Central Valley Regional Water Quality Control Board
6 February 2014 Board Meeting

**Prosecution Team's Rebuttal**

Administrative Civil Liability Complaint R5-2013-0592
For
Henry J. Tosta
Reeve Road Heifer Ranch
San Joaquin County

---

The Central Valley Regional Water Quality Control Board (Central Valley Water Board) Prosecution Team submits the following rebuttal to the Discharger's evidence and argument submitted on 6 January 2014 regarding Administrative Civil Liability (ACL) Complaint R5-2013-0592 (hereafter Complaint).

## I. Discharger's Claim of Financial Hardship

Contention: The Discharger contends he is unable to pay the proposed liability.

**Prosecution Team Response:** The Discharger's claim that he is unable to pay the proposed liability amount of $310,775 is not supported by the evidence[1]. An impartial review of the Discharger's financial situation indicates that he *is* able to pay the liability proposed. Even if the Discharger were unable to pay the proposed liability, his inability to pay is not a determinative factor requiring a reduction in liability. The Prosecution Team asserts that the Discharger's conduct which gives rise to the Complaint as well the manner in which he is currently operating the Tosta Dairy, warrant the imposition of the liability proposed, even if doing so would impact Mr. Tosta's ability to continue in business.

A. The Discharger's evidence does not support his contention of inability to pay.

Dr. Gerald Horner, State Water Resources Control Board (State Water Board) Economist, prepared a detailed rebuttal analysis of the Discharger's claims of inability to pay and continue in business (Attachment A) and will testify at the hearing, as an expert witness, if necesssary. Dr. Horner's conclusion is that the Discharger[2] has the ability to pay the proposed liability of $310,775 and continue in business. The Discharger may not have cash in-hand to pay the proposed liability but Dr. Horner asserts that the Discharger's ability to pay is also dependent on the amount of the Discharger's capital assets. The Discharger's reported 2012 capital equity or net equity is $1,632,922. (see Form 1065 for 2012, Schedule L).

---

[1] The basis for the Discharger's assertion regarding his financial hardship is based on the adjusted gross income he earned in the years 2009, 2010 and 2011. (Discharger's Evidence Submission, Exhibit 1, "Discharger's Ability to Pay and Continue in Business"), a declaration of Mr. Fuhrman (Discharger's Evidence Submission, Exhibit 3) and the Discharger's unaudited balance sheets and U.S. Return of Partnership Income for 2008, 2009, 2010, 2011, and 2012 (Discharger's Evidence Submission, Exhibit 2).

[2] The term "Discharger" in this section refers to Mr. Henry J. Tosta and the Henry J. Tosta, Jr. Family Limited Partnership which Mr. Tosta is a one percent owner of.

The Discharger may utilize the equity capital as collateral to pay or finance the payment of the proposed $310,775 penalty. Moreover, the trend in the Discharger's annual income has improved steadily over time from a negative income of $973,823 in the year 2009 to a positive income of $572,576 in 2012. The Discharger's increasing income trend provides a strong foundation to pay the proposed ACL. Additionally, net cash flow in 2012 of $652,794 indicates a positive basis for the Discharger's future financial health. Therefore, even with the outstanding administrative civil liability of $685,000 assessed by the Board on 25 July 2013 in the matter of R5-2013-0561 for the Henry Tosta Dairy, net equity in the Discharger's business operation provides adequate means for the Discharger to pay or finance the $310,775 proposed liability in this matter and continue in business.

B. Even if Discharger is unable to pay and continue in business, the proposed liability is appropriate.

Even if the Central Valley Water Board finds that the Discharger is unable to pay the proposed liability, the Prosecution Team asserts that it should nevertheless impose the liability, even if doing so would impact the Discharger's ability to continue in business.

Water Code section 13327 requires that the Central Valley Water Board *consider* a discharger's ability to pay and continue in business when determining the amount of civil liability. It does not, however, require that the liability imposed be set at an amount which the discharger *can* pay or at a level that will allow the discharger to continue in business. This interpretation is supported by language in the Enforcement Policy which provides that "***[i]n most cases***, it is in the public interest for the discharger to continue in business and bring its operations into compliance" and that the liability amount "***may*** be adjusted to address the ability to pay or to continue in business." [emphasis added.]

In this case, given the egregiousness of the violations alleged in the Complaint, along with Mr. Tosta's current business practices at the Henry Tosta Dairy, the Prosecution Team urges the Central Valley Water Board to impose the proposed liability, even if the Discharger does not have the ability to pay the liability and even if the imposition of liability would impact Mr. Tosta's ability to continue in business. Attachment B is the report of an inspection conducted at the Henry Tosta Dairy by Central Valley Water Board staff on 9 January 2014, and includes photographs and two videos taken at the time of the inspection. This report documents the current conditions at the Tosta Dairy, conditions which are not acceptable under the Dairy General Order. In contrast, Attachment C is a recent inspection of a typical dairy which is compliant with the Dairy General Order, particularly relating to the management of manure. Attachment B evidences a grave situation reflecting violations of the Dairy General Order where the accumulated manure slurry overrunning the corrals poses a significant threat to surface water quality should there be a rain event. When coupled with the nature of the violations alleged in the Complaint concerning the Reeve Road Heifer Ranch—where Mr. Tosta intentionally buried numerous cows from the Henry Tosta Dairy resulting in groundwater contamination in clear violation of the Dairy General Order—the Prosecution Team asserts that the liability amount is a fair and appropriate penalty assessment, even if Mr. Tosta is unable to pay and unable to continue in business.

C. The Declaration of Mr. Fuhrman should not be relied on to support the Discharger's claim of financial hardship.

As a procedural matter, the Prosecution Team has objected to the admission of Mr. Fuhrman's declaration into evidence. If the declaration of Mr. Fuhrman is admitted, the Prosecution Team submits the following rebuttal for the Central Valley Water Board's consideration.

1. Mr. Fuhrman contends that the ABEL model was not used to determine the Discharger's ability to pay the proposed civil liability.

**Prosecution Team Response:** Dr. Horner *did* initially use the ABEL model which indicated the Discharger's inability to pay the proposed liability amount of $1,140,713 in ACLC R5-2012-0561. However, in cases where the ABEL analysis indicates an inability to pay, further analysis is necessary to determine whether other financial information not considered in the ABEL model *would* support a finding of ability to pay.

2. Mr. Fuhrman contends that the Ability to Pay analysis submitted by the Central Valley Water Board Prosecution Team for ACLC R5-2012-0561 was improperly performed and based on improper assumptions and incorrectly drawn inferences about the Discharger's ability to generate capital gains.

**Prosecution Team Response:** Mr. Fuhrman relies solely on the ABEL model to conclude the Discharger does not have the ability to pay a civil penalty (see page 3 of Mr. Fuhrman's declaration). This myopic approach is inconsistent with the United States Environmental Protection Agency's (USEPA) own guidance with respect to the use of the ABEL model. USEPA's guidance document titled, "Overview of Ability to Pay Guidance And Models" (Attachment D) which notes that, "[b]ecause ABEL is designed as a conservative screening tool that focuses only on internal cash flow, it may produce a negative or ambiguous result when a violator has the ability to pay through other means, such as reduction of unnecessary expenses, sale of or borrowing against assets, or assumption of additional debt." (U.S. EPA's, *Overview of Ability to Pay Guidance And Models*, May 1995, p.4). In addition, the guidance document suggests that ABEL may not be an appropriate tool for considering a partnership's ability to pay; "ABEL conducts an ability to pay assessment of a for-profit corporation. ABEL is not designed to evaluate the ability to pay of other financial entities such as municipalities, partnerships or individuals." *Id.* at 3. Mr. Horner's ability to pay analysis, which considers income generated as well as capital equity, is consistent with situations that produce a negative or ambiguous result under the ABEL model and that warrant an analysis beyond ABEL to consider the ability to pay through an alternative analysis. The analysis of income, assets and liabilities shows that the Discharger has the ability to pay the ACL assessed.

## II. Enforcement Policy Factors – VIOLATION A (Discharge of Dead Cows to Groundwater)

A. Contention: The Discharger contends that, for Violation A, the "Per Day" factor should be calculated at 0.10 or less because the deviation from requirements was not major, but rather was minor, because the Discharger did not disregard the requirement but had a general intent to follow the requirement.

**Prosecution Team Response:** Violation A is the burial of dead cows in groundwater in violation of the Dairy General Order where waste was caused to be discharged to waters of the state.

In accordance with the State Water Board Enforcement Policy, in order for the deviation from requirement to be categorized as "minor," the intended effectiveness of the requirement must remain generally intact (e.g., while the requirement was not met, there is a general intent by the discharger to follow the requirement). (2010 Enforcement Policy, p. 14). In this case, the Discharger was required to comply with the requirement in Prohibition A.6. of the Dairy General Order prohibiting the disposal of dead animals at a facility covered by the Dairy General Order. The Discharger claims that even though Prohibition A.6. was not met, the Discharger had a general intent to follow the requirement. The Discharger's argument is at odds with his conduct of hauling at least two dead cows from the Tosta Dairy to the Reeve Road Heifer Ranch, digging a pit, and then placing the dead cows into the pit. The Discharger chose to bury the dead cows rather than disposing of the carcasses at an appropriate landfill as required by the Dairy General Order, clearly demonstrating that he did not have the intention to follow the requirement. The Discharger disposed of cow carcasses in violation of Prohibition A.6. which rendered the requirement ineffective in its essential function. Therefore, an assessment of "major" deviation from the requirement is appropriate.

B. Contention: Discharger contends that, for Violation A, the "Potential for Harm" score should be lower, but that supporting a lower score would require the use of an expert to analyze the toxicity of the discharge. The Discharger also denies there was a discharge that harmed groundwater.

**Prosecution Team Response:** Potential for Harm considers three factors: (1) the potential for harm to beneficial uses, including the harm that may result from the exposure to the pollutants or contaminants in the illegal discharge; (2) the degree of toxicity of the discharge; and (3) the discharge's susceptibility to cleanup or abatement. (2010 Enforcement Policy, p. 12).

The Discharger summarily challenges the values assigned in the Complaint to the Potential for Harm factors and asserts, without supporting evidence, that the score "should be lower" but that supporting a lower score would require the use of an expert to analyze the toxicity of the discharge. The Discharger does not offer any expert testimony to contradict the values assigned in the Complaint to the Potential for Harm factors. The Discharger's unsubstantiated claim should be disregarded.

The Discharger also asserts that the discharge did not harm groundwater. This contention does not comport with the evidence in the record. As described in the Complaint, the burial of cows at the Reeve Road Heifer Ranch resulted in impacts to groundwater, as evidenced by the samples collected from the excavation where some of the dead cows were removed. Specifically, the samples indicated nitrate-nitrogen at 21.9 and 30 mg/l and total coliform greater than 2419 MPN/100.mL, well in excess of the MCL for nitrate-nitrogen and the Basin Plan

standard for coliform. After analyzing the Potential for Harm to beneficial uses of decomposed cow carcasses, and the physical, chemical, and biological characteristics of decomposed dead cows, and taking into consideration observations by staff, the Prosecution Team reasonably inferred that the decomposition of the dead cows impacted groundwater and assessed a Potential for Harm factor of 7. As such, the Potential for Harm factor was appropriately assessed and should not be lowered as suggested by the Discharger.

C. Contention: For Violation A, the carcasses were removed.

**Prosecution Team Response:** The Prosecution Team presumes the Discharger is highlighting the fact that the carcasses were removed in order to receive greater credit in Step 4, adjustment factors for Violation A. As explained on page 4 of Attachment A of the Complaint, the Discharger *was* given credit for removing the carcasses; however, the removal efforts were considered in light of the fact that the Discharger did not voluntarily conduct the removal, but rather was ordered to do so under a cleanup and abatement order. Therefore, the Prosecution Team does not believe any further adjustment to the penalty for Violation A is warranted.

D. Contention: For Violation A, ACL Order No. R5-2013-0095, adopted by the Central Valley Water Board on 25 July 2013 is currently pending review by the State Water Resources Control Board and is unrelated to the current violations, and therefore should not be a factor considered under history of violations.

**Prosecution Team Response:** The Discharger's history of violations is a factor to be considered in assessing the appropriate liability. The Central Valley Water Board adopted ACL Order No. R5-2013-0095 on 25 July 2013 after holding an evidentiary hearing finding that the Discharger had unlawfully discharged manure waste to groundwater, failed to submit an adequate waste management plan, and failed to comply with directives of a cleanup and abatement order. The fact that the Discharger has petitioned Order No. R5-2013-0095 to the State Water Board does not act to stay the Regional Board's findings of violation. Given the recent violations by the Discharger, which are similar in nature to those alleged in the Complaint, the Prosecution Team was conservative in its use of the minimum multiplier of 1.1. No reduction is warranted.

## III. Enforcement Policy Factors – VIOLATION B (Failure to Submit Legal Proof of Disposal of Animal Carcasses)

A. Contention: For Violation B, there should be no per day factor for this violation. The untimely submittal of legal proof of disposal is a one-time violation, not subject to multi-day violations, and that on or about 20 July 2012, Mr. Tosta submitted a report documenting the removal of animal carcasses, including a receipt from a landfill documenting disposal of the waste.

**Prosecution Team Response:** Violation B is the violation of Directive 2 of Cleanup and Abatement Order requiring the Discharger to submit legal proof of disposal of animal carcasses. The length of the violation alleged is from 3 July 2012 (the day after the report was due in the CAO) to 20 July 2012 (the date the Central Valley Board received a report and receipt from the landfill from the Discharger).

The Discharger argues that this violation should be considered a one-time violation for which a maximum liability amount of $1,000 may be imposed. The Discharger's contention, however, ignores the plain language of the statute authorizing the imposition of liability on a daily basis.

Section 13268(b)(1) of the Water Code provides that a violation for failing to furnish technical or monitoring reports, "shall not exceed one thousand dollars ($1,000) for ***each day*** in which the violation occurs." [emphasis added.] The Discharger offers no legal analysis for his interpretation of section 13268 and therefore, his contention that the reporting violation should be subject to only one day of liability should be disregarded.

The fact that the Discharger ultimately submitted the report has already been considered by the Prosecution Team in its determination of the proposed liability. No further reduction is warranted.

B. Contention: For Violation B, the first two adjustment factors (culpability and cleanup and cooperation) as assessed are not warranted where the Discharger's actions were not intentional, nor completely absent of efforts, but rather he was not able financially and he has corrected the violation. Additionally, Order R5-2013-0095, adopted by the Central Valley Water Board on 25 July 2013 is currently pending review by the State Water Resources Control Board and unrelated to the current violations, and therefore should not be a factor.

**Prosecution Team Response:** The culpability of the Discharger is assessed based on the reasonableness of the Discharger's conduct. A higher multiplier is used for intentional or negligent behavior. At the time of Central Valley Water Board staff's 3 July 2012 inspection, the Discharger's consultant, David Avila, showed staff a cell-phone photo of a receipt from the Foothills Landfill as proof of the disposal of all the dead animals buried in the area adjacent to the Main Canal. Staff explained to Mr. Avila that the photo alone did not satisfy the CAO requirement for "submittal of proof of legal disposal". The Discharger was fully aware of the need to timely submit the legal disposal report but failed to do so in a timely manner. A factor of 1.3 was assessed because the Discharger failed to act reasonably under the circumstances.

With respect to cleanup and cooperation, the Discharger was assessed a neutral multiplier of 1.0. The fact that the Discharger did not intentionally violate the reporting requirement is not relevant to whether he was cooperative or engaged in voluntary cleanup efforts. The Discharger has presented no evidence or argument to support an adjustment in this factor.

The Discharger's contention that ACL Order R5-2013-0095 should not be considered in determining history of violations is addressed in the Prosecution Team's response in Part II.D., above.

## IV. Enforcement Policy Factors – VIOLATION C (Failure to Submit Groundwater Remediation Plan)

A. Contention: For Violation C, there should be no per day factor for this violation. The failure to submit a Groundwater Remediation Plan is a one-time violation, not subject to multi-day violations, and that on or about 12 April 2013, Mr. Tosta submitted a Groundwater Remediation Plan via email to the Regional Board.

**Prosecution Team Response:** Violation C is the violation of Cleanup and Abatement Order Directive 4, the requirement to submit a Groundwater Remediation Plan. The length of the violation alleged is from 28 August 2012 (the date the groundwater remediation plan was due) through 12 April 2013 (the date that Regional Board staff received a document titled Groundwater Remediation Plan), totaling 228 days of violation.

The Prosecution Team's response to the contention that the reporting violation should be considered a one-time violation is addressed in its response in Part III.A., above.

While the Discharger asserts that the report has been submitted, compliance is not a consideration to adjust the per day assessment factor. Rather, the Discharger's recent compliance efforts are a factor in considering the Discharger's conduct, including the voluntary cleanup and cooperation efforts the Discharger has taken. The Prosecution Team already factored the Discharger's compliance efforts under the cleanup and cooperation discussion in the Complaint.

B. Contention: For Violation C, the Discharger's actions were not intentional, and the delays were largely attributable to Mr. Tosta's ongoing financial crisis.

**Prosecution Team Response:** The per day assessment considers the Potential for Harm and extent of deviation from applicable requirements. The Discharger's intent and claims of financial hardship are not elements of the per day assessment. These considerations can be addressed in factors related to Step 4 of the Enforcement Policy involving the evaluation of the Discharger's conduct and Step 6 of the Enforcement Policy involving the Discharger's ability to pay and continue in business. For the above reasons, the Prosecution Team disagrees with the Discharger's argument to consider this in the per day assessment.

C. Contention: For Violation C, the first two adjustment factors as assessed are not warranted where the Discharger's actions were not intentional, nor completely absent of efforts, but rather he was not able financially and he has corrected the violation. Additionally, Order R5-2013-0095, adopted by the Central Valley Water Board on 25 July 2013 is currently pending review by the State Water Resources Control Board and unrelated to the current violations, and therefore should not be a factor.

**Prosecution Team Response:** The culpability of the Discharger is assessed based on the reasonableness of the Discharger's conduct. A higher multiplier is used for intentional or negligent behavior. As explained in Attachment A of the Complaint, the Discharger was fully aware of the need to timely submit the Groundwater Remediation Plan. The Discharger should have prepared the plan upon his discovery of groundwater contamination as indicated by groundwater sample results. Furthermore, Central Valley Water Board staff reminded the Discharger of the requirement to submit the Groundwater Remediation Plan on 14 September 2012 but no plan was submitted until seven months later. A factor of 1.4 was assessed because the Discharger failed to act reasonably under the circumstances.

With respect to cleanup and cooperation, the Discharger was assessed a multiplier of 1.1. The fact that the Discharger did not intentionally violate the reporting requirement is not relevant to whether he was cooperative or engaged in voluntary cleanup efforts. The Discharger submitted the Groundwater Remediation Plan approximately eight months after the due date provided in the CAO. The Discharger has presented no evidence or argument to support an adjustment in this factor.

The Discharger's contention that ACL Order R5-2013-0095 should not be considered in determining history of violations is addressed in the Prosecution Team's response in Part II.D., above.

## V. VIOLATION D (Failure to Remove and Properly Dispose of Manure Containing Animal Remains and the Area South of the Wastewater Lagoon)

Contention: Discharger contends that, for Violation D, there should be no penalty assessed because the stockpile of manure and animal remains has been completely removed and that many of the delays with the removal process were attributable to the Regional Board staff's inability to render consistent and timely advice and assistance, both internally and vis a vis other governmental agencies.

**Prosecution Team Response:** The CAO contained several requirements including: removal of manure and animal remains piled south of the wastewater lagoon, disposal of bones at a landfill, and cleaning out the wastewater. The Discharger complied with the requirement to remove wastewater and manure from the manure lagoon, however, the excavated manure from the lagoon was stacked on top of the existing pile of material south of the wastewater lagoon which also contained animal remains. Directive #4 of the CAO expressly required the Discharger to "remove the manure and bones in the area south of the wastewater lagoons" and to export bones to a landfill. In a letter dated 14 September 2012, Central Valley Water Board staff informed the Discharger that "[the stockpiled manure and bones] must be disposed of at a landfill certified to receive animal remains." (Prosecution Team Evidence Submission, Exhibit 23). This requirement was reiterated verbally during inspections and in writing by letters dated 26 August 2013 and 29 October 2013 (Attachments E and F, respectively).

The Discharger and his consultants requested permission from the Central Valley Water Board to apply the stockpiled material to land, rather than remove to a landfill, as an alternative, less expensive disposal method. Central Valley Water Board staff generally opposed this alternative but deferred to other state agencies, including the San Joaquin County Department of Public Health, CalRecycle and CDFA regarding whether this alternative method would be consistent with all other applicable law. As described in the preceding paragraph, the Central Valley Water Board staff made clear to the Discharger that to move forward with the land application of the material, written approval from other state agencies was required. Written approval for land application of the material was not obtained from *any* state agency.

It is not the responsibility of the Central Valley Water Board to mediate with other state agencies to obtain permission for a lower-cost disposal option for a Discharger. Rather, it is the responsibility of the Discharger to approach such agencies and expeditiously obtain permission for an alternate disposal method.

Removal of the material to a landfill did not begin until 18 November 2013, three days before issuance of ACLC R5-2013-0592 and removal was not complete until 4 December 2013, 523 days after the deadline for removal provided in the CAO.

## Attachment A

1. Dr. Gerald Horner's Analysis Regarding Henry J. Tosta's Ability to Pay
2. Dr. Gerald Horner's Curriculum Vitae

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

**State Water Resources Control Board**

**TO:** Central Valley Regional Water Board
Prosecution Team

**FROM:** Gerald L. Horner
Senior Economist (RPS II)
Office of Research, Planning & Performance

**DATE:** 14 January 2014

**SUBJECT:** **HENRY J. TOSTA'S ABILITY TO PAY AND CONTINUE IN BUSINESS ADMISTRATIVE CIVIL LIABILITY COMPLAINT NO. R5-2013-0592, REEVE ROAD HEIFER RANCH, 21070 REEVE ROAD, TRACY, SAN JOAQUIN COUNTY**

## Summary

This memo is in response to your request on 7 January 2014 for a determination of Henry J. Tosta's (Discharger) ability to pay an administrative civil liability in the amount of $310,775 as proposed in Administrative Civil Liability (ACL) Complaint No. R5-2013-0592 (Complaint).

The Porter-Cologne Water Quality Control Act requires that, when determining the amount of civil liability, the regional board shall take into consideration a violator's ability to pay and its ability to continue in business.[1]

This ability to pay analysis is subsequent to an earlier analysis prepared to consider the Discharger's ability to pay liability in the amount of in the amount of $1,140,713 as proposed by ACLC No. R5-2012-0561. That analysis concluded that the Discharger had the financial resources to pay the liability amount of $1,140,713 and to remain in business. ACLC No. R5-2012-0561 was heard before the Central Valley Regional Water Quality Control Board (Central Valley Water Board) on July 25, 2013, and the Discharger was ordered to pay a penalty of $685,000.[2] The liability imposed has not yet been paid by because the Order has been appealed to the State Water Resources Control Board (State Water Board). For purposes of this analysis, the penalty of $685,000 will be included in as an account payable.

This analysis concludes that the Discharger can pay the liability amount of $310,775 as proposed in ACL Complaint No. R5-2013-0592. The Discharger's principal source of funds to pay the liability can be derived from the $1,632,944 of equity capital reflected in the Discharger's 2012 Form 1065. If the equity capital is reduced by the amount of the $685,000 liability

[1] Water Code section 13327.

[2] see Administrative Civil Liability Order R5-2013-0095

assessed on July 25, 2013, the equity capital would amount to $947,944. This amount can be used to pay the proposed liability, or to finance the payment of the proposed liability, and continue to remain in business.

## Ability to Pay

The State Water Board's Enforcement Policy provides a consistent approach and analysis of factors to determine administrative civil liability.[3] Step 6 in the Enforcement Policy's Penalty Methodology provides guidance for determining ability to pay and to continue in business.

> The ability of a discharger to pay an ACL is determined by its revenues and assets. In most cases, it is in the public interest for the discharger to continue in business and bring its operations into compliance. If there is strong evidence that an ACL would result in widespread hardship to the service population or undue hardship to the discharger, the amount of the assessment may be reduced on the grounds of ability to pay.[4]

The Discharger's business is organized as a limited partnership consisting of a general partner and two limited partners. The general partner is an individual but the limited partners consist of two trusts. However, since the general partner and the limited partners appear to be one and the same person, the ability of the Discharger to pay the proposed liability will be based on the Partnership's ability to generate income, and the amount of equity capital held by the Partnership. The principal data sources for this analysis were the U.S. Return of Partnership Income, IRS Form 1065 for the five calendar years 2008 through 2012.

## Income

The income statement is critical in assessing the profitability of the business and trends in its performance over time. Table 1 presents the Discharger's income for the years 2008 through 2012. Farm and real estate income losses totaled $3,170,883 during that period. Income realized from capital gains (long-term capital gains and Section 1231 gains) totaled $1,553,729 during that period resulting in a total income loss of $1,620,452.

**Table 1. Henry J. Tosta Jr. Family, L.P. Dairy's Partner's Income Statements, 2008-2012.**

| | 2012 | 2011 | 2010 | 2009 | 2008 | Totals |
|---|---|---|---|---|---|---|
| **Farm Income (Schedule F)** | $ (466,332) | $ (331,037) | $ (307,532) | $(1,014,951) | $ (900,668) | $ (3,020,520) |
| **Net Real Estate Income** | $ (22,880) | $ (21,239) | $ (38,458) | $ (32,514) | $ (35,272) | $ (150,363) |
| **Net Long-Term Capital Gain** | $ 1,062,672 | $ - | $ - | $ - | $ - | $ 1,062,672 |
| **Net Section 1231 Gain** | $ - | $ 185,660 | $ 125,979 | $ 73,965 | $ 105,453 | $ 491,057 |
| **Other Expenses and (Income)** | $ 884 | $ 1,150 | $ 227 | $ 323 | $ 714 | $ 3,298 |
| **Net Income** | **$ 572,576** | **$ (167,766)** | **$ (220,238)** | **$ (973,823)** | **$ (831,201)** | **$ (1,620,452)** |

Source: Henry J. Tosta, Jr. Family, L.P., U.S. Return of Partnership Income, Form 1065. For calendar years 2008-2012.

The trend in annual income has improved from a negative income of $973,823 in the year 2009 to a positive income of $572,576 in 2012. The increasing income trend provides a solid foundation to pay the proposed ACL.

## Cash Flow

Table 2 presents estimated cash flows for the five year period. The table is derived by adding back depreciation, amortization, depletion, and income not included in return to a business's

---

[3] State Water Board Water Quality Enforcement Policy, pp. 9-21.
[4] *Id.*, p. 19.

taxable income before net operating loss deductions. These expenses are added back because they do not represent actual cash transfers. This "pre-tax cash flow" shows the business's historic pre-tax internally generated cash flows by year. The cash flow values represent cash generated by the business after meeting all of its business expenses and is considered available to fund a penalty payment.

**Table 2. Henry J. Tosta Jr. Family, L.P. Dairy's Partner's Estimated Cash Flow Statements, 2008-2012.**

| | 2012 | 2011 | 2010 | 2009 | 2008 | Totals |
|---|---|---|---|---|---|---|
| **Taxable Income Before NOL** | 572,576 | (167,766) | (220,238) | (973,823) | (831,201) | $ (1,620,452) |
| Tax | - | - | - | - | - | $ - |
| Credit for Regulated Investmen | - | - | - | - | - | $ - |
| Credit for Federal Fuels | - | - | - | - | - | $ - |
| Depreciation | 78,673 | 96,396 | 246,491 | 407,555 | 415,326 | $ 1,244,441 |
| Depletion and Amortization | 1,545 | 1,545 | 4,258 | 229 | 100 | $ 7,677 |
| Income Not Included on Return | - | - | - | - | - | $ - |
| **Available After-Tax Cash Flow** | **$ 652,794** | **$ (69,825)** | **$ 30,511** | **$ (566,039)** | **$ (415,775)** | **$ (368,334)** |
| **Available Pre-Tax Cash Flow** | **$ 652,794** | **$ (69,825)** | **$ 30,511** | **$ (566,039)** | **$ (415,775)** | **$ (368,334)** |

Source: Henry J. Tosta, Jr. Family, L.P., U.S. Return of Partnership Income, Form 1065. For calendar years 2008-2012.

The Discharger deducted a total of $1,252,118 in depreciation and amortization during the five year period. Adding this amount to the taxable income yields the available pre-tax and after-tax cash flows for the reporting period. Since the Discharger passes tax responsibility to the partners, the total available cash flow for the five year reporting period was negative $368,334. This is substantially less than the total income of negative $1,620,452 (Table 1). The cash flow estimate provides a more accurate depiction of capital available to meet current expenses. The total available cash flow for 2012 of $652,794 is currently available for payment of the ACL.

## Assets, Liabilities and Equity

The Balance Sheet contains information on assets, liabilities and the equity position of the partners (Table 3). Total assets decreased from $6,671,561 in 2008 to $5,988,932 in 2012. The $682,629 reduction represents a ten percent total reduction or an average annual reduction of two percent. The reduction in total assets from 2011 to 2012 was $120,872.

Buildings and land represent 91 percent of the Discharger's total assets and remained relatively stable over the reporting period. The reduction in the value of buildings is due to depreciation for tax purposes rather than an actual loss of market value.

Total liabilities increased from $4,163,411 in 2008 to $5,047,405 in 2011, a 21 percent increase or an average annual increase of 4.25 percent. However, total liabilities decreased by $691,417 from 2011 to 2012 as a result of the positive income earned in 2012.

The magnitude of changes in assets, liabilities and stockholder's equity relative to the income losses indicates the degree of financial strength remaining in the Partnership As shown in the income statement (Table 1), total income losses of $1,620,452 were reported over the reporting period but total assets during the same period, declined by $682,629 and liabilities increased by $192,577. Income losses of this magnitude would normally be offset in subsequent years by increases in liabilities (loans), reductions in total assets, or a reduction in partner equity. The disparity between the magnitude of the income loss and the magnitude of the change in assets and liabilities begs the question of why the Partnership is financially stronger than its loss of income over the years would imply.

**Table 3. Henry J. Tosta Jr. Family, L.P Dairy's Partner's Balance Sheets, 2008-2012.**

| | 2012 | 2011 | 2010 | 2009 | 2008 |
|---|---|---|---|---|---|
| **Assets** | | | | | |
| Cash | - | 102,893 | 91,249 | - | - |
| Buildings | 1,884,941 | 1,935,038 | 2,038,620 | 2,299,025 | 2,723,090 |
| Land | 3,591,282 | 3,591,282 | 3,591,282 | 3,591,282 | 3,591,282 |
| Intangible Assets | 33,866 | 35,411 | 36,956 | 41,214 | 2,813 |
| Receivable - Banta Inn | 201,713 | 201,174 | 188,376 | 158,376 | 158,376 |
| Receivable - Lee Brown | 277,130 | 244,006 | 211,740 | 201,800 | 196,000 |
| **Total Assets** | **$ 5,988,932** | **$ 6,109,804** | **$ 6,158,223** | **$ 6,291,697** | **$ 6,671,561** |
| **Liabilities** | | | | | |
| Accounts Payable | - | - | - | - | - |
| Mortgages, Bonds Payable in <1 Year | 736,964 | 1,341,279 | 1,043,875 | 795,825 | 2,010,200 |
| Other Current Liabilities | 76,817 | 41,483 | 64,327 | 62,613 | 56,991 |
| Loans from Stockholders | 93,447 | - | - | - | - |
| Mortgages, Bonds Payable in >1 Year | 3,448,760 | 3,664,643 | 3,799,126 | 3,943,391 | 2,096,220 |
| Other Liabilities | - | - | - | - | - |
| **Total Liabilities** | **$ 4,355,988** | **$ 5,047,405** | **$ 4,907,328** | **$ 4,801,829** | **$ 4,163,411** |
| **Stockholders' Equity** | **$ 1,632,944** | **$ 1,062,399** | **$ 1,250,895** | **$ 1,489,868** | **$ 2,508,150** |
| **Total Liabilities and Stockholders' Equity** | **$ 5,988,932** | **$ 6,109,804** | **$ 6,158,223** | **$ 6,291,697** | **$ 6,671,561** |

Source: Henry J. Tosta, Jr. Family, L.P., U.S. Return of Partnership Income, Form 1065. For calendar years 2008-2012.

## Conclusion

Sufficient financial resources are available to the Discharger to pay the proposed ACL in the amount of $310,775 and remain in business. Net cash flow in 2012 was $652,794 and indicates a positive basis for the Discharger's future financial health. At the end of 2012, the Discharger's assets totaled $5,988,932 and net equity in the business operation was $1,632,944. The outstanding ACL liability of $685,000 assessed on 25 July 2013 reduces the net equity to $947,944. Therefore, even considering the amount the Discharger owes to satisfy ACLO R5-2013-0095, the Discharger's net equity is still adequate to pay or finance the proposed ACL of $310,775.

**GERALD L. HORNER, Ph.D.**
**Post Office Box 131**
**Sacramento, CA 95812**
**(916) 548-3260**
**glh91266@yahoo.com**

December, 2012

# CONSULTING AND RESEARCH EXPERIENCE

## *Resource and Environmental Economics*

***Guidelines for Preparing Economic Analysis for Water Recycling Projects.*** Principal member of the Economic Analysis Task Force that provided guidance in developing a uniform analytical methodology for economic analysis among different water recycling funding agencies. Participating agencies included the State Water Resources Control Board, Department of Public Health, Department of Water Resources, and the US Bureau of Reclamation. The methodology was developed by the Center for Watershed Sciences, University of California, Davis..

***Russian River Frost Regulation.*** Estimated the economic and fiscal impacts of implementing the Regulation.

***Central Valley Salinity Project.*** The Central Valley Regional Water Quality Control Board and State Water Resources Control Board initiated a comprehensive effort to address salinity problems in CA's Central Valley and adopt long-term solutions that will lead to enhanced water quality and economic sustainability. Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) is the resulting joint effort to develop and implement a comprehensive salinity management program. The goal of CV-SALTS is to maintain a healthy environment and a good quality of life for all by protecting our water quality. The economic and social impacts of increased salinity in the Central Valley was developed and managed as an in-house research project. UC Davis economists and engineers were contracted to estimate the salinity caused changes of urban, industrial and agriculture activities. Using this information, state and regional income and employment impacts were estimated using a four region Regional Economic Models Inc. (REMI) model. Annual production of CA goods and services were projected to decline by as much as $8.7 billion, jobs by 64,000 and income by $3 billion by 2030. Results from this study will be used to develop a new policy for regulation of salinity in the Central Valley. 2008.

***Water Quality Benefits of Vegetated Agricultural Drainage Ditches as a Viable Management Practice-Economic Costs and Benefits of Installation and Operation.*** A method of organizing and calculating the costs and benefits of alfalfa production, and installing and operating various vegetated agricultural drainage ditches (VADD) was developed. A detailed Excel workbook estimates the cost of establishing and producing alfalfa, and evaluates alternative ditch installations, operations, and quantity and quality of return flows. The project was done for US EPA and the Yolo County Resource Conservation District. 2008.

***Water Needs Assessment for the Year 2050*** Projected land use to the year 2050 and used the Regional Economic Model Inc. (REMI) to project land use, economic activity, labor supply, population and water needs for the southeast Virginia peninsula. The risk-based analysis indicated that there is a better than 50-50 chance that a water deficit will be higher than 28 million gallons daily by the year 2050. Regional Raw Water Study Group, Newport News Virginia. 2000.

***The Value Of The Lake Tapps Water Right*** Estimated the value of the 100 cubic foot per second water right for municipal and industrial use located near the cities of Seattle and Tacoma WA using the income and alternative supply approach to value. The water right value ranged from $132 to $180 million. Puget Sound Energy. 2000.

***The Central Valley Project Programmatic Environmental Impact Statement*** Provided conceptual and empirical assistance in developing analytical models to estimate economic impacts of developing and implementing a program for restoring fish and wildlife habitat and populations, improving Central Valley Project operations, improving water conservation, assisting water transfers, and protecting the Sacramento-San Joaquin Delta and the San Francisco Bay/Estuary in accordance with state and federal regulations. The study provides an overall structure and model (GAMS/MINOS) to facilitate future individual project evaluations. U.S. Bureau of Reclamation and U.S. Fish and Wildlife Service, with Montgomery Watson, CH2M Hill, and Jones & Stokes Associates, Sacramento, CA. 1993-95. 1993-95.

***Sacramento River, American River, And Delta Export Water Contracting Environmental Impact Statement*** Added individual water supply contractors to the CA Dept of Water Resources' CA Agricultural Resources Model (GAMS/MINOS). Possible ranges for contractor water quantities and prices were estimated in the event Delta water reallocations are made in the future. U.S. Bureau of Reclamation, with CH2M Hill. 1990.

***Economic Impacts Of The Kesterson Reservoir Cleanup*** Estimated the total economic impacts of cleaning up the selenium contaminated Kesterson Reservoir using the Regional Input-Output Modeling system (RIMS). Selenium contamination was caused by the disposal of irrigation return flows from the Westside of the San Joaquin Valley, CA. Regional income and employment would increase by 30 percent during the clean-up period. U.S. Bureau of Reclamation, with CH2M Hill. 1987.

***Economics of Alternative Policies to Reduce the Environmental Impact of Irrigation Return Flows in the San Joaquin Valley*** Estimated the relationship of agricultural nitrogen fertilizer applications to quantities of nitrogen in irrigation return flows. Recommended that nitrogen applications in excess of plant requirement be reduced. Formulated and linked temporal and spatially based land use and groundwater models to project the economic impacts of alternative nonpoint source pollution control policies. Concluded that irrigated agriculture had technological and management alternatives to improve water quality and maintain production and income. U.S. Environmental Protection Agency, U.S. Dept of Agriculture and the Univ of CA. 1970-86.

## *Natural Hazard Economics*

***Year 2000 Report to the Congress on Seismic Safety of Existing Federal Buildings*** Estimated the benefits and costs of seismically retrofitting approximately 39,000 Federally owned or leased buildings using the Paradox relational database system. Concluded that the building function along with the degree of seismic vulnerability, and the cost and effectiveness of rehabilitation determined rehabilitation potential. Federal Emergency Management Agency, U.S. Army Engineering & Support Center, Huntsville Alabama with Degenkolb Engineers, San Francisco. 1999-2000.

***Benefits And Costs Of Alternative Emergency Outlets For Devils Lake North Dakota*** Estimated the flood control benefits and costs of alternative emergency outlets for Devils Lake, North Dakota using a U.S. Geological Survey hydrology model and the Paradox relational database system. Expected flood damages were estimated for 1,600 buildings, structures and infrastructure. One of the two proposed projects was economically viable. North Dakota State Water Commission. 1999.

***Impacts Of Program Alternatives On The Economics Of Flood Control In The Delta*** Implementing the environmental provisions of the CALFED program can change the economics of flood control in the Delta by reducing the risk of flooding. CALFED Bay-Delta Programmatic Environmental Impact Statement/Environmental Impact Report, CALFED is a consortium of state and federal agencies with management and regulatory responsibilities in the Sacramento-San Joaquin Delta and the Suisun Bay of CA, with CH2M Hill. 1998.

***Economic Benefits Of Repairing Central Valley Basin Levees*** Determined that the economic benefits of repairing Central Valley Basin levees damaged in the floods of 1996 generally exceeds the cost of repair. A Paradox relational database model was developed to estimate the benefits. U.S. Army Corps of Engineers, Sacramento District, with Montgomery Watson/CH2M Hill, Inc. (a Joint Venture). 1997-1999.

***Economic Benefits Of The Salinas River Flood Control Project*** Estimated the economic benefits of the Salinas River flood control project by developing a Paradox relational database model to estimate benefits. These results will be used as a basis for reallocating project costs to stakeholders. Monterey County Water Resources Agency, CA with Montgomery Watson/CH2M Hill, Inc. (a Joint Venture). 1997.

***The Impacts of the Community Rating System on Areas Impacted by Hurricanes Bertha and Fran in North Carolina*** Estimated flood damage functions by comparing building and contents damages from retrofitted and non-retrofitted buildings. U.S. Environmental Protection Agency. With The Hazard Mitigation Technical Assistance Partnership, Inc. 1997.

***Benefit-Cost Model For The Seismic Rehabilitation Of Federal Buildings*** Developed a method to evaluate the economic values of government functions and a procedure to assess the economic viability of seismically rehabilitating Federal buildings by creating a Quattro Pro spreadsheet. The model is currently used by federal agencies to evaluate the rehabilitation of single buildings. U.S. Federal Emergency Management Agency. With VSP Associates, Inc. Sacramento, CA, Brian F. Mannix, Buckland Mill Associates, Washington DC., and William T. Holmes, Rutherford and Chekene, San Francisco, CA. 1997.

***Earthquake Risk Analysis*** Estimated the economic feasibility of seismically rehabilitating 9,000 buildings located in the City of Portland by developing a Paradox relational database model. City of Portland, Bureau of Buildings. 1997.

***Hazardous Buildings Cost-Benefit Project***. Developed a benefit/cost model and provided analysis on mitigating seismic risks for privately owned buildings located in nine U.S. cities by developing a Quattro Pro spreadsheet model. Buildings located in high seismic areas not constructed to current building codes were economically feasible candidates for rehabilitation. U.S. Federal Emergency Management Agency, with VSP Associates, Inc. Sacramento, CA. 1996.

***Evaluating Socioeconomic Consequences Of Large Earthquakes*** Developed private and public decision criteria for investment in seismic rehabilitation, estimated the economic feasibility of rehabilitating hospitals, and estimated expected benefits of rehabilitating 20,000 private and publicly owned buildings in San Mateo County. A joint project with CA Universities for Research in Earthquake Engineering (CUREe, included UC Berkeley, UCLA, Stanford Univ, VSP Associates, G&E Engineering) and Kajima Corp. Research Program, 1993-96.

***Nationally Applicable Standardized Method To Estimate Potential Earthquake Losses (HAZUS)*** Developed analytical methods to estimate direct economic and social losses from large earthquakes. This model is currently used by local analysts to quickly estimate total regional physical, economic and social affects of large earthquakes National Institute of Building Sciences with Risk Management Software, Inc. Menlo Park, CA. 1995.

***Development Of Guidance For Determining The Cost-Effectiveness Of Hazard Mitigation And Public Assistance Projects*** Developed a practical and easily understood procedure to evaluate benefits and costs of hazard mitigation projects. Models were developed to analyze mitigation projects for residences, emergency power generators, culverts, and public education with riverine flood, coastal A-Zone flood (depth only), and seismic risks. Benefit evaluation procedures include economic measures of reductions in structural damage, building contents, relocation costs, and lost business income and rent. Procedures were also developed to estimate mitigation effectiveness and hazard risk. State and local analysts currently use this model to evaluate the economic feasibility of projects submitted to FEMA for funding. U.S. Federal Emergency Management Agency with VSP Associates, Inc. Sacramento, CA, and Dewberry & Davis, Fairfax, VA. 1994.

***Benefit Cost Analysis Of The Seismic Rehabilitation Of The San Francisco City Hall*** Estimated the benefits of four alternative plans to seismically retrofit the City Hall. Benefits included reductions in: damage to the building and contents, relocation costs, value of lost public services, value of loss of life and injuries. A base isolation system was economically feasible because of the historic nature of the building. U.S. Federal Emergency Management Agency, with VSP Associates, Inc. Sacramento, CA, and J. Edward Goudie, Preece/Goudie & Associates, San Francisco, CA, 1994.

***Benefit-Cost Analysis Of Flood Mitigation For Black River Falls, Wisconsin*** Determined that constructing a river levee around the City of Black River Falls, WI was economically feasibility. U.S. Federal Emergency Management Agency. 1994.

***Economic Evaluation Of Seismic Rehabilitation Of Three Stanford Univ Buildings*** Concluded that seismic rehabilitation of the buildings was economically feasible because of the buildings' historic value. U.S. Federal Emergency Management Agency. 1994.

***Design And Develop Methods To Determine Economic Feasibility Of Flood Control Projects*** Developed a benefit cost method to determine economic feasibility of flood control projects, and conducted economic feasibility studies for approximately 100 projects to be funded under the Public Assistance section of the Stafford Act. U.S. Federal Emergency Management Agency, and the Partnership for Response and Recovery, A Joint Venture with Dewberry & Davis, and Woodward Clyde Federal Services. 1992.

## *Agricultural Economics*

***Agricultural Irrigation Efficiencies and Agricultural Water Use Reductions*** Estimated the technological efficiency frontier for irrigating principal crops in various regions of the Central Valley using an Excel workbook. These results were used to determine the amount of additional water supplies that could be available for in-stream uses. CALFED Bay Delta Program, with Stephen Hatchett, Western Resource Economics, Davis, CA. 2000.

***Agricultural Water Payment Capacity*** Estimated the water payment capacity of premium wine grape growers that would emerge under the South Livermore Valley CA Area Land Use Plan using an Excel workbook. Water payment capacity ranges widely and depends primarily on vineyard size and land cost. Zone 7 Water Resources Management District and Water Transfer Associates, Pleasanton CA. 1999.

***Agricultural Drainage Payment Capacity And Flood Control Benefits For Alternative Drainage Projects*** Estimated the agricultural drainage payment capacity and flood control benefits for two drainage proposals for the Dixon Resource Conservation District, CA by creating a Quattro Pro spreadsheet. Drainage payment capacity averaged $12 per acre and ranged from -$24 to $73 per acre depending on climate and soil productivity. Solano County Water Agency. 1998-99.

***North Kern Water Storage District vs. Kern Delta Water District, Tulare County Superior Court Case No.: 96-172919*** Estimated the current water payment capacity of North Kern Water Storage District, determined the economic feasibility of past water supply project investments of North Kern Water Storage District by creating a Quattro Pro spreadsheet. A favorable ruling to the Kern Delta Water District resulted. Kern Delta Water District and McMurtrey & Hartsock, A Professional Corporation, Bakersfield CA. 1998.

***Rice Straw Processing Feasibility Study*** Prepared an industry and market assessment, estimated operating costs, compared location advantages, and developed a finance strategy for developing potential rice straw processing plants in the Sacramento Valley of CA using a Quattro Pro spreadsheet. Rice straw production plants are economically feasible if they are located close to rice straw production areas. Yuba-Sutter Economic Development Corporation, with J. Laurence Mintier & Associates. 1997.

***Conversion Of The Canadian Regional Agriculture Model To The Generalized Algebraic Modeling System*** Converted Ag Canada's national agricultural production model from a main frame resident, linear programming model to a PC based positive mathematical programming model written in GAMS/MINOS. The model is currently used to estimate changes in the location and amount of commodity production as a result of implementing alternative agricultural and trade policies. Agriculture Canada, with Colin Carter, Professor of Agricultural Economics, Univ of CA, Davis. 1992.

***CA Hardwood Range Livestock Industry Economic Model*** Developed a GAMS/MINOS positive mathematical programming model of the CA range livestock industry to analyze the impact of alternative range and forestry policies on the location and production of range livestock. CA Dept of Forestry and Fire Protection, and the Univ of CA Cooperative Extension Service, with CH2M Hill. 1991

***Demand For Irrigation Electricity In The Pacific Northwest*** Estimated the elasticity of demand for irrigation electricity in the Pacific Northwest. Results were used in the Bonneville Power Administration rate hearings. Increased rates for irrigated agriculture would significantly reduce the amount of electricity used for pumping water and the production of agricultural commodities. Northwest Irrigation Utilities, with ECO Northwest Economic Consultants, Eugene, OR. 1989.

***Kansas vs. Colorado, No. 105 Original U.S. Supreme Court*** Developed an GAMS/MINOS based agricultural production model of Kansas to estimate past and future damages of reduced water supplies, and provided information about economic issues being considered in U.S. Supreme Court case. The Court decided that the State of Kansas was economically harmed by the State of Colorado. State of Kansas, with Simms & Stein, P.A., Santa Fe, NM, and Richard Howitt, Professor of Agricultural Economics, Univ of CA, Davis. 1989.

***Drought Impacts As An Indicator Of Global Warming*** Estimated the effect of reduced steady-state water supplies on irrigated agricultural production in CA using the GAMS/MINOS based CA regional agricultural production model. U.S. Environmental Protection Agency, with the National Institute for Global Environmental Change, and Richard Howitt, Univ of CA, Davis. 1989.

***Assessing The Implications Of Changes In Carbon Dioxide Concentrations And Climate For U.S. Agriculture*** Modified the USDA Economic Research Service U.S. National Agricultural Production model to include surface and groundwater resources to analyze the effect of a declining ozone layer on the amount and location of agricultural production. U.S. Environmental Protection Agency, with Environmental Defense Fund, New York, NY and Richard Howitt, Dept of Agricultural Economics, Univ of CA, Davis. 1989.

***San Luis Unit of the Central Valley Project Drainage Plan*** Estimated the resulting irrigation return flows, commodity production, income and employment as a result of implementing alternative drainage plans for the Westlands, San Luis, Panoche, and Broadview Water Districts, San Joaquin Valley, CA using the Westside Agricultural Drainage Economics model (WADE). Policies that idled irrigated land would devastate the regional economy. U.S. Bureau of Reclamation, with CH2M Hill. 1988.

***Reservoir Sizing Shortage Criteria Study*** Estimated the effect of alternative reservoir sizes and scale of irrigation projects on economic viability using an Excel spreadsheet. Project viability is directly related to the scale of project. U.S. Bureau of Reclamation, with CH2M Hill. 1987.

***San Joaquin Valley Drainage Program Economic-Hydrologic Model*** Evaluated the impact of selected irrigation and drainage management alternatives on agricultural production and incomes, and irrigation return flows in the San Joaquin Valley. Reducing irrigation return flows depends on how surface water imports are spatially reallocated as a result of proposed policies. San Joaquin Valley Drainage Program, with CH2M Hill. 1987-89.

***Economic Impacts On Yolo County Of Water Sales By The Conaway Ranch*** Estimated the total economic effects of 1991, 1992, and possible future water sales by Conaway to the CA State Water Bank using the Regional Input-Output Modeling system (RIMS). Regional income and employment increased by selling water for export because a substantial amount of revenue from the water sales would be invested in land development activities. Conaway Conservancy Group, with Water Transfer Associates, Davis, CA, and Professor James H. Cothern, CA State Univ, Fresno. 1988.

***Cumulative Impacts Of Agricultural Evaporation Ponds On Wildlife*** Estimated the aggregate economic effects of increased costs of subsurface drainage water disposal in the Tulare Lake Subbasin of the San Joaquin Valley using a temporal and spatially defined agricultural production model linked with a groundwater model. The number of evaporation ponds and irrigated agriculture will decline significantly if ponds are required to be double lined. CA Dept of Water Resources, with CH2M Hill. 1987.

***Economic Analysis Of Proposed Drainage And Disposal Facilities In The Lost Hills Water District CA*** Estimated the staging of costs of proposed drainage and disposal facilities in the Lost Hills Water District CA. The Water District can financially support the cost of drainage collection and evaporation ponds. Lost Hills Water District, Bakersfield, CA. 1986.

***San Mateo County Coastside Agricultural Economic Feasibilty Study*** Determined the degree of economic viability of San Mateo coastal agricultural operations. This project developed a mix of realistic public policies and actions to further the goal of sustaining and improving long-term agricultural viability. Most range livestock operations are not economically viable on the Coastside. San Mateo County CA Board of Supervisors, with The Regents of the Univ of CA, Berkeley. 1986.

***Columbia Basin Project Environmental Impact Statement*** Estimated that the East High Irrigation Project located in the Columbia Basin of Washington was economically viable. U.S. Bureau of Reclamation, with CH2M Hill. 1986.

## EDUCATION

Ph.D. Resource and Agricultural Economics, Washington State Univ, 1970
M.S. Agricultural Economics, North Dakota State Univ, 1967
B.S. Agricultural Economics, North Dakota State Univ, 1962

## PROFESSIONAL POSITIONS

Chief Economist, CA State Water Resources Control Board, 1001 I St. Sacramento, CA 95812. April 2001-Present.
Senior Economist, HDR Engineering, Inc., 271 Turn Pike Drive, Folsom CA, 916/351-3824. January 2000-March 2001
President, Hazard Mitigation Economics Inc., Natural Hazards and Agricultural and Resource Economics, 1995-2000
Principal, Goettel & Horner Inc., Natural Hazards, Agricultural, and Resource Economics, 1993-95
Research Specialist, Univ of CA, Berkeley, Earthquake Engineering Research Center, 1993-1996
Principal, Horner & Associates, Agricultural and Resource Economics, Davis, CA, July 1986-1993.
Project Leader, and Agricultural Economist, Economic Research Service, US Dept of Agriculture, Stationed in the Dept of Agricultural Economics, Univ of CA, Davis. August 1970 to July 1986.
Associate in the Experiment Station, Associate Economist on the Giannini Foundation, and Lecturer in Agricultural Economics, Univ of CA, Davis. August 1970 to July 1986.
Adjunct Assistant Professor, Dept of Agricultural Economics, Washington State Univ, Pullman, WA. June 1970 to August 1970.

## TEACHING EXPERIENCE

Dept of Agricultural Economics, Univ of CA, Davis:

- Agricultural Economics 140, Farm Management (capital budgeting, accounting, risk management, cost of production) 1985.
- Agricultural Economics 147, Natural Resource Economics (land use, water use & environmental policy, benefit-cost analysis) 1973-84.
- Agricultural Economics 155, Quantitative Analysis in Agricultural Economics (probability, statistical decision theory, regression analysis, linear programming, inventory management, queuing theory) 1975-1984.
- Agricultural Economics 176, Economic Analysis in Resource Use (welfare economics, benefit-cost analysis, non-market evaluation techniques, dynamic analysis). 1985.

## DISSERTATION AND THESIS COMMITTEES

Dept of Agricultural Economics, Univ of CA, Davis:

On-Farm Drainage Investment Decision Criteria in the Panoche Water District. Joseph C. Fitz. MS Thesis. 1976.

Economics of Irrigation under Salinity Conditions: The Case of Mendoza, Argentina. Armando A. Llop. Ph.D. Dissertation. 1978.

Dynamic Analysis and Control of Agricultural Land Use. Daniel J. Dudek. Ph.D. Dissertation. 1979.

Supply Response with Stochastic Technology and Prices in Australia's Rural Export Industries. Christopher D. Easter. Ph.D. Dissertation. 1980.

Selection and Design of Surface Irrigation Methods. Eduardo A. Holzapfel. Ph.D. Dissertation. 1984.

Economic Impacts of Salinity: Farm-Level Effects and Regional Analysis. Dennis Wichelns. Ph.D. Dissertation. 1986.

## PROFESSIONAL ACTIVITIES

Past Memberships:

American Agricultural Economics Association
Editorial Council, American Journal of Agricultural Economics, 1983-86
Western Agricultural Economics Association

Reviewer:

American Journal of Agricultural Economics
Western Journal of Agricultural Economics
Water Resources Bulletin
Environmental Protection Agency
The Universities Council on Water Resources Binational Agricultural Research and Development Fund

## OTHER ACTIVITIES

2nd - 1st Lieutenant, US Air Force, 1962 – 1965.

Complete chassis and engine restoration of a 1966 Porsche 912 (1986-89).

Rice Straw Bale House: Designer, owner-builder of the first permitted rice straw bale house in Yolo County (1994-98).

Turner, Melanie. "The Last Straw" Davis Enterprise. 9/30/97.
Wiley, Walt. "This House is Being Built to Last" Sacramento Bee. 12/3/97.
Associated Press. "Huff All You Want, Yoloans' House of Straw Won't Blow Away" The Daily Democrat. 12/7/97.
Turner, Melanie. "The Last Straw is in Place" Davis Enterprise. 11/9/98.
Wiley, Walt. "Snug and Warm in Novel Straw Home" Sacramento Bee. 2/23/99.
Wiley, Walt. "Whatever Happened to Demand for Straw Bale Houses" Sacramento Bee. 4/27/2001.

Living History Participant (2001- Current).

Civil War

79th New York Cameron Highlander Infantry Regiment, American Civil War Association
Battery E, The Second Regiment of Artillery, U.S. Army, American Civil War Association

Napoleonic, War of 1812

93rd Sutherland Highlander Regiment of Foot Living History Unit

## PUBLICATIONS

### *Resource and Environmental Economics*

Horner, Gerald L., and Rex W. Cox. "Inventory of North Dakota Recreation Facilities." Agr. Econ. Stat. Series No. 1, No. Dak. St. Univ., Fargo, Aug., 1967, 58p.

Cox, Rex W., Stanley E. Foss, and Gerald L. Horner. "Outdoor Recreation in North Dakota." Agr. Exp. Stat. Bull. No. 475, No. Dak. St. Univ., Fargo, April, 1968, 53p.

Horner, Gerald, Eldon Weeks, and Eleanor Hungate. "The Skagit Trade Area of Washington State: A Survey of Selected Regional Characteristics." Wash. Agr. Exp. Stat. Circular 509, Wash. St. Univ., Pullman, Oct., 1969, 67p.

Horner, Gerald L., "Effect of an Irrigation Wastewater Quality Standard on Agricultural Production." Proceedings, West. Agr. Econ. Assoc., 45th Annual Meeting, Logan, Ut., July 23-25, 1972, pp310-319.

Horner, Gerald L., "Exploring Externalities: Physical and Human." Proceedings West. Agr. Econ. Assoc., 47th Annual Meeting, July 24-26, 1974, Moscow, Id., pp76-78.

Johnson, Scott A., Robert B. McKusick, and Gerald L. Horner. "San Joaquin Valley Basin, Appendix I: Economic Base Study." prepared by the USDA River Basin Planning Staff, Soil Conservation Serv., Forest Serv., Econ. Res. Serv., in cooperation with the Ca. Dept. of Water Resources, Apr., 1975, 130p.

Horner, Gerald L. "Internalizing Agricultural Nitrogen Pollution Externalities: A Case Study." Am. J. of Agr, Econ., 57(1975):33-39.

Schaub, John R., Larry M. Boone, Klaus F. Alt, Gerald L. Horner, and Harold R. Cosper. "Control of Water Pollution from Cropland." Volume I: Manual for Guideline Development economic aspects Econ. Res. Serv., USDA, Washington, D.C., Agr. Res. Serv. and U.S. EPA, Nov., 1975, 111p.

Tanji, Kenneth K., James W. Biggar, Robert J. Miller, William O. Pruitt, and Gerald L. Horner. "Irrigation Tailwater Management: Conclusions and Recommendations with Regards to PL 92-500 and the NPDES Permit Program." Ca. State Water Resources Control Board, Mar., 1976, 41p.

Snyder, J. Herbert, Richard G. Rhode, Charles V. Moore, Gerald L. Horner, and Richard E. Howitt. "Can Water Pricing Encourage Conservation? Some Principles and Some Problems." CA Agriculture, 31:5(1977):11-12.

Tanji, Kenneth K., James W. Biggar, Robert J. Miller, William O. Pruitt, and Gerald L. Horner. "Evaluation of Surface Irrigation Return Flows in the Central Valley of CA." In: James P. Law, Jr. and Gaylord V. Skogerboe, Eds., Proceedings, National Conference on Irrigation Return Flow Quality Management, Fort Collins, Co., Sponsored by U.S. EPA and Col. St. Univ., May 16-19, 1977, pp167-173.

Tanji, Kenneth K., James W. Biggar, Robert J. Miller, William O. Pruitt, and Gerald L. Horner. "Irrigation Tailwater Management, 1976-77 Annual Report to U.S. EPA on EPA Grant No. R-803603-02." Univ. of Ca., Davis, Dept. of Land, Air and Water Resources, Water Science and Engineering Paper No. 4014, June, 1977, 245p.

Tanji, Kenneth K., James W. Biggar, Robert J. Miller, William O. Pruitt William C. Kinney, Rudy J. Schnagl, and Gerald L. Horner. "PL 92-500: A Tough Act to Follow." The Farm Index, 16:6(1977):17.

Horner, Gerald L. "An Economic Analysis of Nitrogen Reduction in Subsurface Drainage Systems." Giannini Found. Res. Report No. 323, Univ. of Ca., Berkeley, July, 1977, 90p.

Horner, Gerald L., and Charles V. Moore. "The U.S. Dept of the Interior's Proposed Rules for Enforcement of the Reclamation Act of 1902: An Economic Impact Analysis." Econ., Stat., and Coop. Serv. Staff Report, USDA, Wash., D.C. Jan., 1978, 61p.

Tanji, Kenneth K., James W. Biggar, Robert J. Miller, William O. Pruitt, and Gerald L. Horner. "Evaluation of Surface Irrigation Return Flows in the Central Valley of CA." Conference on Improving Management Practices for Irrigated Agriculture, Davis, Ca., sponsored by U.S. EPA, Ca. Water Resources Center and Univ. Ca. Coop. Ext. Serv., in cooperation with Ariz. Dept. of Health Services, Ca. St. Water Resources Control Board, Hawaii Dept. of Health and Nev. Div. of Environmental Protection, Apr. 3-4, 1978, pp35-41.

Horner, Gerald L., Daniel J. Dudek, and Robert B. McKusick. "An Economic Method for Evaluating Best Management Practices in the San Joaquin Valley of CA." Proceedings, Nat. Conf. on Management of Nitrogen in Irrigated Agriculture, sponsored by U.S. EPA, National Science Found., Univ. of Ca., Sacramento, Ca., May 15-18, 1978, pp369-393.

Horner, Gerald L., and Daniel J. Dudek. "An Analytical System for the Evaluation of Land Use and Water Quality Policy Impacts Upon Irrigated Agriculture." In: Daniel Yaron and Charles Tapiero, Eds. Proceedings of Operations Research in Agriculture and Water Resources, International Conference, Jerusalem, North Holland Publishing Co., Amsterdam, 1980, pp537-568.

English, Marshall J., Gerald L. Horner, Gerald T. Orlob, Joseph Erpenbeck, Michael Moehlman, Richard H. Cuenca, and Daniel J. Dudek. "A Regional Assessment of the Economic and Environmental Benefits of an Irrigation Scheduling Service." Environmental Protection Series Report, EPA-600/2-80-063, U.S. EPA, Apr., 1980, 114p.

Dudek, Daniel J., and Gerald L. Horner. "Environmental, Efficiency and Equity Considerations in Irrigation Return Flow Management." Economics and Social Issues, Univ. of Ca., Coop. Ext. Serv., Oct.-Nov., 1980, 4p.

Tanji, Kenneth K., James W. Biggar, Robert J. Miller, William O. Pruitt, and Gerald L. Horner. "Irrigation Tailwater Management: Project Summary." U.S. EPA, Ada, Ok., July, 1981, 5p.

Tanji, Kenneth K., James W. Biggar, Robert J. Miller, William O. Pruitt, and Gerald L. Horner. "Irrigation Tailwater Management." Robert S. Kerr Environmental Research Laboratory, U.S. EPA, Ada, Ok., Report #PB 81-196 925, July, 1981, 114p.

Dudek, Daniel J., and Gerald L. Horner. "Income Distributional Impacts of Alternative Irrigation Return Flow Policies." Am. J. of Agr, Econ., 63:3(1981):438-446.

Dudek, Daniel J., and Gerald L. Horner. "An Integrated Physical- Economic Systems Analysis of Irrigated Agriculture." In: Karl- Heinz Zwirnmann Ed., Nonpoint Nitrate Pollution of Municipal Water Supply Sources: Issues of Analysis and Control. International Institute for Applied Systems Analysis, Laxenburg, Austria, 1982, pp247-299.

Horner, Gerald L., James W. Biggar and Ronald E. Voss, Eds. Decision Criteria for Residuals Management in Agriculture. Proceeding of a Conference Sponsored by the Univ of CA: The Agricultural Issues Center, The Giannini Foundation of Agricultural Economics, and The Kearney Foundation of Soil Science, April, 1986.

Dennis Wichelns, Richard Howitt, Gerald Horner, and Daniel Nelson. "Economic Effects of Long-Term Restriction on Drainage Water Disposal." Applied Agricultural Research. Vol. 5, No.1, pp.48-55.

Dracup, John A., Susan D. Pelmulder, Richard Howitt, Gerald Horner, W. Michael Hanemann, Christopher F. Dumas, Richard McCann, John Loomis and Sabrina Lse. "Integrated Modeling of Drought and Global Warming, Impacts on Selected CA Resources." National Institute for Global Environmental Change, Univ of CA, Davis, and Adaptation Branch, Climate Change Division, Office of Policy, Planning and Evaluation, U.S. EPA. March, 1993.

Moore, Matthew T. (USDA Agricultural Research Service, National Sedimentation Laboratory, PO Box 1157, Oxford, MS 38655), Debra L. Denton (USEPA Region 9, Sacramento, CA 95814), Charles M. Cooper (USDA Agricultural Research Service, National Sedimentation Laboratory, PO Box 1157, Oxford, MS 38655), Jeanette Wrysinski (Yolo County Resource Conservation District, Woodland, CA 95695), Jeff L. Miller (AQUA-Science, Davis, CA 95616), Inge Werner (Univ of CA-Davis Aquatic Toxicology Laboratory, Davis, CA 95616), Gerald

Horner (State Water Resources Control Board, Sacramento, CA 95814), David Crane (Dept of Fish and Game, Sacramento, CA 95814), and George M. Huddleston III (ENTRIX, Inc., Pendleton, SC 29670). "Use of Vegetated Agricultural Drainage Ditches to Decrease Pesticide Transport from Tomato and Alfalfa Fields in CA Part 1: Field Trials and Economic Study" forthcoming.

Howitt, Richard E., Professor, Dept of Agriculture and Resource Economics, Univ of CA, Davis, Jonathan Kaplan, Associate Professor, Dept of Economics, CA State Univ, Sacramento, Douglas Larson, Professor, Dept of Agriculture and Resource Economics, Univ of CA, Davis, Duncan MacEwan, Graduate Student, Dept of Agriculture and Resource Economics, Univ of CA, Davis, Josué Medellín-Azuara Post Doctorial Researcher Dept of Civil Engineering, Univ of CA, Davis, Gerald Horner, Economist, State Water Resources Control Board, Sacramento, Nancy S. Lee, Economist, Amherst, MA. "The Economic Impacts of Central Valley Salinity", Univ of CA Davis Final Report to the State Water Resources Control Board Contract 05-417-150-0, March 16, 2009.

Moore MT, Denton DL, Cooper CM, Wrysinski J, Miller JL, Werner I, Horner G, Crane D, Holcomb D, Huddleston M. 2011. "Use Of Vegetated Of Agricultural Drainage Ditches to Decrease Pesticide Transport from Tomato and Alfalfa Fields in California, USA. Environmental Toxicology and Chemistry, 30(5):1044-1049.

## *Natural Hazard Economics*

Comerio, Mary C., Kenneth A. Goettel, Gerald L. Horner, Loren L. Parks, Robert A. Olson, James E. Russell, and Roland L. Sharpe. A Benefit-Cost Model for the Seismic Rehabilitation of Buildings. Vol. 1: "A User's Manual (FEMA 227/April 1992)", and Vol 2: "Supporting Documentation (FEMA 228/April 1992)". Earthquake Hazards Reduction Series 62. National Earthquake Hazards Reduction Program. Prepared for the Federal Emergency Management Agency Under Contract No. EMW 89-C-2991 by VSP Associates, Inc. Sacramento, CA. Washington, D.C.: U.S. Government Printing Office 1992:621-684:60009. September 30, 1991.

VSP Associates, Inc., Benefit/Cost Analysis of Hazard Mitigation Projects, Section 404 Hazard Mitigation Program and Section 406 Public Assistance Program. Vol. 1: "Riverine Flood Hazard Mitigation Projects"; Vol. 2; "Coastal Zone-A Flood Hazard Mitigation Projects", Vol. 3 "Seismic Hazard Mitigation Projects". Report to Federal Emergency Management Agency. Hazard Mitigation Branch, February 15, 1993.

Goettel, Kenneth A., David B. Hattis, William T. Holmes, Gerald L. Horner, Brian Mannix, Robert A. Olson, Lawrence D. Reaveley, and James E. Russell. Seismic Rehabilitation of Federal Buildings: A Benefit/Cost Model. Vol. 1: "A User's Manual (FEMA 255/Sept. 1994)", and Vol 2: "Supporting Documentation (FEMA 256/Sept. 1994)". National Earthquake Hazards Reduction Program. Prepared for the Federal Emergency Management Agency Under Contract No. EMW-92-6-3976 by VSP Associates, Inc. Sacramento, CA.

Kiremidjian, Anne S., Stephanie A., King, Anne S, Nesrin I. Basoz, Kincho Law, Mladen Vucetic, Macan Doroudian, Veronica Iskandar, Robert A. Olson, John Eidinger, Kenneth A. Goettel and Gerald L. Horner. "Methodologies for Evaluating the Socio-Economic Consequences of Large Earthquakes." The John A. Blume Earthquake Engineering Center, Dept of Civil Engineering, Stanford Univ, Report No. 126, October, 1997.

King, Stephanie A., Anne S. Kiremidjian, Nesrin Basoz, Kincho Law, Mladen Vucetic, Macan Doroudian, Robert A. Olson, John Eidinger, Kenneth A. Goettel and Gerald L. Horner. "Methodologies for Evaluating the Socio-Economic Consequences of Large Earthquakes." Earthquake Spectra. 13:4, November, 1997. P 565-583.

The Hazard Mitigation Technical Assistance Partnership, Inc., and French & Associates, Ltd. "Review of the Impact of CRS Activities on Areas Impacted by Hurricanes Bertha and Fran In North Carolina." U.S. Federal Emergency Agency. March 23, 1998.

Degenkolb Engineers, "Towards Earthquake Resistant Federal Buildings, A Report to Congress." Federal Emergency Management Agency. Forthcoming.

## *Agricultural Production Economics*

Kinney, William, Gerald L. Horner, and Kenneth K. Tanji. "An Economic Analysis of Irrigation Return Flow Recycle Systems in the Central Valley of CA." In: James P. Law, Jr. and Gaylord V. Skogerboe, Eds., Proceedings, National Conference on Irrigation Return Flow Quality Management, Fort Collins, Co., Sponsored by U.S. EPA and Col. St. Univ., May 16-19, 1977, pp175-182.

Marino, Miguel A., and Gerald L. Horner. "Investment Criteria for Installing Subsurface Drainage Systems." Ca. Water Resources Center Annual Report, July 1 to Sept. 30, Report No. 42:48, Dec., 1977.

Marino, Miguel A., and Gerald L. Horner. "Investment Criteria for Installing Subsurface Drainage Systems." Ca. Water Resources Center Report No. 43, Dec., 1978, 28p.

Kinney, William, Gerald L. Horner, and Kenneth K. Tanji. "An Economic Analysis of Irrigation Return Flow Recycle Systems in the Central Valley of CA." World Agricultural Economics and Rural Sociology Abstracts, 204:24, April, 1978.

Horner, Gerald L., and James H. Cothern. "Agricultural Water Use and Costs in CA." Economics and Social Issues, Univ. of Ca. Coop. Ext. Serv., Dec., 1979-Jan., 1980, 4p.

Fitz, Joseph C., Gerald L. Horner, and J. Herbert Snyder. "The Economic Feasibility of Installing Subsurface Tile Drainage in the Panoche Water District, San Joaquin Valley, Ca." Giannini Found. Info. Series in Agr. Econ., No. 80-3, Univ. of Ca., Berkeley, Aug., 1980, 59p.

Highstreet, Allan, Carol Nuckton, and Gerald L. Horner. "Agricultural Water Use and Costs in CA." Giannini Found. Info. Series in Agr. Econ.,No. 80-3, Univ. of Ca., Berkeley, Sept., 1980, 59p.

Dudek, Daniel J., Gerald L. Horner, and Marshall J. English. "The Derived Demand for Irrigation Scheduling Services." West. J. of Agr. Econ., 6:2(1981):217-228.

Horner, Gerald L., Charles V. Moore, and Richard E. Howitt. "Increasing Farm Water Supply by Conservation." CA Agriculture, 37:11&12, Nov.- Dec. 1983, pp6-7. Reproduced in Western Water, Western Water Education Foundation, Nov.-Dec. 1984, pp6-8.

Horner, Gerald L., Daniel S. Putler, and Susan E. Garifo. "The Role of Irrigated Agriculture in a Changing Export Market." Nat. Res. Econ. Div., Econ. Res. Serv., USDA, ERS Staff Report AGES850328, June 1985, 31p.

Clumpner, Gregory, Dennis Madderfield, and Gerald L. Horner. "Economic Analysis of CIMIS Irrigation Scheduling Methods." In Ca. Irrigation Management Information System Final Report," Vol. I, Dept. of Land, Air, and Water, Univ. of Ca., Davis, No. 10013-C, June 1985, ppIII-72-104.

Horner, Gerald L., Jerry T. Nishimoto, and James H. Cothern, "Model Transfers Among Mainframe Micros and Minis: Implications for the Future", In Carl O'Connor and Russell Gum, Eds. Computer Use by/and Computer Interface Among Agricultural Economic Institutions, Oregon State Univ Ag. Exp. Station and Extension Service Special Report 759, January 1986, pp64-73.

Horner, Gerald L., James W. Biggar, and Ronald E. Voss, "Decision Criteria for Residual Management in Agriculture," Proceedings of a Conference sponsored by the Univ of CA: The Agricultural Issues Center, The Giannini Foundation of Agricultural Economics, and The Kearney Foundation of Soil Science, April, 1986.

Horner, Gerald L. and Robert A. Young "Irrigated Agriculture and Mineralized Water", in Agriculture and the Environment. Editors: T.Phipps, P.Crosson, and K.Price. The National Center for Food and Agricultural Policy Annual Policy Review 1986, Resources for the Future, Washington, D.C.

Wichelns, Dennis, Gerald Horner, Richard E. Howitt "Effects of Changes in the Water Year on Irrigation in the San Joaquin Valley" CA Agriculture, 41:3&4, March-April 1987, pp10-11.

Day, John C. and Gerald L. Horner, "U.S. Irrigation: Extent and Economic Importance" USDA/ERS Agriculture Information Bulletin Number 523, September 1987.

Wichelns, Dennis, Richard E. Howitt, Gerald L. Horner, and Daniel Nelson "The Economic Effects of Salinity and Drainage Problems" CA Agriculture, 42:1, January-February 1988, pp10-12.

Horner, Gerald L. and James H. Cothern. "CA Hardwood Rangeland Use: Productivity Changes and the Economics of Regional Livestock Production." In: Standiford, Richard; Huntsinger, Lynn, and Bartolome, James W. Eds. Proceedings, Proceedings, Symposium on Oak Woodlands and Hardwood Rangelands Management October 31-November 2, 1990, Davis CA.

Hatchett, Stephen A. Gerald L. Horner, and Richard E. Howitt. "A Regional Mathematical Programming Model to Assess Drainage Control Policies." In: Dinar, Ariel; Zilberman, David. Eds. The Economics and Management of Water and Drainage in Agriculture. Boston: Kluwer Academic Publishers. 1991. pp465-477.

Horner, Gerald L. Hatchett, Stephen A., Robert M. House, and Richard E. Howitt. "Impacts of San Joaquin Valley Drainage-Related Policies on State and National Agricultural Production." In: Dinar, Ariel; Zilberman, David. Eds. The Economics and Management of Water and Drainage in Agriculture. Boston: Kluwer Academic Publishers. 1991. pp567-573.

Cothern, James, W. James Clawson, Dan Drake, Gregory Greenwood, Gerald Horner, Chris Nelson, James Oltjen, and Julie Spezia. "Maintaining the Edge in CA's Beef Industry." Univ of CA Agricultural Issues Center Study Group Report. May, 1991.

Horner, G.L., J. Corman, R.E. Howitt, C.A. Carter and R.J. MacGregor. The Canadian Regional Agriculture Model, Structure, Operation and Development. Technical Report 1/92, Policy Branch, Agriculture Canada, Ottawa, Oct. 1992.

Cothern, James H., Gerald L. Horner and Dennis H. Nef. "The Economic Impact of 1990-91 Surface Water Reductions: Westlands Irrigation District and Fresno County, CA." Center for Agricultural Business, CA State Univ, Fresno. 1992.

**PRESENTATIONS**

Horner, Gerald L., and Eleanor Hungate. "A Model to Analyze Land Use Alternatives in the Skagit Trade Area of Washington State." Paper presented to Pac. Northwest Reg. Econ. Conf., Seattle, Wash., Apr. 10, 1967, 13p.

Horner, Gerald L. "Analysis of Alternative Nitrogen Pollution Control Policies." Paper presented to the W-111 Tech. Comm. on Nitrogen in the Environment, Salt Lake City, UT, Dec. 4, 1972, 23 pp. Also presented to the USDA Ca. San Joaquin Basin Field Advisory Comm. Meeting, Fresno, CA, Mar. 13, 1973.

Horner, Gerald L., and Ralph B. Hwang. "The Economic Impact and External Effects of Water Resource Development and Agricultural Production in the West Side of the San Joaquin Valley-A Progress Report." Paper presented to the Second Work Conference on Plant Nutrients and Water Quality, Wash. Univ., St. Louis, Mo., Mar. 18-20, 1974.

Horner,Gerald L., and Ralph B. Hwang. "Water Quality Goals and the Economics of Agricultural Production." Contributed to the Amer. Agr.Econ. Assoc. Meeting, College Station, Tx., Aug. 19, 1974, 99p.

Horner, Gerald L. "Effects on the San Joaquin Valley Agriculture of the 1977 and 1983 Water Quality Goals." Minutes of the West. Tech. Serv. Center Economics Workshop, U.S. Soil Conservation Serv., Davis, Ca., June 16-20, 1975, pp118-155.

Horner, Gerald, and Marshall English. "Can Water Pricing Solve the Water Quality Problem?" Paper presented to the West. Agr. Econ. Assoc. Meeting, July 19, 1976, 24p.

Horner, Gerald L., and Daniel J. Dudek. "The Income Distributional Impacts of Potential Policy Alternatives to Control Irrigation Return Flows." Paper presented to the 1977 Annual Amer. Agr. Econ. Assoc. Meeting, San Diego, Ca., July 31-Aug. 3, 1977, 21p.

Horner, Gerald, Daniel Dudek, and Robert McKusick. "An Integrated Resource Evaluation Method for the Control of Irrigation Return Flows." Paper presented to Econ., Stat. and Coop. Serv., USDA, Wash., D.C., Mar. 29, 1978, 5p.

Horner, Gerald L. "Statement Before the CA Water Commission's Panel of Experts to Evaluate the Potential for Conserving Irrigation Water in CA." Paper presented at Pacific Grove Community Center, May 14,1979, 4p.

Horner, Gerald L., and Daniel J. Dudek. "An Economic Methodology for Evaluating Best Management Practices in the San Joaquin Valley of CA." Paper presented at the USDA-EPA Monitoring and Modeling Workshop, Airlie House, Va, June 13-15, 1979, 107p.

Horner, Gerald L., and Daniel J. Dudek. "Section 208: An Opportunity for Resource Planning by the Book." Paper presented in a Symposium on, Agricultural Pollution: Are We Asking the Right Questions?" Amer. Agr. Econ. Assoc., Pullman, Wash., July 30, 1979, 4p.

Horner, Gerald L., and Daniel J. Dudek. "Agricultural Water Use in the San Joaquin Valley." Presented to the Water Assoc. of Kern Co., Bakersfield, Ca., Apr. 2, 1980.

Horner, Gerald L. "Water and Energy Issues: An Overview," Presented to Water, Energy and Agriculture: A Complex Situation." A Forum on Current Issues in Agriculture and Energy Use, sponsored by the Kellogg Public Serv. Res. Prog., Univ. of Ca., Davis, April 8, 1980.

Dudek, Daniel J., and Gerald L. Horner. "External Effects of Efficient Irrigation." Paper presented at the Annual Amer. Agr. Econ. Assoc. Meetings, Purdue Univ., Aug. 2, 1983, 13p.

Horner, Gerald L. "The Economics of Drainage." Seminar presented to the Div. of Environmental Studies, Univ. of Ca. Davis, Oct.24, 1985, 17p.

Hansen, David E., and Gerald L. Horner. "Seawater Utilization on Arid Sandy Soils: Initial Economic Modeling Results of Salinity Resistance Plant Breeding Technologies." Paper presented a the Session on Socioeconomic Factors Contributing to Arid and Semi-Arid Land Conversion at the Assoc. for Arid Land Studies Meetings held in conjunction with the West. Soc. Sci. Assoc. Meetings at Fort Worth, Tx, Apr., 24-27, 1985, 15p.

Wichelns, Dennis, Gerald Horner, and Richard Howitt. "Economic Impacts of Salinity: An Econometric Multi-Output Approach." Paper presented at the Annual West. Agr. Econ. Assoc. Meetings, Univ. of Sask., July 9, 1985, 13p.

Hatchett, Steve A., Nigel W. T. Quinn, Gerald L. Horner, and Richard E. Howitt. "A Drainage Economics Model to Evaluate Policy Options for Managing Selenium Contaminated Drainage." Presented at the International Committee on Irrigation and Drainage Pan-American Conference, Toxic Substances in Agricultural Water Supply and Drainage - An International Environmental Perspective. Ottawa, Ontario, Canada, June 8-9, 1989.

Horner, Gerald L., Gregory Greenwood, and James H. Cothern. "The Role of Natural Resources in Maintaining the Competitiveness of Beef Production in CA". UC Cooperative Extension and the UC Agricultural Issues Center Rangeland Workshop, Winters Community Center, January 10, 1992.

Horner, Gerald L. "Comprehensive Management of Water Resources." Alpha Gamma Rho National Convention. Savanah, GA. August 9, 2000.

Horner, Gerald L. "The Benefits of Counter-Terrorism." Hazards Research and Applications Workshop. Natural Hazards Center, Univ of Colorado. July 15, 2002.

Horner, Gerald, and David Balgobin. "The Development of an Economic Analyses Guidance and Templates for WaterRecycling Projects." WaterReuse California Annual Conference, Sacramento, March 26, 2012.

**Attachment B**

**9 January 2014 Inspection Report of the Henry Tosta Dairy**

**CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD**

**INSPECTION REPORT**

**DATE:** 14 January 2014

**LOCATION & COUNTY:** Henry Tosta Dairy
20662 San Jose Road, Tracy
San Joaquin County

**INSPECTION DATE:** 9 January 2014

**INSPECTED BY:** Sean Walsh / Daniel Davis (CVRWQCB)

**OBSERVATIONS AND COMMENTS:**

Regional Water Quality Control Board staff visited the Henry Tosta Dairy on 9 January 2014 to determine how the solid and slurry manure is being managed and/or stored.


Photo 1: Looking east at the west-end of the northern freestall barn, south side. The manure contained inside the barn is pushed out and stored in the adjacent corrals. See Photos 2-4.


Photo 2: Looking east at the south-corral being used to store solid manure.


Photo 3: Looking west at the north-corral being used to store slurry manure.


Photo 4: Looking south at the east-end of the freestall barn; manure is actively being pushed out and stored inside the north-corral.


Photo 5: Looking west at the east-end of the freestall barn, south side. At the time of the inspection the manure was approximately 10"-14" deep. See attached video.

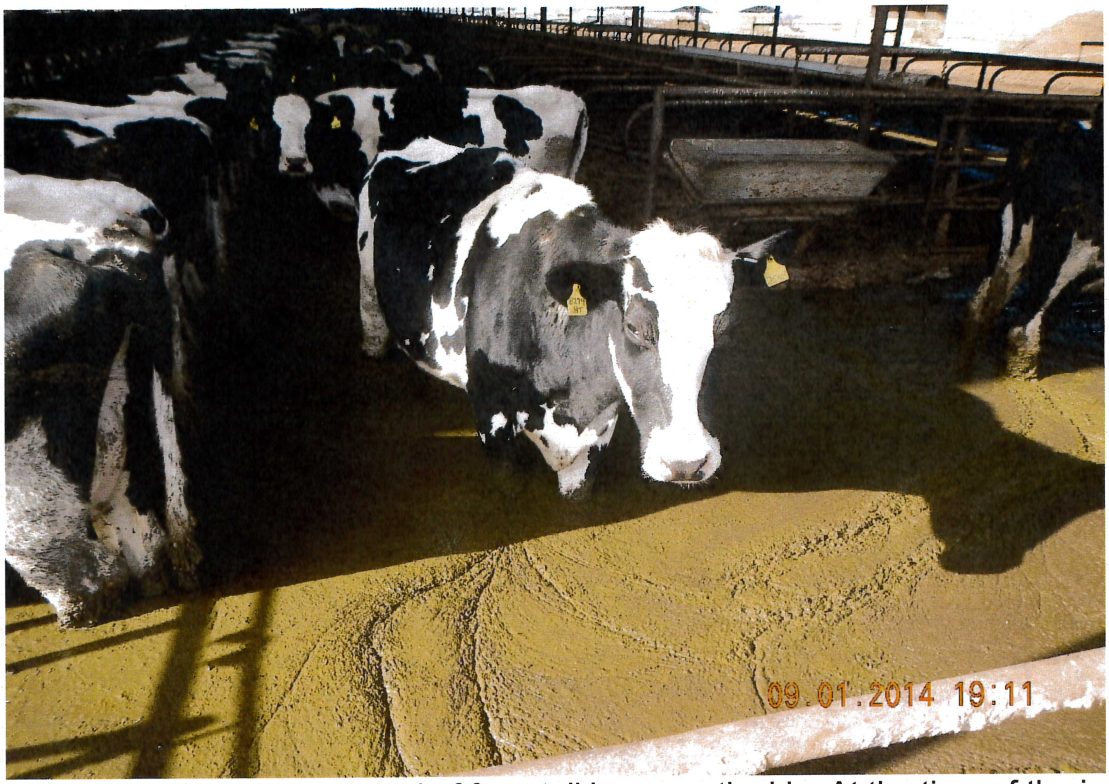


Photo 6: Looking west at the east-end of freestall barn, north side. At the time of the inspection the manure was approximately 10"-14" deep. See attached video.


Photo 7: Looking west at the northern freestall barn. The 3-4 acre slurry area is no longer being used to store manure.

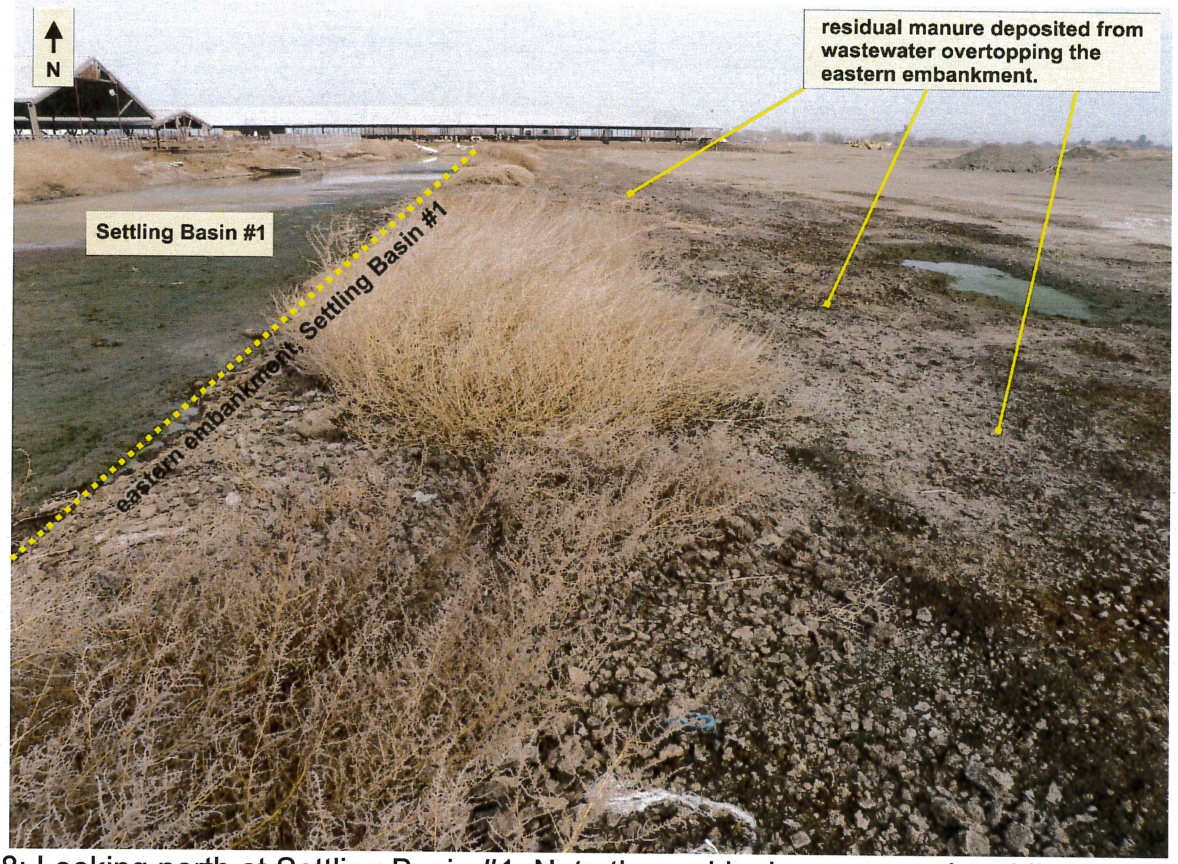


Photo 8: Looking north at Settling Basin #1. Note the residual manure and puddle of wastewater deposited from wastewater overtopping the eastern embankment.

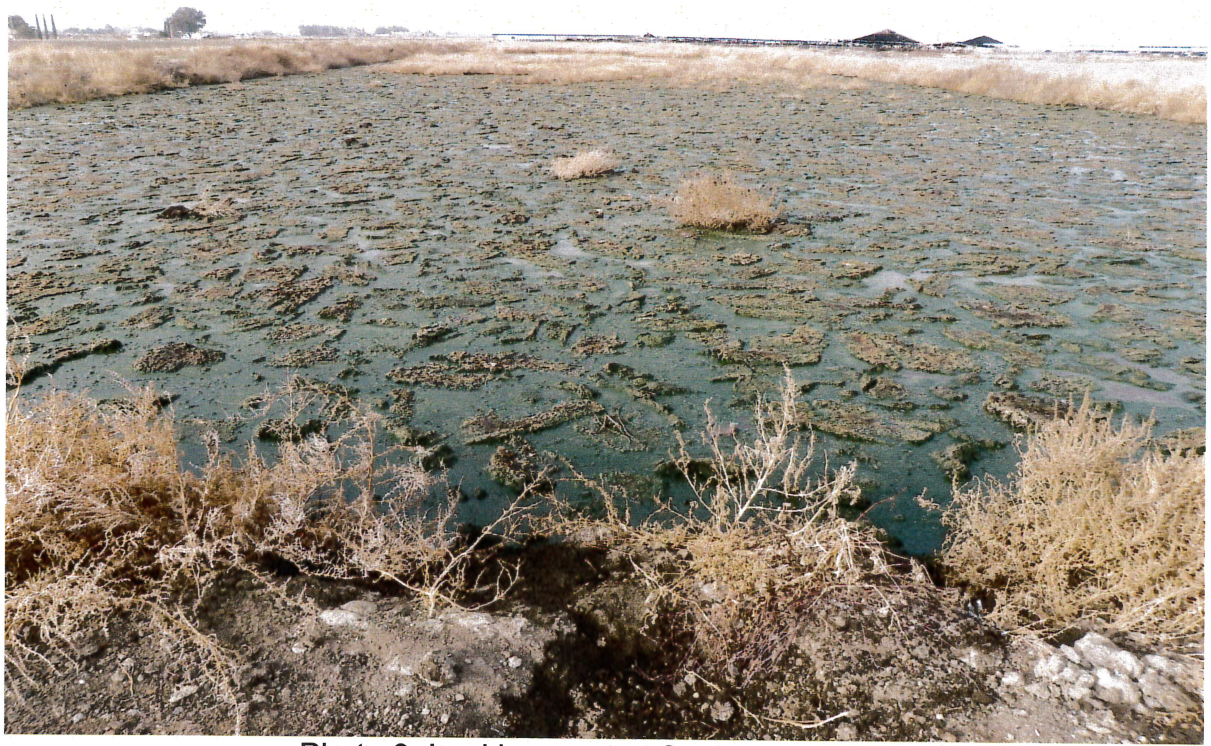

Photo 9: Looking west at Settling Basin #2.

Photo 10: Looking northwest at Settling Basin #2. At the time of the inspection there was less than 1' freeboard.

Photo 11: Looking west at Wastewater Storage Lagoon #1 (WSL#1).

Photo 12: Looking west at Wastewater Storage Lagoon #2 (WSL#2).

Photo 13: Looking west at the wastewater storage lagoon embankment between WSL#1 and WSL#2. This embankment has been damaged and requires complete re-construction.

Photo 14: Looking west at Wastewater Storage Lagoon #3.

Photo 15: Looking west at the wastewater storage lagoon embankment between WSL#2 and WDL#3. This embankment has been damaged and requires complete re-construction.

Photo 16: Looking west at Wastewater Storage Lagoon #4 (WSL#4).

Photo 17: Looking west at Wastewater Storage Lagoon #5 (WSL#5).

Photo 18: Looking west at the wastewater storage lagoon embankment between WSL#4 and WSL#5. This embankment has been damaged and requires complete re-construction.

In summary:

1) The facility is currently milking 850.
2) The wastewater storage lagoon embankments at all the lagoons have been damaged; see Photos 13, 15, and 18 for examples of damaged lagoon embankments.
3) Facility generated waste is not being stored inside the wastewater storage lagoons; it's being stored inside the northern freestall barn, adjacent corrals, Settling Basin #1, and Settling Basin #2.
4) The 3-4 acre slurry area is not being used to store manure.

*** 2 videos are attached to this report, a copy of both videos can be provided upon request.***