UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL MARKETING SERVICE

In Re:	)	**Docket Nos AO-14-A69, et al.;**
	)	**DA-00-03**
Milk In The Northeast and	)	
Other Marketing Areas	)	

LEPRINO FOODS COMPANY'S

COMMENTS ON THE RECOMMENDED DECISION

The United States Department of Agriculture ("Department") conducted a hearing May 8 - 12, 2000 to consider proposed amendments that would, among other things, modify the Class III and IV milk pricing formulas (the "Hearing"). This Hearing extended over 50 hours, and testimony was heard from the leading dairy policy professionals representing producer and processor interests from throughout the United States. Additionally, several preeminent experts on dairy policy, dairy economics, milk chemistry, whey processing, and plant sanitation and operations also appeared to offer testimony. The Hearing transcript fills nearly 2,000 pages. Untold hours and resources were invested in preparing for the Hearing, analyzing the record ("Hearing Record"), preparing post-Hearing briefs, and reviewing and preparing comments on the Tentative Final Rule in an effort to provide the Department with a strong factual and technical basis upon which to make a decision that would serve as a strong foundation for the entire dairy industry. It is, therefore, deeply troubling that after such a tremendous investment of resources by all sectors of the industry the Department has issued a Recommended Decision (66 Fed. Reg. 54064) that in so many critical areas wholly disregards the Hearing Record. This blatant disregard of the Hearing Record is also unlawful. The Department knows that, as a matter of law, it must make its decision based upon the Hearing Record.

We therefore urge the Department to find the following based upon the Hearing Record:

1. The protein component formula should be revised to reflect the following:
   A. Reduce the cheese yield factor in the protein formula from 1.405 to 1.383 per pound true protein;
   B. Increase the Class III fat price credit in the fat value calculation in the protein formula from 0.90 to 0.95 to reflect the fact that only 5% of the fat measured and priced at the farm is marketable as whey cream;
   C. Add a factor of minus $0.02 to the fat value calculation in the protein formula to reflect the difference in market value between whey cream and sweet cream; and
   D. With regard to yield, the basic form of the protein component price should therefore be, true protein = (1.383 x net cheese price) + [(1.582 x net cheese price) - (0.95 x Class III fat price) - $0.02] x 1.17.

2. The barrel price in the cheese price calculation should either be stated at the 39% moisture adjusted barrel price plus 3¢, or at the 38% moisture adjusted price plus 1¢.

3. The Department should increase the make allowances to accommodate the overvaluation of Western commodities by US NASS prices, and in recognition that setting the make allowance at the average of cost studies by definition does not cover the cost of processing on a significant volume of plant capacity.

4. The Recommended Decision correctly:
   A. Retained a cheese yield of fat factor of no greater than 1.582;
   B. Increased the dry whey make allowance to no less than 15.92¢;
   C. Eliminated the other solids price snubber; and
   D. Reduced the butterfat to protein relationship factor to 1.17.

THE YIELD FACTORS IN THE RECOMMENDED DECISION ARE SERIOUSLY FLAWED AND ARE NOT BASED ON THE HEARING RECORD.

The adoption under the Recommended Decision of yield factors that do not reflect losses of components in the transport of milk from farm to plant, or component and product losses within plants blatantly ignores the unrefuted Hearing testimony that these losses occur and they are significant. As the Department is well aware, Congress required the Secretary to hold a formal, on-the-record rulemaking hearing on manufacturing allowances and yields used in establishing component prices. (See 2000 Act)[1]. As such, the Secretary must base her decision on the Hearing Record. If she fails to do so, the decision is subject to judicial challenge as arbitrary, capricious, not in accordance with law, and violative of due process.

The Hearing Record contains unrefuted evidence demonstrating that component losses, which in turn reduce finished product yields, are inherent in the transport and processing of milk into finished products. This evidence is incontrovertible and, even more importantly, uncontested. Yet, the Recommended Decision adds a factor that results in every pound of fat that is measured at the farm being valued at either the cheddar value or the sweet butter value. This factor, the 0.9 multiplier that is incorporated in the incremental fat value portion of the protein formula, results in significant and totally unjustified overvaluation of Class III fat.

Additionally, the Recommended Decision does not reduce the protein yield factor to a level achievable with raw milk component levels even in a theoretical closed system. These issues must be addressed by the Department in the Final Rule. To do otherwise would be entirely inconsistent with the Hearing Record (and, therefore, unlawful).

Farm to Plant Losses are generally 0.25% on a volume basis, plus an additional 0.015 pounds fat

[1] 2000 Consolidated Appropriations Act

per hundredweight.

The Hearing Record is replete with unrefuted evidence of the existence of component losses between farms and plants. No witnesses contested the existence of such losses. Dr. Barbano stated that "the loss from the farm tank to the plant can be a big loss" (Barbano (Cornell) Testimony, Tr. 758). Component losses between farms and plants occurring in proportion to general volume losses range from 0.15% in regions dominated by large dairies to over 0.25% in regions dominated by small dairies (Taylor (Leprino) Testimony, Tr. 1728). Some processors experience losses up to 0.33% (Reinke (Kraft) Testimony, Tr. 1056). The general industry expectation is that these losses remain within 0.25% (Hollon (DFA, Tr. 1563), (Throne (Hershey) Testimony, Tr. 1685). Based upon the Hearing Record, the only reasonable assumption for general farm to plant volume losses is 0.25% on a per component basis.

Additionally, because fat has a propensity to cling to surfaces, even more fat is lost. This additional fat loss is reflected in differences between farm tests and plant fat tests, which average 0.015 pounds lower at the plant. (Taylor (Leprino) Testimony, Tr. 1728). This 0.015 reduction in fat pounds from farm to plant must also be reflected in any end product price formulas.

Component, and therefore yield, losses are inherent in the conversion of raw milk to finished products.

The Hearing Record is replete with unrefuted evidence of the existence of component losses within plants. These losses occur during receiving; separation and pasteurization; in piping; in other vessels throughout the cheese production and finishing process; and throughout the whey and whey cream recovery and finishing process. (Barbano (Cornell) Testimony, Tr. 651 - 654, 707 - 710, 749 - 750). Fat losses in the cheddaring and pressing steps in a good operation range from one and a half to two and a half percent (Barbano (Cornell) Testimony, Tr. 776).

Cleaning protocols required in human food manufacturing environments also contribute to significant in-plant losses. Expert testimony based upon a study of effluent leaving 51 cheese plants showed an average cheese plant loses 2.35% of the plant's BOD intake. This 2.35% loss present in the effluent understates the overall milk component loss in plants. The 2.35% loss reflected in cheese plant effluent does not account for high BOD waste streams that are diverted to animal feed, land application or other disposal methods rather than being discharged to the wastewater treatment systems. (Lenahan (Ecolab) Testimony, Tr. 1251 - 1256). These facts regarding losses of key milk components are from the Testimony of Bob Lenahan of Ecolab. This witness has over twenty-one years of dairy industry experience, including direct dairy plant operational experience. He has spent his last ten years as a consultant with Ecolab, most recently troubleshooting plant loss issues.

Component losses must be reflected in yield factors.

The loss of milk components reduces the volume of finished product that can be marketed. Because the yield factors in the Federal Milk Marketing Order system are used to estimate finished product volumes based upon components measured at the farm, yields must be set at a level no higher than the volume of finished and marketable product that can be produced in a commercial setting from the components as measured at the farm. To do otherwise results in extreme overvaluation of each component, which ultimately leads to disorderly marketing.

The Recommended Decision overestimates yields because it misuses the VanSlyke formula.

The VanSlyke theoretical cheddar yield formula provides an important framework for estimating cheddar yields. The VanSlyke formula is commonly used by the industry to measure operational performance. In order to properly adopt the VanSlyke formula for use in setting milk price policy, however, it is critical to understand the context for its use. The VanSlyke formula is designed to estimate the cheddar yield based upon components present in a cheesemaking vat (Barbano (Cornell) Testimony, Tr. 598). In other words, the VanSlyke formula does not account for the uncontested losses of components described in the Hearing Record and summarized above. Therefore, further adjustments to accommodate losses that occur prior to the vat when pricing milk at the farm must be made. However, before adding the complexity of these losses, it is important to understand the use of the VanSlyke formula in its intended context. It is in this intended context that the VanSlyke formula was discussed by Dr. Barbano.

The VanSlyke formula is used to determine theoretical vat yields.

The VanSlyke formula is typically used in the cheese industry to determine the volume of cheese that should be yielded from a known composition and volume of milk in a vat. As outlined by Dr. Barbano and several other witnesses, the basic form of the formula is:

$$\frac{[(\text{fat retention factor x fat pounds}) + (\text{casein pounds - 0.1})] \text{ x } 1.09}{(1 - \text{moisture in cheese})}$$

Since casein testing is complex, casein pounds are generally calculated based upon true protein in milk. The Hearing Record contains clear evidence regarding milk chemistry from the acknowledged academic leader in the field, Dr. David Barbano, that true protein contains 82.2% - 82.4 % casein. (Barbano (Cornell) Testimony, Tr. 578). He further states that 82.20% is an appropriate assumption for national composition.

Assuming a 90% fat retention factor and 38% moisture cheese, and standard milk composition of 3.5% fat and 2.9915% true protein milk[2], the VanSlyke formula is solved as follows:

$$\text{cheddar pounds} = \frac{[(0.9 \text{ x } 3.5) + (2.9915 \text{ x } 0.822 - 0.1)] \text{ x } 1.09}{(1 - 0.38)}$$

$$= \frac{(3.1500 + 2.3590) \text{ x } 1.09}{0.62}$$

$$= \frac{5.5090 \text{ x } 1.09}{0.62}$$

$$= \frac{6.0048}{0.62}$$

$$= 9.685 \text{ pounds cheddar}$$

The yield contribution from fat is isolated from the yield contribution from protein by zeroing

[2]See Attachment A for similar analysis at national average test.

the portion of the numerator for which the yield contribution is being eliminated. For example, to identify the portion of the yield that is attributable to fat, the protein portion of the above formula can be eliminated as follows:

$$\text{cheddar pounds attributable to fat} = \frac{(0.9 \times 3.5) \times 1.09}{(1 - 0.38)}$$

$$= \frac{3.15 \times 1.09}{0.62}$$

$$= \frac{3.4335}{0.62}$$

$$= 5.5379 \text{ pounds cheddar}$$

The yield contribution per pound fat is then calculated as follows:

$$\text{cheddar pounds per pound fat} = \frac{5.5379 \text{ pounds cheddar}}{3.5 \text{ pounds fat}}$$

$$= \frac{1.582 \text{ pounds cheddar}}{\text{pound fat}}$$

The 1.582 pounds cheddar per pound fat is consistent with the yield assumption in the Reform and Recommended Decision Class III component formulas for cheese yield of fat.

A similar process can be used to isolate the yield contribution of protein, as follows:

$$\text{cheddar pounds per pound protein} = \frac{(2.9915 \times 0.822 - 0.1) \times 1.09}{(1 - 0.38)}$$

$$= \frac{2.3590 \times 1.09}{0.62}$$

$$= \frac{2.5713}{0.62}$$

$$= 4.1473 \text{ pounds cheese}$$

The yield contribution per pound true protein is then calculated as follows:

$$\text{cheddar pounds per pound protein} = \frac{\text{4.1473 pounds cheddar}}{\text{2.9915 pounds true protein}}$$

$$= \frac{\text{1.386 pounds cheddar}}{\text{pound true protein}}$$

Importantly, the 1.386 pounds cheddar for each pound of true protein is considerably lower than the 1.405 factor currently in both the Reform Formulas and the Recommended Decision. <u>In other words, the 1.405 factor vastly overstates protein yields, even before considering component losses prior to the vat</u>!

<u>Proof of Factors</u>:

The validity of the yield factors of 1.582 pounds cheddar per pound fat and 1.386 pounds cheddar per pound true protein is confirmed by calculating the pounds of cheese produced from the hundredweight of milk using only the yield factors, as follows:

$$= 3.5\text{ \# fat} \times \frac{\text{1.582 \# cheddar}}{\text{\# fat}} + 2.9915\text{\# true protein} \times \frac{\text{1.386 \# cheddar}}{\text{\# true protein}}$$

$$= 5.537 + 4.146$$

$$= 9.683\text{ pounds cheddar}$$

The 9.683 pounds of cheddar calculated by building up the yield using the yield factors is 0.002 less than the 9.685 pounds of cheddar calculated earlier by using the VanSlyke formula as it was originally intended. This 0.002 difference is due to rounding the 1.582 and 1.386 yield factors to three decimals. The ability to tie the yield calculated using the yield factors of 1.582 per pound fat and 1.386 per pound true protein to the yield calculated by using the VanSlyke formula as it was originally intended proves that these factors of 1.582 (fat yield factor) and 1.386 (protein yield factor) are, in fact, based on a sound methodology that accurately represents the vat yields as calculated by the VanSlyke formula. Conversely, the protein yield factor of 1.405 contained in the Recommended Decision is not supported by the facts or science.

Vat yields for protein should be directly calculated using the methodology above.
The justification for the 1.405 protein factor in the Recommended Decision is severely flawed and not supported by the Hearing Record. The Department has blatantly ignored the expert evidence on milk composition and arguments on determining the protein yield factor using a direct approach. Rather, the Department relies upon a methodology that starts with an upwardly rounded total protein yield factor (1.32) and applies a ratio of total to true protein that is inconsistent with the Hearing Record in order to estimate true protein yield. The prior acceptance by the industry for the upward rounding in the 1.32 factor for total protein was in the context of the protein price being used in the allocation of a hundredweight value determined either through the M-W survey or the BFP. To the extent that the rounding resulted in an overstatement of the protein price, that overstatement was offset by a reduction in the other solids or fluid carrier prices. Compounding the error by applying an estimated total to true protein ratio is inexcusable, particularly given that the required milk chemistry data with which to make a direct calculation is available in the Hearing Record.

The Department further ignored the fact that the protein yield in the Reform formulas is overstated by calculating a protein yield on the margin. That is, the Department improperly calculated the protein yield using a methodology that effectively eliminates the casein loss factor of 0.1 in the VanSlyke formula.[3] This lack of recognition that casein is lost is inconsistent with the Hearing Record (Barbano, (Cornell) Testimony, Tr. 524). The only valid use for this marginal approach would be if we were establishing a differential to be paid for protein above average farm tests. Because this is not the case in the Class III protein price, use of the marginal approach results in a gross overstatement of the protein yield.

The vat yield at 3.5% standard milk composition using the Reform and Recommended Decision yield factors is 9.74 pounds, calculated as follows:

$$= 3.5 \text{ \# fat} \times \underline{1.582 \text{ \# cheddar}} + 2.9915\text{\# true protein} \times \underline{1.405 \text{ \# cheddar}}$$

[3]See Attachment B for detailed analysis of the Department's approach.

fat # true protein

= 5.537 + 4.203

= 9.740 pounds

Subtracting the VanSlyke-based yield of 9.685 previously calculated shows that the cheddar yield at the vat level is overstated by 0.055 pounds per hundredweight. Although this may appear to be minor, it is significant in its impact on the overall milk price. At $1.50 per pound of cheddar, this equates to 7¢ per hundredweight milk, and we have still not addressed the uncontested component losses that occur before the vat!

The Hearing Record contains clear evidence regarding milk chemistry from the acknowledged academic leader in the field, Dr. Barbano, that true protein contains 82.20 % casein. The Department must use this evidence to directly calculate the protein yield using a methodology that does not drop the casein loss from the VanSlyke formula, or its decision will be outside of the Hearing Record.

The VanSlyke yield formulas can be used to determine cheddar yields of milk measured at the farm, but only if component losses are accounted for.
Although the VanSlyke yield formula was developed to measure production efficiency starting at the vat, the yield formula can still be useful in determining the yield of farm level milk. However, if the VanSlyke formula is to be used for this purpose, component losses prior to the vat must be accounted for to accurately reflect the composition of milk actually entering the vat (and we still have not accounted for the uncontested component losses that occur after the vat).

The primary difference between determining cheese yields for milk measured at the farm and milk measured at the vat is the need to recognize the component losses in between. Attachment C shows the calculation of cheese yields based upon losses documented in the Hearing Record.

Standard milk composition is assumed in this calculation.[4] Reducing the farm components by the 0.25% farm to plant volume loss, and the 0.015 pounds additional fat loss results in 3.4763 pounds of fat and 2.9840 pounds of true protein reaching the plant for each hundredweight of milk. Although there are certainly losses during receiving, separating and pasteurization prior to the milk reaching the vat that result in reduced vat yields, those losses were not segregated in the Hearing Record from the overall plant losses and will therefore be accounted for in the loss of components that occur in the production processes after cheesemaking.

The 3.4763 pounds of fat and 2.9840 pounds of true protein are used to calculate the cheese produced using the VanSlyke formula as recommended above. A vat fat retention factor of 90.6% is used in this analysis. While the Hearing Record contains ample evidence to support a 90% vat fat retention factor, 90.6% retention remains on the low end of the range. Use of the retention factor to 90.6% is acceptable, <u>but only if farm to plant and within plant losses are recognized in the formula</u>. The result of moving the fat retention factor to 90.6% (from 90.0%) is that the fat yield factor remains 1.582[5]. This factor is calculated by dividing the 5.5370 pounds of calculated fat yield by the original 3.5 pounds of fat measured at the farm. The protein yield is calculated based upon the milk chemistry, that is, true protein is 82.2% casein. The yield factor for protein, calculated by dividing the 4.1365 pounds of calculated protein yield by the original 2.9915 pounds of true protein, is 1.383.

In conclusion, in order to accurately reflect farm to plant losses, the Department should adopt cheese yield factors of 1.582 per pound fat and 1.383 per pound protein.

<u>Fat recovered as whey cream is 5% of the original farm fat</u>.

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[4]The assumed true protein level (2.9915) is consistent with the true protein levels in the Northeast, which has the milk with the lowest average protein levels. The protein yield should be calculated at this low end of the protein range experienced across the Orders so that the yield is not overestimated in any of the Orders to which the regulated pricing applies.

[5]The appropriate factor at 90% vat fat retention is 1.572 pounds cheddar per pound fat after factoring in farm to plant losses.

The byproduct of cheddar production that was not explicitly valued in the Reform formulas, but which is grossly overvalued by both volume and price reference in the Recommended Decision, is whey cream. By reducing the cheddar value of fat by only 90% of the butter value of fat, the Recommended Decision prices the other 10% of the fat measured at the farm based on the sweet butter value.

There is no evidence in the Hearing Record to support that all of the fat not captured in the cheddar cheese is captured in a marketable form. In fact, as already stated, the Hearing Record contains clear, unrefuted evidence that substantial fat is lost prior to receipt at the plant, and throughout the processing and packaging process. Additionally, that fat which is recovered from cheddar production is whey fat, which is severely discounted in the marketplace: it is <u>not</u> as valuable as fat in sweet butter.

The whey fat yield should be calculated based upon the Hearing Record. The Hearing Record includes sufficient data regarding disposition of fat to calculate the residual fat that can be recovered as whey cream. The calculation must be consistent with the calculation of cheese yield. The complete calculation is shown on Attachment D. Farm fat pounds are first reduced by farm to plant losses already noted and the fat already accounted for in the cheddar yield. Fat losses associated with the cheddaring / salting / pressing stage of cheddar production amount to 2% of the vat fat (Barbano (Cornell) Testimony, Tr. 776). This fat is difficult to recover, and is generally lost altogether from a marketable product flow. Some fat remains in the sweet whey (Barbano (Cornell) Testimony, Tr. 787). This amounts to 1.25% of the sweet whey volume. Finally, losses are known to occur during receiving, separation, and pasteurization, and at several other points in the process for which precise volumes have not been identified. These losses can be estimated based upon the effluent BOD load (Lenahan (Ecolab) Testimony, Tr. 1251 - 1256). Because the fat accounted for above as being lost during the cheddaring, salting and pressing stages of the process is likely part of the BOD load in the effluent, the balance of the losses not specifically assigned are 0.35% (that is, the 2.35% average from the Ecolab study reduced by the 2% already accounted for). The residual fat available for whey cream is 0.1716 pounds of the original 3.5 pounds. This equates to 4.9% of the original fat.

There are two approaches that can be taken to correct the whey cream yield issue in the Recommended Decision formula. One approach is to eliminate the 90% factor applied to the Class III fat price in the protein component equation and add a factor to value the fat recovered as whey cream. Because 5% of the fat can be recovered as whey fat, the factor would be 5% times the Class III fat price discounted by the difference in value of sweet cream and whey cream (to be discussed below). The protein equation would then be stated as:

true protein = (1.383 x net cheddar price) + [(1.582 x net cheddar price - Class III fat price) + (0.05 * (Class III fat price - whey fat discount))] x 1.17.

The second approach, which has the same effect, is to change the 0.9 factor applied to the Class III fat price in the protein formula in the Recommended Decision to 0.95. A whey fat discount must also be applied.

The protein equation would then be stated as:

true protein = (1.383 x net cheddar price) + [(1.582 x net cheddar price) - (.95 x Class III fat price) - whey fat discount] x 1.17.

<u>The whey fat discount should be two cents</u>.

Whey cream is sold at a severe discount to sweet cream. Whey cream returns 40 cents per pound fat less than sweet cream (Reinke (Kraft) Testimony, Tr. 1041). This severe discount is due to the lower value of whey butter relative to sweet butter, and the extraordinary distances that whey cream is generally hauled to find an outlet. The seller of whey cream generally must pay for the costs to haul the cream to the buyer, which can be several hundred miles. The difference in price between grade B butter and grade AA butter during 1997 (the last full year that grade B butter was traded on the Chicago Mercantile Exchange) was 10 ¢ (Dairy Market Statistics, 1997 Annual Summary, Table 10). This ten cent difference in finished product value alone accounts for a difference in fat value of 12.2 cents (10 ¢ / 0.82). The balance of the difference in returns between whey cream and sweet cream is attributable to the additional hauling costs and discounting that occurs due to the lack of competition for whey cream. Whey cream is an ingredient that most butter makers would prefer not to accept, and few do.

The whey fat discount factor should be 2¢, calculated by multiplying the 40¢ discounted market value of fat by the 5% of fat that is marketed in the form of whey cream.

<u>The sweet whey yield should remain at a divisor of 0.968.</u>

The sweet whey yield that is in the Recommended Decision is consistent with the sweet whey yields that can be calculated using a mass balance approach. The mass balance calculation, detailed in Attachment E, shows that based upon a full accounting of components, the existing yield factor is within 0.2 pounds of sweet whey per hundredweight milk at standard composition.

<u>Component losses are not accommodated by shrink provisions under the Order</u>.

The Recommended Decision once again errs in stating that component and yield losses are addressed through the shrinkage provisions of the Orders. Decision at 54075. Shrinkage provisions only apply to pool plants, and manufacturing plants are generally precluded from being pool plants by performance requirements under the Orders. To the extent that manufacturing plants do enjoy pool plant status, the shrinkage provisions result in a limited portion of the losses being reclassified to the lowest valued use (so these components are still paid for), resulting in minimal price relief at best. In other words, to the extent that yields in the price formula are based upon components that are lost either before reaching the plant or during the production process, the cheesemaker is still obligated to pay for those components at the lowest Class price. In many cases, this has been the Class III price. Most manufacturing plants are nonpool plants and shrink is allocated in proportion to the plant utilization. Clearly, the shrinkage provisions of the Order, whether for a pool or a nonpool plant, do not address the overstatement of manufacturing yield factors in the regulated milk price.

<u>The cost studies do not reflect the overvaluation of milk due to overstatement of yields</u>.

The additional premise that there is an inherent allowance for losses in the cost studies that form the basis for setting the make allowance is also clearly erroneous and is <u>not</u> supported by the

Hearing Record. Cost studies reflect operating costs for the finished products produced. Cost studies do not factor in the cost of milk that is paid for, but that is not ultimately manufactured into finished, marketable products. (Shiek (Dairy Institute) Testimony, Tr 1161), (Ling (USDA) Testimony, Tr 69, 73, 174).

1. **For all of the reasons above, the protein component formula should be revised to reflect the following:**
   A. **Reduce the cheese yield factor in the protein formula from 1.405 to 1.383 per pound true protein;**
   B. **Increase the Class III fat price credit in the fat value calculation in the protein formula from 0.90 to 0.95 to reflect the fact that only 5% of the fat measured and priced at the farm is marketable as whey cream;**
   C. **Add a factor of minus $0.02 to the fat value calculation in the protein formula to reflect the difference in market value between whey cream and sweet cream; and**
   D. **With regard to yield, the basic form of the protein component price should therefore be, true protein = (1.383 x net cheese price) + [(1.582 x net cheese price) - (0.95 x Class III fat price) - $0.02] x 1.17.**

THE BARREL PRICE IN THE CHEESE PRICE CALCULATION SHOULD EITHER BE STATED AT THE 39% MOISTURE ADJUSTED BARREL PRICE PLUS 3¢, OR AT THE 38% MOISTURE ADJUSTED PRICE PLUS 1¢.

<u>No evidence exists in the Hearing Record to support the combination of a 38% barrel price plus 3¢</u>.

The Department indicates that the Hearing Record contains no evidence that the difference in manufacturing costs of 40 pound blocks and 500 pound barrels is not the historical 3¢ price spread. Decision at 54081. Interestingly, there is no evidence in the Hearing Record that the difference in manufacturing cost <u>is</u> the historical 3¢ price spread. Additionally, there was no cost based evidence presented during the informal rulemaking process that first established the precedent to use the 39% moisture barrel price plus 3¢. The original proposal to expand the cheese price reference from only 40# blocks to a weighted average of blocks and barrels was advocated by National Cheese Institute and many of its member companies during the Federal Order Reform rulemaking process. The interest of the proponents was to broaden the cheddar price reference to include a more significant volume, thereby improving the price series. The 3¢ was added to the barrel price to neutralize the price impact of adding barrels to the price reference. The 3¢ was based upon historic price difference between 39% (not 38%) moisture barrels and 40# blocks. Since the original 3¢ was based upon a price relationship between blocks and the 39% moisture barrel price, any restatement in the moisture at which barrels are priced must be accompanied by a change in the 3¢ to be consistent with the restated price relationship. If the 38% moisture adjusted barrel price (instead of 39% moisture adjusted price) is used as the new price reference, then the 3¢ must be reduced accordingly.

<u>The Department justifies the decision to retain the combination of the 38% moisture barrel price and the 3¢ based upon erroneous analysis</u>.

In an attempt to provide empirical justification to support the 3¢ barrel add-on, the Department relies on a historic price relationship analysis. However, the Department erroneously uses the 39% barrel price in the analysis, rather than the 38% price that they are now proposing to use.

Attachment F recreates the Department's comparison of NASS block and barrel prices between September 1998 and June 2000. In this time period, the block price averaged $1.4014 per pound and the 39% moisture adjusted barrel price averaged $1.3574 per pound, a 4.4¢ discount to blocks. Decision at 54081. However, as already stated, comparing the average block price to the average 39% moisture adjusted barrel price is wholly inappropriate, as the pricing provisions of the Recommended Decision incorporate barrel prices adjusted to 38% moisture.

The published 39% moisture adjusted barrel prices during the period can be restated to 38% prices by multiplying the 39% prices by the quotient of 62 divided by 61 (which equals 1.0164). This is consistent with the methodology used by NASS and the industry to adjust barrel prices at actual moisture to a restated moisture equivalent price. Restating the barrel price to 38% for the same period as above shows that the average spread between blocks and 38% barrels was 2.2¢ lower than the spread erroneously calculated based upon 39% moisture prices. The average restated spread for the period was actually 2.2¢. However, even the 2.2¢ overstates the market price relationship between 38% barrels and 40# blocks for two reasons. The first reason for the overstatement is that the period of analysis is something other than twelve months or a multiple thereof. Seasonality in 40 pound block and barrel demand results in a seasonality in the price spreads. Analysis of the price relationship over anything other than twelve month cycles is therefore inappropriate. Second, as thoroughly discussed in Leprino's Comments filed on February 5, 2001 regarding the Tenative Final Rule, sixteen of the twenty-two months in the period analyzed were distorted by regulatory incentives to enhance cheddar block, but not barrel prices.

The Department also references the DFA and ADCNE brief supporting the 3¢ difference. It is important to note that the price relationship analysis contained in those briefs incorporated the same analytical errors as those of the Department's in the Recommended Decision. Specifically, the analysis was based upon the price relationship using barrel prices adjusted to 39%, rather than 38% moisture.

<u>The Department mischaracterizes the Hearing testimony from the LOL witness regarding the</u>

cost difference between blocks and barrels.

The Department references testimony from the LOL witness, indicating that "the witness for LOL testified that the three cents is an appropriate difference between blocks and barrels and that adding three cents to the barrel price when computing the weighted cheese price is an appropriate adjustment." Decision at 54081. Although this witness affirms the 3¢ historic price relationship between blocks and barrels, the Department interprets these comments to mean that 3¢ is the cost difference between the two forms. The Hearing Record, however, reflects that the witness stated that he cannot speak directly to the differences in costs of production between blocks and barrels (Christ; (LOL) Testimony, Tr 1247). Although the witness does allude to the fact that the packaging is different in the two forms, and most likely is less for barrels, he is unable to document the amount (Christ (LOL) Testimony, Tr 1248).

The price relationship between NASS blocks and barrels stated at 38% has been 1.5¢ during the first 24 months after the artificial regulatory incentive to disproportionately enhance block prices was eliminated.

Examination of NASS block and barrel cheddar price data since the implementation of the Final Rule shows that block prices averaged 1.5 ¢ higher than 38% moisture adjusted barrel prices. By retaining the 3-cent adjustment to 38% moisture adjusted barrel prices in the Recommended Decision, the cheese price used to determine the protein price is overstated.

Some portion of the difference in cost of manufacturing between blocks and barrels is already captured in the make allowance. The lower cost of producing barrels is already reflected in the RBCS cheese processing cost study which was used, in part, to establish the make allowances. To the extent that barrel costs lowered the average in the study, the Class III price formula accounts twice for the cost difference.

2. **For all of the reasons above, the barrel price in the cheese price calculation should either be stated at the 39% moisture adjusted barrel price plus 3¢, or at the 38% moisture adjusted price plus 1¢.**

THE DEPARTMENT SHOULD INCREASE THE MAKE ALLOWANCES TO ACCOMMODATE THE OVERVALUATION OF WESTERN COMMODITIES BY US

NASS PRICES, AND IN RECOGNITION THAT SETTING THE MAKE ALLOWANCE AT THE AVERAGE OF COST STUDIES BY DEFINITION DOES NOT COVER THE COST OF PROCESSING ON A SIGNIFICANT VOLUME OF PLANT CAPACITY.

<u>The nature of the U.S. NASS price series and the manufacturing cost studies must be considered in setting make allowances</u>.

The U.S. NASS prices are the correct price series to use as a benchmark in the Class III and IV price formulas for all of the reasons articulated in Leprino's testimony and post-Hearing brief. However, in reviewing the impact of the overall price formulas on manufacturers in Federally-regulated areas, the Department must recognize that a regional price surface does exist. This price surface reflects the cost of transporting manufactured dairy products from the surplus production areas of the West to the consumption areas of the East. The Cornell Study (Exhibit 54) discusses this "location value" for manufactured products at length. Additionally, the NASS survey itself reports a separate Minnesota/Wisconsin price and Other States price. The Other States price averages 1.55¢ lower than the U.S. price. Since this price is based upon price responses from all states outside of Minnesota and Wisconsin, including the Northeast, it is reasonable to assume that the prices received in the Western states are more than 1.55¢ below the US NASS average. Yet those Western processors are subjected to a regulated pricing system that assumes they receive the U.S. average price.

The CDFA and RBCS cost studies that are used in setting the make allowance reflect a wide range of manufacturing costs. Setting the make allowance directly based upon the average from the cost studies by definition sets the make allowance at a level that is below the conversion cost of half of the manufacturers (if the average is calculated on a simple basis, as is the RBCS study) or manufacturing capacity ((if the average is calculated on a weighted basis, as is the CDFA study). Therefore, the Department should not set the make allowance at the average cost. Instead, the make allowance should be set at a higher level that will accomodate a reasonable range in costs and offset the overstatement in price reference that occurs by using an average national price.

Due to their rigidity, end product pricing increases the potential for the minimum regulated milk price to result in disorderly marketing. End-product price formulas based on yields that are too high or make allowances that are too low, will result in too high of a milk price, which in turn will dramatically negatively impact the investment, and therefore the plant capacity, of the industry.

If minimum prices are set too high, the consequence is disorderly marketing. Although there is little cost associated with setting the regulated minimum price too low since the market will compensate through the development of over-order premiums (Stephenson (Cornell) Testimony, Tr. 1004 - 1005; Yonkers (IDFA) Testimony, Tr. 254 - 278; Taylor (Leprino) Testimony, Tr. 1718 - 1720; Hollon (DFA) Testimony, Tr. 1608 - 1614), there are substantial costs associated with setting the regulated price too high. A regulated minimum price that is too high encourages additional milk production in a market that does not have a ready outlet for it. In the absence of existing plant capacity, cooperatives that are not subject to minimum price provisions step into the void and either transport the milk out of the region at great cost or build otherwise unneeded local plant capacity.

<u>The Department erroneously concludes that the margins allowed for processors under the pricing provisions of the Recommended Decision are entirely adequate for processors to maintain their operations</u>.

The Recommended Decision analysis of Class III margins is flawed because it fails to consider the costs to make sweet whey and whey butter. The Department defines the gross margin as the revenue remaining from the sale of cheese, sweet whey, and whey butter after subtracting the cost of the milk used to make those products. The gross margin represents the amount of money available to the processor to procure, process, and market the end products mentioned above. However, in its analysis the Department compares the gross margin generated from cheese, sweet cream and whey butter with the cost of processing cheese only. It is no surprise that it would appear that the formulas are generous when the costs associated with two of the three product streams are not recognized.

Although the Department does not clearly reveal their methodology in calculating the gross margin in the Recommended Decision, independently we are able to closely approximate their results, as shown in Attachment G. In our analysis, we calculate a gross margin under the Final Rule of $2.99 per hundredweight (off 1 cent) and a gross margin of $2.50 per hundredweight under the Recommended Decision (off 2 ¢).

In comparing these gross margins to the cost of making cheese (either $1.65 or $1.70 per hundredweight), the Department notes that these margins exceed the cost of manufacture. However, if the revenues from sweet whey and whey butter are included, then the Department cannot ignore the costs associated with the manufacture of these revenue generating products. The Department's analysis employs Upper Midwest Class III milk components that average 3.59 pounds fat, 3.01 pounds protein, and 5.71 pounds other solids. At these component levels, the processor would on average yield 9.9 pounds of cheese, 5.9 pounds of whey, and 0.44 pounds of whey butter using the yield factors of the Final Rule and Recommended Decision. Using the per pound make allowances contained in the Recommended Decision for these products of $0.165 per pound, $0.159 per pound, and $0.115 per pound, respectively, the total cost to process a hundredweight of milk into these three products is $2.62.

When these total processing costs are compared to the gross margin, the result is certainly not margins "entirely adequate" to cover the costs to procure, process, and market products. In fact, <u>the margins under the pricing provisions of the Recommended Decision are not sufficient to cover the processing costs, let alone costs associated with procurement and marketing</u>. The Department reports a gross margin of $2.52 under the Recommended Decision, which is 10 cents per hundredweight below than the processing costs. This error is significant. It is clear that the Recommended Decision must be substantially modified or it will cause significant harm to the industry.

3. The Recommended Decision correctly:

A. Retained a cheese yield of fat factor of no greater than 1.582;

B. Increased the dry whey make allowance to no less than 15.92¢;

C. Eliminated the other solids price snubber; and

D. Reduced the butterfat to protein relationship factor to 1.17[6].

Conclusion

For the reasons cited above, which are based wholly upon and substantiated by evidence in the Hearing Record, the Department should adopt these suggested changes to the Class III component prices.

Respectfully submitted,

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[6] See Attachment G for further elaboration.

Attachment A

VanSlyke Vat Yield Calculations at National Average Milk Composition[7]

Assumptions: 90% fat retention
82.2% casein in true protein
38% moisture cheddar

cheddar pounds
$$= \frac{[(0.9 \times 3.694) + (3.018 \times 0.822 - 0.1)] \times 1.09}{(1 - 0.38)}$$

$$= \frac{(3.3246 + 2.3808) \times 1.09}{0.62}$$

$$= \frac{5.7054 \times 1.09}{0.62}$$

$$= \frac{6.2189}{0.62}$$

= 10.03 pounds cheddar

cheddar pounds attributable to fat
$$= \frac{(0.9 \times 3.694) \times 1.09}{(1 - 0.38)}$$

$$= \frac{3.3246 \times 1.09}{0.62}$$

$$= \frac{3.6238}{0.62}$$

= 5.8449 pounds cheddar

The yield contribution per pound fat:
cheddar pounds per pound fat
$$= \frac{5.8449 \text{ pounds cheddar}}{3.694 \text{ pounds fat}}$$

$$= \frac{1.582 \text{ pounds cheddar}}{\text{pound fat}}$$

---

[7]National average composition based upon component data during calendar year 2000 for those Federal Milk Marketing Orders publishing full component data.

A similar process can be used to isolate the yield contribution of protein, as follows:

$$\text{cheddar pounds attributable to protein} = \frac{(3.018 \times 0.822 - 0.1) \times 1.09}{(1 - 0.38)}$$

$$= \frac{2.3808 \times 1.09}{0.62}$$

$$= \frac{2.5951}{0.62}$$

$$= 4.1856 \text{ pounds cheese}$$

Yield contribution per pound true protein in the vat:

$$= \frac{4.1856 \text{ pounds cheddar}}{3.018 \text{ pounds true protein}}$$

$$= \frac{1.387 \text{ pounds cheddar}}{\text{pound true protein}}$$

Attachment B

The Department justifies the decision not to reduce the true protein yield factor based, in part, upon a flawed methodology. This methodology was explained in the context of the original 1.32 pounds cheddar per pound total protein yield factor in the pre-Reform multiple component pricing Orders. This flawed methodology has the effect of eliminating the casein loss factor from the numerator in the VanSlyke yield formula. The methodology is described below:

Federal Register / Vol 66, No.207 (Page 54083):
The first involved assumption of 75 percent casein retention, 90 percent butterfat retention, and 38 percent moisture content in the cheese. Holding butterfat and moisture constant and changing the protein content by .1 results in a .1318 (rounded to .132) pound change in the cheese yield, or a one percent change in protein results in a 1.32 pound change in cheese yield.

Interpretation:

	yield @ 3.3 pounds total protein	$= \dfrac{(3.3 \times 0.75 - 0.1)\times 1.09}{(1 - 0.38)}$	=	4.17540 pounds cheese
Less:	yield @ 3.2 pounds total protein	$= \dfrac{(3.2 \times 0.75 - 0.1)\times 1.09}{(1 - 0.38)}$	=	4.04355 pounds cheese
Equals:	0.1 pounds total protein			0.13185 pounds cheese

Conversion to yield per pound:

0.13185 per tenth pound protein = 1.3185 per pound protein (later rounded to 1.32)

Calculated yield at 3.5# fat / 3.2# total protein using yield factors:

(3.5# fat x 1.582# cheddar / # fat) + (3.2 # total protein x 1.32 # cheddar / # total protein) = 9.76

Proof to VanSlyke yield formula at 3.5# fat / 3.2# total protein:

$$\frac{(3.5 \times 0.9 + 3.2 \times 0.75 - 0.1)\times 1.09}{(1 - 0.38)} = 9.58$$

Yield based on yield factors: 9.76 pounds cheddar
less Yield based on VanSlyke formula: 9.58 pounds cheddar
Overstatement of yield 0.18 pounds cheddar

Proof to VanSlyke yield formula altered to remove casein loss factor[8]

$$\frac{(3.5 \times 0.9 + 3.2 \times 0.75) \times 1.09}{(1 - 0.38)} = 9.76$$

Conclusion: The calculation of a protein yield factor based on the incremental approach outlined above is inconsistent with the VanSlyke yield formula and the Hearing Record.

[8] This calculation is being made strictly to demonstrate that the effect of the Department's methodology is to eliminate the casein loss factor from the VanSlyke formula. This alteration is in conflict with the Hearing Record (Barbano (Cornell) Testimony, Tr. 524).

Insert Attachment C Here

Cheese Yield Calculations based upon Standard Milk Composition

		Fat	True Protein	Total
1	Farm Composition	3.5000	2.9915	
2	less: farm to plant volume loss (0.25%)	(0.0088)	(0.0075)	
3	less fat lost on surfaces prior to receipt in plant	(0.0150)		
4	volume delivered to plant (lines 1 + 2 + 3)	3.4763	2.9840	
5				
6	*Assuming no receiving, separating losses in plant prior to vat*			
7	components to vat	3.4763	2.9840	
8				
9	fat retention	90.60%		
10	casein in true protein		82.2%	
11	cheese moisture	38.0%	38.0%	
12				
13	Cheddar Yield (calculated using VanSlyke @ vat components)	5.5370	4.1365	9.6735
14				
15	Yield per pound farm component (line 13 / line 1)	1.582	1.383	

Insert Attachment D Here

Attachment D

Calculation of residual fat marketable as whey cream

		Transcript Reference		Fat Pounds
1	Standard Milk Composition			3.5000
2	less: farm to plant volume loss (0.25%)	Taylor (1728), Hollon (1563), Throne (1685)		(0.0088)
3	less fat lost on surfaces prior to receipt in plant	Taylor (1728)		(0.0150)
4	volume delivered to plant (lines 1 + 2 + 3)			3.4763
5				
6	Calculation of fat in finished cheddar			
7	volume delivered to plant (line 4)		3.4763	
8	vat fat retention		90.60%	
9	Fat captured in cheddar (line 7 * 8)			3.1495
10				
11				
12	Calculation of fat lost in cheddaring, salting, pressing			
13	Assumed vat fat (line 4)		3.4763	
14	loss as percent of plant fat	Barbano (776)	2.00%	
15	Fat lost in cheddaring, salting, pressing (line 13 * 14)			0.0695
16				
17	Calculation of fat in sweet whey			
18	Sweet whey per cwt		5.8817	
19	Fat composition of sweet whey	Barbano (787) see note below	1.25%	
20	Fat in sweet whey (line 18 * 19)			0.0735
21				
22	Fat losses reflected in effluent losses, not specifically identified			
23	Assumed plant fat		3.4763	
24	ifference between 2.35% average effluent loss and 2% abov	Lenahan (1251 - 1256)	0.35%	
25	at losses reflected in effluent losses, not specifically identified			0.0122
26				
27	esidual fat marketable as whey cream (line 4 - 9 - 15 - 20 - 25)			0.1716
28				
29	divided by original farm fat			3.5
30				
31	Percent of fat recoverable as whey cream			4.9%

Note: Barbano testified that some fat "winds up in the whey powder"; for specific fat composition in whey powder see:
U.S. Sweet Whey Powder specifications at http://usdec.org/products/wheyspecs/SweetWheyPowder.htm, and
USDA Standards for Dry Whey at http://www.ams.usda.gov/standards/dry_whey_standards_12-14-00.PDF

Insert Attachment E Here

Mass Balance Calculation of Components Marketable As Sweet Whey

	Fat	Casein Protein	Non-Casein Protein	True Protein	Other Solids	Nonfat Solids	Total Solids
Standard Milk Composition for Nonfat Components	3.5000	2.4590	0.5325	2.9915	5.6935	8.6850	12.1850
less: farm to plant volume loss (0.25%)	(0.0088)	(0.0061)	(0.0013)	(0.0075)	(0.0142)	(0.0217)	(0.0305)
less: loss on surfaces prior to receipt at plant	(0.0150)						(0.0150)
equals: volume delivered to plant	3.4763	2.4529	0.5312	2.9840	5.6793	8.6633	12.1395
less: Components Captured in Cheddar	3.1495	2.3529	0.3308	2.6837		2.6837	5.8331
- fat at 90.6% of 3.4763							
- casein at 0.1 less than 2.4539							
- non-fat / non-casein is difference of total non-fat / non-casein solids in cheese of 0.4952 and salt in cheese (0.1644 at 1.7%) assuming yield of 9.6735 pounds of cheese from 3.1495 fat and 2.3529 casein.							
less: 2.00% from 3.4763 in cheddaring, salting, pressin	0.0695						0.0695
less: 2.35% loss reflected in effluent (net 0.35% for fat)	0.0122	0.0576	0.0125	0.0701	0.1335	0.2036	0.2158
less: Components in Whey Cream	0.1716					0.0221	0.1937
- fat see Attachment D							
- 0.1716 fat of 32.5% fat in whey cream yields 0.5279 pounds of whey cream. Assume 6.2% solids in skim whey.							
equals: Components in Sweet Whey	0.0735					5.7539	5.8274
less Standard Milk Composition Other Solids Component							5.6935
equals: Underestimate of Whey Yield per Hundredweight at Standard Composition							0.1339

Insert Attachment F Here

Calculation of Block / Barrel Price Difference: September 1998 - June 2000

Week End Date	Publication Date	NASS U.S. 40# Blocks ($/lb)	NASS U.S. 500# Barrels @ 39% Moist. ($/lb)	Spread: Block less 39% Barrels ($/lb)	NASS U.S. 500# Barrels @ 38% Moist.[1] ($/lb)	Spread: Block less 38% Barrels ($/lb)
11-Sep-98	17-Sep-98	$1.6436	$1.5403	$0.1033	$1.5656	$0.0780
18-Sep-98	24-Sep-98	$1.6599	$1.6162	$0.0437	$1.6427	$0.0172
25-Sep-98	1-Oct-98	$1.6806	$1.6563	$0.0243	$1.6835	($0.0029)
2-Oct-98	8-Oct-98	$1.7240	$1.7070	$0.0170	$1.7350	($0.0110)
9-Oct-98	15-Oct-98	$1.7441	$1.7322	$0.0119	$1.7606	($0.0165)
16-Oct-98	22-Oct-98	$1.7690	$1.7323	$0.0367	$1.7607	$0.0083
23-Oct-98	29-Oct-98	$1.7817	$1.7709	$0.0108	$1.7999	($0.0182)
30-Oct-98	5-Nov-98	$1.8029	$1.7560	$0.0469	$1.7848	$0.0181
6-Nov-98	12-Nov-98	$1.8211	$1.7880	$0.0331	$1.8173	$0.0038
13-Nov-98	19-Nov-98	$1.8328	$1.8066	$0.0262	$1.8362	($0.0034)
20-Nov-98	26-Nov-98	$1.8481	$1.8139	$0.0342	$1.8436	$0.0045
27-Nov-98	3-Dec-98	$1.8529	$1.8168	$0.0361	$1.8466	$0.0063
4-Dec-98	10-Dec-98	$1.8544	$1.8206	$0.0338	$1.8504	$0.0040
11-Dec-98	17-Dec-98	$1.8579	$1.8300	$0.0279	$1.8600	($0.0021)
18-Dec-98	24-Dec-98	$1.8828	$1.8362	$0.0466	$1.8663	$0.0165
25-Dec-98	31-Dec-98	$1.8893	$1.8319	$0.0574	$1.8619	$0.0274
1-Jan-99	7-Jan-99	$1.8745	$1.8128	$0.0617	$1.8425	$0.0320
8-Jan-99	14-Jan-99	$1.8799	$1.8011	$0.0788	$1.8306	$0.0493
15-Jan-99	21-Jan-99	$1.8148	$1.7458	$0.0690	$1.7744	$0.0404
22-Jan-99	28-Jan-99	$1.7257	$1.5926	$0.1331	$1.6187	$0.1070
29-Jan-99	4-Feb-99	$1.4397	$1.3594	$0.0803	$1.3817	$0.0580
5-Feb-99	11-Feb-99	$1.3062	$1.2488	$0.0574	$1.2693	$0.0369
12-Feb-99	18-Feb-99	$1.2907	$1.2347	$0.0560	$1.2549	$0.0358
19-Feb-99	25-Feb-99	$1.3068	$1.2669	$0.0399	$1.2877	$0.0191
26-Feb-99	4-Mar-99	$1.3017	$1.2747	$0.0270	$1.2956	$0.0061
5-Mar-99	11-Mar-99	$1.3092	$1.2766	$0.0326	$1.2975	$0.0117
12-Mar-99	18-Mar-99	$1.3093	$1.2729	$0.0364	$1.2938	$0.0155
19-Mar-99	25-Mar-99	$1.3094	$1.2783	$0.0311	$1.2993	$0.0101
26-Mar-99	1-Apr-99	$1.3090	$1.2716	$0.0374	$1.2924	$0.0166
3-Apr-99	9-Apr-99	$1.3097	$1.2806	$0.0291	$1.3016	$0.0081
10-Apr-99	16-Apr-99	$1.3149	$1.2871	$0.0278	$1.3082	$0.0067
17-Apr-99	23-Apr-99	$1.3143	$1.2846	$0.0297	$1.3057	$0.0086
24-Apr-99	30-Apr-99	$1.3136	$1.2773	$0.0363	$1.2982	$0.0154
1-May-99	7-May-99	$1.3111	$1.2572	$0.0539	$1.2778	$0.0333
8-May-99	14-May-99	$1.2990	$1.2327	$0.0663	$1.2529	$0.0461
15-May-99	21-May-99	$1.2806	$1.2109	$0.0697	$1.2308	$0.0498
22-May-99	28-May-99	$1.2396	$1.1920	$0.0476	$1.2115	$0.0281
29-May-99	4-Jun-99	$1.2113	$1.1736	$0.0377	$1.1928	$0.0185
5-Jun-99	11-Jun-99	$1.2250	$1.1928	$0.0322	$1.2124	$0.0126
12-Jun-99	18-Jun-99	$1.2562	$1.2355	$0.0207	$1.2558	$0.0004
19-Jun-99	25-Jun-99	$1.2905	$1.2739	$0.0166	$1.2948	($0.0043)
26-Jun-99	2-Jul-99	$1.3254	$1.3032	$0.0222	$1.3246	$0.0008
3-Jul-99	9-Jul-99	$1.4039	$1.3795	$0.0244	$1.4021	$0.0018
10-Jul-99	16-Jul-99	$1.4443	$1.4184	$0.0259	$1.4417	$0.0026
17-Jul-99	23-Jul-99	$1.4925	$1.4212	$0.0713	$1.4445	$0.0480
24-Jul-99	30-Jul-99	$1.5434	$1.4848	$0.0586	$1.5091	$0.0343
31-Jul-99	6-Aug-99	$1.5810	$1.5403	$0.0407	$1.5656	$0.0154
7-Aug-99	13-Aug-99	$1.6538	$1.6137	$0.0401	$1.6402	$0.0136
14-Aug-99	20-Aug-99	$1.7218	$1.6946	$0.0272	$1.7224	($0.0006)
21-Aug-99	27-Aug-99	$1.8144	$1.7653	$0.0491	$1.7942	$0.0202
28-Aug-99	3-Sep-99	$1.8842	$1.8351	$0.0491	$1.8652	$0.0190
4-Sep-99	10-Sep-99	$1.9095	$1.7898	$0.1197	$1.8191	$0.0904
11-Sep-99	17-Sep-99	$1.8526	$1.6681	$0.1845	$1.6954	$0.1572
18-Sep-99	24-Sep-99	$1.7661	$1.5684	$0.1977	$1.5941	$0.1720

Insert Attachment F - - page 2 Here

Attachment F

25-Sep-99	1-Oct-99	$1.7021	$1.5018	$0.2003	$1.5264	$0.1757
2-Oct-99	8-Oct-99	$1.6243	$1.4744	$0.1499	$1.4986	$0.1257
9-Oct-99	15-Oct-99	$1.5305	$1.4340	$0.0965	$1.4575	$0.0730
16-Oct-99	22-Oct-99	$1.4462	$1.3324	$0.1138	$1.3542	$0.0920
23-Oct-99	29-Oct-99	$1.3518	$1.2530	$0.0988	$1.2735	$0.0783
30-Oct-99	5-Nov-99	$1.3126	$1.2490	$0.0636	$1.2695	$0.0431
6-Nov-99	12-Nov-99	$1.2806	$1.2299	$0.0507	$1.2501	$0.0305
13-Nov-99	19-Nov-99	$1.2396	$1.2056	$0.0340	$1.2254	$0.0142
20-Nov-99	26-Nov-99	$1.1833	$1.1443	$0.0390	$1.1631	$0.0202
27-Nov-99	3-Dec-99	$1.1426	$1.0966	$0.0460	$1.1146	$0.0280
4-Dec-99	10-Dec-99	$1.1238	$1.0878	$0.0360	$1.1056	$0.0182
11-Dec-99	17-Dec-99	$1.1142	$1.0913	$0.0229	$1.1092	$0.0050
18-Dec-99	24-Dec-99	$1.1355	$1.1100	$0.0255	$1.1282	$0.0073
25-Dec-99	31-Dec-99	$1.1769	$1.1552	$0.0217	$1.1741	$0.0028
1-Jan-00	7-Jan-00	$1.1465	$1.1465	$0.0000	$1.1653	($0.0188)
8-Jan-00	14-Jan-00	$1.1675	$1.1415	$0.0260	$1.1602	$0.0073
15-Jan-00	21-Jan-00	$1.1627	$1.1425	$0.0202	$1.1612	$0.0015
22-Jan-00	28-Jan-00	$1.1363	$1.1156	$0.0207	$1.1339	$0.0024
29-Jan-00	4-Feb-00	$1.1140	$1.0989	$0.0151	$1.1169	($0.0029)
5-Feb-00	11-Feb-00	$1.1106	$1.0842	$0.0264	$1.1020	$0.0086
12-Feb-00	18-Feb-00	$1.1013	$1.0769	$0.0244	$1.0946	$0.0067
19-Feb-00	25-Feb-00	$1.1036	$1.0758	$0.0278	$1.0934	$0.0102
26-Feb-00	3-Mar-00	$1.0963	$1.0799	$0.0164	$1.0976	($0.0013)
4-Mar-00	10-Mar-00	$1.0958	$1.0837	$0.0121	$1.1015	($0.0057)
11-Mar-00	17-Mar-00	$1.0956	$1.0845	$0.0111	$1.1023	($0.0067)
18-Mar-00	24-Mar-00	$1.1012	$1.0891	$0.0121	$1.1070	($0.0058)
25-Mar-00	31-Mar-00	$1.1047	$1.0848	$0.0199	$1.1026	$0.0021
1-Apr-00	7-Apr-00	$1.0986	$1.0824	$0.0162	$1.1001	($0.0015)
8-Apr-00	14-Apr-00	$1.0986	$1.0809	$0.0177	$1.0986	$0.0000
15-Apr-00	21-Apr-00	$1.0985	$1.0723	$0.0262	$1.0899	$0.0086
22-Apr-00	28-Apr-00	$1.0961	$1.0674	$0.0287	$1.0849	$0.0112
29-Apr-00	5-May-00	$1.0977	$1.0641	$0.0336	$1.0815	$0.0162
6-May-00	12-May-00	$1.0897	$1.0709	$0.0188	$1.0885	$0.0012
13-May-00	19-May-00	$1.0927	$1.0816	$0.0111	$1.0993	($0.0066)
20-May-00	26-May-00	$1.0863	$1.0855	$0.0008	$1.1033	($0.0170)
27-May-00	2-Jun-00	$1.0882	$1.0793	$0.0089	$1.0970	($0.0088)
3-Jun-00	9-Jun-00	$1.0882	$1.0614	$0.0268	$1.0788	$0.0094
10-Jun-00	16-Jun-00	$1.0870	$1.0711	$0.0159	$1.0887	($0.0017)
17-Jun-00	23-Jun-00	$1.0965	$1.0989	($0.0024)	$1.1169	($0.0204)
24-Jun-00	30-Jun-00	$1.1296	$1.1346	($0.0050)	$1.1532	($0.0236)
Average		$1.4014	$1.3574	$0.0440	$1.3796	$0.0218

[1] 38% Moisture Adjusted Barrel Price = 39% Moisture Adjusted Barrel Price * (62/61)

Insert Attachment G Here

Upper Midwest Gross Margin Analysis

				Yields			Prices				FINAL RULE							RECOMMENDED DECISION						
Month	Cl III Fat	Cl III Protein	Cl III Other Solids	Cheese	Whey	Whey Butter	NASS Cheese $	NASS Whey $	NASS Butter $	Total Revenue	Protein $	OS $	Fat $	Milk Cost	Gross Margin	Che, Wh, Butter Make	GM less Make	Protein $	OS $	Fat $	Milk Cost	Gross Margin	Che, Wh, Butter Make	GM less Make
Jan-00	3.78	3.05	5.66	10.26	5.85	0.46	1.1517	0.1857	0.8820	13.27	2.1677	0.0503	0.9366	10.43	2.84	2.60	0.24	2.2654	0.0276	0.9354	10.60	2.67	2.68	(0.00)
Feb-00	3.67	3.03	5.69	10.07	5.88	0.45	1.1067	0.1788	0.9002	12.56	1.9849	0.0432	0.9588	9.78	2.78	2.57	0.21	2.0920	0.0205	0.9576	9.97	2.58	2.65	(0.06)
Mar-00	3.66	3.01	5.73	10.01	5.92	0.45	1.1093	0.1780	0.9497	12.54	1.9166	0.0424	1.0191	9.73	2.81	2.57	0.24	2.0392	0.0196	1.0179	9.97	2.58	2.64	(0.07)
Apr-00	3.63	3.00	5.73	9.96	5.92	0.44	1.1011	0.1765	1.0449	12.44	1.7399	0.0408	1.1352	9.58	2.86	2.56	0.30	1.8883	0.0181	1.1340	9.89	2.55	2.64	(0.09)
May-00	3.57	2.96	5.75	9.80	5.94	0.44	1.1022	0.1760	1.1680	12.32	1.5514	0.0403	1.2854	9.41	2.91	2.53	0.38	1.7364	0.0176	1.2841	9.82	2.50	2.61	(0.12)
Jun-00	3.55	2.95	5.75	9.76	5.94	0.43	1.1137	0.1794	1.2725	12.45	1.4278	0.0438	1.4128	9.48	2.97	2.53	0.44	1.6377	0.0211	1.4116	9.96	2.48	2.61	(0.12)
Jul-00	3.51	2.92	5.73	9.65	5.92	0.43	1.2189	0.1909	1.1547	13.35	1.9726	0.0557	1.2691	10.53	2.82	2.50	0.32	2.1325	0.0330	1.2679	10.86	2.49	2.58	(0.09)
Aug-00	3.51	2.93	5.71	9.68	5.90	0.43	1.1660	0.1929	1.1520	12.87	1.7952	0.0577	1.2659	10.04	2.84	2.50	0.33	1.9605	0.0350	1.2646	10.39	2.48	2.58	(0.10)
Sep-00	3.62	3.03	5.69	9.98	5.88	0.44	1.2315	0.1856	1.1560	13.85	2.0137	0.0502	1.2707	10.98	2.87	2.55	0.32	2.1689	0.0275	1.2695	11.31	2.54	2.63	(0.10)
Oct-00	3.68	3.08	5.69	10.15	5.88	0.45	1.1602	0.1826	1.1344	13.32	1.8028	0.0471	1.2444	10.40	2.92	2.58	0.34	1.9638	0.0244	1.2432	10.77	2.56	2.66	(0.10)
Nov-00	3.68	3.10	5.69	10.18	5.88	0.45	1.0245	0.1917	1.4051	12.14	0.9149	0.0565	1.5745	8.95	3.19	2.59	0.60	1.1682	0.0338	1.5733	9.60	2.54	2.67	(0.13)
Dec-00	3.70	3.11	5.67	10.22	5.85	0.45	1.0898	0.2172	1.4698	13.04	1.0378	0.0829	1.6534	9.82	3.22	2.59	0.63	1.3039	0.0601	1.6522	10.51	2.53	2.67	(0.14)
Jan-01	3.66	3.06	5.67	10.08	5.86	0.45	1.1077	0.2484	1.1725	13.11	1.5632	0.1151	1.2909	10.16	2.95	2.57	0.38	1.7450	0.0924	1.2896	10.58	2.53	2.65	(0.12)
Feb-01	3.58	3.05	5.71	9.95	5.90	0.44	1.1358	0.2561	1.3143	13.34	1.4383	0.1230	1.4638	10.33	3.01	2.55	0.46	1.6562	0.1003	1.4626	10.86	2.48	2.63	(0.15)
Mar-01	3.61	3.04	5.70	9.98	5.88	0.44	1.2619	0.2406	1.4942	14.63	1.5900	0.1070	1.6832	11.52	3.11	2.56	0.56	1.8387	0.0843	1.6820	12.14	2.49	2.63	(0.14)
Apr-01	3.48	3.01	5.73	9.73	5.92	0.42	1.3304	0.2446	1.7126	15.09	1.4841	0.1112	1.9495	11.89	3.20	2.52	0.68	1.7817	0.0884	1.9483	12.65	2.44	2.60	(0.16)
May-01	3.42	2.98	5.75	9.60	5.94	0.42	1.4997	0.2590	1.8527	16.66	1.8460	0.1260	2.1204	13.48	3.19	2.49	0.69	2.1573	0.1033	2.1191	14.27	2.40	2.58	(0.18)
Jun-01	3.43	2.96	5.72	9.59	5.91	0.42	1.6068	0.2764	1.9263	17.80	2.0986	0.1440	2.2101	14.62	3.19	2.49	0.70	2.4150	0.1213	2.2089	15.42	2.38	2.57	(0.19)
Jul-01	3.39	2.91	5.71	9.45	5.90	0.41	1.6434	0.2862	1.9094	17.97	2.2505	0.1541	2.1895	14.85	3.12	2.46	0.66	2.5546	0.1314	2.1883	15.60	2.37	2.55	(0.18)
Avg	3.59	3.01	5.71	9.90	5.90	0.44	1.2190	0.2130	1.3195	13.83	1.7156	0.0785	1.4702	10.84	2.99	2.54	0.45	1.9213	0.0558	1.4690	11.33	2.50	2.62	(0.12)

Note: NASS Cheese Price is series used in Final Rule (39% barrels + $0.03)

Attachment H

<u>The fat to protein ratio factor of 1.28 in the protein component formula was correctly reduced to 1.17.</u>

The reduction in the fat to protein ratio factor in the protein formula from 1.28 to 1.17 fully addresses the concern expressed by many that increasing butter prices had a dampening effect on the standard 3.5% Class III price under the Reform formulas. By reducing the 1.28 factor to 1.17 in the protein formula, the protein formula now reflects cheddar yields calculated using an assumed milk composition that is consistent with the milk composition that is quoted as "standard 3.5%" milk.

The Reform formula captured the incremental cheese yield value of 3.8291 pounds of fat (2.9915 x 1.28), rather than 3.5 pounds, in the protein formula. Because the Reform protein formula reflects the difference between the cheese value and butter value of this additional 0.32912 pounds of fat, the quoted standardized milk price per hundredweight changed by 0.32912 times the change in the Class III fat price at constant cheese and whey prices. In other words, the Class III price decreased by 0.32912 times the butter price increase divided by the butter price yield of 0.82.

The adoption of a 1.17 fat to protein ratio in the Recommended Decision makes the fat for which the difference in value between cheese and butter is captured in the protein formula consistent with the fat pounds assumed in standardized milk. That is to say, 2.9915 pounds protein times 1.17 pounds fat to protein ratio in the protein formula equals 3.5 pounds fat, the same composition as is typically referenced as the "standard milk" composition.

Importantly, in addition to being consistent with the standardized milk assumptions, the 1.17 factor is reflective of the fat to true protein ratio in raw milk in the Orders with the lowest raw milk fat to protein ratio. Setting the ratio at no higher than the farm milk fat to protein ratio is sound policy as it preserves cheesemakers' ability to procure cream to complement protein if the cheese value of fat exceeds the butter value of fat. Under the Reform formulas, cheesemakers were paying in the raw milk protein price for fat value that did not exist in the raw milk, but rather was attributable to additional fat that would need to be procured in the form of cream.

The reduction in the 1.28 factor to 1.17 fully addresses the concern articulated by many at the Hearing that the Class III price at 3.5% declined at increasing butter prices and steady cheese and whey prices. No other changes in the formula are necessary to address the phenomenon of changing Class III prices under moving butter and constant cheese and whey prices.