

**EXPERT REBUTTAL  
OF  
BYRON H. SHAW, Ph.D.**

**TO THE EXPERT REPORT  
OF  
JAMES J. MAUL, LHG**

*Community Association for Restoration of the Environment, Inc.  
and Center for Food Safety, Inc.*

v.

*Cow Palace, LLC, The Dolsen Companies, and Three D Properties, LLC*

Docket No. 2:13-cv-3016-TOR

**Prepared for:**

Law Offices of Charles M. Tebbutt, P.C.  
941 Lawrence Street  
Eugene, OR 97401

Public Justice  
1825 K Street, NW Suite 200  
Washington, D.C. 20006

Center for Food Safety, Inc.  
303 Sacramento Street, 2<sup>nd</sup> Floor  
San Francisco, CA 94111

*This Expert Report contains information designated by Defendants as  
“CONFIDENTIAL” under the Stipulated Protective Order (ECF No. 82)*

1. I, Byron Shaw, have been retained by Plaintiffs in the above-captioned matter to provide expert testimony about the manure management, storage, and application practices of Defendant Cow Palace Dairy, LLC (“Cow Palace” or “Defendant”). As part of this role, I have been asked by Plaintiffs to review, and rebut portions of, the expert report of James J. Maul (the “Maul Report” or “Report”).

2. The Maul Report provided an assessment of the U.S. EPA report titled “Relation Between Nitrates in Water Wells and Potential Sources in the Lower Yakima Valley, Washington,” (EPA-910-R-13-004) (“EPA Report”). Generally, the Maul Report identifies some perceived limitations of the study and sampling design, the methodology, and conclusions discussed by the EPA Report. Maul Report at 1.

3. The Maul Report opines that irrigated croplands, dairy operations, and residential septic systems overlap throughout the Lower Yakima Valley, and that “each of these features could be a nitrate source, groundwater recharge mechanism, and a transport mechanism.” Maul Report at 9.

4. Specifically, with respect to croplands, the Maul Report takes issue with the fact that irrigated croplands “were not evaluated as rigorously as the dairy operations” in the EPA Report. *Id.* The Maul Report also concludes that information identifying the source of nitrates in groundwater is lacking,

making it difficult to attribute it to a particular source. *Id.* at 9, 10.

5. I disagree with the conclusion that it is difficult to identify the source of nitrates in this area; in my opinion, the large dairy CAFOs in the “Dairy Cluster” area, as defined by the EPA Report and of which Cow Palace is a part, are the largest source of nitrogen loading to area soils and groundwater. I base this on the extensive soil testing data I have seen and the location of high nitrate values in the local groundwater. The presence of pharmaceuticals used at the Cluster Dairies, and Cow Palace in particular, in the lagoons, manure and groundwater is further indication that the loading source is the Cluster Dairies. Some of the isotope testing done by EPA provides yet further corroborating evidence that animal waste is causing the groundwater contamination.

6. As discussed in my initial report, one of the ways in which Cow Palace contributes excess levels of nitrate to area soils and groundwater is by overapplying manure to its crop fields. Expert Report of Byron H. Shaw (Shaw Report) at ¶¶ 33-159. However, it is my opinion that other farms which receive Cow Palace’s manure do not apply that manure at the same rate as Cow Palace, and, consequently, are not overloading their fields with nitrogen in the same way that Cow Palace does.

7. I base this opinion, in part, on recent sampling data from third-party

fields near Cow Palace which receive Cow Palace's manure.

COWPAL015785-88. These results are summarized in the table below:

Field name	Crop	Depth (feet)	Date Sampled	Nitrate (pounds/acre)
Railroad yard	hops	1	4/8/14	46.7
Railroad yard	hops	2	4/8/14	16
Annahat yard	mint	1	4/8/14	29.8
Annahat yard	mint	2	4/8/14	17.5
Annahat yard	corn	1	4/8/14	13.4
Annahat yard	other	2	4/8/14	7.5
Zandermuelen	triticale	1	5/28/14	23
Zandermuelen	triticale	2	5/28/14	17

8. This data is in stark contrast to the soil sampling data from Cow Palace fields during a similar timeframe that showed much higher nitrate values--often 5 or more times higher than these neighboring farmers.

COWPAL015740-46; *see also* Exhibit 2 to Expert Report of Byron H. Shaw (Shaw Report).

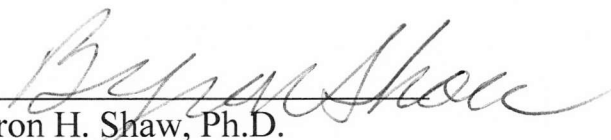
9. For example, the "Zandermuelen" fields, planted with triticale, were sampled on May 28, 2014. The results of that sampling showed 23 pounds per acre of nitrate at the one-foot level and 17 pounds per acre of nitrate at the two-foot level. COWPAL015788. The "Annahat yard" field was sampled on April 8, 2014, and the results of that sampling showed 13.4 pounds per acre of nitrate at the one-foot level. COWPAL015787.

10. By contrast, Cow Palace's Field 6, planted with triticale and corn, was

sampled at the one and two foot levels on May 13, 2014. The results of that sampling showed 123 pounds per acre at the one-foot level and 171 pounds per acre at the two-foot level. These results are consistent with the elevated levels of nitrate that I have observed in Cow Palace's soil sampling results for this, and other, fields. Exhibit 2 to Shaw Report, pgs. 10-12.

**11.** It is difficult to extrapolate a pattern of behavior from just one set of soil sampling results from third-party farms, but the fact that these off-site fields planted with like crops showed much lower levels of nitrate in samples taken within approximately the same timeframe suggests, to me, that Cow Palace applies manure to its own fields at a higher rate than that of other farms who receive and apply Cow Palace's manure.

Dated: October 20, 2014.



Byron H. Shaw, Ph.D.  
Professor Emeritus, Water Resources  
University of Wisconsin, Stevens Point