STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
NORTH COAST REGION

In the Matter Of:	ORDER R1-2013-0067 (Proposed)
NORTH BAY CONSTRUCTION	**SETTLEMENT AGREEMENT AND STIPULATION FOR ENTRY OF ADMINISTRATIVE CIVIL LIABILITY ORDER**

Section I: INTRODUCTION

This Settlement Agreement and Stipulation for Entry of Administrative Civil Liability Order (hereafter "Settlement Agreement" or "Stipulation") is entered into by and between the Assistant Executive Officer of the North Coast Regional Water Quality Control Board ("North Coast Water Board"), on behalf of the North Coast Water Board Prosecution Team ("Prosecution Team") and Barella-Geney Corp., a California corporation doing business as "North Bay Construction", ("North Bay" or "Settling Respondent") (collectively "Parties") and is presented to the North Coast Water Board for adoption as an Order by settlement ("Stipulated Order" or "Order"), pursuant to Government Code section 11415.60.

Section II: RECITALS

WHEREAS, in 2008 Settling Respondent contracted with the City of Sebastopol ("City") to construct the Laguna Force Main Replacement Project ("Project") (Contract No. 2008-02) per the City's plans and specifications prepared by the City's outside engineer and construction manager, Green Valley Consulting Engineers, Inc. ("Green Valley"). The Project consisted of the construction of a 14-inch sanitary sewer force main, associated valves, vaults and inter-tie structures, abandonment of existing force main/manholes, jack and bore installation under Highway 12, installation of a dissipating chamber, and environmental mitigation measures. The Project was completed and tested in November of 2008 and accepted by the City on December 5, 2008;

WHEREAS, on January 20, 2010, a leak developed in an underground portion of the Laguna Force Main that resulted in untreated wastewater escaping to the ground surface and allegedly discharging into the waters of the nearby Laguna de Santa Rosa;

WHEREAS, the City reported that an estimated 142,500 gallons of untreated wastewater had discharged into the Laguna de Santa Rosa as a result of the leak;

WHEREAS, on September 9, 2010, the Assistant Executive Officer of the North Coast Water Board issued Administrative Civil Liability Complaint No. R1-2010-0081 alleging that the City violated provisions of the Porter-Cologne Water Quality Control Act and the Clean Water Act as a consequence of the January 20, 2010, discharge;

WHEREAS, on April 12, 2011, the complaint against the City was subsequently withdrawn due to the City's allegations that North Bay improperly constructed the Laguna Force Main in 2008. North Bay denies the City's allegations and contends that the leak in the Laguna Force Main was the result of causes other than North Bay's alleged improper construction;

WHEREAS, on April 7, 2011, the Assistant Executive Officer of the North Coast Water Board issued Administrative Civil Liability Complaint No. R1-2011-0048 ("Complaint") to the Settling Respondent alleging that the Settling Respondent failed to properly construct a pipe joint within the sewer main while carrying out the Project, resulting in the discharge of 142,500 gallons of untreated wastewater to the Laguna de Santa Rosa on January 20, 2010. The Complaint alleged that the discharge violated Prohibition C.1 of State Water Resources Control Board Order No. 2006-003-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*, and/or Section 301 of the Clean Water Act (33 U.S.C. § 1311) and California Water Code section 13376. The Complaint is attached hereto as EXHIBIT A;

WHEREAS, North Bay has asserted rights of indemnity and/or contribution against both the City and Green Valley arising out of the allegations of the Complaint and this proceeding;

WHEREAS, the Parties have engaged in settlement negotiations and agree to fully resolve and settle the allegations made in the Complaint without administrative or civil litigation and by presenting this Stipulation to the North Coast Water Board for adoption as an Order by settlement, pursuant to Government Code section 11415.60. Although the amount of the administrative civil liability agreed to in this Settlement Agreement is less than the $519,990 proposed in the Complaint, the reduced amount is based on the Parties' agreement that the volume of the discharge originally reported was too high. The Parties agree that the actual volume of the discharge that occurred was no greater than 9,000 gallons, as described in a report prepared by Terrain Engineering, Inc., attached hereto as EXHIBIT B. A revised calculation, based on a discharge volume of 9,000 gallons with a per gallon liability amount of $10/gallon,[1] is attached hereto as Exhibit C; and

[1] The penalty methodology attached as Exhibit A to the Complaint reduced the maximum per gallon liability assessment from $10 to $4.50 based on a finding that the discharge was considered "high volume."

WHEREAS, the Prosecution Team believes that the proposed settlement and resolution of the alleged violations is fair and reasonable and fulfills all of its enforcement objectives, that no further action is warranted concerning the specific violations alleged in the Complaint, except as provided in this Stipulated Order, and that adoption of this Stipulated Order is in the best interest of the public.

Section III: STIPULATIONS

The Parties stipulate to the following:

1. **No Admission of Liability:** This Settlement Agreement and the Stipulated Order are the result of compromise and, by entering into this Settlement Agreement, North Bay does not admit to any of the allegations in the Complaint against it, or that it has been or is in violation of the Water Code or any other federal, state, or local law or ordinance;

2. **Administrative Civil Liability:** Within thirty (30) days of adoption and entry of the Stipulated Order, North Bay agrees to remit, by check, EIGHTY FIVE THOUSAND SEVEN HUNDRED TWENTY FIVE DOLLARS ($85,725), payable to the *State Water Resources Control Board Cleanup and Abatement Account,* and shall indicate on the check the number of this Order. North Bay shall deliver the original signed check to the State Water Resources Control Board Division of Administrative Services, ATTN: Accounting, 1001 "I" Street, 18th Floor, Sacramento, California 95814 and shall send copies to David Leland, North Coast Regional Water Quality Control Board, 5550 Skylane Boulevard, Suite A, Santa Rosa, CA 95043 and David Boyers, State Water Resources Control Board, Office of Enforcement, P.O. Box 100, Sacramento, CA 95812.

3. **Compliance with Applicable Laws:** North Bay, as the Settling Respondent, understands that payment of the amount of the administrative civil liability in accordance with the terms of this Settlement Agreement and compliance with the terms of this Stipulated Order is not a substitute for compliance with applicable laws, and that continuing violations of the type alleged in the Complaint may subject it to further enforcement, including additional administrative civil liability.

4. **Attorney's Fees and Costs:** Except as otherwise provided herein, each Party shall bear all attorneys' fees and costs arising from the Party's own counsel in connection with the matters set forth herein.

Because a discharge of 9,000 would not be considered high volume, a reduction from the maximum statutory per gallon liability amount of $10 is not appropriate. (*See* State Water Resources Control Board Water Quality Enforcement Policy [effective May 10, 2010], Page 14.)

5. Matters Covered by Stipulation; Covenant Not to Sue: Upon adoption by the North Coast Water Board, this Stipulated Order represents a final and binding resolution and settlement of all claims, violations or causes of action, alleged in the Complaint, or which could have been asserted based on the specific facts alleged in the Complaint, against North Bay, the City of Sebastopol, Green Valley Consulting Engineers, Inc., and each of their respective officers, employees, directors, members, owners, shareholders, agents, subsidiaries, parents, insurers and sureties as of the effective date of this Stipulated Order ("Covered Matters"). Further, the North Coast Water Board covenants not to sue or to pursue any administrative or civil proceedings against the foregoing entities and/or persons for known claims arising out of the Covered Matters. The provisions of this Paragraph are expressly conditioned on full payment of the agreed amount of the administrative civil liability by the deadline specified in Paragraph 2, above.

6. Public Notice: Settling Respondent understands that this Stipulated Order must be noticed for a 30-day public review and comment period prior to consideration by the North Coast Water Board. If the North Coast Water Board Assistant Executive Officer receives significant new information that reasonably affects the propriety of presenting this Stipulated Order to the North Coast Water Board for adoption, the Assistant Executive Officer may unilaterally declare this Stipulated Order void and decide not to present it to the North Coast Water Board. Settling Respondent agrees that it may not rescind or otherwise withdraw its approval of this proposed Stipulated Order.

7. Addressing Objections Raised During Public Comment Period: The Parties agree that the procedure contemplated for the North Coast Water Board's adoption of the settlement by the Parties and review by the public, as reflected in this Stipulated Order, will be adequate. In the event procedural objections are raised prior to the Stipulated Order becoming effective, the Parties agree to meet and confer concerning any such objections, and may agree to revise or adjust the procedure as necessary or advisable under the circumstances.

8. No Waiver of Right to Enforce: The failure of the Prosecution Team or North Coast Water Board to enforce any provision of this Stipulated Order shall in no way be deemed a waiver of such provision, or in any way affect the validity of the Order. The failure of the Prosecution Team or North Coast Water Board to enforce any such provision shall not preclude it from later enforcing the same or any other provision of this Stipulated Order.

9. Effect of Stipulated Order: Except as expressly provided in this Stipulated Order, nothing in this Stipulated Order is intended nor shall it be construed to preclude the Prosecution Team or any state agency, department, board or entity or any local agency from exercising its authority under any law, statute, or regulation.

10. Interpretation: This Stipulated Order shall be construed as if the Parties prepared it jointly. Any uncertainty or ambiguity shall not be interpreted against any one Party.

11. Modification: This Stipulated Order shall not be modified by any of the Parties by oral representation made before or after its execution. All modifications must be in writing, signed by all Parties, and approved by the North Coast Water Board.

12. If Order Does Not Take Effect: In the event that this Stipulated Order does not take effect because it is not approved by the North Coast Water Board, or is vacated in whole or in part by the State Water Board or a court, the Parties acknowledge that they expect to proceed to a contested evidentiary hearing before the North Coast Water Board to determine whether to assess administrative civil liabilities for the underlying alleged violations, unless the Parties agree otherwise. The Parties agree that all oral and written statements and agreements made during the course of settlement discussions will not be admissible as evidence in the hearing. The Parties agree to waive any and all objections based on settlement communications in this matter, including, but not limited to:

a. Objections related to prejudice or bias of any of the North Coast Water Board members or their advisors and any other objections that are premised in whole or in part on the fact that the North Coast Water Board members or their advisors were exposed to some of the material facts and the Parties' settlement positions as a consequence of reviewing the Stipulation and/or the Order, and therefore may have formed impressions or conclusions prior to any contested evidentiary hearing on the Complaint in this matter; or

b. Laches or delay or other equitable defenses based on the time period for administrative or judicial review to the extent this period has been extended by these settlement proceedings.

13. Evidence of Prior Enforcement Action: In settling this matter, Settling Respondent agrees that in the event of any future enforcement actions by the North Coast Water Board, the Order may be used as evidence of a prior enforcement action consistent with Water Code section 13327.

14. Waiver of Hearing: Settling Respondent has been informed of the rights provided by Water Code section 13323(b), and hereby waives its right to a hearing before the North Coast Water Board prior to the adoption of the Stipulated Order.

15. Waiver of Right to Petition: Settling Respondent hereby waives its right to petition the North Coast Water Board's adoption of the Stipulated Order as

written for review by the State Water Board, and further waives its rights, if any, to appeal the same to a California Superior Court and/or any California appellate level court.

16. Settling Respondent's Covenant Not to Sue: Settling Respondent covenants not to sue or pursue any administrative or civil claim(s) against any State Agency or the State of California, their officers, Board Members, employees, representatives, agents, or attorneys arising out of or relating to any Covered Matter.

17. North Coast Water Board is Not Liable: Neither the North Coast Water Board members nor the North Coast Water Board staff, attorneys, or representatives shall be liable for any injury or damage to persons or property resulting from acts or omissions by the Settling Respondent or the Implementing Party, their directors, officers, employees, agents, representatives or contractors in carrying out activities pursuant to this Stipulated Order, nor shall the North Coast Water Board, its members or staff be held as parties to or guarantors of any contract entered into by the Settling Respondent or the implementing Party, their directors, officers, employees, agents, representatives or contractors in carrying out activities pursuant to this Stipulated Order.

18. Authority to Bind: Each person executing this Stipulated Order in a representative capacity represents and warrants that he or she is authorized to execute this Stipulated Order on behalf of and to bind the entity on whose behalf he or she executes the Order.

19. No Third Party Beneficiaries. Except as expressly stated in Paragraph 5, above, this Settlement Agreement and Stipulated Order are not intended to confer any rights or obligations on any third party or parties, and no third party or parties shall have any right of action under this Stipulated Order for any cause whatsoever.

20. Effective Date: This Stipulated Order shall be effective and binding on the Parties upon the date the North Coast Water Board enters the Order.

21. Counterpart Signatures: This Stipulated Order may be executed and delivered in any number of counterparts, each of which when executed and delivered shall be deemed to be an original, but such counterparts shall together constitute one document.

22. Severability: This Stipulation and Order are severable; should any provision be found invalid the remainder shall remain in full force and effect.

23. Incorporation of Exhibits: Exhibits "A," "B" and "C" are hereby incorporated by reference.

IT IS SO STIPULATED.

North Coast Water Board Prosecution Team

By: _____
David Leland, Assistant Executive Officer

Date: 11 04 13

Barella-Geney Corp., a California corporation, doing business as North Bay Construction

By: _____
Steve Geney, President

Date: 10-9-13

Order of the North Coast Water Board

24. The North Coast Water Board incorporates Paragraphs 1 through 23 by this reference as if set forth fully herein.

25. In adopting this Stipulated Order, the North Coast Water Board has considered, where applicable, each of the factors prescribed in California Water Code section 13385(e). The consideration of these factors is based upon information and comments obtained by the North Coast Water Board's staff in investigating the allegations described in the Complaint or otherwise provided to the North Coast Water Board by the Parties and members of the public.

26. This is an action to enforce the laws and regulations administered by the North Coast Water Board. The North Coast Water Board finds that issuance of this Order is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, sections 21000 et seq.), in accordance with section 15321(a)(2), Title 14, of the California Code of Regulations.

27. The Executive Officer is authorized to refer this matter directly to the Attorney General for enforcement if the Settling Respondent fails to perform any of its obligations under the Order.

Pursuant to CWC section 13323 and Government Code section 11415.60, **IT IS HEREBY ORDERED** on behalf of the North Coast Regional Water Quality Control Board.

_____

Matthias St. John, Executive Officer

Date: _____

EXHIBIT A

STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
NORTH COAST REGION

In the Matter of: North Bay Construction, Inc.	Complaint No. R1-2011-0048 for Administrative Civil Liability

This Administrative Civil Liability Complaint (Complaint) is issued to North Bay Construction Inc. ("North Bay Construction") to assess administrative civil liability for discharges of waste in violation of provisions of law for which the California Regional Water Quality Control Board, North Coast Region (Regional Water Board) may impose civil liability pursuant to California Water Code (CWC) Section 13350 or, in the alternative, CWC Section 13385. The Complaint alleges that North Bay Construction caused a discharge of untreated or partially treated wastewater to waters of the United States, in violation of: (1) Prohibition C.1 of State Water Resources Control Board Order No. 2006-003-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*; or, in the alternative, (2) Section 301 of the Clean Water Act (33 U.S.C. § 13411) and CWC Section 13376.

The Assistant Executive Officer of the Regional Water Board hereby gives notice that:

1. North Bay Construction is alleged to have violated provisions of law for which the Regional Water Board may impose administrative civil liability under CWC Section 13350 or, in the alternative, CWC Section 13385. The Complaint proposes to assess $519,990 in administrative civil liability for the violations cited based on considerations described herein.

2. This Complaint is issued under authority of CWC section 13323.

3. A hearing concerning this Complaint may be held before the Regional Water Board within ninety (90) days of the date of issuance of this Complaint, unless, pursuant to CWC section13323, North Bay Construction waives its right to a hearing. The waiver procedures are specified in the attached Waiver Form. The hearing in this matter is scheduled for the Regional Water Board's regular meeting on June 23, 2011, at the Regional Water Quality Control Board Office, 5550 Skylane Blvd., Santa Rosa, California. North Bay Construction, or its designated representative, will have an opportunity to appear and be heard, and to contest the allegations in this Complaint and the imposition of civil liability by the Regional Water Board. An agenda for the meeting will be available at:

   http://www.waterboards.ca.gov/northcoast/board_info/board_meetings/

   not less than 10 days before the hearing date.

4. If a hearing is held on this matter, the Regional Water Board will consider whether to affirm, reject, or modify the proposed administrative civil liability or whether to

refer the matter to the Attorney General for recovery of judicial civil liability. If this matter proceeds to hearing, the Prosecution Team reserves the right to seek an increase in the civil liability amount to cover the costs of enforcement incurred subsequent to the issuance of this Complaint through hearing.

STATEMENT OF APPLICABLE PROHIBITIONS AND REQUIREMENTS:

5. Prohibition C.1 of State Water Resources Control Board Order No. 2006-003-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*, provides that any sanitary sewer overflow that results in a discharge of untreated or partially treated wastewater to waters of the United States is prohibited.

6. Section 301 of the Clean Water Act (33 U.S.C. § 1311) and CWC Section 13376 prohibit the discharge of pollutants to surface waters except in compliance with a National Pollutant Discharge Elimination System (NPDES) permit.

ALLEGED VIOLATION OF PROHIBITIONS AND REQUIREMENTS:

7. North Bay Construction caused the discharge of 142,500 gallons of untreated wastewater to the Laguna de Santa Rosa on January 20, 2010, in violation of Prohibition C.1 of State Water Resources Control Board Order No. 2006-003-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems,* and in violation of Section 301 of the Clean Water Act (33 U.S.C. § 1311) and CWC section 13376.

FACTUAL BASIS FOR THE ALLEGED VIOLATIONS

The following evidence supports the alleged violation described above:

8. The City of Sebastopol (City) owns and operates a sewage collection system that discharges to the City of Santa Rosa's sub-regional wastewater treatment plant.

9. In 2008, the City contracted with North Bay Construction to carry out the Laguna Force Main Replacement Project (Project) (Contract No. 2008-02). The Project consisted of the construction of a 14-inch sanitary sewer force main, associated valves, vaults and inter-tie structures, abandonment of existing force main/manholes, jack and bore installation under Highway 12, installation of a dissipating chamber, and environmental mitigation measures. The Project was completed in November of 2008.

10. On January 20, 2010 at 11:37 a.m., the City received a report of water surfacing and flowing to Meadowlark Field, east of Laguna de Santa Rosa, and north of Highway 12.

11. Following the notification of the spill, the City alerted its Public Works and Engineering staff and contacted its consulting engineer, and requested that they respond to the scene. All appropriate agencies were notified within the hour, including the Regional Water Board, County Environmental Health and downstream water users. Pumper trucks were mobilized to collect wastewater and haul it to the treatment and disposal

system. The spill was fully contained about 10 hours after the City learned of the overflow.

12. The City determined that the spill had originated from a portion of the pressurized sewer main which conveys wastewater from the City's sanitary sewer collection system to the City of Santa Rosa's Laguna Treatment Plant and was caused by the failure at a joint between two pipes of differing sizes and materials.

13. The pipe joint which caused the spill had been replaced as part of the City's Laguna Force Main Replacement Project.

14. The approved plans for the City's Laguna Force Main Replacement Project show a system of restrainers and tie rods to prevent the pipe sections from separating during pressure variations when pumping. A change proposal approved by the City's engineer detailed an alternate method of restraint.

15. The City's spill report for the incident, submitted to the Regional Water Board on March 18, 2010, says that "The particular joint in question, however, was not constructed according to the plans and the RFI, and subsequently failed." As originally constructed, a critical component of the joint was not installed, resulting in the failure.

16. The pipe joint that failed, resulting in the discharge, was installed by North Bay Construction.

WATER CODE AUTHORITY FOR IMPOSING ADMINISTRATIVE CIVIL LIABILITY

17. Pursuant to CWC Section 13350(a), any person or entity, who, in violation of any Waste Discharge Requirements issued by the State Water Board, discharges waste, or causes or permits waste to be deposited where it is discharged, into waters of the state, is subject to administrative civil liability pursuant to CWC Section 13350(e), either (1) on a daily basis not to exceed five thousand dollars ($5,000) for each day the violation occurs; or (2) on a per gallon basis in an amount not to exceed ten dollars ($10) per gallon of waste discharged.

18. Pursuant to CWC Section 13385(a), any person who violates CWC Section 13376 or any requirements of Section 301 of the Clean Water Act is subject to administrative civil liability pursuant to CWC Section 13385(c), in am amount not to exceed the sum of both the following: (1) ten thousand dollars ($10,000) for each day in which the violation occurs: and (2) where there is a discharge, any portion of which is not susceptible to cleanup or is not cleaned up, and the volume discharged but not cleaned up exceeds 1,000 gallons, an additional liability not to exceed ten dollars ($10) multiplied by the number of gallons by which the volume discharged but not cleaned up exceeds 1,000 gallons.

19. The discharge caused by North Bay Construction constitutes a violation under CWC Section 13350, or, in the alternative, CWC Section 13385.

a. The maximum liability that the Regional Water Board may assess pursuant to CWC Section 13350(e) is $1,425,000 calculated using the per gallon option.

i. 142,500 [gallons discharged] X $10 [per gallon] = $1,425,000

b. The maximum liability that the Regional Water Board may assess pursuant to CWC Section 13385(e) is also $1,425,000.

i. 141,500 [gallons discharged but not cleaned up in excess of 1,000 gallons] X $10 [per gallon] + 1[day of violation] X $10,000 [per day of violation] = $1,425,000

FACTORS CONSIDERED IN DETERMINING ADMINSTRATIVE CIVIL LIABILITY

20. On November 17, 2010, the State Water Resources Control Board adopted Resolution No. 2009-0083 amending the Water Quality Enforcement Policy (Enforcement Policy). The Enforcement Policy was approved by the Office of Administrative Law and became effective on May 20, 2010. The Enforcement Policy establishes a methodology for assessing administrative civil liability. The use of this methodology addresses the factors that are required to be considered when imposing a civil liability as outlined in CWC Section 13351 and CWC Section 13385(e). The entire Enforcement Policy can be found at:

http://www.waterboards.ca.gov/water_issues/programs/enforcement/docs/enf_policy_final111709.pdf

The specific required factors in CWC Section 13351 and 13385(e) are the nature, circumstances, extent, and gravity of the violation or violations, whether the discharge is susceptible to cleanup or abatement, and the degree of toxicity of the discharge. With respect to the violator, the required factors are the ability to pay, the effect on the violator's ability to continue its business, any voluntary cleanup efforts undertaken, any prior history of violations, the degree of culpability, economic benefit or savings, if any, resulting from the violation and other matters that justice may require.

The specific factors required by the Enforcement Policy are: the potential harm to beneficial uses; the physical, chemical, biological or thermal characteristics of the discharge; the discharge's susceptibility to cleanup; the violation's deviation from requirements; the discharger's culpability; cleanup and the discharger's cooperation; the history of violations; the discharger's ability to pay; other factors as justice may require; and economic benefit from the avoidance or delay of implementing requirements. These factors address the statute-required factors and also are used to calculate penalties consistent with both the CWC and the Enforcement Policy.

The required factors have been considered for the violation using the methodology in the Enforcement Policy, as explained in detail in Attachment A.

PROPOSED ADMINISTRATIVE CIVIL LIABILITY

21. Based on consideration of the above facts and after applying the penalty methodology, the Assistant Executive Officer of the Regional Water Board proposes that civil liability be imposed administratively on North Bay Construction in the amount of $519,990 for the violations of CWC Section 13350 or, in the alternative, violations of CWC Section 13385. The proposed liability includes $15,525 for staff costs.

22. There are no statutes of limitations that apply to administrative proceedings. The statutes of limitations that refer to "actions" and "special proceedings" and are contained in the California Code of Civil Procedure apply to judicial proceedings, not an administrative proceeding. See City of Oakland v. Public Employees' Retirement System (2002) 95 Cal. App. 4th 29, 48; 3 Witkin, Cal. Procedure (4th ed. 1996) Actions, §405(2), p. 510.)

23. Notwithstanding the issuance of this Complaint, the Regional Water Board retains the authority to assess additional penalties for violations of the requirements of waste discharge requirements for which penalties have not yet been assessed or for violations that may subsequently occur.

24. Issuance of this Complaint is an enforcement action and is therefore exempt from the provisions of the California Environmental Quality Act (Pub. Res. Code § 21000 et seq.) pursuant to title 14, California Code of Regulations sections 15308 and 15321 subsection (a) (2).

April 7, 2011
Date

Luis G. Rivera
Assistant Executive Officer
Regional Water Board Prosecution Team

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Attachment A – Specific Factors Considered

ACL Complaint No. R1 –2011- 0048
North Bay Construction, Inc.

Each factor of the State Water Resources Control Board Enforcement Policy and its corresponding score for the alleged violation is presented below:

Calculation of Penalty

I. **Step 1. Potential for Harm for Discharge Violations**
The potential for harm to the environment associated with the violation is eight (8). This is determined by the sum of the factors for:

(a) The potential for harm to beneficial uses is four (4) (above moderate) because impacts to beneficial uses of Laguna de Santa Rosa were observed or likely substantial. Beneficial uses of Laguna de Santa Rosa include:

- Agricultural Supply
- Groundwater Recharge
- Water Contact Recreation
- Non-Contact Water Recreation
- Commercial and Sport Fishing
- Warm Freshwater Habitat
- Cold Freshwater Habitat
- Wildlife Habitat
- Rare, Threatened, or Endangered Species
- Migration of Aquatic Organisms
- Spawning, Reproduction, and /or Early Development

Groundwater Recharge – Public and Private water wells are located downstream from the spill location. Residences were warned not to use their water wells if the well heads were submerged. The Russian River County Water District and Sweetwater Springs Water District were notified to take appropriate action to protect their water supplies.

Water Contact and Non-Contact Recreation – Signs were posted at public access areas to warn the public about contaminated waters resulting from the spill.

Raw sewage contains high levels of suspended solids, pathogenic organisms, nutrients, oxygen-demanding organic compounds, oil and grease, and other pollutants that have the potential to adversely impact aquatic organisms and public health. Increased nutrients cause increased algal and macrophyte growth, increased turbidity, larger dissolved oxygen swings, and potential for increased sediment oxygen demand, all of which reduce the cold and warm water fish and aquatic survival rates, and therefore impact many of the fisheries aquatic habitat beneficial uses. Nutrient and pathogen discharges specifically impact the Laguna de Santa Rosa, which is already listed on the Clean Water Act Section 303(d) list as impaired for nutrients, low dissolved oxygen, and pathogens/indicator bacteria.

(b) The physical, chemical, biological or thermal characteristics of the discharge is three (3) (above moderate risk) because raw, undiluted sewage, as compared to treated and/or diluted wastewater, typically has about ten times the concentrations of biochemical oxygen demand, trash, total suspended solids, oil and grease, ammonia,

and thousands of times the levels of viruses and bacteria. These pollutants exert varying levels of impact on water quality and, as such, will adversely affect beneficial uses of receiving waters to different extents. The toxicity of the discharged sewage is not specifically known; however, raw sewage is generally toxic to aquatic organisms unless highly diluted. Some possible adverse effects on water quality and beneficial uses as a result of a sanitary sewer overflow include:

- Adverse impact to fish and other aquatic biota caused by bio-solid deposition, oil and grease, and toxic pollutants common in sewage (such as heavy metals, pesticides, personal care products, and pharmaceuticals);
- Creation of localized toxic environment in the water column as a result of the discharge of oxygen-demanding pollutants that lower dissolved oxygen, and elevated ammonia concentration which is a demonstrated fish toxicant; and
- Impairment to water contact recreation and non-contact water recreation and harm to fish and wildlife as a result of elevated bacteria levels including pathogens.

(c) The susceptibility to cleanup or abatement is one (1) (less than 50% susceptible to cleanup) because less than 50 percent of the discharge was susceptible to cleanup or abatement. The sanitary sewer overflow discharged directly to Laguna de Santa Rosa and could not be recovered.

II. **Step 2. Assessment for Discharge Violations**

Because the violation resulted in a large volume sewage spill, liability is proposed both on a per gallon and a per day basis, (pursuant to CWC Section 13385) as shown below.

Per Gallon Assessment

The deviation from requirements is major. Prohibition C.1 of State Water Resources Control Board Order No. 2006-003-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*, provides that any sanitary sewer overflow that results in a discharge of untreated or partially treated wastewater to waters of the United States is prohibited. The violation resulted in a discharge of untreated wastewater to the Laguna de Santa Rosa, rendering the prohibition ineffective.

In addition, Section 301 of the Clean Water Act (33 U.S.C. § 1311) and CWC Section 13376 prohibit the discharge of pollutants to surface waters except in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The discharge of untreated wastewater to the Laguna de Santa Rosa was not in compliance with an NPDES permit, rendering the requirements of Section 301 of the Clean Water Act (33 U.S.C. § 1311) and CWC Section 13376 ineffective.

Therefore, in accordance with Table 1-Per Gallon Factor for Discharges on Page 14 of the Enforcement Policy, a multiplier of 0.6 is appropriate.

Per Day Assessment

The deviation from requirements is major, for the same reason as stated above.

Therefore, in accordance with Table 2-Per Day Factor For Discharges on Page 15 of the Enforcement Policy, a multiplier of 0.6 is appropriate.

High Volume Discharge
Considering that the violation resulted in a large volume sewage spill, consistent with the direction in the Enforcement Policy regarding "high volume discharges", a maximum per gallon assessment of $4.50 is appropriate. (A lesser per gallon assessment would have resulted in an inappropriately small penalty, given that the discharge was caused by an improperly installed pipe joint and resulted in an impact to beneficial uses.)

INITIAL LIABILITY AMOUNT

The Initial Liability Amounts for the violation calculated on a per gallon and a per day basis, (pursuant to CWC Section 13385) are as follows:

Per Gallon Liability
(141,500 [142,500 – 1,000]) X (.6) X ($4.50) = $382,050

Per Day Liability
(10,000) X (.6) = $6,000

Total Initial Liability = **$388,050**

III. **Step 3. Per Day Assessments For Non-Discharge Violations**
This step is not applicable because the violation is a discharge violation.

IV. **Step 4. Adjustment Factors**

(a) Culpability: The degree of culpability is 1.3. The spill was caused by the negligence of North Bay Construction when it installed a pipe joint that was not in accordance with the direction given by the City's engineer.

(b) Cleanup and Cooperation: North Bay Construction was not in a position to respond to the spill. Therefore, a neutral multiplier of 1 is appropriate.

(c) History of Violations: North Bay Construction has no history of violations. Therefore, a neutral multiplier of 1 is appropriate.

V. **Step 5. Determination of Total Base Liability Amount**

TOTAL BASE LIABILITY AMOUNT

The Total Base Liability amount is determined by applying the adjustment factors from Step 4 to the Initial Liability Amount determined in Step 2.

(Initial Liability) X (Culpability Multiplier) X (Cleanup and Cooperation Multiplier) X (History of Violations Multiplier) = Total Base Liability

($388,050) X (1.3) X (1) X (1) = $504,465

Total Base Liability = **$504,465**

VI. **Step 6. Ability to Pay and Ability to Continue in Business**
North Bay Construction is a major construction company based in Petaluma, CA, that has between 200 and 250 employees and has annual revenues of approximately $50-$100 Million. North Bay Construction therefore has the ability to pay the proposed liability and continue in business. Accordingly, the Total Base Liability is not adjusted.

VII. **Step 7. Other Factors as Justice May Require**
As of the date of the issuance of this Complaint, the Regional Water Board Prosecution Team has incurred costs of investigation and enforcement in the amount of $15,525, based on 115 hours of time at an average staff cost of $135 per hour. In accordance with the Enforcement Policy, this amount is added to the Total Base Liability Amount.

$504,465 + $15,525 = **$519,990**

VIII. **Step 8. Economic Benefit**
There were no savings to North Bay Construction by improperly installing the joint.

IX. **Step 9. Maximum and Minimum Liability Amounts**
As discussed in the Complaint, the maximum liability that may be imposed for the violations alleged herein is $1,425,500.

There is no minimum liability that must be assessed for the violations alleged herein.

The proposed liability falls within the maximum and minimum liability amounts.

X. **Step 10. Final Liability Amount**
The final liability amount proposed is **$519,990.**

EXHIBIT B

TERRAIN ENGINEERING, INC.

3609 Maidu Place
Davis, CA 95618
Tel: 916.952.0704, Fax: 530.792.1008
Email: cgilley@terrainengineeringinc.com

January 24, 2013
File No: 4921111

Howard Curtis, Esq.
McInerney & Dillon, P.C.
1999 Harrison Street, Suite 1700
Oakland, CA 94612-4700

Re: In the Matter of North Bay Construction, Inc.
Administrative Civil Liability Complaint No. R1-2011-0048
Subject: Laguna Force Main Leak, January 20, 2010

Dear Mr. Curtis,

In early 2012 Terrain Engineering, Inc. (TEI) was retained on behalf of North Bay Construction to investigate, study, and provide professional opinions regarding a reported leak of untreated wastewater from the City of Sebastopol's Laguna Force Main (LFM) that occurred on January 20, 2010. Following recent discussions with the staff of the North Coast Regional Water Quality Control Board (Board), you requested that TEI provide a written analysis and opinion as to the probable quantity of wastewater that actually escaped from the LFM as a result of the leak.

Background

From review of the contract documents provided, it is understood that in July 2008 North Bay Construction was awarded a contract by the City of Sebastopol to construct the LFM replacement project. The work involved replacing the then existing pipeline with a new one using a combination of large diameter HDPE and PVC pipe. North Bay's work was completed and pressure-tested in November 2008 in accordance with project plans and specifications. In December 2008 the City accepted the project and placed the LFM Replacement into service. Three years ago, on January 20, 2010, and during a period of heavy rainfall, water bubbling to the surface above the LFM was reported within the conservation area east of the Laguna de Santa Rosa and north of Highway 12.

Based on the City's report to the Board, dated March 18, 2010, and review of the project plans, the leak occurred at approximately the location identified as Station 25+10, where the LFM transitions from 16-inch OD HDPE and connects with 14-inch ID PVC.

City personnel reported the leak to the Board as a spill of 142,500 gallons. According to Richard Emig, the City's public works superintendent (deposed on August 2, 2012), he calculated the quantity of leaked wastewater based on the pump log maintained at the Morris Street Pump Station, some 1540+/-ft upstream of the site of the leak. That log recorded that on January 20, 2010, Morris Street pumped 931,000 gallons through the LFM and Mr. Emig calculated that the average flow rate on that day was about 700 gpm. Based on his assumption that 50 percent (350 gpm) leaked from the LFM for a period of 6 ½ hours, and then at a lower rate of 100 gpm for an additional hour, Mr. Emig calculated the total spill volume to have been 142,500 gallons. Mr. Emig also admitted that his assumption that only 50 percent of the flow was making it to Llano Road was an "educated guess" although he apparently lacked any relevant construction experience with large diameter force mains such as the LFM. Relevant portions of Mr. Emig's deposition transcript, provided for TEI's review, are at TAB 1.

Investigation and Analysis

To assist in the study of this incident TEI retained as a subconsultant William (Bill) Fleenor, Ph.D, a Faculty Member at the Civil and Environmental Engineering School, UC Davis. Dr. Fleenor's professional CV is attached at TAB 2. His written analysis is attached at TAB 3.

Dr. Fleenor reviewed the City's spill estimate of 142,500 gallons and calculated that it would have equaled 19,051 cubic feet in volume and covered one acre of land to a depth of 5-1/4 inches. His review of photographs taken at the time of the spill, and a short video clip obtained from the City, led to the conclusion that the actual leakage was much less than the 142,500 gallons reported by the City.

Dr. Fleenor then analyzed the situation to determine potential flow rates through the reported gap in the pipe using a mathematical model that treats the flow through the area of the pipe failure as though flow through a pipe lateral driven by the pressure head just upstream of the failure.

Dr. Fleenor looked at the leak with a flow rate of 350 gpm, as estimated by the City, and determined that the area of the failure (the gap) would have to have been equivalent to a lateral pipe opening of over 6.25 inches in diameter with a minimum area of 30 square inches. He then extended his study to determine effective flow rates for other (smaller) failure (gap) sizes. A graph of Dr. Fleenor's study results is on the third page of his written analysis and may be summarized as follows:

Flow Rate (gpm)	Diameter of Failure (inches)
350.00	6.269
144.96	4.800
57.90	3.600
25.58	2.400
13.02	1.200
4.49	0.200

With Dr. Fleenor's mathematical model furnishing theoretical flow rates as a function of the size of the pipe failure, the next step in TEI's analysis was to determine the actual size of the failure. Since the leak was quickly repaired by North Bay on the same date, and whatever parts that were replaced appear to have been lost in the intervening 3 years, this determination relied on eye-witness testimony, available photographs, and the manufacturer's specifications for the flange coupling adaptor (FCA) where the leak occurred.

Brenden Smith, North Bay's project manager for the LFM work, described the transition joint construction between the HDPE and the PVC pipes in detail (see TAB 4). Photos of the site at the time of the leak and of the pipe when exposed and prior to disassembly and repair, along with an accurate drawing of the joint parts and makeup, are included.

Mr. Smith, who personally inspected the pipe leak before it was repaired, stated that the PVC "pup" did not separate from the FCA rubber gasket sealing the "pup" in the FCA. Instead, the gasket "rolled" for a portion of its length, at a location he described as between 4 and 5:00 on the clock, which allowed water to leak out. He estimated the rolled portion of the gasket as having been only 2 to 3 inches in length. By comparison, the total length of the rubber gasket at its circumference was slightly more than 48-inches. Or to put it another way, the rolled portion of the gasket represented less than 7 percent of its total circumference. Mr. Smith also described the PVC to FCA connection as "snug" with a gap he estimated to have been 1/8-inch or less.

TEI has reviewed the pipe data sheets for the 14-inch PVC and 16-inch HDPE along with data sheets from Sigma Corporation for the FCA and the related fittings (viz., the MJ gland and rubber gasket). At the subject joint, the PVC "pup" was inserted (stabbed) into the FCA with the gasket mounted on the inserted end of the PVC locked tightly through a sliding ring (the gland) bolted to the FCA. The inside diameter of the FCA is 15.44 inch and the outside diameter of the PVC is 15.30 inch, leaving a total gap of 0.14 inch or 0.07 inch for each side of the pipe when centered (1/16-inch +/-) (see TAB 5). From Mr. Smith's description, taking 3 inches of arc (length) times a gap of 1/8-inch results in a calculated area of 0.375 square inch. This results in an effective pipe diameter opening of 0.69 inch, slightly more than 2/3-inch. Thus, Dr. Fleenor's model suggests a flow through the rolled portion of the rubber gasket of between 6 and 10 gpm.

The photos taken of the pipe joint after it was excavated and exposed to view but prior to its disassembly do not reveal any separation of the PVC "pup" from the FCA. The photos do show some water leakage from the lower half of the pipe joint, which is consistent with Brendan Smith's description.

Since the effective size of the failure is a critical variable in modeling the rate of flow through that failure, TEI also addressed a "worst case" scenario in which the entire rubber gasket failed. Such a worst case would have resulted in a gap with an area of 2.66 square inches, with an equivalent effective diameter of 1.84 inches and (based on Dr. Fleenor's model) a flow rate of about 20 gpm.

Conclusions[1]

In conclusion, TEI's opinion is that the probable quantity of wastewater that leaked from the LFM on January 20, 2010, was between 2,700 gallons and 4,500 gallons. That opinion is based on a rate of flow through the rolled (failed) portion of the rubber gasket of between 6 and 10 gpm over a period of about 7 ½ hours.

Alternatively, TEI's "worst case" analysis (failure of the entire gasket) suggests a total quantity of leaked wastewater in the range of 9,000 gallons over the same period. That conclusion is based on a modeled flow rate of 20 gpm.

Finally, it is TEI's firm opinion that the available evidence does not support the City's assumed flow of 350 gpm. Indeed, if wastewater had escaped from the LFM at a rate anywhere near as much as 350 gpm, it would have acted on the surrounding pipe bedding and soil much like a high pressure firehose, resulting in a sinkhole at the surface. There is simply nothing in the available photographs, video, or eye-witness testimony to indicate the existence of such a soil disturbance at the site of the leak.

Should you have any questions, please call.

Respectfully Submitted,
Terrain Engineering, Inc.

Curtiss W. Gilley, P.E., F.ASCE

Attachments

Tab 1 – Emig deposition transcript extracts
Tab 2 – Dr. Fleenor CV
Tab 3 – Flow analysis
Tab 4 – Smith declaration and exhibits
Tab 5 – FCA cut sheet

[1] It should also be noted that, while this report is limited to addressing the flow rate and total quantity of leaked wastewater, TEI's investigation has led it to conclude that North Bay's construction of the LFM replacement in 2008 fully complied with the City's plans and specifications. Moreover, TEI is prepared to offer alternative explanations for the pipe joint failure following successful acceptance testing and more than 13 months of operational service.

TAB 1

BEFORE THE CALIFORNIA WATER QUALITY CONTROL BOARD

NORTH COAST REGION

---oOo---

In the Matter of:

NORTH BAY CONSTRUCTION, INC.

No. ACL Complaint No. R1-2011-0048

- - -

DEPOSITION OF RICHARD EMIG

August 2, 2012

Reported by: Kelly K. Lopez CSR #7785

APPEARANCES:

FOR NORTH BAY CONSTRUCTION:

McInerney & Dillon, P.C.
Attorneys at Law
1999 Harrison Street, Suite 1700
Oakland, CA 94612-3610
By: Howard G. Curtis, Esq.

FOR STATE WATER RESOURCES CONTROL BOARD OFFICE OF ENFORCEMENT:

Bill Rodriguez
For
David Boyles, Staff Counsel
State Water Resources Control Board
Office of Enforcement
1001 I Street
Sacramento, CA 95814

FOR GREEN VALLEY CONSULTING ENGINEERS:

Pandell Law Firm, Inc.
Attorneys at Law
1990 California Boulevard, Suite 1010
Walnut Creek, CA 94596-3738
By: Jerome C. Pandell, Esq.

FOR THE CITY OF SEBASTOPOL:

Meyers, Nave, Riback, Silver & Wilson
Attorneys at Law
633 W. 5th Street, Suite 1700
Los Angeles, CA 90071
By: Gregory Newmark, Esq.

ALSO PRESENT:

Steve Geney

I-N-D-E-X

EXAMINATION BY:	PAGE:
Mr. Curtis	4

EXHIBITS	PAGE:
34 - "Notice of Deposition of Richard E. Emig"	4
35 - E-mail string dated December 17, 2008 between Gene Harris and Sue Kelly, Bates SEBANBC 000585	31
36 - Morris Street Pump Station log, January 2010	63
37 - E-mail dated January 20, 2012 re "SSO Report Draft Submitted" Bates SEBANBC 00083-84	72
38 - E-mail dated March 10, 2012 to Kasem from Rich Emig, Bates SEBANBC 000078	80
39 - Color Photo	84

At the offices of Meyers, Nave, Riback, Silver & Wilson, 401 Mendocino Avenue, Suite 100, Santa Rosa, California, on Wednesday, the 2nd day of August, 2012, commencing at the hour of 9:50 a.m., thereof, before Kelly K. Lopez, CSR, State of California, personally appeared

RICHARD EMIG,

who, having been first duly sworn, testified as follows:

- - -

(Deposition Exhibit 34 marked for identification.)

EXAMINATION BY MR. CURTIS:

Q. Would you please state your full name for the record?

A. Richard Lewis Emig.

Q. And your address?

A. Work or home?

MR. NEWMARK: Is it all right if we go with the work?

MR. CURTIS: That will be fine.

MR. NEWMARK: We'll accept service on everything.

THE WITNESS: 714 Johnson Street, Sebastopol, California, 95472.

approximately half an hour. Is that consistent with your recollection?

A. Yes.

Q. Okay. Now, once you departed the site of the incident, did you go back and revisit it during any portion of the remainder of the day or the evening?

A. I don't recall.

Q. Okay. Do you recall whether you personally were present during any of the actual uncovering of the portion of the pipe that was leaking?

A. I don't recall.

Q. Okay. Do you recall having personally observed any of the repair work once the pipeline was exposed by excavation?

MR. PANDELL: Objection. Assumes facts.

THE WITNESS: I don't recall.

BY MR. CURTIS:

Q. Okay. Do you have any recollection as to how late in the day it was -- let me withdraw that question and rephrase it.

Do you recall at all how long it was from the time that you initially observed the water on the ground until you became aware that the Laguna Force Main had been repaired?

MR. NEWMARK: Objection. Misstates

testimony, assumes facts.

You may go ahead and answer.

THE WITNESS: It was evening or night, but --

BY MR. CURTIS:

Q. Okay.

A. It would be in the report.

Q. Okay. There's another exhibit here in the binder that I'd like to show you.

Okay. I'm going to hand you a document that was previously marked Exhibit 27. There are four pages to that document. Do you recall having seen that document prior to today's deposition?

MR. NEWMARK: Objection. Vague and ambiguous as to "that document."

MR. PANDELL: Join.

BY MR. CURTIS:

Q. Well, we're talking about Exhibit -- what is it, 27?

A. 27.

Q. Yeah.

A. Yes.

Q. Okay. Now, of the four pages, have you seen all four pages before today's deposition?

A. I believe so.

Q. Okay. If you turn to the last two pages,

which are principally handwritten, can you identify those two pages for me?

A. Can you clarify, "identify"?

Q. Well, do you know who prepared those handwritten notes on those two pages?

A. Yes. Sorry.

MR. NEWMARK: Go ahead.

THE WITNESS: Yes.

BY MR. CURTIS:

Q. And who prepared them?

MR. NEWMARK: Foundation.

MR. PANDELL: Join.

THE WITNESS: Dante Del Prete.

BY MR. CURTIS:

Q. Okay. So the last two pages are Dante's notes?

A. Yes.

MR. NEWMARK: Foundation, calls for speculation.

MR. PANDELL: Join.

BY MR. CURTIS:

Q. Okay. And if you would turn back, then, to the first two pages of that four-page exhibit. Can you identify for me -- let me withdraw that.

Can you tell me who prepared the first two

pages?

A. Yes.

Q. And who did?

A. I did.

Q. Okay. Do you recall when or, rather, what date you prepared the two pages that you prepared?

A. Just by looking at the date.

Q. Okay.

A. I would have to make an assumption that it was January 20th, 2010.

Q. All right. Well, rather than assuming, though, do you have any reason to believe that you prepared those first two pages of notes on a date other than January 20th of 2010?

A. Only that it may have been the next day.

Q. Okay. So those notes were prepared, then, either on the 20th or the following day; isn't that correct?

A. Yes.

Q. Okay. There are some handwritten notes on the second page. The first and second page are primarily typewritten, but there's handwritten notes on that second page. Do you recognize those notes?

A. Yes.

MR. NEWMARK: The handwritten notes, counsel?

MR. CURTIS: The handwritten notes.
THE WITNESS: Yes.
BY MR. CURTIS:
Q. Okay. Do you know who prepared those handwritten notes?
A. Yes.
Q. Okay. Who?
A. I did.
Q. Okay. What was the purpose of those handwritten notes?
A. To calculate the volume of the spill.
Q. Okay. Taking the first two -- or the first line, rather. It reads 11:30, and I believe that's a dash, 1800 hours spill time? Do you see where I'm reading?
A. Yes.
Q. Okay. At the time you prepared these notes, was that your understanding as to the length of time that wastewater was leaking from the Laguna Force Main?
A. Yes.
Q. Okay. How did you arrive at 11:30 as being the starting time for your calculation of the spill time?
A. From the time we got the report.
Q. Okay. When you say "we," who do you mean?

A. When Dante called me.
Q. Okay. So you used that as the start time. What about the 1800 hours? And by the way, is that the military time?
A. Yes.
Q. Same as 6:00 p.m. Would you agree that that's 6:00 p.m.?
A. Yes.
Q. How did you conclude that the duration would end at 1800 hours?
MR. NEWMARK: Objection. Assumes facts, mischaracterizes the evidence as to "duration" and "end."
THE WITNESS: I would have been told that information.
BY MR. CURTIS:
Q. Okay. Now, am I understanding correctly, looking at your notes, that 1800 was not the total duration of spill time, but just one segment for one portion of your calculation?
A. Yes.
Q. Okay. And then you have at 350 GPM. What does that stand for?
A. Gallons per minute.
Q. Okay. And then, what, a purely mathematical

calculation of the total, 136,500 gallons, 136,500 gallons?
A. Yes.
Q. Okay. Now, the next two lines down you have 1945 to 2045 hours spill time. In the normal clock, civilian clock, what's 1945?
A. 7:45 p.m.
Q. All right. And 2045?
A. 8:45 p.m.
Q. Okay. So in other words, that is approximately a one-hour period?
A. Yes.
Q. Okay. And then you have 100 GPM. Am I reading that correctly? Is that 100 GPM?
A. Yes.
Q. Okay. And GPM is gallons per minute. And then you calculate it 6,000 gallons total; is that correct?
A. Yes.
Q. Okay. Now, can you tell me, in your calculation, what is the difference or what's the reason for the difference between the 1800 end time for the 350 gallon per minute calculation and the 1945 or 7:45 p.m. start for the duration of the 100 gallon per minute?

MR. NEWMARK: Objection. Vague and ambiguous as to the difference and overbroad.
You may answer.
MR. PANDELL: Join. Also potentially calls for expert witness testimony and speculation.
BY MR. CURTIS:
Q. Did you understand my question?
A. Yes.
Q. Okay.
A. And without reviewing my notes in detail, I can't answer it.
Q. Well, do you have any other notes pertaining to --
A. Well, these notes I'm referring to.
Q. Okay. Well, listen, very valid point. If you'd like to take a minute and review it, because I didn't mean to rush you, but I would like to know what you can tell me about the methodology in terms of calculating total spill volume.
A. Okay.
Q. All right? And we can go off the record again.
(Recess.)
MR. CURTIS: Okay. We're back on the record.
BY MR. CURTIS:

Q. Have you had an opportunity to review your notes as they pertain to your calculation of the volume of the spill?
A. Yes.
Q. Okay. Are you now able to tell me as to what the rationale was for the difference in the volume calculations for the period 1130 ending at 1800 and then for the different calculation from 1945 to 2045?
A. Well, according to my notes, it was just a lower volume that was leaking as the tanker trucks were hauling as much as they could of the spill, of the incoming sewage.
Q. Okay. Well, what occurred between 1800 or 6:00 p.m. and 7:45?
A. Well, according to my notes, the pumper trucks were able to haul all of the sewage away and the leak stopped.
Q. Okay.
A. The leak stopped because they were able to haul all of the sewage.
Q. Okay. Do you recall approximately when the pumps at the Morris Street pump station were turned off on that particular day?
MR. NEWMARK: Objection. Calls for speculation, lacks foundation, compound.

MR. PANDELL: Join.
THE WITNESS: In regards to what we're discussing right here?
BY MR. CURTIS:
Q. Yes.
A. Yes. It would have been turned off so the repair could have been made, so it would have been in this time frame.
Q. Okay. Now, the leak was reported at approximately 11:30 in the morning. And you and Sue Kelly went out to observe the leak, for yourself, at the scene of the incident. To the best of your recollection, when were you back in the office after going out to the site with Sue?
A. Half hour or so.
Q. Okay.
A. Around lunchtime.
Q. So it would be approximately noontime. Were the pumps for the -- at Morris Street pump station still pressurizing the Laguna Force Main at that time?
MR. NEWMARK: Objection. Lacks foundation, calls for speculation.
MR. PANDELL: Join.
THE WITNESS: Yes.
BY MR. CURTIS:

Q. Okay. Do you know or recall why it took, then, approximately six hours before the pumps were turned off around 6:00 p.m.?
MR. NEWMARK: Objection. Lacks foundation, calls for speculation, argumentative.
MR. PANDELL: Join.
THE WITNESS: Yes.
BY MR. CURTIS:
Q. Okay. And what was the reason?
A. So the repair could be made on the force main.
Q. So let me make sure that I understand this correctly. The pumps were turned off at approximately 6:00 p.m. so that the repair on the force main could be accomplished; is that correct?
MR. NEWMARK: Misstates testimony, assumes facts, foundation, speculation.
You may answer.
THE WITNESS: To the best of my knowledge, yes.
BY MR. CURTIS:
Q. Okay. And my question, then, is, Why were the pumps not turned off earlier in the day, since you knew that there was a leak or at least suspected that there was a leak around noontime?

MR. NEWMARK: Objection. Foundation, calls for speculation.
MR. PANDELL: Join.
MR. NEWMARK: You may answer.
THE WITNESS: We were assuming some of the wastewater was making it all the way over to Llano Road, to the City of Santa Rosa. And if the pumps were turned off, the sewage or the wastewater would just come out in a different location.
BY MR. CURTIS:
Q. Well, was there anything unusual occurring that supported that concern about sewage coming out elsewhere in the system if the pumps were turned off?
MR. NEWMARK: Objection. Vague and ambiguous as to "unusual," may mischaracterize testimony.
MR. PANDELL: Join.
MR. NEWMARK: Assumes facts.
THE WITNESS: Well, we were still receiving all the inflow from our collection system to the sewer pump station. If the pumps are turned off, the sewage is going to exit before the pump station.
BY MR. CURTIS:
Q. Okay. Was the flow into the pump station unusually high on that particular day?
MR. NEWMARK: Objection. Foundation, calls

for speculation, vague and ambiguous as to "unusually high."

MR. PANDELL: Join.

THE WITNESS: It would have been pretty much normal for a wintertime day where we are having rainfall events.

BY MR. CURTIS:

Q. So it was a rainfall event. Okay. So you were getting increased sewage flow into the pump station due to rainwater?

MR. NEWMARK: Objection. Misstates testimony, calls for speculation, vague and ambiguous with regard to "rainwater."

MR. PANDELL: Join. Assumes facts.

THE WITNESS: Inflow usually increases during rainfall events.

BY MR. CURTIS:

Q. Okay. You testified that you made an assumption that while the pumps were running, that there was some quantity of wastewater that was making it to Llano Road and to the wastewater treatment facility. Do you recall answering along those lines?

A. Yes.

Q. Okay. How much of the wastewater being pumped through the force main did you assume was making

it to Llano Road?

A. Fifty percent.

Q. And what did you base that assumption on?

A. Best educated guess from working in the field.

Q. Okay. Now, you had an upstream flow meter at the pump station, but there was no downstream flow meter, as I understood your earlier testimony. So was there anything factually that you based your assumption that 50 was making it to Llano Road?

MR. NEWMARK: Objection. Misstates testimony, vague and ambiguous with regard to "upstream flow meter," argumentative.

MR. PANDELL: Join. Also calls for speculation, potential expert witness testimony.

THE WITNESS: Not that I recall.

BY MR. CURTIS:

Q. Okay. These flow estimates -- correction. Let me restate that.

These flow figures that are part of your handwritten calculations, 350 GPM and the 100 GPM, what was the source of your information for those numbers?

A. 350 GPM would be approximately 50 percent of what our pumps were pumping, which would have been about 700 gallons per minute. 100 GPM was probably

information received from Dante or someone else in the field at the time.

Q. Okay. Do you not recall who that was?

A. I don't recall specifically.

MR. CURTIS: Okay.

(Deposition Exhibit 36 marked for identification.)

BY MR. CURTIS:

Q. What's been handed to you, Mr. Emig, is a one-page document. It's marked Exhibit Number 36, but you'll also notice that it has what we refer to as a Bates number down in one of the corners. The Bates number reads SEBANBC 000087. Do you see where I'm referring to?

A. Yes.

Q. Okay. That is obviously added. That's not part of the original document. That's just to assist us in identifying it. But aside from that Bates label, is this a document that you've seen before today's deposition?

A. Yes.

Q. Okay. What do you recognize this document to be?

A. The monthly log for -- of reads for the Morris Street sewer pump station.

Q. Okay. And that includes for the date 20 January of 2010; is that correct?

A. Yes.

Q. Okay. If you would look at the -- well, let me withdraw that and ask you.

Do you know who prepared this particular pump station log?

A. Yes.

Q. And who was that?

A. If you look in the second column from the left, it has a bunch of initials?

Q. Yes.

A. Those are my staff --

Q. Okay.

A. -- who goes and reads the -- takes the reads on a daily basis at the pump station.

Q. Okay. Are you able to tell from this exhibit which of your staff members then filled in the entries for January 20th?

A. I can't be certain.

Q. Okay. What about for the day before the 19th of January?

A. I can't be certain.

Q. Does Mr. Del Prete have any responsibilities with respect to the Morris Street pump station?

SUE'S FILE COPY

1/20/10

1150 hrs, SSO reported by Laguna Foundation west of 5640 Hwy 12, Seb, in field. Verified by Dante and Nate at 1155 hrs.

*Pump flow ranges from 300 gpm to 1040 gpm, average 700 gpm. Half flowing through pipe, half spilling. Spill time 1130 to 1800 hrs.

1200 hrs, met with City Engineer at SSO and coordinated North Bay Construction contractor to excavate to repair, and to pump sewage to Llano Rd.

1255 hrs, notified OES, Reg Wtr Bd - 800-852-7550 & 576-2220. (Kasem Grady 328-2440)

1325 & 1330 hrs, notified Russian Rvr Co Wtr Dist and Sweet Str Springs Wtr as downstream purveyors per Reg Bd. – 887-7735 & 869-4000. (SCWA 523-1070 & 547-1900)

1335 hrs, notified So Co Env Health – Terry Macute 688-3524 & 565-6565

1400 hrs contractor on scene - NBC

1400 hrs signage posted – Eric and Tito

1425 hrs water samples taken and delivered to Llano Rd lab – Eric and Tito

1500 hrs tankers begin hauling to Llano Rd – Joe Schwall 543-3358 & 586-0931 & 586-0245. 1 – 1500 gal tanker and 4 or 5 5000 gal tankers.

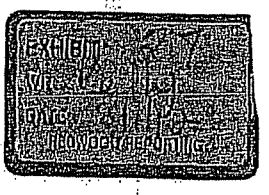
Additional tanker companies should we need are DenBeste Tkg (Tom Webb) 838-1407 & 974-0660, and Industrial Carting (Joy) 586-2957. - Per Tammy, SCWA, 565-7945.

1600 hrs, can't keep up with I&I, so called for more trucks. Two more from Industrial, DenBeste checking on more trucks.

1620 hrs Reg Bd advised us to send out public notice advising of emergency and to restrict water use. Sue, phone tree.

1640 hrs shut down began, so repair can begin.

1700 hrs County OES sent message notifying of emergency and requesting water use restriction. Also sent to D.S. well customers within 500' of either side of Laguna from Hwy 12 to Russian River.



1750 hrs sewage leak stopped when Morris St. shut down and pumper trucks hauled sewage from Morris St. to Llano Rd., diverting flow away from the leak area in the Laguna. Repairs underway.

1945 hrs sewage leaked at 100 gpm for 60 minutes (until 2045 hrs) while tanker trucks attempted to keep up with inflow. Then inflow dropped so tanker trucks could keep up, so spill stopped.

2200 hrs repairs complete, pump station back online. Total spill amount 142,500 gallons.

1130 - 1500 hrs Spill Time @ 350 gpm
= 136,500 gallons

1945 - 2045 hrs Spill Time @ 100 gpm
= 6,000 gallons

Total Spill = 142,500 gallons

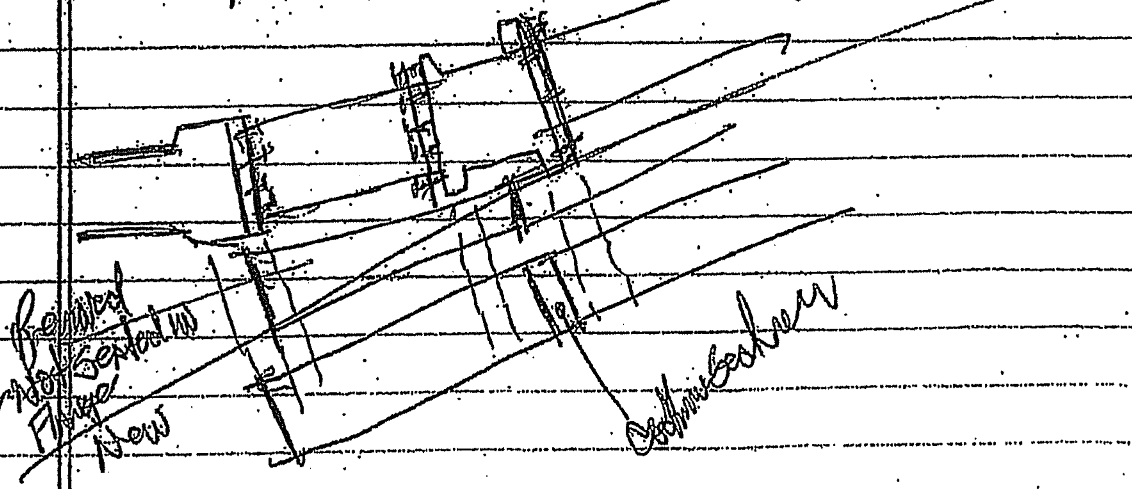
1-20-10

11:37 AM	Kettleman L.F. Received call
11:45 AM	Inspect/Confirm 55 FM Leak
11:45 AM	Notify RB.
1:30	Ran Pump + Check Laguna MH - High Flow w/ Pumps on Low
12:15	Meet with Ed, Joe, Frank, Sean.
12:20	Called NBC to Send Crew + Equipment
12:20	Ad. Loading Rock For Access Road
12:35	On Backhoe Dig Overflow Trench/+ Pump Pit
12:40	Order Pump Trucks And Crew Within hour From NBC
12:47	Dig 6' Trench S.E. to Access Road
12:50	Aeon w/NBC onsite
1:10	Aeon Confirm w/NBC Roy's Tank Truck 1500 And Dewbreeze 5000 Orloan
1:35	Roys Pump Truck onsite
1:40	Notify Aeon - Second 5000 for Shut Down
1:45	Posted Public Access "Sewer Overflow"
1:50	Brandon NBC on site
1:50	Excavator on site "NBC"
1:55	Rich to have Tito Pull water samples And Run to SR Lab
2:05	Report to Rich / Brandon NBC Reports no Additional 5000 trucks available - Rick to make calls to Possibly Locate more Trucks
2:05	Eric Pickedup Sample kit to Pull and Deliver to City SR Lab sites - Village Park US, Laguna Park DS, onsite
2:15	Notify Ken to set up Morris St. Access For 5000 gal Dumpage
2:30	1 - 2000 Load to SR - Roys
2:30	water samples Pulled
2:30	met w/ Jason Grady RWQCB Explain status and Plan
2:30	Willy Karoshaw NBC onsite
3:20	Second #2 2000 Load to SR LTP.
3:30	5000 gal truck to Morris
3:35	Second Truck

1-20-10

5:50 Load #3 Rays – Stand By For shutdown
5:50 Shut down motors Amps + Valve Assembly
6:38 Found Pipe – Locate Leak
7:45 move overflow Amp Trucks Running
8:30 1/3" in wet well gate leaking
9:30 Installed new section w/ mega lug on cookie section
[illegible] 9:54 Put system Back on Line / Both Pumps on High – OK
10:30 Sprayed Bolts w/ sealer wrapped w/ Tape + Plastic
11:00 Lift station metering gate to Pump system
11:00 NRC to Return 9:AM 1-21-10 to Backfill
~~[illegible]~~
11:00 Tike Released
~~[illegible]~~
11:30 Ken Released

1-21-10
7:30 Note to Provide Barricades / Secure Area



543.5350

MORRIS STREET PUMP STATION MONTH: January YEAR: 2010

DATE	CHECKED BY	PUMP NO. 1 HOUR HIGH	PUMP NO. 1 METER LOW	PUMP NO. 2 HOUR HIGH	PUMP NO. 2 METER LOW	GALLON METER	TOTAL GALLONS 24 HOURS	REMARKS
1	KTG	41.4	3708.2	46.8	44055	1883793	538.000	
2	KTG	41.4	3712.8	46.8	44109	1884322	529.000	
3	KTG	41.4	3717.7	46.8	44166	1884892	570.000	
4	KTG	41.4	3722.9	46.8	4423.0	1885504	614.000	
5	KTG	41.4	3727.9	46.8	4428.6	1886083	577.000	P.T
6	KTG	41.4	3732.5	46.8	4434.1	1886647	564.000	
7	KTG	41.4	3737.1	46.8	4439.6	1887222	575.000	
8	KTG	41.4	3741.4	46.8	4444.7	1887717	495.000	
9	KTG	41.4	3745.9	46.8	4450.1	1888243	526.000	
10	KTG	41.4	3750.7	46.8	4455.9	1888799	556.000	
11	KTG	41.4	3755.4	46.8	4461.9	1889344	545.000	Rocks called
12	KTG	41.4	37604	46.8	4468.1	1889938	594.000	
13	KTG	41.4	3765.6	46.8	4474.8	1890546	608.000	
14	TQ	41.4	3770.6	46.8	4480.7	1891104	558.000	
15	KTG	41.4	3775.6	46.8	4486.0	1891682	578.000	
16	TQ	41.4	3780.1	46.8	4492.1	1892178	496.000	
17	TQ	41.4	3784.8	46.8	4497.8	1892715	537.000	
18	TQ	41.4	3790.4	46.8	4504.7	1893329	614.000	
19	KTG	42.8	3795.8	47.4	4515.8	1894054	725.000	Raining
20	KTG	43.7	3804.4	49.0	4525.9	1894985	931.000	Leak
21	KTG	46.9	3811.0	52.4	4534.2	1895867	902.000	rain
22	TNS	50.0	3819.3	55.9	4543.2	1897290	1,403.000	rain
23	NS	50.2	3828.4	56.1	4551.1	1898140	850.000	
24	KTG	50.7	3841.4	56.7	4571.4	1899505	1363.000	Rocks
25	KTG	54.8	3846.3	61.3	4582.5	1900669	1166.000	—
26	KTG	54.8	3854.2	61.4	4591.6	1901327	658.000	
27		54.8	3854.2	61.4	4591.6	1901527	1583.000	?
28	TQ	54.8	3860.9	61.4	4599.3	1901973	646.000	
29	KTG	55.0	3865.2	61.4	4604.3	1902430	457.000	—
30	KTG	55.0	3870.5	61.6	4610.7	1902912	482.000	
31	KTG	55.0	3876.5	61.6	4618.2	1903445	533.000	

9 9 1 11

EXHIBIT
WITNESS
DATE
REPORTER

SEBANBC 000087

TAB 2

CURRICULUM VITAE
William E. Fleenor

Civil & Environmental Engineering Department
2001 Ghausi Hall
University of California, Davis
One Shields Avenue
Davis, CA 95616 USA

Office: (530) 752-5669
FAX: (530) 752-7872
Email: wefleenor@ucdavis.edu
Cell: (530) 219-2351
Home: (530) 758-5906

EDUCATION:

2001	Ph.D. (Civil Engineering), University of California, Davis
1993	M.S. (Civil Engineering), University of California, Davis
1970	B.S. (Mechanical Engineering), Rose-Hulman Institute of Technology

POSITIONS:

2009 -	Project Scientist, C&EE Dept., Univ. of California, Davis
2007-2009	Professional Research Scientist, C&EE Dept., Univ. of California, Davis
2003-2007	Professional Research Engineer, C&EE Dept., Univ. of California, Davis
2001-2003	Postdoctoral Research Engineer, C&EE Dept., Univ. of California, Davis
1993-2001	Postgraduate Research Engineer, C&EE Dept., Univ. of California, Davis

RECENT PUBLICATIONS:

Medellín-Azuara, J., R. Howitt, E. Hanak, J. Lund and Wm. Fleenor, "Agricultural Losses from Salinity in California's Sacramento-San Joaquin Delta", San Francisco Estuary Journal, 2012 (in press).

Mount, J., Wm. Bennett, J. Durand, Wm. Fleenor, E. Hanak, J. Lund and P. Moyle, *Aquatic Ecosystem Stressors in the Sacramento-San Joaquin Delta*, Public Policy Institute of California, 2012, 24 pg.

Moyle, P., Wm. Bennett, J. Durand, Wm. Fleenor, E. Hanak, J. Lund and J. Mount, *Where the Wild Things Aren't – Making the Delta a Better Place for Native Species*, Public Policy Institute of California, 2012, 55 pg.

Ogunyoku, Temitope Adebimpe, Daniel Nover, Erica McKenzie, Geetika Joshi and William E. Fleenor, *A Participatory Approach to Identifying Point-Of-Use Drinking Water Treatment Strategies in the Developing World*, International Journal for Service Learning in Engineering, May 2011, pp. 14-32

Moyle, P.B., W. A. Bennett, Wm. E. Fleenor and J. R. Lund, *Habitat Variability and Complexity in the Upper San Francisco Estuary*, 2010, SF Estuary Journal (in press).

Rigosi, A., William E. Fleenor and Francisco Rueda, *State of the art and recent progresses in phytoplankton succession modeling*, Environmental Reviews (in press)

Lund, J., E. Hanak, Wm. E. Fleenor, B. Bennett, R. Howitt, J. Mount, and P. Moyle, *Comparing Futures for the Sacramento-San Joaquin Delta*, 2010, 284

pg., UC Press, ISBN: 978-0-520-26197-6 (edited, expanded and updated from PPIC publication).

Monismith Stephen G., James L. Hench, Derek A. Fong, Nicholas J. Nidzieko, William E. Fleenor, Laura P. Doyle and S. Geoffrey Schladow, *Thermal Variability in a Tidal River*, ESTUARIES AND COASTS, vol 32, issue 1, pg 100-110 DOI: 10.1007/s12237-008-9109-9 Published: Jan 2009 (*recipient of the 2011 Pritchard Award, an award given every two years for the best Physical Oceanography paper*)

Lund, J., E. Hanak, Wm. E. Fleenor, R. Howitt, J. Mount, and P. Moyle, *Comparing Futures for the Sacramento-San Joaquin Delta*, Public Policy Institute of California, 2009, 241 pg.

Lund, J., Hanak, E., Fleenor, Wm., Bennett, W., Howitt, R., Mount, J., and P. Moyle, *Comparing Futures for the Sacramento-San Joaquin Delta*, Public Policy Institute of California, Appendix J, 2009.

Fleenor, Wm., Hanak, E., Lund, J., and J. Mount, *Delta Hydrodynamics and Water Salinity with Future Conditions*, Public Policy Institute of California, Appendix C, 2009.

Lund, J., Hanak, E., Fleenor, Wm., Bennett, W., Howitt, R., Mount, J., and P. Moyle, *Decision Analysis of Delta Strategies*, Public Policy Institute of California, Appendix J, 2009.

Behrens, D., Wm. E. Fleenor, J. DeGeorge and F. Bombardelli, "Instruction Manual for the Water Analysis Module (WAM)", Documentation of the hydrodynamic and water quality model used by the delta Risk Management Study and the Delta Solutions Program. 69 pg., Center for Watershed Sciences publication, 2009

Florsheim, J.L.; J. Mount; C. Hammersmark; Wm. E. Fleenor; and S.G. Schladow, *Geomorphic Influence on Flood Hazards in a Lowland Fluvial-Tidal Transitional Area, Central Valley, California,* Natural Hazards Review, Vol. 9, No. 3, August 1,2008. ASCE, ISSN 1527-6988/2008/3-116–124

Dietrich, J., D. Boylen, Wm. E. Fleenor, J. Groph, G. Hutchinson, J. Osborn, S. Strickland, D. Thompson, A. Van Gaest, T. Collier, M. Arkoosh and F Lodge, *Estimation of Hydrosystem Delayed Mortality Associated with Barge and In-River Outmigration Life-History Strategies of Snake River Spring/Summer Chinook Salmon*, 122 pg., Army Corp of Engineers, Walla Walla District, 2008

Lund, J., E. Hanak, Wm. E. Fleenor, R. Howitt, J. Mount, and P. Moyle, *Envisioning Futures for the Sacramento-San Joaquin Delta*, Public Policy Institute of California, 2007, 284 pg., ISBN: 98-1-58213-126-9.

Rueda, F.J., Wm. E. Fleenor, and I. de Vicente, *Pathways of river nutrients towards the euphotic zone in a deep-reservoir of small size: Uncertainty analysis, Ecological Modelling*, 202 (3), Apr 2007, pg.345-361.

Henson, S.S., D.S. Ahearn, R.A. Dahlgren, E. Van Nieuwenhuyse, K.W. Tate, and Wm. E. Fleenor, *Water Quality Response to a Pulsed-Flow Event on the Mokelumne River, California*, River Research and Applications, Vol. 23, 2007, pg 185-200.

Schladow, S. Geoffrey, Wm. E. Fleenor, Fabian A. Bombardelli, and Eu Gene Chung, "Quantifying sediment resuspension linkages to nutrient enrichment in the existing and future Salton Sea" (December 1, 2007). *University of California Water Resources Center. Technical Completion Reports*. Paper 998. http://repositories.cdlib.org/wrc/tcr/998

Hammersmark, C. T., Wm. E. Fleenor and S. G. Schladow, "Simulation of Flood Impact and Habitat Extent for a Tidal Freshwater Marsh Restoration". Ecological Engineering, Feb 2005, 905 pg 1-16

Fleenor, Wm. E., and S. Geoffrey Schladow, "Mike 11 Numerical Modeling Study of the North Delta", in fulfillment of first supplement of CALFED grant #99-B193 EDL Data Report 2005-017, July 2005.

Fleenor, Wm. E., and S. Geoffrey Schladow, "Sediment Flux Variation in Two Central Valley Rivers", CALFED grant #99-B193 Report to CALFED Bay-Delta Authority, 2004.

Hammersmark, Chris, Fleenor, Wm. E., and S. Geoffrey Schladow, "Restoration Alternatives for McCormack-Williamson Tract", Report to CALFED Bay-Delta Authority and The Nature Conservancy, 2003.

Fleenor, Wm. E., and S. Geoffrey Schladow, "Lake Almanor – ICP-MS Investigation into Groundwater Budget", Report to Bechtel Engineering and PG&E, 2003.

Fleenor, Wm. E., and S. Geoffrey Schladow, "Lake Almanor – Acoustic Doppler Current Profiler Investigation of Flow Velocities near Outflow Tower", Report to Bechtel Engineering and PG&E, 2003.

Moughamian, Raffi, Wm. E. Fleenor, S. Geoffrey Schladow, "Tracer Study to Examine Bubbler Destratification - Pilot Study in a Closed-End Estuary", Report for HDR Engineering and the City of Stockton, 2003.

Fleenor, Wm. E., S. Geoffrey Schladow, "Lake Almanor – A Field Study into Outflow Mixing Problems", Report to Bechtel Engineering and PG&E, 2002

Bowersox, Randy, Fleenor, Wm. E., Schladow, S. Geoffrey, "Tracer Study of Hydrodynamic Mixing in a Closed-End Estuary", Report to HDR Engineering and the City of Stockton, 2001

Lund, J.R., Lawver, R.A., Anex, R.P., Tchobanoglous, G., Saska, L., Alaniz, V., Booher, C., Edgar, E., Fleenor, Wm. E., Freeman, W., Irving, K., Kear, T., Lindenauer, K., Wright, W. and Parker, J., "GIGO: A Spreadsheet Program for Integrated Municipal Solid Waste Management, Version 1.0." model documentation and software for public release, Department of Civil and Environmental Engineering, University of California, Davis, November, 1993.

Fleenor, Wm E., and Ian P. King, "Identifying Limitations on Use of the HELP Model", *Landfill Closures - Environmental Protection and Land Recovery*, Edited by Dunn, Jeffrey R., and Udai P. Singh, A.S.C.E. Geotechnical Special Publication No. 53, 1995.

RECENT RESEARCH:

PI and project manager of contract with the California State Water Resources Control Board Contract 06-447-300, Task 20: Improvement in the Delta Island Consumptive Use (DICU) for the Sacramento-San Joaquin Delta. 2011- 2012

Project manager for the hydrodynamic modeling needs for the Delta Solutions Group of the Center for Watershed Sciences under the John Muir Institute of the Environment at UC Davis. Work includes the supervision of a postdoc and multiple graduate students (masters and PhD students) in 1-, 2- and 3-dimensional hydrodynamic and water quality modeling. Work has resulted in two books and multiple papers and expert advisory services for the state of California. 2007- current

Co-PI of contract with the California State Water Resources Control Board Contract 06-447-300, Task 7: Delta hydrodynamic and water quality model development. 2010- 2011

PI and project manager of contract with the California State Water Resources Control Board Contract 06-447-300, Task 18: Predicting electrical conductivity in the South Delta using multivariate regression. 2010- current

Serve as expert supervisor for tracer injection in a lake in Spain to study the pathways of river water distribution in stratified reservoirs and to evaluate the influence that river-borne nutrients have on the nutrient dynamics of the surface layers of these systems and, hence, on their phytoplankton (focusing on the part of the community with the smallest cell size and the shortest response time to changes in environmental factors). Funding is through the Science Foundation of Spain. Collaborative study with the University of Granada, Granada, Spain 2009-current.

Project manager for numerical modeling development for 3-D hydrodynamic and water quality analysis model. The model will be made available to the larger modeling community to investigate Delta issues, including sea level rise. Funded by S. D. Bechtel, Jr. Foundation, and the David and Lucile Packard Foundation under contract through Watershed Sciences Center 2009-current.

PI and project manager of modeling contract with DWR for examination of rehabilitation of McCormack-Williamson Tract for ecological and flood control benefits. Contract involves extending Mike 11 modeling work done under CALFED grant #99-B193 to include use of HEC-RAS model and incorporating the current NAVD88 vertical datum. 2007-2010.

Collaboration involving study of "In-Delta Recreation and Agricultural Economic Study", Results will bring to light the actual economic impact that a peripheral canal would impose on the Delta. Funded by S. D. Bechtel, Jr. Foundation, and the David and Lucile Packard Foundation under contract through Watershed Sciences Center 2009-current.

Project manager for numerical modeling study of "Virtual Flooded Island Hydrodynamics and Ecological Assessment", Results will be development of guidelines for beneficial management of potential flooded Delta islands.

Funded by S. D. Bechtel, Jr. Foundation, and the David and Lucile Packard Foundation under contract through Watershed Sciences Center 2008-current.

Project manager for documentation and testing of the Water Analysis Module which was used extensively in Delta hydrodynamic and salinity analysis. Published work in report. Funded by S. D. Bechtel, Jr. Foundation, and the David and Lucile Packard Foundation under contract through Watershed Sciences Center 2008-2009.

Collaboration involving modeling study to support investigation of "Variability and Complexity in the Delta", Results will be development of guidelines for beneficial management of Delta habitat. Funded by State Water Resources Control Board, S. D. Bechtel, Jr. Foundation, and the David and Lucile Packard Foundation under contract through Watershed Sciences Center 2008-2009.

Project manager for ongoing remote data collection system on and around Lake Tahoe (http://remote.ucdavis.edu/tahoe_location.asp). Data are collected for the Tahoe Environmental Research Center (TERC) and used by a wide variety of UCD and off-campus agencies. The REMOTE system is done in coordination with other UCD departments. The work includes assisting other REMOTE units with data collection systems. 2001-current.

Coast to Mountain Environmental Transect project (COMET). A multidisciplinary project involving Bodega Bay Marine Lab, UC Davis and TERC in developing cyber-infrastructure to investigate how multiple environmental factors, in particular climate variability, impact ecosystems across a wide geographical transect that includes major ecosystems in California. Funding is being provided by the National Science Foundation ($2,100,000.00). 2006-2009

"Comparing Futures for the Sacramento-San Joaquin Delta". A project to examine the possible solutions to Delta water supply and quality determined from a previous contract. Perform hydraulic modeling to support the ecological, agricultural and economic analysis of the California water system. Funded by S. D. Bechtel, Jr. Foundation, and the David and Lucile Packard Foundation under contract through Watershed Sciences Center ($252,977.00). 2008-2009.

"Envisioning Futures for the Sacramento-San Joaquin Delta". Examined the hydraulic and ecological aspects of the Sacramento-San Joaquin Delta and determine viable solution possibilities for the California water system. Funded by a Public Policy Institute of California contract through Watershed Sciences Center. ($93,347.00). 2006-2007.

Co-PI and project manager of modeling contract with DWR through Reclamation District 348. Contract involves extending Mike 11 modeling work done under CALFED grant #99-B193 to include use of HEC-RAS model. 2005-2006.

Project manager for California Bay-Delta Authority grant ERP-02D-P51, Hydrodynamic and Oxygen Modeling of the Stockton Deep Water Ship Channel. Responsibilities include coordination with subcontractors (Stanford

and USGS), planning and managing field work for use in calibrating and verifying the model, and attending and presenting at required CALFED group meetings. 2004-2006.

PROCEEDINGS PAPERS POSTERS AND/OR PRESENTATIONS:

Fleenor, Wm. E., and L. Doyle, "Physically Based of Delta Island Consumptive Use – A case study of Fabian Tract and Staten Island", Delta Science Conference, Sacramento, CA, 2012

Siegfried, L. and Wm. E. Fleenor, "Modeling the Historical Sacramento-San Joaquin Delta – A comparison of hydrodynamics and water quality in the pre- and post-export Delta", Delta Science Conference, Sacramento, CA, 2012

Fleenor, Wm. E., and L. Doyle, "Duel Stressors – Interactions between Delta Exports and Sacramento Wastewater Discharges", California Water and Environmental Modeling Forum Conference, Sacramento, CA, 2011

Fleenor, Wm. E., and L. Doyle, "Modeling the Historical Sacramento-San Joaquin Delta – Early results", California Water and Environmental Modeling Forum Conference, Sacramento, CA, 2011

Fleenor, Wm. E., "Ecosystem Effects of Changes in the Hydrology and Hydraulics of the San Francisco Bay-Delta". Invited presentation to the Committee on Sustainable Water and Environmental Management in the California Bay-Delta and The Panel to Review California's Draft Bay Delta Conservation Plan by The National Academies, San Francisco, CA, 2010

Fleenor, Wm. E., Wm. A. Bennett, Peter B. Moyle and Jay R. Lund, "From Science to Policy - Flow Prescriptions for the Sacramento-San Joaquin Delta". Delta Science Conference, Sacramento, CA, 2010

Fleenor, Wm. E., and L. Doyle, "Modeling the Historical Sacramento-San Joaquin Delta", Delta Science Conference, Sacramento, CA, 2010

Fleenor, Wm. E., Wm. A. Bennett, Peter B. Moyle and Jay R. Lund, "Developing Flow Prescriptions for the Sacramento-San Joaquin Delta". California Water and Environmental Modeling Forum Annual Conference, Asilomar, CA, 2010

Doyle, L., J. Durand and Wm. E. Fleenor, "Flooded Island Ecosystems", California Water and Environmental Modeling Forum Annual Conference, Asilomar, CA, 2010

Rueda, F., A. Cortez, I. de Vicente, M.A. Escobar and Wm. E. Fleenor, "River Inlfow Mixing in a Stratified Reservoir", IHES 6 Conference, Athens, Greece, 2010

Dahm, C. and Wm. E. Fleenor, "determining Flow Criteria for the California Bay-Delta", Freshwater Inflows: Beyond 2010 Conference, Corpus Christi, TX, 2010

LaPlante, A., S.G. Schladow and Wm. E. Fleenor, "Exchange Flow between the Tahoe Keys and Lake Tahoe: the Implications for Spread of Invasive Species and Pollutants", Tahoe Symposium, Incline Village, Nevada, 2010

Fleenor, Wm. E., "Assessing Water Needs for the Sacramento-San Joaquin Delta", CALFED Bay-Delta Science conference, Sacramento, CA 2009

Fleenor, Wm. E. and J. R. Lund, "Estimation of Flow Needs for Native Fishes of the San Francisco Bay and Sacramento-San Joaquin Delta", San Francisco Estuary Conference, Oakland, CA, 2009

Fleenor, Wm. E., J. R. Lund, E. E. Hanak and J. F. Mount, "Hydrodynamics and Salinity of the Sacramento-San Joaquin Delta", 13th Physical Processes in Natural Waters Conference, Palermo, Italy, 2009

Fleenor, Wm. E. and J. R. Lund, "Assessing the Future of the California Water Distribution System: The Sacramento-San Joaquin Delta", American Water Resources Association Conference, Seattle, WA, 2009

Doyle, L., J. Durand and Wm. E. Fleenor, "Physical Drivers of Biological Productivity following Levee Breaches on Islands in the Sacramento-San Joaquin Delta", Coastal and Estuarine Research Federation, 20th Biennial Conference, Portland, OR, 2009

Monismith, S., J. Hench, N. Nidzieko, D. Fong, Wm. E. Fleenor, L. Doyle and S. G. Schladow, "Stratification Dynamics in a Tidal River", Coastal and Estuarine Research Federation, 20th Biennial Conference, Portland, OR, 2009

Fleenor, Wm. E., J. R. Lund, E. E. Hanak and J. F. Mount, "Hydrodynamics and Salinity of the Future Delta", CALFED Science Conference, Sacramento, CA, 2008

Rueda, F. J., Schladow, S. G., Chung, E. G., and Fleenor, Wm. E., "Mixing and stratification in lakes of varying horizontal length scales: the present and the future of the Salton Sea, USA", 11th Physical Processes in Natural Waters Conference, Warnemuende, Germany, 2007

Schladow, S. G., Chung, E. G., Fleenor, Wm. E. and Rueda, F. J. 2007. "The Hydrodynamic consequences of reducing the surface area of a lake: the present and future Salton Sea, USA", The Fifth International Symposium on Environmental Hydraulics. University of Arizona, Tempe, AZ, December 2007

Hench, J.L., Nidzieko, N.J., Fong, D.A., Monismith, S.G., DiPalermo, L., Fleenor, Wm. E., Schladow, S.G., Observations of Circulation, Stratification, and Turbulence in a Freshwater Tidal River. CALFED Science Conference, Sacramento CA, 2006

Hench, J.L., Nidzieko, N.J., Fong, D.A., Monismith, S.G., DiPalermo, L., Fleenor, Wm. E., Schladow, S.G., Observations of circulation, stratification, and turbulence in a freshwater tidal river. 13th Physics of Estuaries and Coastal Seas Conference, Astoria, OR, 2006

Hench, J. L., Fong, D. A., Smith, P. E., Fleenor, Wm. E., Nidzieko, N. J., Schladow, S. G. and S. G. Monismith, "Three-dimensional modeling of circulation, stratification, and turbulence in the Stockton Deep Water Shipping Channel", CALFED Science Meeting, Sacramento, CA, 2006

Schladow, S. G., Rueda, F. J., Fleenor, Wm. E. and Chung, E. G., Three-Dimensional Hydrodynamic Modeling of the Salton Sea. California Water and Environmental Modeling Forum Annual Conference, Asilomar, CA, 2006

ACADEMIC SERVICE:

Served on invited expert panel representing the Delta Science Program to the California State Water quality Control Board in public hearing regarding the scientific and technical basis for considering potential changes to the 2006 Water Quality Control Plan for the San Francisco/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan) as part of the State Board's Phase II review for the Bay-Delta Plan, 2012

Served on invited expert panel representing the Delta Science Program to the California State Water quality Control Board in public hearing regarding the scientific and technical basis for considering potential changes to the 2006 Water Quality Control Plan for the San Francisco/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan) as part of the State Board's Phase II review of the Bay-Delta Plan, 2012

Chair of the Committee on Rules and Elections and the parliamentarian of the Academic Federation Executive Committee, 2011 – 2012

Taught graduate course, ECI289I, Hydrodynamics and Water Quality Modeling, spring quarter of 2011

Currently serving on the Committee on Rules and Elections in the Academic Federation, 2010- 2011

Served on invited expert panel representing the California State Water Quality Control Board in public hearing to determine flow regulations for the San Joaquin River, 2011

Served on invited expert panel of on behalf of the California State Water Quality Control Board for public hearings to determine environmental flow requirements for the Sacramento-San Joaquin Delta, 2010

Reviewed NSF proposal 1045286 for solicitation NSF 09-538, 2010

Reviewed (twice) the manuscript "Early Water Quality Modeling with Minimal Data to Support Management Decisions: A Case Study of Aguamilpa Reservoir", for the Journal of Water resources Planning and management, 2010

Vice-chair of the Committee on Research in the Academic Federation, 2007-2008

Taught Freshman Seminar class, spring 2010, in Appropriate Engineering Technology in Developing Communities (Biosand water filters)

Taught Freshman Seminar class, winter 2008, in Appropriate Engineering Technology in Developing Communities (fuel efficient wood-burning stoves)

Taught Freshman Seminar class, winter 2007, in Appropriate Engineering Technology in Developing Communities (sanitation - Sanitation Household Implementation Technologies)

Served on the review committee for the Ecosystem Restoration Program of the California

Bay-Delta Authority. Review of a numerical model of the San Joaquin River for which the Bay-Delta Authority had contracted. May 2006

Served on the Technical Selection Panel for the CALFED Science Program's 2006 Proposal Solicitation Package. November 2006

Taught Freshman Seminar class, winter 2006, in Appropriate Engineering Technology in Developing Communities (Drinking Water Quality for Health)

Reviewed the manuscript "Spatial and temporal scales of transport during the cooling phase of the ice-free period in a small high-mountain lake" for the journal *Aquatic Sciences*, May 2006

Reviewed draft report entitled "Flooded Islands Feasibility Report" for the Project Review Office for the California Bay-Delta Authority's Ecosystem Restoration Program, June 2006

Reviewed the manuscript "ADCP Measurements of Gravity Currents in the Chicago River, Illinois" for the *Journal of Hydraulic Engineering*, August 2006

Participated in development of curriculum for charter school established by Education Department in West Sacramento for socio-economically disadvantaged students to provide a college-track educational environment, 2006-2007

AWARDS, ACCOMPLISHMENTS & ASSOCIATIONS:

Recipient of the 2011 Pritchard Award, an award given every two years for the best Physical Oceanography paper
Founding Adviser, Engineers Without Borders – UCD, 2004 - current
American Society of Civil Engineers (ASCE)
Air and Waste Management Association (A&WMA)
American Geophysical Union (AGU)
American Water Resource Association (AWRA)
American Water Works Association (AWWA)
California Water and Environmental Modeling Forum
California EIT

RECENT COLLABORATORS (NON-UC DAVIS):
Cliff Dahm; University of New Mexico; Albuquerque New Mexico
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Derek Fong; Stanford University; Palo Alto, CA
Maurice Hall; The Nature Conservancy; Sacramento, CA
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Jim Hench; Stanford University; Palo Alto, CA
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TAB 3

Analysis of potential flow rates through a pipe failure

A pipe failure on a pressurized sewer led to a spill of an estimated 142,500 gallons of sewage (suggesting an average flow rate of 350 gpm) and a fine assessed based on that spillage. The limited number of truck loads removed (only 3 according to documentation), the pictures and the short video suggest much less leakage occurred. A volume of 142,500 gallons equals 19,051 cubic feet, which if were on the surface would cover an acre of land to a depth of nearly 5-1/4 inches. Even if the construction pit was left with loose soil and the pit filled first with sewage, ignoring the space taken up by the soil the acre would still have been covered by over 5 inches of sewage. At a typical hydraulic conductivity of 10^{-6} in/sec for the surrounding compacted CL/CH soil, the sewage would only seeped into the soil by less than an inch. This simple analysis suggested that a more detailed examination was warranted.

To consider the size of the failure required to allow 350 gpm (50% of the total flow rate) to leak through the failure, the most appropriate way to analyze the flow would be as the flow through a normal lateral as drawn in Figure 1.

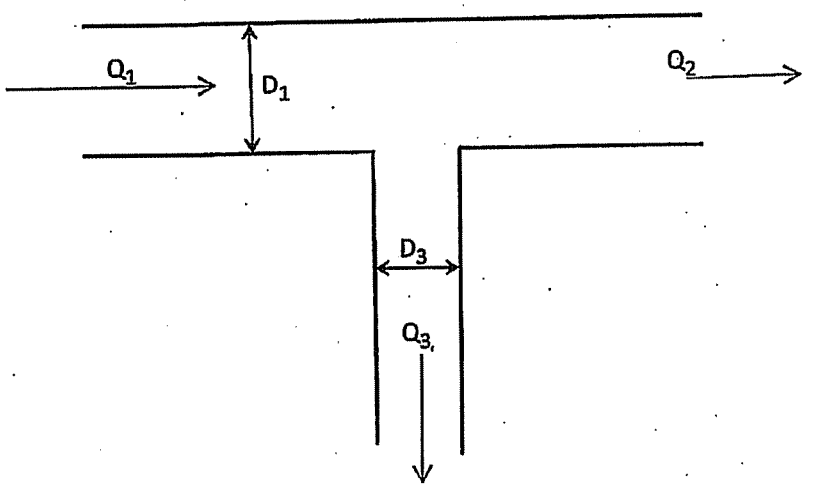

Figure 1 Flow out of lateral junction

Laterals are treated as typical orifices and assuming that the flow through the lateral is driven by the pressure head just upstream of the lateral provides:

$$Q_3 = CA_3\sqrt{2gy_1} \qquad \text{or} \qquad y_1 = \frac{1}{C^2}\frac{V_3^2}{2g} \qquad \text{Eqtn 1}$$

Where y_1 is the pressure head, $\frac{P_1}{\gamma}$, and $A_3 = \frac{\pi D_3^2}{4}$ is the cross-sectional area of the lateral of diameter, D_3, the velocity is $V_3 = \frac{Q_3}{A_3}$, and C is the orifice loss-coefficient.

The head loss from section 1 into section 3, h_{l1-3}, is a function of the velocity in section 1

$$h_{l1-3} = K_{L1-3}\frac{V_1^2}{2g}, \qquad \text{Eqtn 2}$$

where K_{L1-3} has been determined experimentally for various ratios of Q_3/Q_1 and D_3/D_1.

Assuming the lateral flows full and has a length L_3 and friction factor of f_3, then a simple application of Bernoulli's equation with the assumption of no pressure in the lateral gives

$$y_1 + \frac{V_1^2}{2g} = h_{L1-3} + f_3\frac{L_3}{D_3}\frac{V_3^2}{2g} + \frac{V_3^2}{2g}, \qquad \text{Eqtn 3}$$

and applying Eqtn 1 & 2 $\qquad \frac{1}{C^2}\frac{V_3^2}{2g} + \frac{V_1^2}{2g} = K_{L1-3}\frac{V_1^2}{2g} + f_3\frac{L_3}{D_3}\frac{V_3^2}{2g} + \frac{V_3^2}{2g}.$ $\qquad$ Eqtn 4

Dividing through by the velocity head in the lateral and rearranging gives:

$$\frac{1}{C^2} = (K_{L1-3} - 1)\frac{V_1^2}{V_3^2} + \left(1 + f_3\frac{L_3}{D_3}\right), \text{ or} \qquad \text{Eqtn 5}$$

$$\frac{1}{C^2} = (K_{L1-3} - 1)\left(\frac{Q_1}{Q_3}\right)^2\left(\frac{D_3}{D_1}\right)^4 + \left(1 + f_3\frac{L_3}{D_3}\right). \qquad \text{Eqtn 6}$$

Under a highest flow rate assumption, in the case of no pipe resistance or other resistance around the failure, there is no pipe length to consider so the term $f_3\frac{L_3}{D_3}$ is set to zero, K_{L1-3} is estimated from Figure 3.7 of Larock et al. (2000) from ratios of $\frac{Q_3}{Q_1}$ and $\frac{D_1}{D_3}$ assuming the flow rate out of the failure is 50% of the flow in the pipeline, and C is taken from Figure 3.8 of Larock et al. (2000). Solutions of Eqtn 6 then require iterative calculations to adjust the factors after each solution is made to obtain values of D_3. Both Figures from Larock et al. (2000) are provided below.

Consequences of these calculations determine that the failure would have to be equivalent to a lateral pipe of over 6.25 inches in diameter, or over 30 square inches of area. This estimate is considered to be a minimum value since flow through the failure would definitely have a greater value of C than a true orifice and there was head pressure on the failure from the overlying soil.

Additional calculations were made to examine what the effective failure flow rate would be for other failure sizes. The results of these calculations show that the flow rate drops quickly as the size of the failure is reduced. Examination of the excavated failure suggests that the area of the failure is much less that the 6.25 inch diameter and the leakage is likely less than 50 gpm.

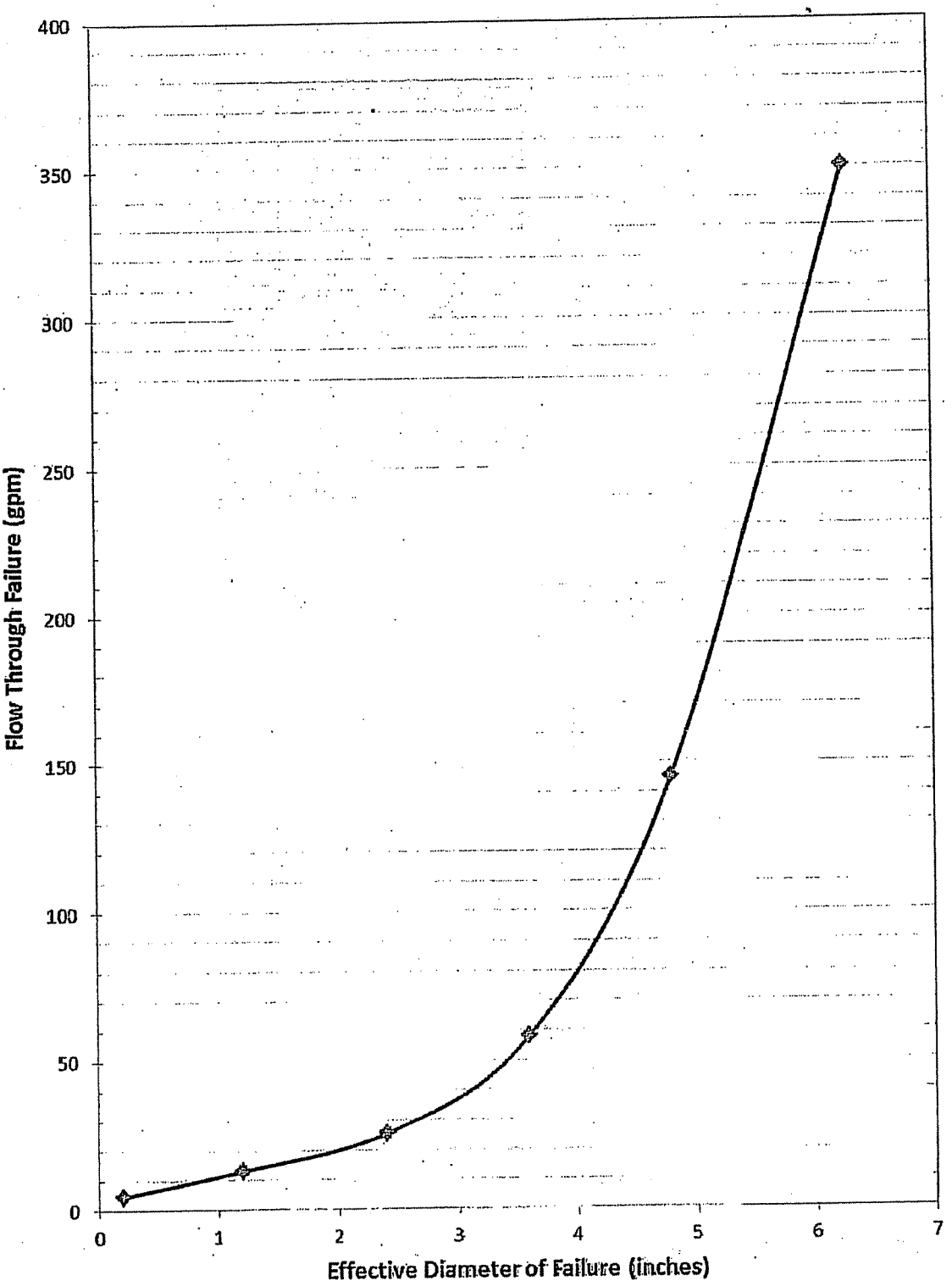

Figure 2 Results of flow calculations with reduced effective failure diameter

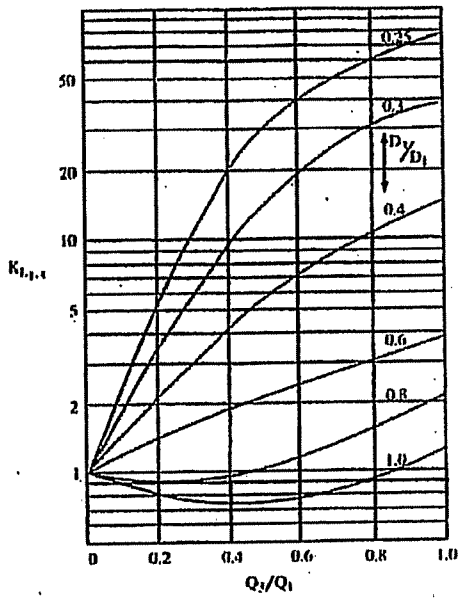

Figure 3.7 The loss coefficient K_{1-3} as a function of D_y/D_1 and Q_3/Q_1.

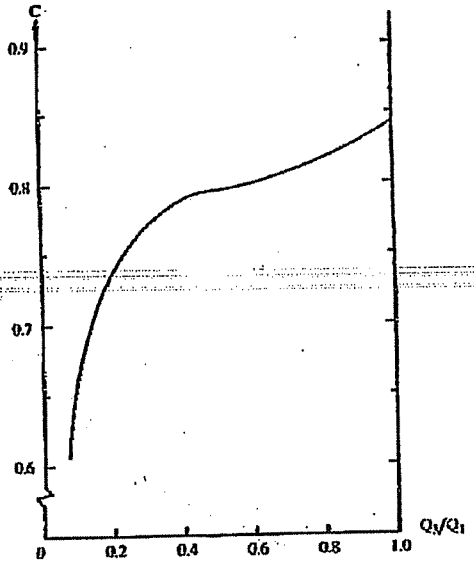

Figure 3.8 An example of the behavior of the orifice coefficient C.

Larock, B.E., R.W. Jeppson, and G.Z. Walters, 2000, "Hydraulics of Pipeline Systems", CRC Press

TAB 4

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Attorneys for Responding Party
NORTH BAY CONSTRUCTION

BEFORE THE CALIFORNIA WATER QUALITY CONTROL BOARD

NORTH COAST REGION

In the Matter of:	ACL Complaint No. R1-2011-0048
NORTH BAY CONSTRUCTION, INC.	DECLARATION OF BRENDAN SMITH

I, Brendan Smith, declare as follows:

1. I am an adult over the age of 18 years and a former employee of North Bay Construction ("North Bay"). Since late-2011 I have been employed by Ranger Pipelines, Inc. of San Francisco as a field superintendent for underground pipeline construction. My current business address is 1790 Yosemite Avenue, San Francisco, CA 94124, and my direct phone number is (415) 290-3355. At this time, I have some 18 years' hands-on work experience in the pipeline construction industry.

2. I have been asked to make this declaration in support of North Bay's defense in the above-entitled proceedings before the North Coast Regional Water Quality Control Board. The facts stated in this declaration are based on my own personal knowledge and observations while a North Bay employee.

3. In 2008, North Bay was awarded a contract by the City of Sebastopol to construct

a replacement pipeline to move untreated sewage from the City's Morris Street pump station to the nearby Llano Road wastewater treatment plant operated by the City of Santa Rosa. That pipeline work was known as the Laguna Force Main ("LFM") Replacement project.

4. I was North Bay's project manager for the 2008 LFM Replacement project and, in that role, I became very familiar with the plans and specifications for the entire project, including a location identified on the City's plans as "Station 25+10" (east of the Laguna de Santa Rosa and north of Highway 12) where the replacement LFM transitioned from High Density Polyethelene ("HDPE") pipe with a 16 inch outside diameter to Polyvinyl Chloride ("PVC") pipe with a 14 inch inside diameter.

5. About 12:00 noon on January 20, 2010, I was notified by City personnel that they suspected a leak from the LFM near the HDPE to PVC pipe transition described above. At that point the pipeline is buried some 8 ½ feet below the ground surface. This was about 14 months after the replacement pipeline was completed by North Bay and inspected, tested, accepted, and placed into operation by the City of Sebastopol.

6. I arrived at the site of the suspected leak early in the afternoon of January 20, 2010, and remained until the leak was repaired by a North Bay crew and the LFM placed back into service late in that evening. When I arrived, I saw water bubbling up from below ground and pooling in a natural depression near the site of the suspected leak. The two photographs attached to this declaration as Exhibits A and B show the site as it appeared about the time I first arrived, with water pooling on the ground. Based on my past experience, I estimated that the wastewater was leaking at roughly no more than 50 gallons per minute. Significantly, there was no sinkhole at the site of the leak, a condition I am certain would have existed if wastewater had escaped at anything close the 350 gallons per minute estimated by City personnel.

7. Since the pipeline could not be excavated and repaired until the City turned off its pumps and allowed the pipe to depressurize, I waited several hours with North Bay's repair crew before the pipe could be safely excavated. During that time, North Bay personnel used an excavator brought to the site by North Bay to create a deeper hole to collect wastewater escaping to the surface. This deeper hole helped keep water from flowing into the area to be excavated,

created a barrier that prevent the migration of contaminated water towards the nearby Laguna de Santa Rosa, and made it easier to remove collected wastewater using vacuum trucks that North Bay rented in response to this incident. The rented vacuum trucks sucked the wastewater from the collection pool and transported it to the nearby Llano Road treatment plant. Two or more vacuum trucks were used for that purpose and I recall that they made several trips to the treatment plant during the course of the day and that evening. As shown in Exhibit C, at least one of the rented vacuum trucks was of 2,000 gallon capacity.

8. When the pipeline was exposed, I personally climbed into the excavation and inspected the pipe. Exhibits D and E are photographs that show the pipe as it was exposed to view but before any repair work. These two photos also show how the pipe joint had been tightly wrapped in visqueen plastic sheeting when constructed in 2008.

9. I inspected the pipe and discovered that it was leaking at the connection of a short section of the PVC with a ductile iron fitting known as a flange coupling adaptor ("FCA"). The FCA in turn connected with a flanged ductile iron reducer and the HDPE pipe. Exhibit F is a construction photograph taken during installation that shows this connection. In this 2008 photo, the HDPE pipe is black with a green stripe and the PVC is a very light blue. Since the PVC pipe came in 20 foot lengths, the HDPE to PVC transition required use of a short section of PVC—sometimes referred to as a "pup"—to connect with the FCA. As constructed, the PVC pipe had no flange and was inserted directly into the bell of the FCA with a rubber gasket around the outside of the PVC. A flanged ring of ductile iron—described by the manufacturer as a "mechanical joint gland"—was bolted to the FCA to compress the rubber gasket, restrain the PVC pipe, and make the joint water tight. Exhibit G is a drawing adapted from the manufacturer's website that shows (as a cross-section along its length) the arrangement of the PVC pipe, FCA, rubber gasket and mechanical joint ("MJ") gland. In this drawing, the PVC is depicted cross-hatched in blue; the body of the FCA is cross-hatched in black; the MJ gland is cross-hatched in green; and the rubber gasket is shown in solid red.

10. While inspecting the pipe from down in the pit, and with wastewater still seeping from the FCA joint, I saw that the joint had not come apart. That is, the PVC had not separated

or pulled free from the FCA. I also saw that a small portion of the rubber gasket, roughly 2 to 3 inches in overall length, had rolled in a manner that allowed water to leak from the pipe. If a frontal view of the FCA is thought of as a clock face, the location of the rolled gasket was between 4 and 5 on the clock face. As constructed, the connection between the PVC and the FCA was snug, with a gap of 1/8 inch or less without the gasket present. Other than the 2 to 3 inches of rolled gasket I saw, the rest of the FCA gasket appeared to me to be intact and without any sign of failure or leakage.

11. I have read the City's March 2010 report of this spill and am aware that North Bay is accused of not having used Megalug joint restraints for the PVC to FCA joint that leaked. I disagree. The project plans and specifications did not require joint restraints on the fittings at the HDPE to PVC transition because North Bay installed a concrete "thrust block" just downstream from that connection, where the pipeline changed direction at a 45 degree elbow. Briefly, a "thrust block" is usually a large concrete mass poured at a location where the pipe changes direction. As allowed by the specifications for the LFM, the PVC pipe was installed in a straight run to the 45 degree elbow with the concrete thrust block and surrounding soil resisting any separation of the pipe joints.

12. Finally, North Bay incurred more than $28,000 in out-of-pocket expenses responding to and remedying the January 2010 spill. That sum included rental of vacuum trucks to transport wastewater to the Llano Road treatment plant as well as North Bay's labor, material and equipment costs for the repair. To the best of my information those sums have not been reimbursed by the City or any other person or entity, including insurance.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct. Executed this 15th day of January, 2013, at Petaluma, California.

Brendan Smith

Brendan Smith

EXHIBIT A

ALL-STATE LEGAL

EXHIBIT

A

EXHIBIT B

EXHIBIT

B

ALL-STATE LEGAL®

EXHIBIT C

INK CLEANING
95-5656
2,000 GALLONS
8.3 TONS
ALL-STATE LEGAL
EXHIBIT
C

EXHIBIT D

ALL-STATE LEGAL®

EXHIBIT

D

EXHIBIT E

ALL-STATE LEGAL®

EXHIBIT

E

EXHIBIT F

SEBANBC 00037

EXHIBIT

F

ALL-STATE LEGAL®

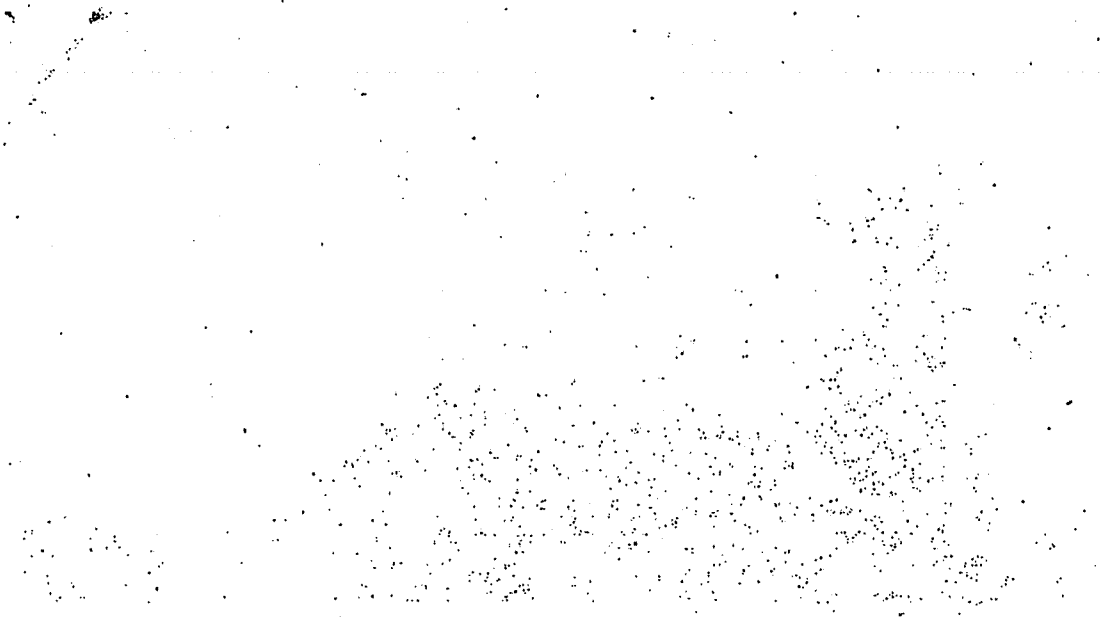
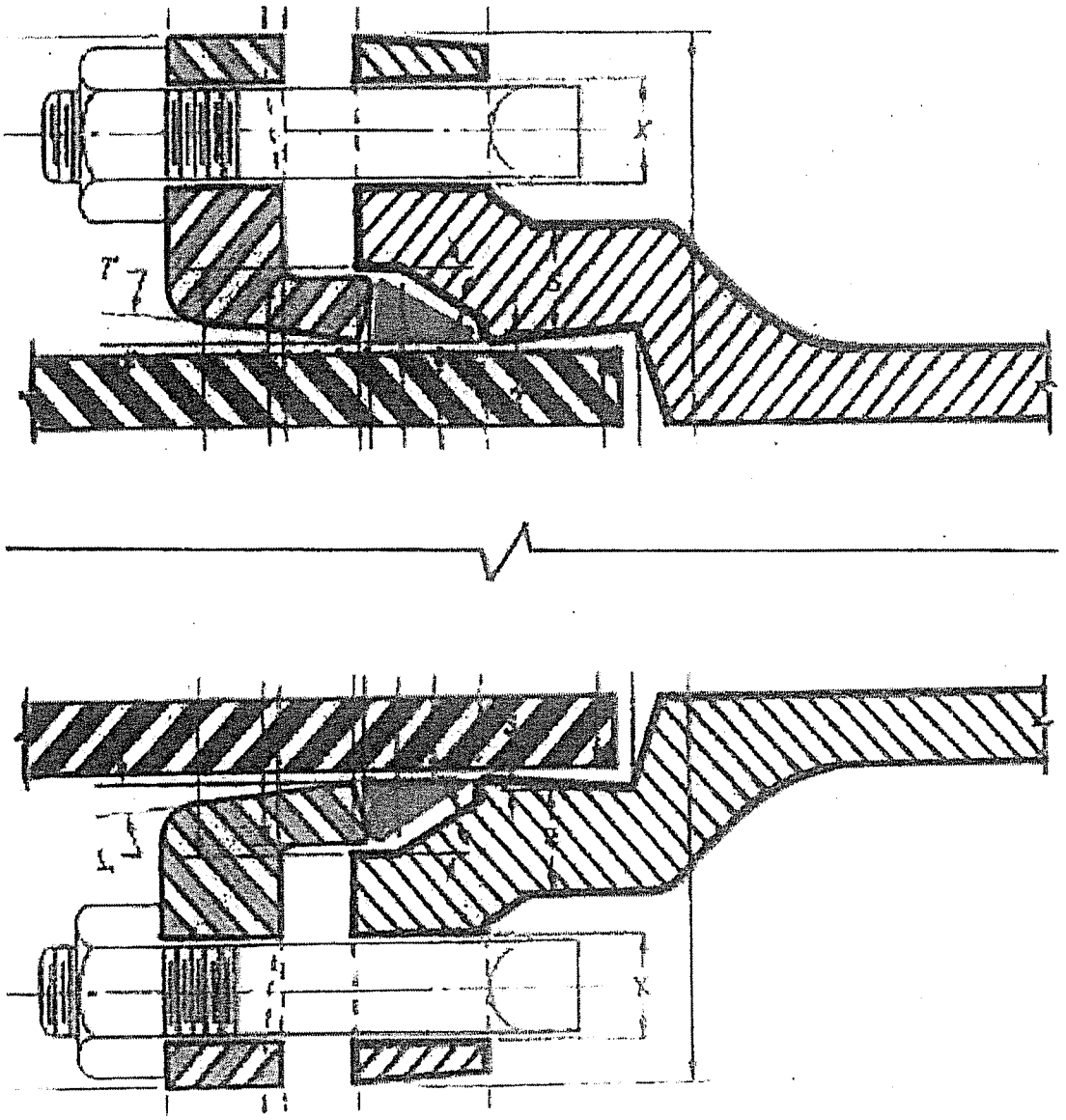


EXHIBIT G



PVC PIPE

FCA

MJ GLAND

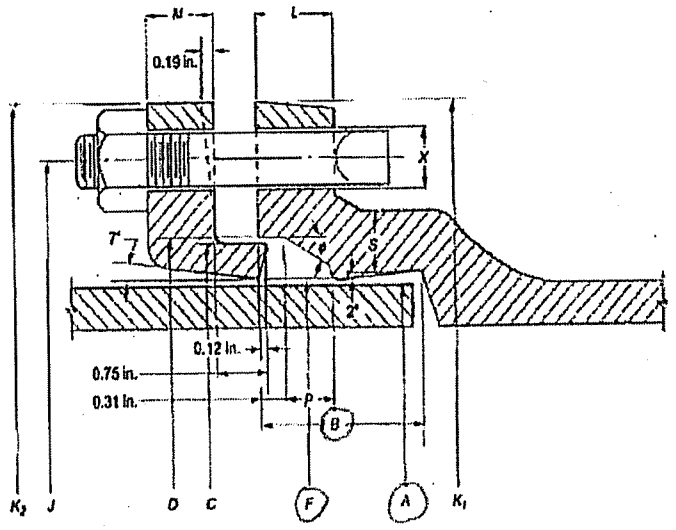
GASKET

EXHIBIT

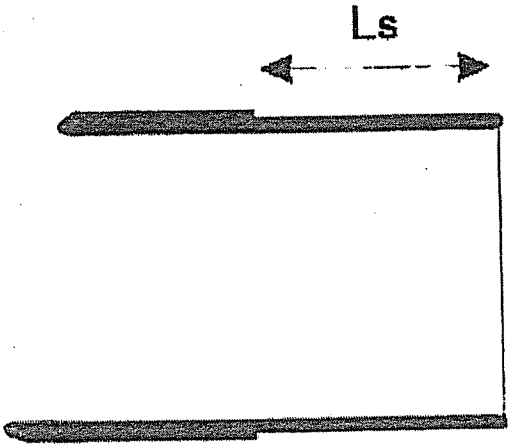
G

ALL STATE LEGAL

C153 Mechanical Joint Compact Fittings



Mechanical Joint Details



Plain End Detail

Size	A	B	C	D	F	J	K1	K2	L	M	P	S	X	Bolts			PE Ls
														No	Size	Len	
3	3.96	2.50	4.84	4.94	4.06	6.19	7.62	7.69	0.58	0.62	0.63	0.39	3/4	4	5/8	3.0	5.5
4	4.80	2.50	5.92	6.02	4.90	7.50	9.06	9.12	0.60	0.75	0.75	0.39	7/8	4	3/4	3.5	5.5
6	6.90	2.50	8.02	8.12	7.00	9.50	11.06	11.12	0.63	0.88	0.75	0.43	7/8	6	3/4	3.5	5.5
8	9.05	2.50	10.17	10.27	9.15	11.75	13.31	13.37	0.66	1.00	0.75	0.45	7/8	6	3/4	3.5	5.5
10	11.10	2.50	12.22	12.34	11.20	14.00	15.62	15.62	0.70	1.00	0.75	0.47	7/8	8	3/4	3.5	5.5
12	13.20	2.50	14.32	14.44	13.30	16.25	17.88	17.88	0.73	1.00	0.75	0.49	7/8	8	3/4	3.5	5.5
14	15.30	3.50	16.40	16.54	15.44	18.75	20.25	20.25	0.79	1.25	0.75	0.55	7/8	10	3/4	4.0	8.0
16	17.40	3.50	18.50	18.64	17.54	21.00	22.50	22.50	0.85	1.31	0.75	0.58	7/8	12	3/4	4.0	8.0
18	19.50	3.50	20.60	20.74	19.64	23.25	24.83	24.75	1.00	1.38	0.75	0.68	7/8	12	3/4	4.0	8.0
20	21.60	3.50	22.70	22.84	21.74	25.50	27.08	27.00	1.02	1.44	0.75	0.69	7/8	14	3/4	4.0	8.0
24	25.80	3.50	26.90	27.04	25.94	30.00	31.58	31.50	1.02	1.56	0.75	0.75	7/8	16	3/4	4.5	8.0
30	32.00	4.00	33.29	33.46	32.17	36.88	39.12	39.12	1.31	2.00	1.00	0.82	1 1/8	20	1	5.5	8.0
36	38.30	4.00	39.59	39.76	38.47	43.75	46.00	46.00	1.45	2.00	1.00	1.00	1 1/8	24	1	5.5	8.0
42	44.50	4.00	45.79	45.96	44.67	50.62	53.12	53.12	1.45	2.00	1.00	1.25	1 3/8	28	1 1/4	6.0	8.0
48	50.80	4.00	52.09	52.26	50.97	57.50	60.00	60.00	1.45	2.00	1.00	1.35	1 3/8	32	1 1/4	6.0	8.0

MAIN

54" fittings & dimensions available upon request

Weights in Pounds, Less Accessories / Dimensions in Inches
Ductile Iron Class 350 per ANSI/AWWA C153/A21.53

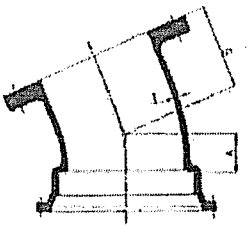
FM APPROVED

SIGMA™

Quality – Service – Commitment – Delivered.

22 1/2° Bends: MJ X Flange

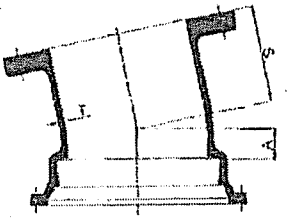
Size	Item No.	A	S	T	Wt.
3	MFB322	1.00	3.00	0.33	15
4	MFB422	1.50	4.00	0.34	23
6	MFB622	2.00	5.00	0.36	37
8	MFB822	2.50	5.50	0.38	56
10	MFB1022	3.00	6.50	0.40	81
12	MFB1222	3.50	7.50	0.42	114
14	MFB1422	3.75	7.50	0.47	158
16	MFB1622	3.75	8.00	0.50	198
18	MFB1822	4.50	8.50	0.54	244
20	MFB2022	4.50	9.50	0.57	317
24	MFB2422	4.50	11.00	0.61	417
30	MFB3022	6.75	15.00	0.66	723
36	MFB3622	7.75	18.00	0.74	1108
42	MFB4222	9.00	21.00	0.82	1583
48	MFB4822	10.00	24.00	0.90	2156



MJ x Flange 22 1/2° Bend

11 1/4° Bends: MJ X Flange

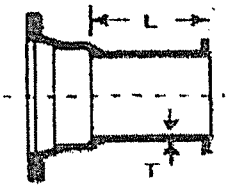
Size	Item No.	A	S	T	Wt.
3	MFB311	1.00	3.00	0.33	15
4	MFB411	1.25	4.00	0.34	23
6	MFB611	1.50	5.00	0.36	36
8	MFB811	1.75	5.50	0.38	54
10	MFB1011	2.00	6.50	0.40	78
12	MFB1211	2.25	7.50	0.42	110
14	MFB1411	2.50	7.50	0.47	148
16	MFB1611	2.50	8.00	0.50	187
18	MFB1811	3.00	8.50	0.54	229
20	MFB2011	3.00	9.50	0.57	284
24	MFB2411	3.00	11.00	0.61	395
30	MFB3011	4.75	15.00	0.66	683
36	MFB3611	5.00	18.00	0.74	1042
42	MFB4211	6.00	21.00	0.82	1528
48	MFB4811	6.50	24.00	0.90	2024



MJ x Flange 11 1/4° Bend

Adapters: MJ X Flange

Size	Item No.	L	T	Wt.
3	MFA3	3.50	0.33	18
4	MFA4	3.50	0.34	24
6	MFA6	3.50	0.36	36
8	MFA8	3.75	0.38	52
10	MFA10	3.75	0.40	67
12	MFA12	3.75	0.42	80
14	MFA14	5.00	0.47	126
16	MFA16	5.00	0.50	166
18	MFA18	5.00	0.54	206
20	MFA20	5.00	0.57	275
24	MFA24	5.00	0.61	324
30	MFA30	7.00	0.66	420
36	MFA36	7.00	0.74	710
42	MFA42	7.00	0.82	993
48	MFA48	7.00	0.90	1225



MJ x Flange Adapters

FM APPROVED

Member

Weights in Pounds, Less Accessories / Dimensions in inches
Ductile Iron Class 350 per ANSI/AWWA C153/A21.53

Penalty Calculation Methodology Worksheet - Version Date: 8/24/2010
Password for Workbook Protection: enforcement

Instructions
1. Select Potential Harm for Discharge Violations
2. Select Characteristics of the Discharge
3. Select Susceptibility to Cleanup or Abatement
4. Select Deviation from Standard
5. Click "Determine Harm & per Gallon/Day..."
6. Enter Values into the Yellow highlighted fields

	Violation 1	Violation 2	Violation 3	Violation 4	
Select Item	4 = Above Moderate	Potential Harm for Discharge Violations	Potential Harm for Discharge Violations	Potential Harm for Discharge Violations	Select Item
Select Item	3 = Discharged material poses above moderate ri	Characteristics of the Discharge	Characteristics of the Discharge	Characteristics of the Discharge	Select Item
Select Item	< 50% of Discharge Susceptible to Cleanup or Ab	Susceptibility of Cleanup or Abatement	Susceptibility of Cleanup or Abatement	Susceptibility of Cleanup or Abatement	Select Item
Select Item	Major	Deviation from Requirement	Deviation from Requirement	Deviation from Requirement	Select Item

Discharger Name/ID:

Category	Step	Item	Violation 1	Violation 1 ($)	Violation 2	Violation 2 ($)	Violation 3	Violation 3 ($)	Violation 4	Violation 4 ($)	
Discharge Violations	Step 1	Potential Harm Factor (Generated from Button)	8						3		
	Step 2	Per Gallon Factor (Generated from Button)	0.6						0.013		
		Gallons	8,000								
		Statutory / Adjusted Max per Gallon ($)	10.00								
		Total		$ 48,000		$ -		$ -		$ -	
		Per Day Factor (Generated from Button)	0.6		0		0		0.013		0
		Days	1								
		Statutory Max per Day	10000.00								
		Total		$ 6,000		$ -		$ -		$ -	
Non-Discharge Violations	Step 3	Per Day Factor									
		Days									
		Statutory Max per Day									
		Total		$ -		$ -		$ -		$ -	
		Initial Amount of the ACL		$ 54,000.00		$ -		$ -		$ -	
Add'l Factors	Step 4	Culpability	1.3	$ 70,200.00		$ -		$ -		$ -	
		Cleanup and Cooperation	1	$ 70,200.00		$ -		$ -		$ -	
		History of Violations	1	$ 70,200.00		$ -		$ -		$ -	
	Step 5	Total Base Liability Amount		$ 70,200.00							
	Step 6	Ability to Pay & to Continue in Business	1	$ 70,200.00							
	Step 7	Other Factors as Justice May Require	1	$ 70,200.00							
		Staff Costs	$ 15,525	$ 85,725.00							
	Step 8	Economic Benefit	$ -	$ 85,725.00							
	Step 9	Minimum Liability Amount	0								
		Maximum Liability Amount	$ 90,000								
	Step 10	Final Liability Amount		$ 85,725.00							

Penalty Day Range Generator

Start Date of Violation=

End Date of Violation=

Maximum Days Fined (Steps 2 & 3) = Days

Minimum Days Fined (Steps 2 & 3) = Days

	Potential Harm for Discharge Violations
	Characteristics of the Discharge
	Susceptibility of Cleanup or Abatement
	Deviation from Requirement

Select Item	Potential Harm for Discharge Violations
Select Item	Characteristics of the Discharge
Select Item	Susceptibility of Cleanup or Abatement
Select Item	Deviation from Requirement

Select Item	Potential Harm for Discharge Violations
Select Item	Characteristics of the Discharge
Select Item	Susceptibility of Cleanup or Abatement
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Select Item	Characteristics of the Discharge
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Select Item	Deviation from Requirement

Select Item	Potential Harm for Discharge Violations
Select Item	Characteristics of the Discharge
Select Item	Susceptibility of Cleanup or Abatement
Select Item	Deviation from Requirement

Violation 5		Violation 6		Violation 7		Violation 8		Violation 9		Violation 10
$ -		$ -		$ -		$ -		$ -		$ -
$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
$ -		$ -		$ -		$ -		$ -		$ -
$ -		$ -		$ -		$ -		$ -		$ -
$ -		$ -		$ -		$ -		$ -		$ -
$ -		$ -		$ -		$ -		$ -		$ -
$ -		$ -		$ -		$ -		$ -		$ -