okay. Are there any kind of timelines or milestones set up for what the group is going to do to identify other sources of potential nitrate contamination?
A Yeah. I believe that would be part of the scope of work that will be developed for the funding that's just been released into this nitrogen-loading model.
Q It sounds like it's pretty early in that process; is that fair?
A Yes, ma'am.
Q Have you been directly involved with those efforts?
A I have not.
Q Who from Ecology has been?
A Charlie McKinney, our water quality section manager.
Q Where is he located?
A He is in Yakima, Washington. He is the actual board member; I'm his alternate.
Q But he works for Ecology?
A Yes, ma'am.

1 Q In any of the documents that have been produced today,
2 to the extent there are any documents related to these
3 efforts to identify other potential sources of nitrates,
4 either through your work as an alternate or
5 Mr. McKinney's work, are those documents included in the
6 materials that were produced today or will be produced
7 shortly; do you know?
8 A I do not know. I don't think they were because of the
9 nature of the request for the document production.
10 Q If you turn to Exhibit 51, I notice this is a draft
11 agenda, and I realized it just came off the desk. Did
12 this change in any meaningful way from the time it was
13 drafted to the time it became final?
14 A I do not believe so.
15 Q Who attended, ever -- do you recall who attended this
16 meeting?
17 A I don't. It looks to be at a fairly high level, though,
18 because those are myself, as a regional director;
19 Jeannie Summerhays is a regional director out of our
20 Northwest Regional Office; and then Josh Baldi was the
21 special assistant to the director on water quality
22 issues.
23 Q Where is Mr. Baldi, is he here?
24 A Mr. Baldi is currently employed by the Department of
25 Ecology at the Northwest Regional Office, regional

1 director. He took Jeannie's place.
2 Q Okay. Are you aware that there are consent orders that
3 each of the four dairies -- that are at issue today have
4 been -- have entered into with the EPA?
5 A I am aware --
6 MR. TEBBUTT: Objection to the extent it
7 mischaracterizes what they are.
8 THE WITNESS: Yes. I'm aware of a form of
9 consent or some legal document that requires the dairies
10 to do certain things.
11 BY MS. KRISTENSEN:
12 Q Have you ever reviewed any of those consent orders?
13 A I have not.
14 Q Prior to those being entered into between the dairies
15 and EPA, did you have any discussions with EPA about the
16 need or their efforts to enter into consent orders with
17 the dairies?
18 A I did not.
19 Q Okay. Do you know if anyone at Ecology did?
20 A That's entirely possible. The Environmental Protection
21 Agency pretty much held that material and their
22 subsequent regulatory action pretty tight.
23 Q I know Mr. Tebbutt asked you previously about the 2012
24 EPA study that was conducted. Did you have an
25 opportunity to actually review that and provide any

1 comments back to the EPA on that study?
2 A I personally did not. I believe our staff does, either
3 both at our regional office in Yakima,
4 Charlie McKinney's staff, or possibly someone at
5 headquarters I wouldn't be aware of.
6 Q You think someone at Ecology may have provided
7 comments --
8 A I'm not specifically aware of that.
9 Q Are you aware of any comments that were provided by
10 Ecology back to EPA on their study?
11 A As I said, I believe there were some comments. I'm not
12 specifically aware of them, nor their nature.
13 Q Okay.
14 MS. KRISTENSEN: That's all I have.
15 MR. TEBBUTT: Okay. I just have one
16 follow-up.
17
18 EXAMINATION
19 BY MR. TEBBUTT:
20 Q With regard to Exhibit 47, Mr. Tebb, Ms. Kristensen
21 asked you some questions about the language on page 9.
22 If you would turn to that, please.
23 Ms. Kristensen asked you questions about whether
24 applications at agronomic rates -- if a facility was
25 applying at agronomic rates, if they would then be in

compliance with the permit, and I believe you answered yes; is that correct?

A Yes.

Q Doesn't the last clause of the last sentence of paragraph B, which states, "If those contaminants will not cause pollution of any ground waters below the root zone," change your -- doesn't that language change your opinion about whether compliance would be achieved?

A Absolutely.

Q So if the contaminants reach groundwater, then compliance will not be achieved; correct?

A That is correct.

MR. TEBBUTT: That's all I have. Thank you. We will reserve the opportunity to -- on the record ask further questions pending the provision of additional documents.

(Proceedings adjourned at 11:00 a.m.)

(Signature reserved.)

C E R T I F I C A T E

I, Laura Gjuka, a Certified Court Reporter in and for the State of Washington, residing at University Place, Washington, authorized to administer oaths and affirmations pursuant to RCW 5.28.010, do hereby certify;

That the foregoing Verbatim Report of Proceedings was taken stenographically before me and transcribed under my direction; that the transcript is a full, true and complete transcript of the proceedings, including all questions, objections, motions and exceptions;

That I am not a relative, employee, attorney or counsel of any party to this action or relative or employee of any such attorney or counsel, and that I am not financially interested in the said action or the outcome thereof;

That upon completion of signature, if required, the original transcript will be securely sealed and the same served upon the appropriate party.

IN WITNESS HEREOF, I have hereunto set my hand this _____ day of_____, 2014.

_____
Laura Gjuka, CCR No. 2057

DEPOSITION OF THOMAS TEBB
CORRECTION AND SIGNATURE CERTIFICATE

I, _____, hereby certify under penalty of perjury of the laws of the state of Washington that I have read my foregoing deposition taken the _____ day of _____, 2014, and that to the best of my knowledge the deposition is true and accurate with the exception of the following corrections:

PAGE	LINE	CORRECTION

Executed at _____, Washington on the _____ day of _____, 2014.

_____
(Deponent's Signature)

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF THE
REGIONAL
ADMINISTRATOR

DEC 0 4 2012

Ted Sturdevant, Director
Department of Ecology
300 Desmond Drive Southeast
Lacey, Washington 98503

Dan Newhouse, Director
Department of Agriculture
1111 Washington Street Southeast
Olympia, WA 98504

Dear Mr. Sturdevant and Mr. Newhouse:

I understand that your agencies are working on proposals to modify the requirements for livestock operations and would like EPA's perspectives regarding protection of groundwater which is used as a source of drinking water. Our primary goal in this regard is to reduce risk to human health from nitrate contamination in underground sources of drinking water. We believe there are three main areas that the current requirements, as we understand them, could be significantly improved

First, the state should prohibit in most instances the construction of manure lagoons on sites that have a significant risk of nitrate transport to groundwater that serves as a source of drinking water. Where there are no feasible alternatives to the construction of such lagoons, the state should prescribe requirements for liner design, construction, review and certification that will prevent groundwater contamination. Existing manure lagoons in areas with documented groundwater quality problems should be assessed to determine if they are discharging to groundwater and brought up to new standards if needed. My staff can provide more detail on programs from other states that could be looked to as a model.

Second, the state should require that livestock operations and third party recipients of waste that land apply liquid and/or solid waste take additional steps to ensure that manure application fields are not a source of nitrate to the groundwater. It is our understanding that the application of manure that has been transferred to a third party is currently not regulated. All parties applying manure or manure in combination with synthetic fertilizer, including third parties, should implement annual nutrient management plans based on current, annual soil and waste analysis, and application rates should be limited to agronomic rates. Irrigation management practices should also be prescribed to prevent downward migration of nitrates.

Third, the state should impose groundwater-monitoring requirements on large livestock operations that are potential significant sources of nitrates to a drinking water aquifer. The specific monitoring system should be designed by a licensed hydrogeologist and include both upgradient and downgradient monitoring. Where nitrate contamination is detected by the monitoring system, the state should require the facility to take additional steps to address the sources. Additional steps should include reduced application rates of nutrients as determined by on site analysis.

The EPA believes that having safe drinking water and a healthy agricultural economy are complementary goals that can be achieved. My technical staff is available to provide more details if needed. Please contact me directly or have your staff contact Tom Eaton, Director of our Washington Operations Office at (360) 753-8086 or by email at eaton.thomas@epa.gov.

Sincerely,

Dennis J. McLerran
Regional Administrator

cc: Mark Clark, Executive Director
Washington State Conservation Commission

bcc: Tom Eaton
Marie Jennings
Eric Winiecki
Ed Kowalski
Dan Opalski

ISSUE: **Governor Briefing on Ag/Dairy Waste Issues in the Royal City and Sequim Areas**

DATE: **September 17, 2012**

FROM: **Department of Health**

Executive Summary

Agricultural activities, especially from Concentrated Animal Feeding Operations (CAFOs), may be causing a negative impact to public health through air and drinking water exposures. We have been working with U.S. EPA and state agencies in the lower Yakima River valley to identify and address the public health concerns. These concerns are not unique to the Yakima River valley. We have been working with several small utilities in Whatcom County for the past several years to address their contaminated water supplies. Other areas of the state may also impacted, as are other parts of the country.

Background

Health Impacts of Nitrate Contamination

Nitrate is an acute contaminant with a maximum contaminant limit (MCL) for drinking water of 10 milligrams per liter. High nitrate is especially dangerous for infants and pregnant women. Infants exposed to high amounts of nitrate may develop oxygen deprivation or "blue baby syndrome." There is additional research being done to determine other health effects of nitrate. This includes:

- There is some limited indirect evidence that nitrate and nitrite from dietary exposure could be responsible for particular health outcomes including certain cancers; specifically cancers of the digestive system associated with elevated concentrations of nitrate in drinking water.
- There is a growing body of evidence suggesting that low levels of nitrite and nitrate, readily obtained from diet such as through green leafy vegetables, have beneficial effects; specifically potential beneficial cardiovascular effects.
- There may be sub-groups sensitive to the effects of nitrates. These would include individuals; with increased rates of endogenous (internal) formation of carcinogenic compounds (N-nitroso), with bilharzia (Schistosomiasis), with inflammatory bowel disease, smoking.
- There may be a difference in dietary nitrate intake and cancer and as compared to nitrate intake from drinking water and cancer.

Sources of Nitrate Contamination

Many sources contribute to nitrate contamination of aquifers, including agricultural waste and human sewage. The U.S. EPA (EPA), with authority under both the Safe Drinking Water Act (SDWA) and the Clean Water Act, has been discussing with states how to integrate and coordinate actions between water pollution permitting and drinking water quality protection as part of providing more comprehensive

environmental and public health protection. Understanding and addressing nitrogen (and phosphorus) impacts is a priority focus of EPA's Nancy Stoner.

Our Efforts: Drinking Water Protection

We have been working closely with Ecology and Natural Resource Conservation Service (NRCS) to provide guidance on the nutrient management best management practice (BMP) standard that governs how NRCS funding will be used. For example, we provided NRCS our Group A public water system location and wellhead protection area data and suggested their nutrient application guidance factor in proximity to drinking water sources. We also commented to Ecology on the CAFO NPDES Permit revision, with a focus on ensuring manure not be applied as fertilizer in close proximity to Group A drinking water sources.

EPA is looking at how they prioritize activities to best leverage existing tools, authorities, and resources—including both activities they regulate (such as CAFO permits, stormwater permits, other NPDES permits, and approving Section 319 grants) and other agencies' programs, such as USDA. EPA expressed interest in targeting activities toward protecting sources of drinking water, including working with the agricultural community to prioritize activities and leverage authorities.

The Department of Health's statutory authority for drinking water protection is in the regulation of public water supplies, and does not include authority over single-family residences. For example, the department has authority to:

- Require a system to install and maintain treatment to meet SDWA standards,
- Require public water systems to develop plans that ensure availability of safe and reliable drinking water,
- Enter public water system premises to test or inspect the water system.

EPA has broader authority under the SDWA Section 1431 to take action in situations where

- A contaminant is present in or likely to enter an underground source of drinking water,
- The contaminant may present an "imminent and substantial endangerment" to human health, and
- State or local officials have not taken adequate action.

This authority may include actions that protect both public water and single-family residence's water supplies. We do not have similar broad authority to take action in these cases.

Yakima River basin. Most residents in the lower valley of the Yakima River basin rely on shallow private wells for their drinking water. Unsafe levels of nitrate, coliform bacteria and other microbial contaminants have been found in samples. Contamination has been linked to agricultural activities and on-site sewage systems.

Work began in the Yakima River basin in fall 2008 when EPA called a public meeting in response to citizen complaints. Between 2009 and 2010, EPA conducted a voluntary sampling program and found elevated nitrates in 20 percent of samples. We participated in multiple meetings and conference calls with EPA regarding CAFOs and Yakima Valley ground water. We developed a brochure on Nitrates to be included in correspondence from EPA to private well owners regarding their initial sampling. We reviewed spreadsheets from EPA regarding 190 contaminants that were analyzed in subsequent, comprehensive sampling of 25 private wells with elevated levels of nitrates. The purpose of this

comprehensive sampling was to try to identify the source as well as other contaminants. Sampling results and conclusions will be provided at a public meeting in Yakima on September 27, 2012.
In the 2010 legislative session, the Legislature provided us with $500,000 to fund nitrate treatment for individual homeowners in the Yakima River basin, and to support the formation of a groundwater management area (GWMA). Since then Yakima County petitioned Ecology to form the GMWA, and Ecology approved the formation of the committee.

Four public water system wells in the Lower Yakima Valley have been replaced due to high nitrates. These are Mabton, Grandview, Outlook School District, and Carriage Hill Estates. Replacement included drilling new wells, and in the case of Carriage Hill Estates, connecting to City of Yakima. ***See Map***

Whatcom County. We have been recently meeting with staff from Ecology and the City of Lynden about possible solutions to nitrate contamination in an aquifer that supplies numerous small public water systems. The aquifer in this area is contaminated from agricultural activities, as farmers use manure to fertilize their crops and nutrients leach from the manure. We have been aware of and working on this problem for many years, but potential options all have been unaffordable or politically challenging.

We are getting closer to a solution though. Lynden is willing to supply water to the contaminated areas as soon as possible but must minimize its legal exposure. Bellingham may be willing to lease water to Lynden, but wants to retain control of the water right to support future industrial needs. The goal would be to develop a Bellingham-Lynden agreement within six months. Bellingham Mayor Kelli Linville is aware of the situation. We are still in process of working with Ecology for an agency directors briefing on the issues and potential short-term and long-term solutions.

Sequim. We are unaware of any health issues in the Sequim area relating to CAFOs and nitrate contaminated drinking water. All the public water systems within one mile of Mr. Clapp's property have nitrate concentrations at or below 1 mg/L. Potentially, individual wells that are withdrawing from a shallow aquifer may have higher nitrate concentrations, but if so, we are unaware of problems. ***See Map***

Royal City. One of Royal City public water system's wells, which was over 1,000 feet deep, exceeded the nitrate MCL of 10 mg/L. The utility took that well offline. Another well, which is almost 1,000 feet deep has nitrate concentrations between 5 mg/L and 10 mg/L. Contamination at these depths are typically associated with fertilizer application. We are not aware of any public health concerns or any reported illnesses in this area.

In the surrounding area we are aware of three other public water systems that have high nitrate levels and will need to treat or drill new wells in the near future. They are: Beverly Water District, Royal Pacific Orchard, and Valley Fruit. ***See Map***

Our Efforts: Air Quality

We've worked with numerous local, state and federal agencies about air quality issues associated with CAFOs in the Yakima Valley. The Yakima Clean Air Authority and WSU have been working on a pilot looking at best management practices for control of air pollutants associated with dairy operations. EPA's Air Toxics staff is currently conducting air specific monitoring work on the Yakama Reservation. Ecology is conducting aerosol nitrate monitoring in Yakima and Toppenish.

A recent study showed increased cow allergen, ammonia and particulate matter in homes near CAFOs. Not surprising, levels decreased the further away the monitors were from the source. This study (http://www.ehjournal.net/content/10/1/72), although cursory, identified the potential for community exposures to agents with known human effects. Some of these air borne contaminants may be associated with skin immunologic responses (e.g., cow allergens).

Dr. Karr, UW Pediatrician, is currently involved in a study to try and determine sources of environmental triggers, such as agricultural chemicals, dust, pollen and others, for asthma in rural farm worker's children.

Royal City. The Department of Health nor local health are aware of any reported health issues associated with dairies or CAFOs in Royal City.

Our Efforts: Shellfish Beds

We are working in cooperation with Ecology to provide EPA grants to Puget Sound area organizations to fund pollution identification and correction (PIC) programs. The purpose of PIC programs is to **identify** and **correct** pathogen, nutrient, and sediment pollution from a variety of nonpoint sources, including on-site sewage systems, farm animals, pets, sewage from boats, and stormwater runoff.

We currently have contracts with Hood Canal Coordinating Council, King County, Kitsap County, Mason County, Pierce County, San Juan County, Skagit County, and Thurston County. We are in negotiations with Whatcom County around a Pollution Control Action Team ("PCAT"), which is a variation on PIC given the county's and Conservation District's unique roles there. Supporting PIC programs in counties with larger amounts of agricultural lands like in Skagit and Whatcom counties is challenging (e.g., Samish Bay). Additional information on the establishment of PIC programs is provided in Ecology's briefing paper tilted *Improved Manure Management Opportunities*.

Next Steps

Drinking Water. We believe we could make better progress at protecting drinking water supplies if there was more coordination between the agencies on Nutrient Reduction Strategies and Source Water Protection activities.

EPA has a Nitrogen/Phosphorus Data Access Tool designed to help prioritize watersheds for load reduction goals and strategies (http://www.epa.gov/nutrientpollution/npdat). We think it would be beneficial to better link the Clean Water Act efforts with the Safe Drinking Water Act efforts to use this tool or build on it to reduce nitrogen and phosphorus pollution in WA.

Target state conservationist activities in areas that protect sources of drinking water. NRCS funds activities around the state (and the nation). Getting those funds targeted to not only protect surface water sources, but drinking water sources would go a long way to protect public health.

Specific Actions related to dairies and CAFOs.

Work on ensuring dairies and CAFOs not apply or dispose of any manure within a public water system's drinking water source's five year time of travel. Ensure groundwater sampling around animal operations. This would not only help to prevent public water systems, but private well owners as well.

Require farmers to only fertilize to agronomic rates within a drinking water source's five year time of travel and take monthly groundwater samples the entire time they are fertilizing to ensure they are keeping the levels appropriate.

Work with farmers to change irrigation practices around drinking water wells.

Air Quality.

We have location information for the relatively small number of dairy operations (444) in Washington, and could possibly look at the incidence of asthma relative to these locations. We do not have location information for CAFOs.

Other Health Issues.

Working with Ecology and EPA, we could target concentrated animal feeding operations or other agricultural practices, and investigate the occurrence of specific health concerns for which people are hospitalized as a result of some exposure; and

If we receive complaints of similar health conditions within a localized area, we could initiate a cluster investigation in collaboration with local health following established agency protocols.

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AGRIMETRIC SERVICES – MEASURING CROP NEEDS FOR GREATER PROFITS

Fertility Report

George DeRuyter & Sons (Y281)

F13-0538
7569

Field: GDS-SU-01 ***Acres:*** 17.8 ***Sample Date:*** 10/9/2013

Crop: Alfalfa ***Irrigation:*** Wheel line ***Previous Crop:*** 2013 Alfalfa

Current Crop: 2014 Alfalfa

Soil series: Scoon silt loam ***Leach Hazard:*** Low ***No. of Sites:*** 20

Topography: Gentle SW slope. ***Avg Sampling Depth:*** 1.8

Restrictive layer? Y ***Where?*** Caliche and rocks in scattered sites. The west part of the field is the deepest.

Residue Incorp? N ***Type?***

Comments: Sampled a three foot field composite. At the time of sampling, the alfalfa had been cut and was still on the ground. Alfalfa at 2" tall and a 50% canopy.

		ppm	Mobile Nutrients (lbs/ac)				Exch. / Soluble Bases (meq/100g)						Other Data	
Sample Area	Depth	NO_3	NO_3	NH_4	SO_4	B	Ca	Mg	K	Na	T.B.	CEC	VolWt	%AW
Field Composite	1'	12	42	12	44	1.1	17.80	3.80	0.66	0.24	22.50	15.9	1.25	72%
Field Composite	2'	7	24										1.25	85%
Field Composite	3'	5	16										1.25	88%
		Totals:	82	12	44	1.1								

Comments: Residual nitrates are low overall. Ammonium is at equilibrium. Sulfur is adequate, while boron is low. Sodium is favorably low.

		Immobile Nutrients (ppm)						Chemical Data			
Sample Area	Depth	$P^{P(ace)}$	K	Zn	Mn	Fe	Cu	O.M.	pH	EC mmhos/cm	Eff/Calc.
Field Composite	1'	96	258	16.9	1.6	41	2.2	3.4%	7.1	0.29	No

Comments: Soil P and Zn are quite high, while K is sufficient. Manganese is low, while Iron and Copper are adequate. Organic matter is high. Soil pH is favorably near neutral and salts are favorably low.

Fertility and chemical data used here to formulate a recommendation was processed and reported by Soil Test, Inc., and Agrimanagement, Inc. soil lab for deep profile nitrates.

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AGRIMETRIC SERVICES - MEASURING CROP NEEDS FOR GREATER PROFITS

Fertility Report

George DeRuyter & Sons (Y281)

F13-0600
7570

Field: GDS-SU-02 ***Acres:*** 99.1 ***Sample Date:*** 10/17/2013

Crop: Triticale-Sudan ***Irrigation:*** Wheel line ***Previous Crop:*** 2013 Alfalfa

Current Crop: 2014 Triticale Sudan

Soil series: Scoon silt loam ***Leach Hazard:*** Low ***No. of Sites:*** 30

Topography: Gently undulating ***Avg Sampling Depth:*** 3.0

Restrictive layer? Y ***Where?*** Gravel on the surface, caliche layer.

Residue Incorp? N ***Type?*** Alfalfa cultivated, Triticale-Sudan planted.

Comments: Sampled a three foot field composite. At sampling the Triticale was at 2-4" tall. Volunteer alfalfa, corn, and weeds. Whitish soil color on the knolls and ridges.

		ppm	Mobile Nutrients (lbs/ac)				Exch. / Soluble Bases (meq/100g)						Other Data	
Sample Area	***Depth***	***NO_3***	***NO_3***	***NH_4***	***SO_4***	***B***	***Ca***	***Mg***	***K***	***Na***	***T.B.***	***CEC***	***VolWt***	***%AW***
Field Composite	1'	19	65	7	37	1.6	16.20	3.90	1.04	0.30	21.44	19.2	1.25	75%
Field Composite	2'	24	81										1.25	88%
Field Composite	3'	14	49										1.25	81%
		Totals:	195	7	37	1.6								

Comments: The residual nitrates are moderate. Ammonium is in equilibrium. Sulfur is adequate, while boron is possibly marginal. Sodium is favorably lower.

		Immobile Nutrients (ppm)						Chemical Data			
Sample Area	***Depth***	***$P^{P(ace)}$***	***K***	***Zn***	***Mn***	***Fe***	***Cu***	***O.M.***	***pH***	***EC mmhos/cm***	***Eff/Calc.***
Field Composite	1'	126	405	12.0	1.3	22	1.7	3.5%	7.3	0.35	Yes

Comments: The soil P, K, and Zn are sufficient. Mn is low, while Fe and Cu are sufficient. Organic matter is high. Soil pH is near neutral, while salts are low.

Fertility and chemical data used here to formulate a recommendation was processed and reported by Soil Test, Inc., and Agrimanagement, Inc. soil lab for deep profile nitrates.

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Fertility Report

George DeRuyter & Sons (Y281)

F13-0567
7571

Field: GDS-SU-03 ***Acres:*** 28.4 ***Sample Date:*** 10/15/2013

Crop: Alfalfa ***Irrigation:*** Wheel line ***Previous Crop:*** 2013 Alfalfa

Current Crop: 2014 Alfalfa

Soil series: Scoon silt loam ***Leach Hazard:*** Low ***No. of Sites:*** 25

Topography: Flat ***Avg Sampling Depth:*** 3.0

Restrictive layer? Y ***Where?*** Very rocky, gravelly at the surface.

Residue Incorp? N ***Type?*** Alfalfa at 2-4".

Comments: Sampled a three foot field composite. Soil surface dry. The NE 1/3 is more rocky than the rest of the field. Very few weeds.

		ppm	Mobile Nutrients (lbs/ac)				Exch. / Soluble Bases (meq/100g)						Other Data	
Sample Area	Depth	NO_3	NO_3	NH_4	SO_4	B	Ca	Mg	K	Na	T.B.	CEC	VolWt	%AW
Field Composite	1'	9	29	9	54	1.6	13.30	3.30	0.49	0.16	17.25		1.25	74%
Field Composite	2'	4	12										1.25	84%
Field Composite	3'	3	11										1.25	77%
		Totals:	52	9	54	1.6								

Comments: The residual nitrates are low. Ammonium is in equilibrium. Sulfur is sufficient, while boron is marginal. Sodium is favorably low.

		Immobile Nutrients (ppm)						Chemical Data			
Sample Area	Depth	$P^{P(ace)}$	K	Zn	Mn	Fe	Cu	O.M.	pH	EC mmhos/cm	Eff/Calc.
Field Composite	1'	118	190	11.9	1.6	37	2.1	2.7%	7.3	0.28	Very Slight

Comments: The soil P is high, while K is marginal. Zinc is high, while Mn is low, Fe and Cu are sufficient. Organic matter is well above average. Soil pH is near neutral and salts are favorably low.

Fertility and chemical data used here to formulate a recommendation was processed and reported by Soil Test, Inc., and Agrimanagement, Inc. soil lab for deep profile nitrates.

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F13-0560
7572

Field: GDS-SU-04 **Acres:** 135.6 **Sample Date:** 10/14/2013

Crop: Triticale-Silage Corn **Irrigation:** Center pivot **Previous Crop:** 2013 Triticale-Silage corn

Current Crop: 2014 Triticale-Silage corn

Soil series: Warden silt loam **Leach Hazard:** Low **No. of Sites:** 30

Topography: Gently divided sloping **Avg Sampling Depth:** 3.0

Restrictive layer? Y **Where?** Some rocks, mainly in the NW corner.

Residue Incorp? N **Type?** Scattered cultivation strips.

Comments: Sampled a three foot field composite. Light weed cover. Corn stalk size was normal. Soil surface was dry.

		ppm	Mobile Nutrients (lbs/ac)				Exch. / Soluble Bases (meq/100g)						Other Data	
Sample Area	Depth	NO_3	NO_3	NH_4	SO_4	B	Ca	Mg	K	Na	T.B.	CEC	VolWt	%AW
Field Composite	1'	184	624	7	925	10.8	17.10	4.80	6.79	1.27	29.96	16.0	1.25	90%
Field Composite	2'	166	564										1.25	85%
Field Composite	3'	173	587										1.25	100%
		Totals:	1774	7	925	10.8								

Comments: The residual nitrates are excessive. Ammonium is in equilibrium. Sulfur and boron are very high. Sodium is slightly to moderately elevated.

		Immobile Nutrients (ppm)						Chemical Data			
Sample Area	Depth	$P^{P(ace)}$	K	Zn	Mn	Fe	Cu	O.M.	pH	EC mmhos/cm	Eff/Calc.
Field Composite	1'	398	2650	13.5	2.9	31	2.8	3.3%	7.8	2.34	Yes

Comments: The soil P and K are very high, and Zn is high. Mn is low, while Iron and Copper are adequate. Organic matter is high. The soil pH remains alkaline and salts are high.

Fertility and chemical data used here to formulate a recommendation was processed and reported by Soil Test, Inc., and Agrimanagement, Inc. soil lab for deep profile nitrates.

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AGRIMETRIC SERVICES - MEASURING CROP NEEDS FOR GREATER PROFITS

Fertility Report

George DeRuyter & Sons (Y281)

F13-0539
7573

Field: GDS-SU-05 **Acres:** 100.6 **Sample Date:** 10/9/2013

Crop: Triticale-Silage Corn **Irrigation:** Center pivot **Previous Crop:** 2013 Triticale-Silage Corn

Current Crop: 2014 Triticale-Silage Corn

Soil series: Warden silt loam **Leach Hazard:** Low **No. of Sites:** 30

Topography: Gently to moderately undulating. **Avg Sampling Depth:** 2.4

Restrictive layer? Y **Where?** Rocks throughout at scattered sites.

Residue Incorp? N **Type?** Light stalks, partly disked in early fall.

Comments: Sampled a three foot field composite. There had been moderate to heavy weeds in this field.

		ppm	Mobile Nutrients (lbs/ac)				Exch. / Soluble Bases (meq/100g)						Other Data	
Sample Area	Depth	NO_3	NO_3	NH_4	SO_4	B	Ca	Mg	K	Na	T.B.	CEC	VolWt	%AW
Field Composite	1'	263	894	4	972	12.3	17.10	5.10	7.62	1.45	31.27	17.4	1.25	74%
Field Composite	2'	254	864										1.25	72%
Field Composite	3'	263	894										1.25	81%
		Totals:	2652	4	972	12.3								

Comments: Residual nitrates are excessive. Ammonium is in equilibrium. Sulfur and boron are very high. Sodium is moderately elevated.

		Immobile Nutrients (ppm)						Chemical Data			
Sample Area	Depth	$P^{P(ace)}$	K	Zn	Mn	Fe	Cu	O.M.	pH	EC mmhos/cm	Eff/Calc.
Field Composite	1'	529	2970	12.8	2.1	17.1	2.6	1.6%	7.7	3.56	Yes

Comments: Soil P, K, and Zn are excessive. Manganese is low, while Iron and Copper are adequate. Soil pH is alkaline, while salts are very high.

Fertility and chemical data used here to formulate a recommendation was processed and reported by Soil Test, Inc., and Agrimanagement, Inc. soil lab for deep profile nitrates.

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Fertility Report

George DeRuyter & Sons (Y281)

F13-0580
7574

Field: GDS-SU-06 ***Acres:*** 84.5 ***Sample Date:*** 10/16/2013

Crop: Triticale-Silage Corn ***Irrigation:*** Center pivot ***Previous Crop:*** 2013 Triticale-Silage corn

Current Crop: 2014 Triticale-Silage corn

Soil series: Warden silt loam ***Leach Hazard:*** Low ***No. of Sites:*** 32

Topography: Gently undulating ***Avg Sampling Depth:*** 2.7

Restrictive layer? Y ***Where?*** Scattered moderately compacted zones, and rocks at 18-36".

Residue Incorp? N ***Type?*** Light to moderate stalks and weeds.

Comments: Sampled a three foot field composite. Post harvest. Soil surface dry. Scattered light to moderate weeds. Scattered areas with light salts visible on the surface.

		ppm	Mobile Nutrients (lbs/ac)				Exch. / Soluble Bases (meq/100g)						Other Data	
Sample Area	***Depth***	***NO_3***	***NO_3***	***NH_4***	***SO_4***	***B***	***Ca***	***Mg***	***K***	***Na***	***T.B.***	***CEC***	***VolWt***	***%AW***
Field Composite	1'	47	161	5	384	6.2	17.00	4.30	3.38	0.70	25.38	17.4	1.25	65%
Field Composite	2'	82	277										1.25	75%
Field Composite	3'	102	348										1.25	70%
		Totals:	786	5	384	6.2								

Comments: Residual nitrates are high. Ammonium is in equilibrium. Sulfur and boron are high. Sodium is slightly elevated.

		Immobile Nutrients (ppm)						Chemical Data			
Sample Area	***Depth***	***$P^{P(ace)}$***	***K***	***Zn***	***Mn***	***Fe***	***Cu***	***O.M.***	***pH***	***EC mmhos/cm***	***Eff/Calc.***
Field Composite	1'	162	1320	10.1	1.6	17	2.0	2.5%	7.9	0.74	Yes

Comments: Soil P, K, and Zn are high. Mn is low, while Fe is marginal, and Cu is sufficient. Organic matter is above average. Soil pH is quite alkaline, while salts are only slightly elevated.

Fertility and chemical data used here to formulate a recommendation was processed and reported by Soil Test, Inc., and Agrimanagement, Inc. soil lab for deep profile nitrates.

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AGRIMETRIC SERVICES - MEASURING CROP NEEDS FOR GREATER PROFITS

Fertility Report

F13-0540
7575

George DeRuyter & Sons (Y281)

Field: GDS-SU-07 ***Acres:*** 76.6 ***Sample Date:*** 10/9/2013

Crop: Alfalfa ***Irrigation:*** Center pivot ***Previous Crop:*** 2013 Alfalfa

Current Crop: 2014 Alfalfa

Soil series: Warden silt loam ***Leach Hazard:*** Low ***No. of Sites:*** 30

Topography: Gently undulating. ***Avg Sampling Depth:*** 2.6

Restrictive layer? Y ***Where?*** Rocks in scattered sites.

Residue Incorp? N ***Type?***

Comments: Sampled a three foot field composite. Harvested recently. Alfalfa at 2-3" tall with a 50% canopy overall.

		ppm	Mobile Nutrients (lbs/ac)				Exch. / Soluble Bases (meq/100g)						Other Data	
Sample Area	*Depth*	*NO_3*	*NO_3*	*NH_4*	*SO_4*	*B*	*Ca*	*Mg*	*K*	*Na*	*T.B.*	*CEC*	*VolWt*	*%AW*
Field Composite	1'	31	104	5	286	5.1	19.90	4.00	1.94	0.72	26.56	16.1	1.25	78%
Field Composite	2'	74	252										1.25	82%
Field Composite	3'	76	257										1.25	74%
		Totals:	613	5	286	5.1								

Comments: Residual nitrates are high. Ammonium is in equilibrium. Sulfur and boron are also high. Sodium is only slightly elevated.

		Immobile Nutrients (ppm)						Chemical Data			
Sample Area	*Depth*	*$P^{P(ace)}$*	*K*	*Zn*	*Mn*	*Fe*	*Cu*	*O.M.*	*pH*	*EC mmhos/cm*	*Eff/Calc.*
Field Composite	1'	90	757	9.1	1.5	17	2.0	1.9%	7.6	0.48	Yes

Comments: Soil P, K, and Zn are high. Mn is low while Fe and Cu are sufficient. Organic matter is above average. Soil pH is moderately alkaline, while salts are okay.

Fertility and chemical data used here to formulate a recommendation was processed and reported by Soil Test, Inc., and Agrimanagement, Inc. soil lab for deep profile nitrates.

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Fertility Report

George DeRuyter & Sons (Y281)

F13-0601
7576

Field: GDS-SU-08 ***Acres:*** 165.5 ***Sample Date:*** 10/17/2013

Crop: Triticale-Silage Corn ***Irrigation:*** Center pivot ***Previous Crop:*** 2013 Triticale-Silage corn

Current Crop: 2014 Triticale-Silage corn

Soil series: Warden silt loam ***Leach Hazard:*** Low ***No. of Sites:*** 30

Topography: Gentle undulation, south slope. ***Avg Sampling Depth:*** 2.6

Restrictive layer? N ***Where?*** Hard pan starting at about 24".

Residue Incorp? N ***Type?*** Corn stalks still standing.

Comments: Sampled a three foot field composite. Corn stalks were a fair to average in size, weak and strong stalks were mixed throughout the field. Some smut bodies on the remaining stalks. Salts on the soil surface.

		ppm	Mobile Nutrients (lbs/ac)				Exch. / Soluble Bases (meq/100g)						Other Data	
Sample Area	Depth	NO_3	NO_3	NH_4	SO_4	B	Ca	Mg	K	Na	T.B.	CEC	VolWt	%AW
Field Composite	1'	161	549	4	755	9.2	17.10	5.00	7.63	1.27	31.00	17.6	1.25	77%
Field Composite	2'	161	546										1.25	79%
Field Composite	3'	139	472										1.25	74%
		Totals:	1567	4	755	9.2								

Comments: The residual nitrates are high. Ammonium is in equilibrium. Sulfur and Boron are high. Sodium is moderately elevated.

		Immobile Nutrients (ppm)						Chemical Data			
Sample Area	Depth	$P^{P(ace)}$	K	Zn	Mn	Fe	Cu	O.M.	pH	EC mmhos/cm	Eff/Calc.
Field Composite	1'	243	2976	13.7	2.2	25	4.0	3.4%	7.7	1.63	Yes

Comments: The soil P, K, and Zn are very high. Mn is low, while Fe and Cu are sufficient. Organic matter is high. Soil pH is alkaline and salts are moderately elevated.

		Other Data				Saturated Paste Extraction	
		(ppm)		(Tons/Ac)			
Sample Area	Depth	Cl	HCO_3	Lime Req	SMP pH	pH	EC mmhos/cm
Field Composite	1'	33					

Fertility and chemical data used here to formulate a recommendation was processed and reported by Soil Test, Inc., and Agrimanagement, Inc. soil lab for deep profile nitrates.

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Fertility Report

George DeRuyter & Sons (Y281)

F13-0561
7577

Field: GDS-SU-09 ***Acres:*** 34.6 ***Sample Date:*** 10/14/2013

Crop: Triticale-Silage Corn ***Irrigation:*** Center Pivot ***Previous Crop:*** 2013 Alfalfa

Current Crop: 2014 Triticale-Silage Corn

Soil series: Warden silt loam ***Leach Hazard:*** Low ***No. of Sites:*** 30

Topography: Split by swale, gently undulating ***Avg Sampling Depth:*** 2.9

Restrictive layer? Y ***Where?*** Some rocks and hard pan.

Residue Incorp? N ***Type?*** Light to moderate crowns.

Comments: Sampled a three foot field composite. The average sampling depth was at 34". At the time of sampling the alfalfa was at 1-3" tall. The soil surface was dry. Weeds were minimal, some dandelion. The soil was very compacted. Water in the swale with grassy vegetation.

		ppm	Mobile Nutrients (lbs/ac)				Exch. / Soluble Bases (meq/100g)						Other Data	
Sample Area	***Depth***	***NO_3***	***NO_3***	***NH_4***	***SO_4***	***B***	***Ca***	***Mg***	***K***	***Na***	***T.B.***	***CEC***	***VolWt***	***%AW***
Field Composite	1'	25	84	3	160	4.3	19.40	4.00	2.05	0.61	26.06	14.5	1.25	70%
Field Composite	2'	28	96										1.25	40%
Field Composite	3'	27	92										1.25	50%
		Totals:	272	3	160	4.3								

Comments: Residual nitrates are moderate to high. Ammonium is at equilibrium. Sulfur and boron are plenty high. Sodium is only slightly elevated.

		Immobile Nutrients (ppm)						Chemical Data			
Sample Area	***Depth***	***$P^{P(ace)}$***	***K***	***Zn***	***Mn***	***Fe***	***Cu***	***O.M.***	***pH***	***EC mmhos/cm***	***Eff/Calc.***
Field Composite	1'	150	800	8.5	2.5	26	2.0	2.4%	7.5	1.05	Yes

Comments: The soil P, K, and Zn are plenty high. Mn is low, while Fe and Cu are adequate. Organic matter is above average. The soil pH is moderately alkaline, while salts are slightly elevated.

Fertility and chemical data used here to formulate a recommendation was processed and reported by Soil Test, Inc., and Agrimanagement, Inc. soil lab for deep profile nitrates.

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Fertility Report

F13-0568
7578

George DeRuyter & Sons (Y281)

Field: GDS-SU-10 ***Acres:*** 38.5 ***Sample Date:*** 10/15/2013

Crop: Alfalfa ***Irrigation:*** Center pivot ***Previous Crop:*** 2013 Triticale-Silage corn

Current Crop: 2014 Alfalfa

Soil series: Warden silt loam ***Leach Hazard:*** Low ***No. of Sites:*** 25

Topography: Gently undulating ***Avg Sampling Depth:*** 3.0

Restrictive layer? Y ***Where?*** Scattered compacted zones at 26-36", caliche in areas.

Residue Incorp? N ***Type?*** Light to moderate residue.

Comments: Sampled a three foot field composite. Post harvest. Very light scattered salts on the surface. Light to moderate weeds. Generally good stalk diameter.

		ppm	Mobile Nutrients (lbs/ac)				Exch. / Soluble Bases (meq/100g)						Other Data	
Sample Area	Depth	NO_3	NO_3	NH_4	SO_4	B	Ca	Mg	K	Na	T.B.	CEC	VolWt	%AW
Field Composite	1'	49	167	2	153	2.2	19.80	3.00	1.85	0.69	25.34		1.25	75%
Field Composite	2'	38	128										1.25	74%
Field Composite	3'	22	74										1.25	72%
		Totals:	369	2	153	2.2								

Comments: The residual nitrates are high. Ammonium is in equilibrium. Sulfur is plenty high, and boron is sufficient. Sodium is slightly elevated.

		Immobile Nutrients (ppm)						Chemical Data			
Sample Area	Depth	$P^{P(ace)}$	K	Zn	Mn	Fe	Cu	O.M.	pH	EC mmhos/cm	Eff/Calc.
Field Composite	1'	53	723	4.0	1.2	11	1.1	2.2%	7.8	0.56	Yes

Comments: The soil P, K, and Zn are plenty high. Mn and Fe are low, while Cu is sufficient. Organic matter is above average. Soil pH is moderately alkaline, while salts are favorably lower.

Fertility and chemical data used here to formulate a recommendation was processed and reported by Soil Test, Inc., and Agrimanagement, Inc. soil lab for deep profile nitrates.

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Fertility Report

George DeRuyter & Sons (Y281)

F13-0581
7579

Field: GDS-SU-11 ***Acres:*** 8.1 ***Sample Date:*** 10/16/2013

Crop: Alfalfa ***Irrigation:*** Wheel line ***Previous Crop:*** 2013 Triticale-Sudan grass

Current Crop: 2014 Alfalfa

Soil series: Warden silt loam ***Leach Hazard:*** Low ***No. of Sites:*** 18

Topography: ***Avg Sampling Depth:*** 2.7

Restrictive layer? Y ***Where?*** Scattered areas of moderately to significantly compacted soil in the 20-36" range.

Residue Incorp? N ***Type?*** Light Sudan residue.

Comments: Sampled a three foot field composite. Post harvest. Alfalfa planted. Scattered areas of light salts on the surface.

		ppm	Mobile Nutrients (lbs/ac)				Exch. / Soluble Bases (meq/100g)						Other Data	
Sample Area	*Depth*	*NO_3*	*NO_3*	*NH_4*	*SO_4*	*B*	*Ca*	*Mg*	*K*	*Na*	*T.B.*	*CEC*	*VolWt*	*%AW*
Field Composite	1'	39	132	9	116	3.6	17.80	4.00	2.32	0.54	24.66		1.25	70%
Field Composite	2'	38	129										1.25	75%
Field Composite	3'	31	104										1.25	80%
		Totals:	365	8	116	3.6								

Comments: Residual nitrates are high. Ammonium is in equilibrium. Sulfur and boron are plenty high. Sodium is only slightly elevated.

		Immobile Nutrients (ppm)						Chemical Data			
Sample Area	*Depth*	*$P^{P(ace)}$*	*K*	*Zn*	*Mn*	*Fe*	*Cu*	*O.M.*	*pH*	*EC mmhos/cm*	*Eff/Calc.*
Field Composite	1'	161	903	10.4	2.3	28	2.8	3.2%	7.6	0.48	Yes

Comments: Soil P, K, and Zn are high. Mn is low, while Fe and Cu are sufficient. Organic matter is high. Soil pH is medium alkaline, while salts are favorably low.

Fertility and chemical data used here to formulate a recommendation was processed and reported by Soil Test, Inc., and Agrimanagement, Inc. soil lab for deep profile nitrates.

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Fertility Report

George DeRuyter & Sons (Y281)

F13-0527
7580

Field: GDS-SU-12 ***Acres:*** 40.5 ***Sample Date:*** 10/7/2013

Crop: Triticale-Silage Corn ***Irrigation:*** Rill ***Previous Crop:*** 2013 Triticale-Silage corn

Current Crop: 2014 Triticale-Silage corn

Soil series: Warden silt loam ***Leach Hazard:*** Low ***No. of Sites:*** 25

Topography: Very gentle to gentle S-SW slope ***Avg Sampling Depth:*** 2.8

Restrictive layer? Y ***Where?*** Compacted soil and rocks in scattered sites.

Residue Incorp? Y ***Type?*** Light stalks.

Comments: Sampled a three foot field composite. Stalk diameter is generally okay. Some small weed patches. Closely planted in the West Half.

		ppm	Mobile Nutrients (lbs/ac)				Exch. / Soluble Bases (meq/100g)						Other Data	
Sample Area	*Depth*	*NO_3*	*NO_3*	*NH_4*	*SO_4*	*B*	*Ca*	*Mg*	*K*	*Na*	*T.B.*	*CEC*	*VolWt*	*%AW*
Field Composite	1'	168	570	9	670	3.0	21.30	4.20	1.73	0.59	27.82	16.1	1.25	80%
Field Composite	2'	125	426										1.25	88%
Field Composite	3'	95	322										1.25	95%
		Totals:	1318	8	670	3.0								

Comments: The residual nitrates are high. Ammonium is in equilibrium. Sulfur is high, while boron is sufficient. Sodium is only slightly elevated.

		Immobile Nutrients (ppm)						Chemical Data			
Sample Area	*Depth*	*$P^{P(ace)}$*	*K*	*Zn*	*Mn*	*Fe*	*Cu*	*O.M.*	*pH*	*EC mmhos/cm*	*Eff/Calc.*
Field Composite	1'	154	675	6.0	3	26	1.6	3.4%	7.2	1.57	Yes

Comments: The soil P, K, and Zn are high. Mn is low, while Fe and Cu are sufficient. Organic matter is high. The soil pH is near neutral, while salts are slightly elevated.

Comments: Given the scattered soil compaction, it is recommended that you could do some ripping. Ripping is best done when the soil profile is slightly moist (as post harvest in the fall).

Fertility and chemical data used here to formulate a recommendation was processed and reported by Soil Test, Inc., and Agrimanagement, Inc. soil lab for deep profile nitrates.

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Fertility Report

F13-0569
7581

George DeRuyter & Sons (Y281)

Field: GDS-SU-13 ***Acres:*** 47 ***Sample Date:*** 10/15/2013

Crop: Alfalfa ***Irrigation:*** Wheel line ***Previous Crop:*** 2013 Alfalfa

Current Crop: 2014 Alfalfa

Soil series: Warden silt loam ***Leach Hazard:*** Low ***No. of Sites:*** 25

Topography: Gently Undulating ***Avg Sampling Depth:*** 3.0

Restrictive layer? Y ***Where?*** Scattered compaction areas past 18".

Residue Incorp? N ***Type?***

Comments: Sampled a three foot field composite. Post harvest. Light to moderate weeds in the swale.

		ppm	Mobile Nutrients (lbs/ac)				Exch. / Soluble Bases (meq/100g)						Other Data	
Sample Area	*Depth*	*NO 3*	*NO 3*	*NH 4*	*SO 4*	*B*	*Ca*	*Mg*	*K*	*Na*	*T.B.*	*CEC*	*VolWt*	*%AW*
Duplicate	1'	10	34										1.25	50%
		Totals:	34											
Field Composite	1'	10	35	3	95	1.3	19.70	3.50	0.60	0.27	24.07		1.25	50%
Field Composite	2'	7	23										1.25	70%
Field Composite	3'	8	28										1.25	73%
		Totals:	86	3	95	1.3								

Comments: Residual nitrates are low. Ammonium is in equilibrium. Sulfur is sufficient, while boron is low. Sodium is favorably low.

		Immobile Nutrients (ppm)						Chemical Data			
Sample Area	*Depth*	*P P(ace)*	*K*	*Zn*	*Mn*	*Fe*	*Cu*	*O.M.*	*pH*	*EC mmhos/cm*	*Eff/Calc.*
Field Composite	1'	104	233	3.6	0.9	9	1.2	2.0%	7.9	0.28	Yes

Comments: Soil P is high, while K is marginal to sufficient. Zn is adequate. Mn and Fe are low, while Cu is sufficient. Organic matter is above average. Soil pH is quite alkaline, while salts are favorably low.

Comments: Given the scattered soil compaction, it is recommended that you could do some deep ripping. Ripping is best done when the profile is slightly moist (as in the fall, post harvest).

Fertility and chemical data used here to formulate a recommendation was processed and reported by Soil Test, Inc., and Agrimanagement, Inc. soil lab for deep profile nitrates.

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Fertility Report

George DeRuyter & Sons (Y281)

F13-0602
7582

Field: GDS-SU-14 ***Acres:*** 65.2 ***Sample Date:*** 10/17/2013

Crop: Triticale-Sudan ***Irrigation:*** Wheel line ***Previous Crop:*** 2013 Alfalfa

Current Crop: 2014 Triticale-Sudan

Soil series: Warden silt loam ***Leach Hazard:*** Low ***No. of Sites:*** 30

Topography: Gently undulating ***Avg Sampling Depth:*** 3.0

Restrictive layer? Y ***Where?*** Some caliche in the cores.

Residue Incorp? N ***Type?*** Alfalfa incorportated, Triticale planted.

Comments: Sampled a three foot field composite. At the time of sampling the Triticale was at 2-4" tall. Very light weeds. Scattered white soil, mainly on the knolls and steeper slopes. Under irrigation. The swales were pretty wet.

		ppm	Mobile Nutrients (lbs/ac)				Exch. / Soluble Bases (meq/100g)						Other Data	
Sample Area	Depth	NO_3	NO_3	NH_4	SO_4	B	Ca	Mg	K	Na	T.B.	CEC	VolWt	%AW
Field Composite	1'	37	127	6	109	1.4	19.80	3.90	1.03	0.38	25.11	16.6	1.25	105%
Field Composite	2'	32	107										1.25	95%
Field Composite	3'	21	71										1.25	110%
		Totals:	305	6	109	1.4								

Comments: Residual nitrates are high. Ammonium is in equilibrium. Sulfur is high, while boron is low. Sodium is favorably lower.

		Immobile Nutrients (ppm)						Chemical Data			
Sample Area	Depth	$P^{P(ace)}$	K	Zn	Mn	Fe	Cu	O.M.	pH	EC mmhos/cm	Eff/Calc.
Field Composite	1'	57	402	3.0	1.7	19	1.2	1.9%	7.7	0.40	Yes

Comments: Soil P, K, and Zn are sufficiently high. Mn is low, while Fe and Cu are sufficient. Organic matter is slightly above average. Soil pH is alkaline and salts are favorably low.

Fertility and chemical data used here to formulate a recommendation was processed and reported by Soil Test, Inc., and Agrimanagement, Inc. soil lab for deep profile nitrates.