April 16, 2012

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ADMINISTRATIVE CIVIL LIABILITY COMPLAINT NO. R6T-2012-0010 FOR NORTH TAHOE PUBLIC UTILITY DISTRICT – PLACER COUNTY, WDID NO. 6SSO11110

Enclosed please find Administrative Civil Liability Complaint No. R6T-2012-0010 issued pursuant to California Water code section 13385, alleging violations by the North Tahoe Public Utility District (Discharger) of general waste discharge requirements prescribed by State Water Resources Control Board Order No. 2006-0003-DWQ and violations of the *Water Quality Control Plan for the Lahontan Region*. The violations are the result of the unauthorized discharge of 130,000 gallons of raw sewage that flowed onto private property and, eventually, into Lake Tahoe on December 19, 2010. The Complaint proposes that the Regional Water Quality Control Board, Lahontan Region (Lahontan Water Board) assess an administrative civil liability against the Discharger in the amount of $232,100 pursuant to California Water Code section 13385. Also enclosed is a Waiver of Hearing form for this matter.

Unless waived, a hearing before the Lahontan Water Board or a Lahontan Water Board Hearing Panel (Hearing Panel) will be held on this Complaint pursuant to Water Code section 13323. At the hearing, the Lahontan Water Board will consider whether to impose administrative civil liability (as proposed in the Complaint or for a different amount), decline the administrative civil liability, or refer the matter to the Attorney General for judicial enforcement.

The Discharger may contest the proposed administrative civil liability at the hearing or, in the alternative, may waive its right to the hearing. Should the Discharger choose to waive its right to a hearing, an authorized agent must sign the enclosed Waiver of Hearing form and return it to the Lahontan Water Board's South Lake Tahoe office by **5:00 p.m. on May 21, 2012**. If the Lahontan Water Board does not receive the waiver and full payment of the liability by this date and time, the matter will be heard before the Lahontan Water Board or a Hearing Panel within 90 days of the Complaint's issuance

date. Public hearing procedures are enclosed and an agenda containing the date, time, and location of the hearing will be mailed to the Dischargers at least 10 days prior to the hearing date.

If you have any questions regarding this matter, please contact Eric J. Taxer at (530) 542-5434, or Scott C. Ferguson at (530) 542-5432.

Lauri Kemper, P.E.
Assistant Executive Officer

Enclosures:
1. Administrative Civil Liability Complaint No. R6T-2012-0010
2. Waiver of Hearing Form

cc (w/enc): Regional Board Members
Harold J. Singer, Executive Officer/Lahontan Regional Water Quality Control Board
Kim Niemeyer, Staff Counsel/State Water Resources Control Board/Office of Chief Counsel
Andrew P. Tauriainen, Staff Counsel/State Water Resources Control Board/ Office of Enforcement
Steve Sweet/Tahoe Regional Planning Agency
Vickie Sandoval/ Placer County Environmental Health Division
Kathleen McConnell/Coblentz Patch Duffy & Bass LLP
John Larsen/Larsen Consulting
John Wash, Managing Principal/Stantec Consulting Services, Inc.
Christy Leonard, Corporate Counsel/Stantec Consulting Services, Inc.
Peter K. Hackbush, President/Dinter

EJT/adw/T:/_Agenda Items/2012/6-June/NTPUD/ NTPUD, ACL Complaint Cover Letter, 2012-03-12 EJT
File Under: 6SSO11110

ENCLOSURE 1

STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

In the Matter of North Tahoe Public Utility District Placer County, **WDID No. 6SSO11110**	)))))	**COMPLAINT NO. R6T-2012-0010** **FOR** **ADMINISTRATIVE CIVIL LIABILITY**

NORTH TAHOE PUBLIC UTILITY DISTRICT IS HEREBY GIVEN NOTICE THAT:

1. As a result of a sanitary sewer system overflow (SSO) which occurred on December 19, 2010, North Tahoe Public Utility District (NTPUD or Discharger) is herein alleged to have violated provisions of the California Water Code and the federal Clean Water Act, for which the California Regional Water Quality Control Board, Lahontan Region (Lahontan Water Board) may impose administrative civil liabilities pursuant to Water Code section 13385. This Administrative Civil Liability Complaint (Complaint) is issued under authority of Water Code section 13323.

2. Unless waived, a hearing on this Complaint will be held before the Lahontan Water Board on July 11-12, 2012, at 971 Silver Dollar Avenue, South Lake Tahoe, California. At the hearing, the Lahontan Water Board will consider whether to affirm, reject, or modify the proposed civil liability, or refer the matter to the Attorney General's Office for recovery of judicial liability. The Discharger or its representative will have an opportunity to be heard and to contest the allegations in this Complaint and the imposition of civil liability. An agenda for the meeting will be available at http://www.waterboards.ca.gov/lahontan/board_info/agenda not less than 10 days before the hearing date.

3. The Discharger can waive its right to a hearing to contest the allegations contained in this Complaint by submitting a signed waiver and paying the civil liability in full or by taking other actions as described in the attached waiver form. If this matter proceeds to hearing, the Lahontan Water Board's 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.

FACTUAL BASIS FOR THE ALLEGED VIOLATIONS

4. NTPUD provides sanitary sewer services to the communities of Agate Bay, Brockway Vista, Carnelian Bay, Cedar Flat, Kings Beach, and Tahoe Vista along the north shore of Lake Tahoe. NTPUD collects untreated wastewater (raw sewage) through a system consisting of approximately 94 miles of gravity sewers, 6.3 miles of force mains, and 18 pump stations, including the Dollar Hill Pump Station. The Dollar Hill Pump Station is located at or near the downstream end of the NTPUD sewer system, and it receives raw sewage flows from nearly the entire system.

5. NTPUD does not directly treat or dispose of the raw sewage before it passes through the Dollar Hill Pump Station. Instead, raw sewage from NTPUD is conveyed via a force main located just downstream from the Dollar Hill Pump Station to the Tahoe Truckee Sanitation Agency for treatment and disposal outside of the Lake Tahoe Basin.

6. The NTPUD sewer system is not designed to collect or transport stormwater runoff or any types of wastewater other than municipal sewage. At any given time, and under any given weather conditions, the flows reaching the Dollar Hill Pump Station are primarily raw, untreated sewage.

7. NTPUD is an enrollee under State Water Resources Control Board (State Water Board) Order No. 2006-0003-DWQ, which establishes state-wide general requirements for sanitary sewer systems.

8. NTPUD installed an updated emergency backup power system at its Dollar Hill Pump Station in or around June 2010.

9. On December 19, 2010, a severe winter snow storm halted commercial power supply to the Dollar Hill Pump Station. The pump station emergency backup power system attempted to start but was unable to operate because of a failure in the power supply to the backup generator fuel system.

10. The Dollar Hill Pump Station remained inoperable for approximately three hours, causing raw sewage to back up within NTPUD's incoming sewer main.

11. Raw sewage eventually backed up to and discharged through a manhole located along the public street near 3670 North Lake Boulevard in Carnelian Bay.

12. The discharge took place from approximately 2:10 p.m. until 5:06 p.m. (approximately 3 hours) on December 19, 2010, and totaled approximately 130,000 gallons of raw, untreated sewage.

13. The raw sewage flowed from the NTPUD manhole onto private property located at 3730 North Lake Boulevard, into and around the private residence on the property, and ultimately into Lake Tahoe. The interior of the private residence received and was damaged by approximately one inch of raw sewage covering the floor of the living unit below the garage and by approximately three-quarters of an inch of raw sewage in the mechanical room and finished basement areas. The discharge also damaged outdoor support posts and foundation posts, lawn areas, rock stairs, and landscaped areas on the private property. Approximately 500 gallons of raw sewage was later recovered from inside the private residence; the remainder, approximately 129,500 gallons, flowed into Lake Tahoe.

14. NTPUD commissioned an independent investigation to determine the cause of the SSO, to estimate the volume of the SSO, to assess the responsibility for the events leading to the SSO, and to identify actions needed to prevent a recurrence. The report was submitted to Lahontan Water Board staff on March 22, 2011.

15. Lahontan Water Board staff met with NTPUD on June 29, 2011 to discuss the findings of the report. The report identified the failure of the contractor and its subcontractor to exercise the industry standard of care in the design and installation of the updated emergency backup power system.

16. Lahontan Water Board staff provided a copy of the report to NTPUD's contractor for their review and response. The contractor's August 12, 2011 response generally identified improper operation and maintenance of the system by NTPUD.

17. NTPUD reviewed the contractor's response and provided an October 17, 2011 rebuttal. Lahontan Water Board staff reviewed all information received and considers the cause of the raw sewage spill to be due to fallible actions of either NTPUD staff or its contractor (and subcontractor), or both. As the owner and operator of the Dollar Hill Pump Station, NTPUD is ultimately responsible for the proper operations and maintenance of the pump station and the actions of the contractors it hires.

APPLICABLE PROHIBITIONS AND REQUIREMENTS

18. Section 301 of the Federal Water Pollution Control Act (Clean Water Act) (33 U.S.C. § 1311) and Water Code section 13376 prohibit the discharge of pollutants to waters of the United States except in compliance with a National Pollutant Discharge Elimination System (NPDES) permit.

19. The Lahontan Water Board adopted the *Water Quality Control Plan for the Lahontan Region* (Basin Plan) pursuant to Water Code Section 13243. The Basin Plan contains the following prohibitions:

"The discharge of treated or untreated domestic sewage, garbage or other solid wastes, or any other deleterious material to the surface waters of the Lake Tahoe Basin is prohibited." [Basin Plan, at p. 5.2-2 (see also p. 4.1-1).]

"The discharge, attributable to human activities, of solid or liquid waste materials, including soil, silt, clay, sand, and other organic and earthen materials, to the surface waters of the Lake Tahoe Basin, is prohibited." [Basin Plan, at p. 5.2-3.]

20. Water Code section 13950, subdivision (a), prohibits the disposal of municipal waste to surface or ground water in the Lake Tahoe Basin, and declares waste disposal within the Basin to be a public nuisance. Section 13950 is incorporated into the Basin Plan, at p. 5.2-2.

21. On May 2, 2006, the State Water Board adopted Order No. 2006-0003-DWQ pursuant to Water Code section 13263, prescribing statewide general waste discharge requirements for all public sanitary sewer systems greater than one mile in length that collect and/or convey untreated or partially treated wastewater to a publicly owned treatment facility in the State of California. Order No. 2006-0003-DWQ establishes requirements for enrollees to operate and maintain their collection systems. NTPUD is an enrollee under this Order. Order No. 2006-0003-DWQ contains the following prohibitions:

    a. Paragraph C.1 prohibits SSOs that result in a discharge of untreated wastewater to waters of the United States.

    b. Paragraph C.2 prohibits SSOs that result in discharge of raw sewage that creates a nuisance as defined in Water Code section 13050, subdivision (m).

22. Water Code section 13050, subdivision (m) defines nuisance as anything that meets all of the following requirements:

    a. Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.

    b. Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.

    c. Occurs during, or as a result of, the treatment or disposal of wastes.

ALLEGED VIOLATIONS

23. NTPUD violated Water Code section 13376 and Clean Water Act section 301 by discharging approximately 129,500 gallons of pollutants (raw sewage) to waters of the United States (Lake Tahoe) on December 19, 2010, without filing a report of waste discharge or obtaining an NPDES permit. These violations subject NTPUD to liability pursuant to Water Code section 13385, subdivisions (a)(1) and (a)(5).

24. NTPUD violated prohibitions in the Basin Plan by discharging approximately 129,500 gallons of untreated domestic sewage into Lake Tahoe on December 19, 2010. These violations subject NTPUD to liability pursuant to Water Code section 13385, subdivision (a)(4).

25. NTPUD violated the discharge prohibition set forth in Paragraph C.1 of Order No. 2006-0003-DWQ on December 19, 2010 by discharging approximately 129,500 gallons of raw sewage into waters of the United States (Lake Tahoe). This violation subjects NTPUD to liability pursuant to Water Code section 13350, subdivision (a).

26. NTPUD violated the nuisance prohibition set forth in Paragraph C.2 of Order No. 2006-0003-DWQ on December 19, 2010, by discharging approximately 130,000 gallons of raw sewage across public property, onto private property located at 3730 North Lake Boulevard, Carnelian Bay, into and around the private residence located on the property, and, ultimately, into Lake Tahoe. The discharge created a nuisance under Water Code section 13050, subdivision (m), because it occurred during the transfer of raw sewage for treatment or disposal, it was injurious to health, offensive to the senses, and an obstruction of the comfortable enjoyment of the property located at 3730 North Lake Boulevard, and it passed over surface streets and into Lake Tahoe, impacting the community at large. This violation subjects NTPUD to liability pursuant to Water Code section 13350, subdivision (a).

WATER CODE SECTIONS UPON WHICH ADMINISTRATIVE CIVIL LIABILITY IS BEING ASSESSED FOR THE ALLEGED VIOLATIONS

27. Pursuant to Water Code section 13385, subdivision (a)(1), a discharger is subject to civil liability for violating Water Code section 13376. Pursuant to Water Code section 13385, subdivision (a)(4), a discharger is subject to civil liability for violating an order or prohibition issued pursuant to Water Code section 13243 (e.g., the Basin Plan), if the activity subject to the order or prohibition is subject to regulation under Chapter 5.5 of Division 7 of the California Water Code (e.g., involves discharge of pollutants to waters of the United States regulated under the Clean Water Act). Pursuant to Water Code section 13385, subdivision (a)(5), a discharger is subject to civil liability for violating Section 301 of the Clean Water Act.

28. Pursuant to Water Code section 13385, subdivision (c), civil liability may be imposed administratively by the Lahontan Water Board in an amount not to exceed the sum of both of 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.

29. Pursuant to Water Code section 13350, subdivision (a), a discharger is subject to civil liability for violation a waste discharge requirement or other order or prohibition issued by the State Water Board (e.g., Order No. 2006-0003-DWQ).

30. Pursuant to Water Code section 13350, subdivision (e), civil liability may be imposed administratively by the Lahontan Water Board in an amount not to exceed five thousand dollars ($5,000) for each day in which the violation occurs, or an amount not to exceed ten dollars ($10) per gallon discharged, but not both.

31. For the violations cited above, administrative civil liability may be assessed either under Water Code section 13350 or Water Code section 13385, but not both (see § 13385, subd. (g)). Since the discharge was to waters of the United States, it is appropriate to proceed under Water Code section 13385 here, and to hold the Water Code section 13350 violations in the alternative.

FACTORS CONSIDERED IN DETERMINING ADMINISTRATIVE CIVIL LIABILITY

32. Pursuant to Water Code section 13385, subdivision (e), in determining the amount of any civil liability, the Water Board is required to take into account the nature, circumstances, extent, and gravity of the violations, whether the discharges are susceptible to cleanup or abatement, the degree of toxicity of the discharges, and, with respect to the violator, the ability to pay, the effect on its 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 violations, and other matters that justice may require.

33. On November 17, 2009, the State Water Board adopted Resolution 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

Water Code section 13385, subdivision (e). The entire Enforcement Policy can be found at:

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

34. The required factors have been considered for the violations alleged herein using the methodology in the Enforcement Policy, as explained in detail in Attachment B.

MAXIMUM ADMINISTRATIVE CIVIL LIABILITY

35. Pursuant to Water Code section 13385, subdivision (c), the total maximum administrative civil liability that may be imposed for the violations alleged in this Complaint is **$1,300,000**, as described in Attachments B and C.

PROPOSED ADMINISTRATIVE CIVIL LIABILITY AMOUNT

36. Based on consideration of the above facts, the applicable law, and after applying the administrative civil liability methodology as described in Attachments B and C, the Assistant Executive Officer of the Water Board proposes that civil liability be imposed administratively on the Dischargers in the amount of **$232,100.00**.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

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

_____ _____

Lauri Kemper
Assistant Executive Officer

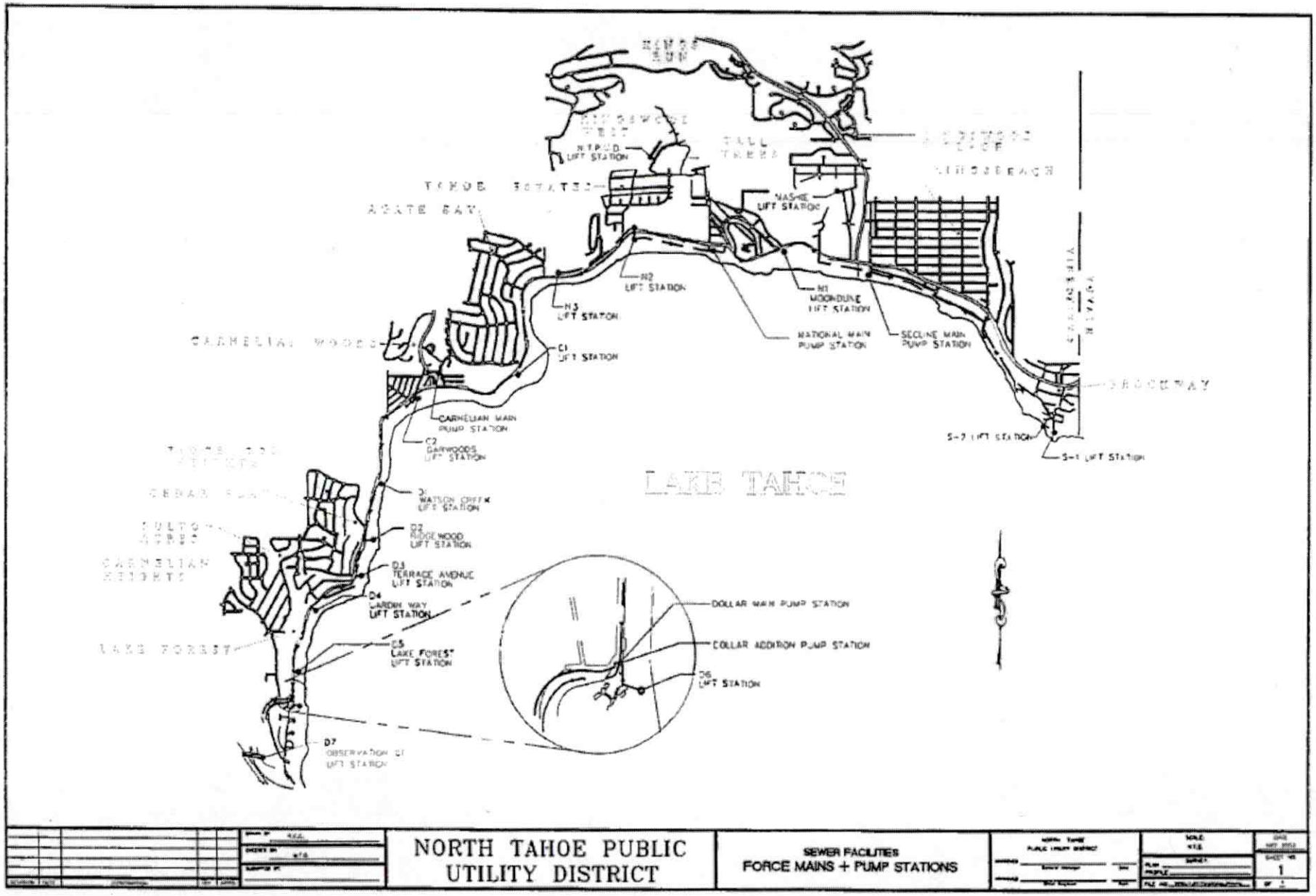
Date

Attachments:

A. Location Maps
B. Administrative Civil Liability Methodology
C. Enforcement Policy Methodology Spreadsheet

ATTACHMENT A

LOCATION MAPS



NORTH TAHOE PUBLIC UTILITY DISTRICT

SEWER FACILITIES
FORCE MAINS + PUMP STATIONS

SHEET NO. 1

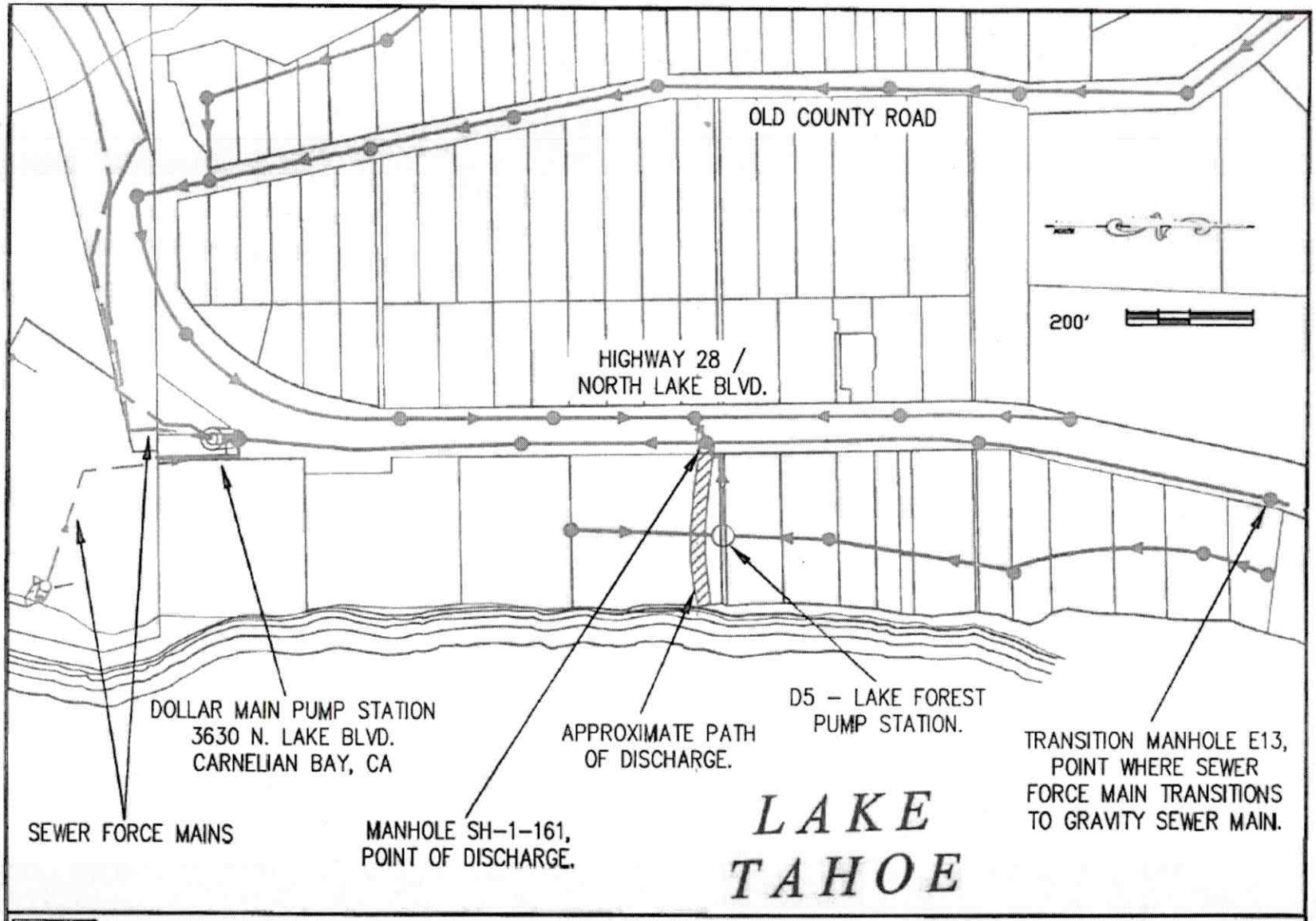


EXHIBIT – DECEMBER 19, 2010 SEWER SPILL

DTB 12-22-2010

ATTACHMENT B

ADMINISTRATIVE CIVIL LIABILITY METHODOLOGY

Administrative civil liability may be imposed pursuant to the procedures described in California Water Code section 13323. The Complaint alleges the act or failure to act that constitutes a violation of law, the provision of law authorizing civil liability to be imposed, and the proposed civil liability.

Pursuant to Water Code section 13385, subdivision (c), civil liability may be imposed administratively by the Lahontan Regional Water Quality Control Board (Lahontan Water Board) in an amount not to exceed the sum of both of 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.

Water Code section 13385, subdivision (e) requires the Lahontan Water Board to consider several factors when determining the amount of civil liability to impose. These factors include:

> "...the nature, circumstances, extent, and gravity of the violation or violations, whether the discharge is susceptible to cleanup or abatement, the degree of toxicity of the discharge, and, with respect to the violator, the ability to pay, the effect on its 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. At a minimum, liability shall be assessed at a level that recovers the economic benefits, if any, derived from the acts that constitute the violation."

On November 17, 2009, the State Water Resources Control Board (State Water Board) adopted Resolution 2009-0083 amending the Water Quality Enforcement Policy (Enforcement Policy). The Enforcement Policy provides a calculation methodology for determining administrative civil liability. The calculation methodology includes an analysis of the factors in Water Code section 13385, subdivision (e), and it enables fair and consistent implementation of the Water Code's liability provisions. Attachment C and the following discussion presents the administrative civil liability derived from the Enforcement Policy's administrative civil liability calculation methodology. Attachment C is attached hereto and incorporated herein by this reference.

The alleged violation by the North Tahoe Public Utility District (NTPUD) in the Complaint and this technical analysis is a discharge violation for the purpose of applying the

Enforcement Policy's penalty calculation methodology. The discharge resulted from an unauthorized Sanitary Sewer Overflow (SSO) of untreated and un-disinfected wastewater (raw sewage). This analysis omits step three of the calculation methodology, which addresses non-discharge violations.

NTPUD submitted a spill investigation report, dated March 21, 2011 (Attachment 1). Appendix J to that report (Attachment 2) provided two separate calculations for estimating the quantity of raw sewage that was discharged. The first calculation interpolates probable flow quantities from before and after the spill occurred, resulting in an estimated discharge of 136,330 gallons. The second calculation uses a standard orifice equation, estimating the hydraulic pressure necessary to lift the manhole cover off of its setting. This second calculation results in an estimated discharge of 132,581 gallons. To be conservative, Lahontan Water Board staff used the second estimate and rounded off to two significant digits based upon the measurements used in the calculation. This resulted in an estimated total discharge volume of 130,000 gallons, of which approximately 129,500 gallons reached Lake Tahoe.

Step 1: Potential for Harm for Discharge Violations

Actual or threatened impacts to beneficial uses are determined using a three-factor scoring system. The three factors include: (a) the harm or potential harm to beneficial uses; (b) the physical, chemical, biological, or thermal characteristics of the discharge; and (c) the susceptibility to cleanup or abatement of the discharge(s). A numeric score is determined for each of the three factors. These scores are then added together to determine a final Potential for Harm score. Based on the scores for environmental harm, receptor risk, and cleanup susceptibility, and as further detailed below, a score of **6** (six) is assigned to Step 1 of the calculation methodology.

A. Factor 1: Harm or Potential Harm to Beneficial Uses

This factor evaluates direct or indirect harm or potential for harm from the violation. A score between 0 (negligible) and 5 (major) is assigned in accordance with the statutory factors of the nature, circumstances, extent and gravity of the violation.

Raw sewage discharges can cause a public nuisance, particularly when raw sewage is discharged to areas with high public exposure such as streets, to high profile water bodies such as Lake Tahoe, and to private residences as occurred with this incident. Raw sewage discharges can pollute surface or ground waters, threaten public health, adversely affect aquatic life, and impair the recreational use and aesthetic enjoyment of surface waters.

Lake Tahoe has been designated an Outstanding National Resource Water because of its extraordinary clarity, purity, and deep blue color. However, the Lake's clarity has been decreasing due to nitrogen, phosphorus, and fine sediment discharges

associated with human activities. As a result, Lake Tahoe is listed on the Federal Clean Water Act Section 303(d) list as impaired due to excessive sediment, nitrogen and phosphorus. In an effort to protect and restore Lake Tahoe's clarity and high quality, the Water Code requires that all wastewater be collected and disposed of outside the Lake Tahoe Basin (Water Code §§ 13950 and 13951), beginning January 1, 1972. This requirement resulted in completion of wastewater collection, treatment, and transportation facilities necessary to comply with Water Code sections 13950 and 13951. More recently, public and private partnerships are in place to invest approximately $1 billion into Lake Tahoe's restoration through the Environmental Improvement Program (EIP). Millions of additional dollars have been spent to protect Lake Tahoe through similar programs that preceded the 1997 EIP. Raw sewage discharges, such as the one subject to this Complaint, contain relatively minor quantities of nutrients (nitrogen and phosphorus) when compared to Lake Tahoe's annual nutrient loading received from all sources. However, the nutrients from this discharge can still have a localized effect on Lake Tahoe's water quality and clarity, and further increase the already significant challenge of reversing the decades-long decline in Lake Tahoe's famed clarity.

The designated beneficial uses of Lake Tahoe that could be impacted by the unauthorized discharge include contact recreation (swimming, water skiing, wading, and fishing), non-contact recreation (picnicking, sunbathing, hiking, boating, kayaking, sightseeing, aesthetic enjoyment), cold freshwater habitat, wildlife habitat, preservation of biological habitats of special significance, migration of aquatic organisms, and spawning (support of high quality aquatic habitat necessary for reproduction and early development of fish and wildlife).

The discharge of 129,500 gallons of raw sewage on December 19, 2010, resulted in **below moderate harm** to the beneficial uses of Lake Tahoe. The Enforcement Policy defines below moderate as:

> *"Below moderate – less than moderate threat to beneficial uses (i.e., impacts are observed or reasonably expected, harm to beneficial uses is minor)."*

The discharge occurred during severe weather conditions, when it is reasonable to assume that no recreational users would be on or in the water. Thus, it is likely that the discharge resulted in few, if any, impacts to contact recreation beneficial uses. The Lahontan Water Board is not aware of any complaints or other evidence of impact to such uses resulting from the spill.

However, the discharge did contribute nutrients to Lake Tahoe. Influent sampling conducted by the regional Tahoe Truckee Sanitation Agency (which receives untreated wastewater from NTPUD) indicates that typical raw sewage contains approximately 40 milligrams per liter (mg/L) of total nitrogen and approximately 6.6 mg/L of total phosphorus. The discharge of 129,500 gallons of raw sewage

therefore contains approximately 19.6 kilograms (43.2 pounds) of total nitrogen and approximately 3.24 kilograms (7.13 pounds) of total phosphorus. This amount of nutrient discharge can be expected to have at least a localized negative effect (i.e. increased algal growth) on Lake Tahoe's water quality and clarity that would adversely impact non-contact recreation. By contributing to the lake's overall nutrient load, it is reasonable to expect that the discharge also contributed to the degradation of clarity and color within Lake Tahoe as a whole, though the amount of degradation is not likely discernible due to the small added nutrient load compared to the lake's annual nutrient loading from all other sources.

Based on the circumstances described above, a score of **2** (two) is assigned to Factor 1 of the calculation methodology. It is important to note, however, that this score should not be considered precedential for all sewage discharges into Lake Tahoe. A similar spill under slightly different circumstances could result in a much higher level of harm to beneficial uses. For example, in July 2005, a smaller raw sewage discharge in the same area closed beaches for several days and severely restricted contact and non-contact recreation beneficial uses. Such a spill would easily qualify for a score of 4 or 5 under the current Enforcement Policy. [1]

B. Factor 2: The Physical, Chemical, Biological or Thermal Characteristics of the Discharge

This factor evaluates the degree of toxicity of the discharge by evaluating the physical, chemical, biological, and/or thermal nature of the discharge. Toxicity is the degree to which a substance can damage a living or non-living organism. Toxicity can refer to the effect on a whole organism, such as an animal, bacterium, or plant, as well as the effect on a substructure of the organism, such as a cell or an organ. A score between 0 (negligible risk) and 4 (significant risk) is assigned based on a determination of the risk or threat of the discharged material on potential receptors. Potential receptors are those identified considering human, environmental and ecosystem health exposure pathways.

The degree of toxicity of raw sewage cannot be accurately quantified. However, an SSO of this size would be expected to have a deleterious effect on the environment. Although NTPUD did not collect any water quality samples immediately after the SSO, raw sewage typically has elevated concentrations of biochemical oxygen demand (BOD), total suspended solids, oil and grease, ammonia, high levels of viruses and bacteria, trash, and toxic pollutants (such as heavy metals, pesticides, personal care products, and pharmaceuticals). These pollutants exert varying levels

[1] The Enforcement Policy provides the following definitions: "4=Above moderate – more than moderate threat to beneficial uses (i.e., impacts are observed or likely substantial, temporary restrictions on beneficial uses (e.g., less than 5 days), and human or ecological health concerns)"; "5=Major – high threat to beneficial uses (i.e., significant impacts to aquatic life or human health, long term restrictions on beneficial uses (e.g., more than five days), high potential for chronic effects to human or ecological health)."

of impact on water quality and beneficial uses of receiving waters. High BOD reduces the amount of dissolved oxygen available to the biota in Lake Tahoe.

NTPUD's spill report (Attachment 1) documented at least 500 gallons of raw sewage discharged directly into a private residence. NTPUD's June 29, 2011 memo to file (Attachment 3) documents the initial damage observed to the private residence. Individual receptors could easily have come into contact with the waste discharge while it was flowing toward Lake Tahoe and when bacteria and virus counts may reasonably be expected to exist. Just one virus, bacterium or worm can reproduce to cause a serious infection, especially in individuals with impaired immune systems. These facts could suggest a significant risk for this factor.

However, the SSO occurred during a snow storm event in December 2010. Significant public health effects were likely avoided due to cold and stormy weather conditions discouraging water-contact recreation. Any bacteria contained in the discharge would not survive long in the cold weather conditions that existed at the time of discharge, and likely would not impact wildlife or human health in Lake Tahoe. Due to storm conditions causing local mixing of Lake Tahoe waters near the point of discharge, biological impacts from high BOD concentrations normally associated with raw sewage were likely avoided.

The characteristics of the discharged material therefore posed an **above-moderate** risk or threat to potential receptors. The Enforcement Policy defines above-moderate as:

> *"Discharged material poses an above-moderate risk or a direct threat to potential receptors (i.e., the chemical and/or physical characteristics of the discharged material exceed known risk factors and/or there is substantial concern regarding receptor protection)."*

The high degree of toxicity in untreated wastewater poses a direct threat to human and ecological receptors. Accordingly, a score of **3** (three) is assigned to Factor 2.

C. Factor 3: Susceptibility to Cleanup or Abatement

Pursuant to the Enforcement Policy a score of 0 is assigned for this factor if 50 percent or more of the discharge is susceptible to cleanup or abatement. A score of one is assigned if less than 50 percent or more of the discharge is susceptible to cleanup or abatement.

NTPUD immediately expended efforts to cease the discharge. However, 130,000 gallons of raw wastewater still discharged from the pump station. Of the 130,000 gallons discharged, 500 gallons (0.4 percent) was recovered after flowing into a private residence. Because less than 50 percent of this SSO discharge is susceptible to cleanup and abatement, a score of **1** is assigned to this factor.

Step 2: Assessments for Discharge Violations

Water Code section 13385, subdivision (c), allows civil liability to be assessed on a daily basis and on a per gallon basis for any amount discharged but not cleaned up in excess of 1,000 gallons. Civil liability may be assessed in an amount up to $10,000 per day of violation, and up to $10 per gallon discharged but not cleaned up in excess of 1,000 gallons.

The Enforcement Policy provides that the initial liability amount shall be determined on a per day and a per gallon basis using the Potential for Harm score from Step 1 in conjunction with the Extent of Deviation from the Requirement of the violation. (See Enforcement Policy, Tables 1 and 2.)

A. Extent of Deviation from the Requirement

Section 301 of the Federal Water Pollution Control Act (33 U.S.C. § 1311) (Clean Water Act) and Water Code section 13376 prohibit the discharge of pollutants to waters of the United States except in compliance with a National Pollutant Discharge Elimination System (NPDES) permit.

The *Water Quality Control Plan for the Lahontan Region* (Basin Plan), adopted pursuant to Water Code section 13243, contains the following prohibitions:

> *"The discharge of treated or untreated domestic sewage, garbage or other solid wastes, or any other deleterious material to the surface waters of the Lake Tahoe Basin is prohibited."* [Basin Plan, at p. 5.2-2 (see also p. 4.1-1).]
>
> *"The discharge, attributable to human activities, of solid or liquid waste materials, including soil, silt, clay, sand, and other organic and earthen materials, to the surface waters of the Lake Tahoe Basin, is prohibited."* [Basin Plan, at p. 5.2-3.]

Water Code section 13950 prohibits the disposal of municipal waste to surface or ground water in the Lake Tahoe Basin, and declares waste disposal within the Basin to be a public nuisance. Section 13950 is incorporated into the Basin Plan at p. 5.2-2.

State Water Board Order No. 2006-0003-DWQ prohibits, "Any SSO that results in a discharge of untreated or partially treated wastewater to waters of the United States..." and "Any SSO that results in a discharge of untreated or partially treated wastewater that creates a nuisance as defined in California Water Code Section 13050(m)..." (State Water Board Order No. 2006-0003-DWQ, Order Nos. C.1 and C.2.)

NTPUD discharged 130,000 gallons of raw sewage onto private property, of which approximately 129,500 gallons entered the waters of the United States (Lake Tahoe), without a permit. Such discharges are expressly prohibited under the Clean Water Act, the California Water Code, and the Basin Plan. The discharge also created a nuisance by crossing public streets, flooding the interior of a private residence and damaging private property, and by entering Lake Tahoe. Thus, the discharge is a major deviation from prescribed requirements. The calculation methodology defines a major deviation as,

> *"The requirement has been rendered ineffective (e.g., discharger disregards the requirement, and/or the requirement is rendered ineffective in its essential functions)."*

The SSO rendered the prohibitions on discharging raw sewage to waters of the United States and creating a nuisance ineffective in their essential functions. The prohibitions would be effective only if no SSO had occurred.

Accordingly, based on the Potential for Harm score of 6 and major deviation from the requirements, the per-gallon and per-day factors for the discharge are both **0.22**.

B. Initial Amount of ACL

The initial base liability amount for the discharge is calculated by multiplying and adding:

(per gallon factor) x (gallons discharged but not cleaned up over 1000 gallons) x (maximum per gallon liability) + (per day factor) x (days of violation) x (maximum per day liability)
= Initial Base Liability

(0.22) x (128,500 gallons) x ($10/gallon) + (0.22) x (1 day) x ($10,000/day) = **$284,900**

Water Code section 13385, subdivision (c)(2), provides a maximum liability here of $10 for each gallon discharged but not cleaned up above 1,000 gallons. The Enforcement Policy notes that a $2 per gallon liability may apply in some circumstances, e.g., for high volume discharges involving wet weather flows. However, where a reduced per gallon amount "results in an inappropriately small penalty, such as dry weather discharges or small volume discharges that impact beneficial uses, a higher amount, up to the maximum per gallon amount, may be used." (Enforcement Policy, at p. 14.)

The Lahontan Water Board interprets the Enforcement Policy's high volume discharge provision to apply where storm flows directly cause a spill and/or significantly dilute the discharge. The maximum $10 per gallon liability is appropriate here because the discharge was not caused by wet weather flows. Moreover, storm flows, if any, did not significantly dilute the discharge.

The discharge occurred during a snowstorm that caused a commercial power failure, but the direct cause of the discharge was an electrical failure within the emergency generator set and fuel system day tank equipment installed during June 2010. This equipment was supposed to keep the Dollar Hill Pump Station operating during commercial power failures, but failed here due to inappropriate design, installation, operation or maintenance. The same equipment failure and spill easily could have happened during a dry weather commercial power failure caused, for example, by windblown trees or wildfire affecting power lines. It was mere coincidence that a snowstorm caused the first extended commercial power failure at Dollar Hill Pump Station following the June 2010 installation work. NTPUD should not benefit from this coincidence by receiving a penalty of less than $10 per gallon.

The December 19, 2010 snowstorm likely did not create significant immediate surface water runoff. Even if it had, the NTPUD system is not designed to collect or transport storm water runoff, and would not be expected to contain significant amounts of inflow or infiltration at the time of the spill. NTPUD's July, 2009, Main Sewer Pump Station Master Plan notes that during May 2008 rain events, up to 41percent of flows measured at Dollar Hill Pump Station may have been attributable to the inflow of storm water through direct connections and the infiltration of groundwater through defects in sewer pipes or manholes. (NTPUD Main Sewer Pump Station Master Plan, at <http://www.ntpud.org/master-plans.php> [as of March 9, 2012], at Technical Memorandum 2, pp. 22-31.) The May 2008 flows represent the maximum amount of storm water inflow and infiltration described in the Master Plan. The Lahontan Water Board notes that spring rain events such as those measured in the Master Plan coincide with the snowmelt season, when groundwater levels in the Tahoe Basin can be expected to be the highest of any time of year. Unlike a rainstorm during snowmelt season, a snowstorm during snow accumulation season would not be expected to correlate with significant amounts of surface inflow or groundwater infiltration. Thus, it is reasonable to assume that the discharge here was predominately undiluted raw sewage. NTPUD should receive the maximum $10 per gallon penalty for this spill.

Step 3: Per Day Assessments for Non-Discharge Violations

Non-discharge violations are not alleged in the Complaint.

Step 4: Adjustment Factors

The Enforcement Policy describes three factors related to the violator's conduct that should be considered for modification of the amount of initial liability: the violator's culpability, the violator's efforts to cleanup or cooperate with regulatory authorities after the violation, and the violator's compliance history. After each of these factors is considered for the violations involved, the applicable factor should be multiplied by the proposed amount for each violation to determine the revised amount for that violation.

A. Adjustment for Culpability

For culpability, the Enforcement Policy suggests an adjustment resulting in a multiplier between 0.5 to 1.5, with the lower multiplier for accidental incidents, and the higher multiplier for intentional or negligent behavior. In this case, a culpability multiplier of **1.1** has been selected for the reasons described below:

The sewage spill occurred during a power failure to NTPUD's Dollar Hill Pump Station on December 19, 2010. The pump station's new emergency generator and original emergency generator both failed due to a lack of adequate fuel supply in the fuel system day tank associated with the two generators. NTPUD staff immediately responded to the emergency generator fault alarm and attempted to start the generators. NTPUD identified the lack of fuel in the system day tank and attempted to provide power to the day tank equipment with portable generators. The discharge occurred for approximately 3 hours during which time NTPUD staff attempted (and eventually succeeded) to provide a power source to the system day tank.

Prior to this event, NTPUD contracted with a private engineering consulting company, Stantec Consulting Inc. (Stantec), to design and inspect a new emergency generator set and fuel system day tank equipment for the Dollar Hill Pump Station. NTPUD contracted with KFC Building Concepts Inc. (KFC) to install the emergency generator set and fuel system day tank equipment that was designed by Stantec. Both Stantec and KFC subcontracted out the electrical components for the design and construction for the emergency generator set and fuel system day tank equipment. Stantec provided a final inspection of the installed equipment to ensure it was installed as designed.

In response to the spill incident, NTPUD commissioned an investigation and report on the cause and responsibility for the electrical failure and resulting sewage overflow (Attachment 1). The March 21, 2011 report concluded that Stantec did not provide the industry-level standard of care in its design of the emergency generator set and fuel system day tank equipment.

- The total connected load exceeded 80-percent of the rated circuit capacity, thereby providing inadequate electric power supply to critical equipment in accordance with typical industry standard of care.

- Remote monitoring and alarms of fuel system day tank equipment operation were not included in the final design, nor were they installed. Contract documents and equipment purchase documents indicate that such remote monitoring was to be included.

- Final inspection by Stantec did not identify deficiencies of installed equipment.

Lahontan Water Board staff provided a copy of the report to Stantec for their review and response (Attachment 4, Lahontan Water Board staff letter dated July 7, 2011). Stantec's August 12, 2011 response (Attachment 5) was provided by their electrical design subcontractor, Dinter Engineering Company (Dinter), since the investigation

report largely focused on the electrical components of the emergency generator set and fuel system day tank equipment. Stantec's response identified the cause of the sewage overflow to be improper operation and maintenance of the system and the inability of NTPUD staff to properly respond to the event, including:

- NTPUD incorrectly operated the fuel transfer pumps in manual mode as opposed to automatic mode. This contributed to tripping the circuit breaker as all three pumps cannot run simultaneously in automatic mode.

- NTPUD failed to implement standard protocol of routinely inspecting the fuel system. Dinter requested NTPUD's operation and maintenance manuals and staff training records, but did not receive them to evaluate inspection logs.

- NTPUD failed to properly test the equipment for a minimum of 30 minutes each month under load. (NTPUD previously noted that air quality regulations restricted test times to five minutes.)

- NTPUD response staff were not properly trained in the operation or trouble-shooting procedures, NTPUD staff was unable to jumper their portable generator to restart the day tank supply pumps, and NTPUD staff did not use a manual hand pump that was installed with the day tank to transfer fuel to the day tank as backup.

- NTPUD's contract documents directed the design of remote monitoring systems to duplicate that of the original system – with only a generator failure alarm. The original day tank did not have remote monitoring alarms.

Lahontan Water Board staff provided a copy of the Stantec/Dinter response to NTPUD for their review and response (Attachment 6, Lahontan Water Board staff letter dated September 14, 2011). NTPUD reviewed the report and provided an October 17, 2011 rebuttal to each of the allegations made by Stantec and Dinter (Attachment 7). A significant share of the allegations from NTPUD, Stantec, and Dinter revolve around the installation and integrity of the electrical components of the emergency generator set and fuel system day tank equipment.

NTPUD and Stantec submitted significant information citing either improper installation and/or improper maintenance of the emergency generator set and fuel system day tank equipment as the cause of the electrical system failure which led to the sewage spill. In either case, the cause of the sewage spill is largely due to fallible actions of either NTPUD staff or its contractor (and subcontractor), or both.

As the owner of the Dollar Hill Pump Station, NTPUD is ultimately responsible for the proper operations and maintenance of the pump station. Therefore, a culpability multiplier of 1.1 is appropriate here.

B. Adjustment for Cleanup and Cooperation

For cleanup and cooperation, the Enforcement Policy suggests an adjustment should result in a multiplier between 0.75 and 1.5. A lower multiplier is for situations where there is a high degree of cleanup and/or cooperation and a higher multiplier is for situations where cleanup and/or cooperation is minimal or absent. In this case, a Cleanup and Cooperation multiplier of **0.75** has been selected.

NTPUD staff responded to the Dollar Hill Pump Station within eight minutes of the emergency generator fault alarm being activated. NTPUD remained on site for over six hours diagnosing the failure of the emergency generator, attempting to restart the emergency generator, providing a temporary alternative power source to the Dollar Hill Pump Station, and overseeing power restoration by the equipment supplier technician called to the site. NTPUD's quick and steadfast actions potentially reduced the amount of raw sewage that potentially spilled from the pump station.

After the SSO, NTPUD immediately cleaned up the raw sewage that flowed into a private residence and any residual remaining on surface streets. NTPUD initiated its own investigation into the cause of the spill and provided its findings to the Lahontan Water Board in its March 22, 2011 report.

C. Adjustment for History of Violations

The Enforcement Policy suggests that where there is a history of repeat violations, a minimum multiplier of 1.1 should be used for this factor. In this case, a multiplier of **0.9** has been selected based upon absence of prior violations of State Water Board Order No. 2006-0003-DWQ.

A review of the California Integrated Water Quality System (CIWQS) and Lahontan Water Board files shows a limited history of SSOs from NTPUD's sewer collection system. However, those prior SSOs were relatively small (less than 500 gallons) and were not adjudicated by Lahontan Water Board staff. The December 19, 2010 SSO is NTPUD's only Category 1 SSO (greater than 1,000 gallons) in the last four years.

Step 5: Determination of Total Base Liability Amount

Total Base Liability Amount of **$211,538.25** is determined by multiplying the initial liability amount for the violation from Step 2 by the adjustment factors from Step 4:

(Initial Base Liability) x (Culpability) x (Cleanup) x (History) = Total Base Liability
($284,900) x (1.1) x (0.75) x (0.9) = $211,538.25

Step 6: Ability to Pay and Ability to Continue Business

The Enforcement Policy provides that if the Lahontan Water Board has sufficient financial information to assess the violator's ability to pay the Total Base Liability, or to assess the effect of the Total Base Liability on the violator's ability to continue in business, then the Total Base Liability amount may be adjusted downward. Similarly, if a violator's ability to pay is greater than similarly situated dischargers, it may justify an increase in the amount to provide a sufficient deterrent effect.

The Lahontan Water Board Prosecution Team has enough information to suggest that NTPUD has the ability to pay the proposed liability, so that the burden of rebutting this presumption shifts to NTPUD. NTPUD's most recent financial statement and independent auditor's report shows that, for fiscal year ending June 30, 2011, NTPUD's sewer fund had unrestricted net assets of $8,784,341. (NTPUD's Independent Auditor's Report for Fiscal Years Ending June 30, 2011 and 2010, p. 14, at <http://www.ntpud.org/docs/accounting/Audited%20Financial%20Statements%20NTPUD%202011.pdf> [as of March 2, 2012].) This represents an increase of $773,173 compared to the NTPUD's sewer fund unrestricted net assets for fiscal year ending June 30, 2010. (*Id.* (showing June 30, 2010, sewer fund unrestricted net assets of $8,011,168).) This indicates NTPUD has the ability to pay the liability amount even without imposing additional assessments on its sewer ratepayers (which it also may do).

Step 7: Other Factors as Justice May Require

The Enforcement Policy provides that if the Lahontan Water Board believes that the amount determined using the above factors is inappropriate, the liability amount may be adjusted under the provision for "other factors as justice may require," if express, evidence-supported findings are made. Additionally, the staff costs for investigating the violation should be added to the liability amount.

a. Adjustments for Other Factors as Justice May Require

The Lahontan Water Board Prosecution Team has determined that the proposed liability amount is appropriate. Therefore, no adjustment is being made for other factors as justice may require.

b. Adjustment for Staff Costs

The cost of Lahontan Water Board Prosecution Staff investigation to date is $20,550, based on 137 hours of staff time at an hourly rate of $150. As a result, the Total Base Liability is recommended to be adjusted upward by **$20,550**, bringing the total proposed liability to **$232,100** when rounded to the nearest one hundred dollars.

Step 8: Economic Benefit

The Enforcement Policy directs the Lahontan Water Board to determine any economic benefit of the violations based upon the best available information. The Enforcement Policy suggests that the Lahontan Water Board compare the economic benefit amount to the adjusted Total Base Liability and ensure that the adjusted Total Base Liability is, at a minimum, 10 percent greater than the economic benefit amount. Doing so should create a deterrent effect and will prevent administrative civil liabilities from simply becoming the cost of doing business.

NTPUD did not derive economic benefit from not having to treat the 130,000 gallons that was discharged. NTPUD collects and transmits raw sewage to a regional wastewater treatment plant (Tahoe Truckee Sanitation Agency). NTPUD does not pay a fee for the sanitation agency to treat the sewage. Rather, the sanitation agency assesses fees directly to commercial and residential property owners and/or tenants. If anything, NTPUD incurred expenses to discharge the 500 gallons of raw sewage recovered from the impacted private residence.

Further, NTPUD did not derive economic benefit from not replacing or updating equipment. In fact, NTPUD had just completed upgrading the Dollar Hill Pump Station equipment. Total costs for the project were approximately $400,000.

Step 9: Maximum and Minimum Liability Amounts

The maximum liability amount the Lahontan Water Board may assess administratively pursuant to Water Code section 13385, subdivision (c), for NTPUD's December 19, 2010 SSO is $10,000 for the one day of violation plus $1,290,000 for the 129,000 gallons spilled in excess of 1,000 gallons. The total maximum liability amount is $1,300,000.

Water Code section 13385, subdivision (c) does not establish a minimum liability. However, the Enforcement Policy requires that:

> *The adjusted Total Base Liability shall be at least 10 percent higher than the Economic Benefit Amount so that liabilities are not construed as the cost of doing business and that the assessed liability provides a meaningful deterrent to future violations.*

Therefore, the minimum liability amount the Lahontan Water Board must assess is zero. The recommended liability falls within the allowable statutory range for the minimum and maximum amounts.

Step 10: Final Liability Amount

The Total Proposed Liability Amount is **$232,100** based upon the considerations discussed in detail, above.

Attachments:

1. NTPUD Spill Report Dated March 21, 2011
2. Spill Volume Estimates (Appendix J to NTPUD Spill Report)
3. NTPUD June 29, 2011 Memo to File Regarding Discharge to Private Residence
4. Waterboard July 7, 2011 Request for Information and Response from Stantec and Dinter
5. Stantec and Dinter August 12, 2011 Response
6. Waterboard September 14, 2011 Request for Information and Response from NTPUD
7. NTPUD October 17, 2011 Response

ATTACHMENT 1

NTPUD SPILL REPORT DATED MARCH 21, 2011

INVESTIGATION AND REPORT ON THE CAUSE, EXTENT, AND RESPONSIBILITY FOR THE ELECTRICAL FAILURE AND SUBSEQUENT SEWAGE OVERFLOW ON DECEMBER 19, 2010 AT AND NEAR THE NORTH TAHOE PUBLIC UTILITY DISTRICT DOLLAR HILL PUMP STATION PLACER COUNTY, CALIFORNIA

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MARCH 21, 2011

SIGNATURE PAGE

THE MATERIAL AND DATA IN THIS REPORT WERE PREPARED BY OR UNDER THE

DIRECTION AND SUPERVISION OF THE UNDERSIGNED.

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EXECUTIVE SUMMARY

On December 19, 2010 a severe winter storm caused commercial power to the North Tahoe Public Utility District (NTPUD) Dollar Hill Pump Station (PS) to fail. The pump station emergency backup power system attempted to start; however, it was unable to operate due to a failure in the power supply to the generator fuel system. As a result of the commercial power failure and the failure of the power to the generator fuel system, a sewage overflow occurred.

Extent and Impact

The overflow on December 19, 2010 from the manhole located near 3670 North Lake Blvd., Carnelian Bay started at 14:10 and it ended approximately three hours later, at 17:06.

The terrain and weather conditions prevented any significant efforts at containment and recovery. One residence was damaged by the overflow.

The estimated volume that reached surface waters (Lake Tahoe) was 136,000 gallons. Two methods were used to determine overflow volume: (a) the data from the flow meter located in the force main that conveys sewage from the pump station to the treatment plan was analyzed and (b) a photograph of the overflowing manhole was used to estimate the rate of flow.

Cause

The cause of the pump station failure was loss of power to the generator fuel system. No evidence was found that indicated failure of the generator fuel system equipment, either of the two emergency generators, or the pump station electrical system.

Specifically, the electrical components that supplied electric power to the emergency fuel system day tank equipment were undersized for this critical application.

- The power panel for the new emergency generator support systems (block heater, battery charger, ventilation louvers, and fuel system day tank) was designed with a 40 amp circuit breaker. It was constructed with a smaller, 30 amp circuit breaker. The total connected load was measured at 27.5 amps.
- The circuit providing power to the fuel system day tank equipment was designed and constructed with a 20 amp circuit breaker. The total connected load was measured at 20.1 amps.

The standard of care for ensuring adequate electric power supply to critical equipment, based on the experience of the authors, is that the total connected load should not exceed 80% of the rated capacity of the circuit.

Given the marginal size of the circuit breakers providing power to the fuel system day tank equipment, it is likely that those circuit breakers were tripped during commercial power voltage fluctuations, which resulted in loss of power to the fuel system day tank equipment. Fluctuations in commercial power voltage are common in the Tahoe area during both summer and winter conditions.

A contributory cause is that remote monitoring of the fuel system day tank equipment operation was not included in the design of this critical component when the new emergency generator system was constructed in 2010. NTPUD's pump stations are designed for unattended operation with remote monitoring. Had remote monitoring of fuel system day

tank equipment power and low fuel level been in place, the NTPUD would have been notified of the day tank equipment power failure with adequate time to respond and there would have been no overflow on December 19, 2010. Failure to provide remote monitoring of the fuel system day tank equipment did not meet either the original design intent or the design standard of care for this critical equipment.

Responsibility

The causes of the loss of power to the fuel system day tank equipment are directly attributable to errors and omissions that occurred during the design, construction, and inspection processes. These errors and omissions were made by the professionals retained by NTPUD in 2009/10 to purchase and install a new emergency generator at the Dollar Hill PS. The roles of each of the parties involved in this project are shown on Table ES-1.

Table ES-1: Dollar Hill Pump Station Emergency Generator Installation Project Roles

Responsible Party	Project Planning	Equipment Purchase	Installation Design	Construction	Inspection and Acceptance
Stantec Consulting Inc. (Stantec)	X	X	X		X
Dinter Engineering Co. (Dinter)[1]	X	X	X		X
KFC Building Concepts, Inc. (KFC)				X	
Western Pacific Electric Inc. (WPE)[2]				X	

Note:
1. Dinter was Stantec's electrical engineering sub-consultant on this project. Dinter's exact scope of work is unknown and therefor all responsibility for project planning, design, inspection, and acceptance is attributed to Stantec in this report.
2. WPE was KFC's electrical subcontractor on this project.

Specifically, the series of errors and omissions by the design, construction, and inspection professionals responsible for emergency generator procurement and installation include:

- The original design by Stantec failed to meet the design standard of care:
    - The fuel system day tank equipment load is shown in the contract documents as 1,000 watts while the actual total connected load was over 2,600 watts.
    - The 20 amp circuit providing power to the fuel system day tank equipment was undersized.

- There was no provision for remote monitoring of fuel system day tank equipment power or fuel level alarm status.

- WPE proposed equipment for installation that did not conform to the contract documents:
  - The contract documents specified that the panel providing power to the emergency generator support systems should be a 7.5 KVA transformer with a 40 amp capacity circuit breaker panel.
  - The WPE Submittal #6 proposed equipment with a smaller, 30 amp capacity circuit breaker panel.
- The review and approval of submittals by Stantec failed to identify equipment that did not conform to the contract documents:
  - The undersized equipment included in WPE Submittal #6 was approved by Stantec.
- Stantec failed to notify NTPUD that equipment not conforming to the contract documents had been submitted and approved.
- WPE installed the undersized equipment that was not in conformance with the contract documents.
- The final inspection performed by Stantec and Dinter failed to identify installed equipment that did not conform to the contract documents.

1. INTRODUCTION

On December 19, 2010 a severe winter storm caused commercial power to the North Tahoe Public Utility District (NTPUD) Dollar Hill Pump Station (PS) to fail. The pump station emergency power system attempted to start; however, it was unable to operate due to a failure in the power supply to the generator fuel system. The emergency backup power system was installed in June 2010. As a result of the commercial and emergency backup power failure, a sewage overflow occurred from a manhole located near 3670 North Lake Blvd., Carnelian Bay. The terrain and weather conditions prevented any significant efforts at containment and recovery. One residence was damaged by the overflow.

This Report presents the results of an independent investigation conducted into the December 19, 2010 sewage overflow at the request of the NTPUD. The investigation team consisted of John Larson, P.E. of Larson Consulting, and William Ettlich, P.E. of HDR Engineering. Mr. Larson is a professional Mechanical Engineer in California with over 44 years of experience. Mr. Ettlich is a professional Electrical and Control Systems Engineer in California with over 52 years of experience. Their qualifications are included as Appendix A.

The information presented in this Report is based on review and analysis of written and electronic information provided by NTPUD, interviews with NTPUD employees, interviews with Cashman Equipment Company employees, and three site visits to the Dollar Hill PS.

1.1. Purpose

This independent investigation into the December 19, 2010 sewer overflow event was conducted to (1) determine the cause of the overflow, (2) to estimate the volume of the overflow, (3) to assess the responsibility for the events leading to the overflow, and (4) to identify any actions needed to prevent recurrence of this event.

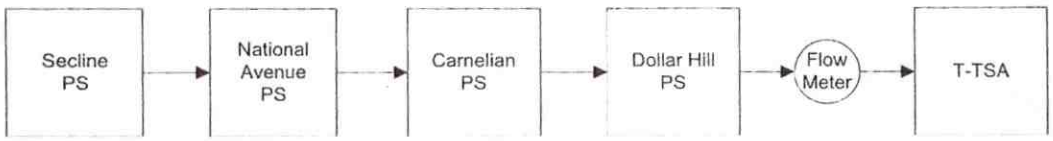
2. ABBREVIATIONS AND ACRONYMS

amp	Amperes
Dinter	Dinter Engineering Co.
FS	Fuel supply piping
FM	Flow meter
FR	Fuel return piping
gpm	Gallons per minute
hp	Horsepower
KFC	KFC Building Concepts, Inc.
KW	Kilowatts
KVA	Kilo volt amperes
NTPUD	North Tahoe Public Utility District
PS	Pump station
SCADA	Supervisory Control and Data Acquisition system
Stantec	Stantec Consulting Inc.
Surface Waters	Term used to indicate "Waters of the State"
T-TSA	Tahoe-Truckee Sanitation Agency
WPE	Western Pacific Electric, Inc.

3. BACKGROUND

NTPUD operates a sanitary sewer system that serves the north shore communities of Agate Bay, Brockway Vista, Carnelian Bay, Cedar Flat, Kings Beach, Tahoe Vista, and Agate Bay. The NTPUD sewer system consists of 94 miles of gravity sewers, 6.3 miles of force mains, and 18 pump stations (4 large pump stations and 14 lift stations). The four largest pump stations include Secline (Kings Beach), National Avenue (Tahoe Vista), Carnelian (Carnelian Bay), and Dollar Hill (Dollar Point). These pump stations are shown schematically on Figure 1. All of the pump stations and lift stations are designed for unattended operation and are remotely monitored using a Supervisory Control and Data Acquisition (SCADA) system.

Figure 1: Schematic Diagram of NTPUD Main Pump Stations



The wastewater flows from NTPUD are conveyed via a force main to the Tahoe Truckee Sanitation Agency (T-TSA) for treatment and disposal. The force main, which is just downstream of the Dollar Hill PS, has a flow meter that is used by T-TSA for billing purposes.

The Dollar Hill PS currently consists of two underground package pump stations, two wet wells, and a support building. The Dollar Hill Main PS was originally built in 1969 and has three pumping units. The Dollar Hill Addition PS was built in 1971 and has one pumping unit. The pump sizes and capacities are shown on Table 1. The support building encloses the electrical and control equipment, support systems, and two emergency generators (one 400 KW generator installed in 1969 and one 600 KW generator installed in 2010).

Table 1: Dollar Hill PS Pump Information

Pump #	Year Installed	Motor Size, hp	Operating Point[1]	
			Flow, gpm	Head, feet
1	1985	200	1,582	238
2	1969	350[2]	3,100[3]	226
3	1995	100	1,790[4]	235[4]
4	1971	250[5]	1,678	231

Notes:
1. Pump performance data from wet well draw down tests conducted during Main Sewer Pump Station Master Plan project.
2. Pump #2 consists of two pumps operating in series powered by one 350 horsepower motor.
3. The flow rate observed with Pump #2 in operation on December 19, 2010 was 2,750 gpm.
4. No information available from wet well draw down test. Original design data shown.
5. Pump #4, which is located in the Dollar Hill Addition PS, consists of two pumps operating in series with each pump powered by a 125 horsepower motor.

4. DOLLAR HILL PS EMERGENCY GENERATOR PROJECT

NTPUD began an evaluation of the capacity and condition of its four large pump stations in 2008. The key dates, parties, and activities as they relate to the Dollar Hill PS are shown in Table 2.

Table 2: Dollar Hill PS New Emergency Generator Installation Timeline

Date	Activity
April 2008	Stantec Consulting Inc. (Stantec) was selected to prepare a Main Sewer Pump Station Master Plan. Stantec's scope of work was amended to include the Dollar Hill PS emergency generator options report and generator pre-purchase specifications. Stantec informed NTPUD that Dinter Engineering Co. (Dinter) would be its electrical engineering sub-consultant on this project. (See Appendix B for Stantec contract documents and Appendix C for the generator purchase documents.)
September 2009	Cashman Equipment Co. (Cashman) was awarded a contract to provide a new emergency generator set and fuel system day tank equipment for the Dollar Hill PS. Cashman's bid was based on the equipment specifications prepared by Dinter (See Appendix C for Cashman Bid Documents.)
February 2010	KFC Building Concepts, Inc. (KFC) was awarded a contract to install the new emergency generator set and fuel system day tank equipment in the Dollar Hill PS. KFC's bid was based on the installation plans and specifications prepared by Stantec and Dinter. (See Appendix D for installation plans and specifications). KFC's bid included Western Pacific Electric, Inc. (WPE) as its electrical subcontractor. See Appendix E for KFC Bid Documents.
February 2010 - June 2010	KFC/WPE completed structural, mechanical, and electrical modifications to the Dollar Hill PS and installed the new emergency generator and fuel system day tank equipment.
June 2010	Stantec and Dinter conducted a final inspection of the new emergency generator project on June 15, 2010. See Appendix H for final inspection reports. NTPUD issued Notice of Completion for Dollar Hill PS Emergency Generator Installation project on June 23, 2010.

The Main Sewer Pump Station Master Plan (Master Plan) projected future flows at each of the four large pump stations. The peak flow at the Dollar Hill PS was projected to be 3,600 gallons per minute during 2029 flood flow conditions. The Master Plan recommended that the four existing pumping units be replaced with 150 horsepower units and that three pumps would be required to meet the flood flow condition. Dinter's Generator Options Report estimated the peak electrical load to be

590 KW with three pumps operating. The July 2009 Master Plan recommends "the District upgrade the existing emergency power capacity (at the Dollar Hill PS) by retaining the existing generator to service normal operational loads and by adding a second generator to provide emergency power during peak flow periods."

NTPUD implemented the recommendations from the Master Plan starting with the purchase of a new 600 KW generator in September 2009. The project to install the new generator was completed in June 2010. The roles of each of the parties in the Dollar Hill PS Emergency Generator Installation Project are shown on Table 3.

Table 3: Dollar Hill PS Emergency Generator Installation Project Roles

Responsible Party	Project Planning	Equipment Purchase	Installation Design	Construction	Inspection and Acceptance
Stantec Consulting Inc. (Stantec)	X	X	X		X
Dinter Engineering Co. (Dinter)[1]	X	X	X		X
KFC Building Concepts, Inc. (KFC)				X	
Western Pacific Electric Inc. (WPE)[2]				X	

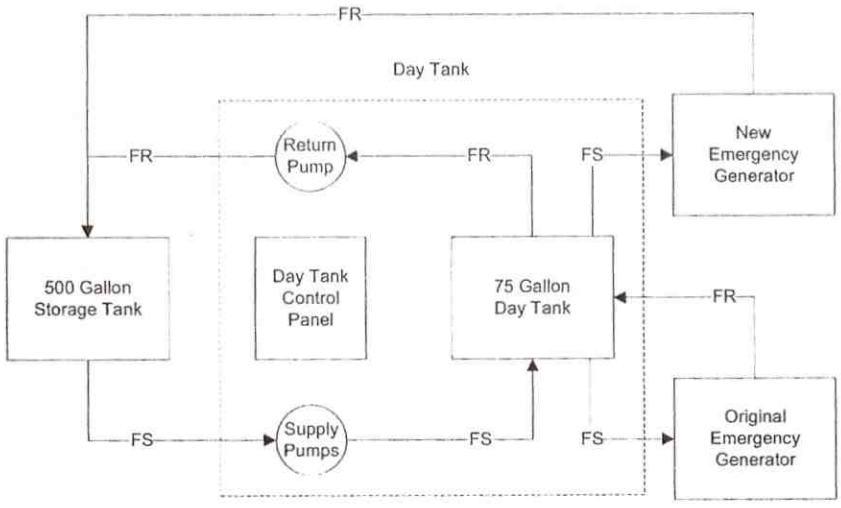
Note:
1. Dinter's exact scope of work is unknown; therefore, all responsibility for project planning, design, inspection, and acceptance is attributed to Stantec in this Report.
2. WPE was KFC's electrical subcontractor on this project.

5. DOLLAR HILL PS EMERGENCY GENERATOR FUEL SYSTEM

The Dollar Hill PS generator fuel system consists of a 500 gallon external fuel storage tank, a single 75 gallon capacity day tank serving both emergency generators, fuel supply and return piping, and appurtenances. The fuel flow to each generator irrespective of load is approximately 60 gallons per hour, which exceeds fuel consumption rates. Excess fuel flow is used for cooling the fuel system components. The unburned fuel from the original emergency generator is returned to the day tank and the unburned fuel from the new emergency generator is returned to the fuel storage tank. The generator fuel supply system is shown schematically on Figure 2.

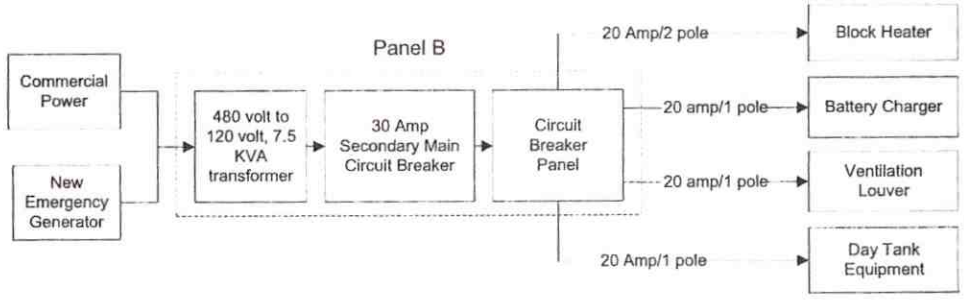
The terminology used in Figure 2 is: FS refers to fuel supply piping and FR refers to fuel return piping.

Figure 2: Schematic Diagram of Emergency Generator Fuel System



The power to the new emergency generator support systems (block heater, battery charger, ventilation louvers, and fuel system day tank equipment) is provided through Panel B (see Appendix D for electrical drawings), which consists of a transformer and a circuit breaker panel combined into one unit. The electrical supply to the new emergency generator support systems is shown on Figure 3 in the "as constructed" configuration that existed on December 19, 2010. In this configuration, the circuit breaker panel capacity is 30 amps and a single 20 amp circuit provides electric power to the fuel system day tank equipment

Figure 3: Schematic Diagram of "As Constructed" Generator Fuel System Electrical Supply



6. EMERGENCY GENERATOR OPERATION PRIOR TO DECEMBER 19, 2010

NTPUD staff tested each of the two Dollar Hill PS emergency generators monthly to ensure that they were in operating condition. The dates and operating times for both emergency generators are shown on Table 4.

Table 4: Dollar Hill PS Emergency Generator Operating Times

Date	New Generator		Original Generator		Comments
	Run Time Total, hours	Run Time, hours	Run Time Total, hours	Run Time, hours	
6/23/10	9.6	0.2	625.6	0.0	
7/16/10	9.7	0.1	625.7	0.1	
7/18/10	9.8	0.1	625.8	0.1	Monthly exercise
8/2/10	9.9	0.1	625.9	0.1	Monthly exercise
8/10/10	9.9	0.0	626.5	0.6	
8/18/10	10.1	0.2	626.5	0.0	
9/25/10	10.2	0.1	626.5	0.0	Monthly exercise
10/25/10	10.3	0.1	626.6	0.1	Monthly exercise
11/22/10	10.4	0.1	626.7	0.1	Monthly exercise
12/17/10	10.6	0.2	626.8	0.1	Monthly exercise conducted early in preparation for anticipated storm
Total Run Time as of 12/17		1.2		1.2	
Note: Generator run time data taken from pump station inspection logs.					

Between June 23 and December 17 the generator run times totaled 1.2 hours for the new generator and 1.2 hours for the original generator. The generators were tested under "no load" conditions, which would have resulted in the new generator pumping approximately 72 gallons of fuel from the day tank and the original generator consuming approximately 4 gallons of fuel from the day tank.

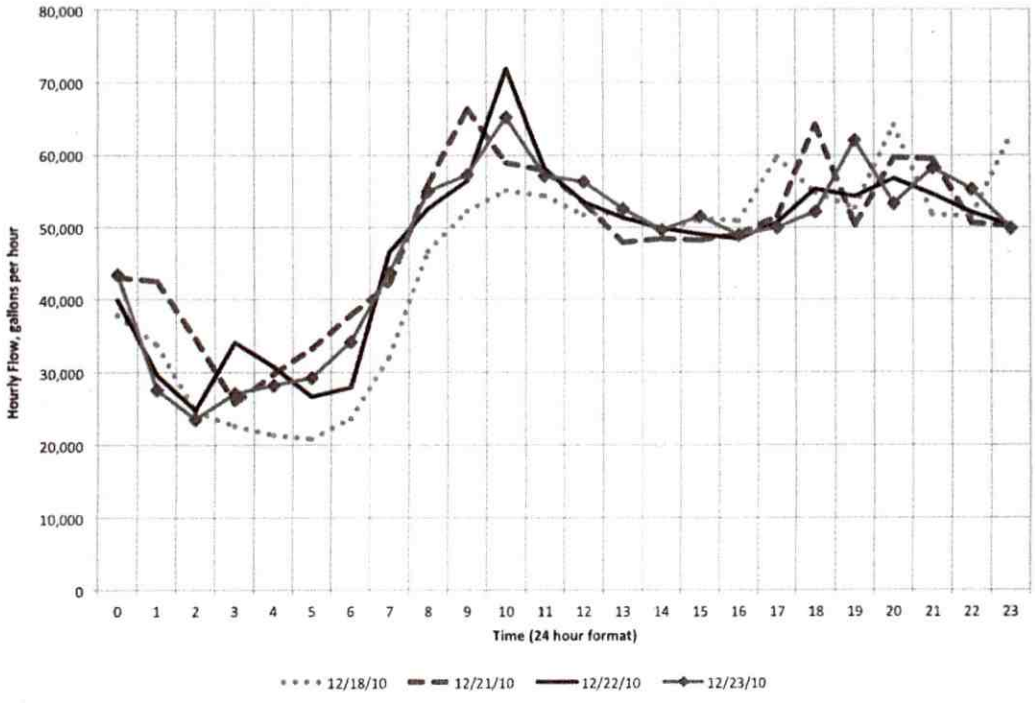
The estimated fuel volume removed from the day tank between June 23 and December 17, 76 gallons, approximates the 75 gallon capacity of the day tank.

7. DOLLAR HILL PS FLOW CONDITIONS DURING DECEMBER 18-23, 2010

The Dollar Hill PS force main discharges into the Dollar Hill Flow Meter. It consists of a Palmer-Bowlus Flume with an ultrasonic level sensor. The flows are recorded by the NTPUD SCADA system. An analysis of the SCADA data indicates that the average daily flow during the week beginning December 18, 2010 was 810 gpm and that the peak hourly flow was 1,187 gpm. These flows were well within the capacity of the Dollar Hill PS.

The hourly flows from the NTPUD SCADA for December 18-23, 2010 are shown on Figure 4. The SCADA system failed after the December 19 spill event had ended due to damage sustained as the result of voltage fluctuations associated with the commercial power failures that occurred on the evening of December 19. SCADA operation was restored by mid-day on December 20.

Figure 4: Dollar PS Hourly Flowrate for December 18 and 21-23, 2010



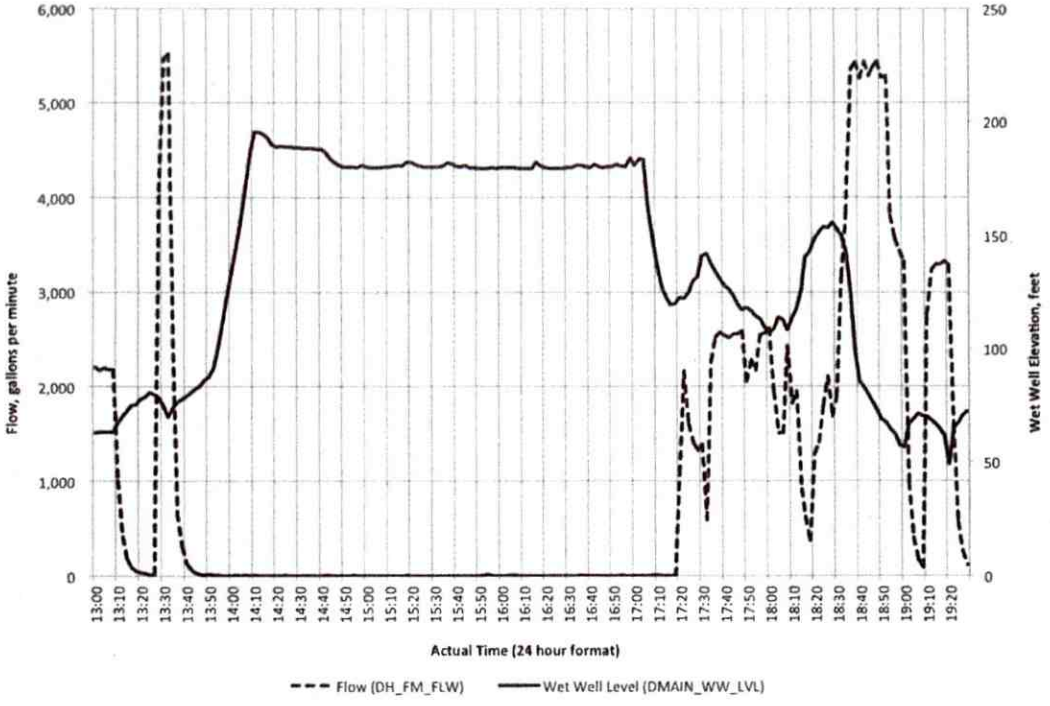
8. DECEMBER 19, 2010 EVENT TIMELINE AND NARRATIVE

The December 19 storm resulted in approximately two feet of wet, heavy snow during the late morning hours. The heavy snows caused widespread loss of commercial power in the NTPUD service area starting at approximately noon. NTPUD staff was on duty as the result of the earlier power outages. The series of events, starting with the loss of power at the Dollar Hill PS, as reconstructed from SCADA, is shown in Table 5. The Dollar Hill flow meter and Dollar Hill PS wet well level data for this time period are shown on Figure 5.

Table 5: December 19, 2010 Event Timeline from SCADA

Time	Activities
13:06	Flow stopped at Dollar Hill FM (see Figure 5)
13:06	Dollar Hill PS Wet Well Level rising (see Figure 5)
13:10	Dollar Hill PS Power Failure Alarm – indicating that the automatic transfer switch transferred to on-site emergency power which would have resulted in the new emergency generator starting
13:12	Dollar Hill PS Emergency Generator Fault Alarm - indicating that the new emergency generator stopped
13:20	Dollar PS Building Entrance Alarm – indicating NTPUD operator arrived on site
13:22	Flow started at Dollar Hill FM – indicating that the NTPUD operator started the original emergency generator and started Pump #2
13:30	Flow stopped at Dollar Hill FM – indicating that the original emergency generator and Pump #2 had stopped
14:10	Dollar PS Wet Well Level constant at elevation 195 (see Figure 5) - indicating the spill started from the manhole at 3670 North Lake Blvd.
17:06	Dollar PS Wet Well Level falling (see Figure 5) - indicating pumping started
19:00	Dollar PS Wet Well Level returns to normal - indicating end of stored flows from upstream pump stations
19:14	Dollar PS Building Exit Alarm – indicating NTPUD staff left the pump station
19:28	SCADA data ends due to voltage surge associated with ongoing commercial power outages
Note: The time shown has been corrected because the SCADA clock is six minutes fast.	

Figure 5: ***Dollar Hill Flow Meter and Dollar Hill PS Wet Well Level Data for December 19, 2010 (13:00 to 19:30)***



The following narrative of the event is based on interviews with NTPUD and Cashman staff. The sequence of events was:

1. Norm Moore (Moore) was in the NTPUD offices on December 19 monitoring the SCADA system as the result of the commercial power failures that had occurred earlier in the day.
2. Moore received the Dollar Hill PS emergency generator fault alarm and immediately called Joe Steck (Steck) to respond to the pump station.
3. Steck arrived at the Dollar Hill PS and observed that the new emergency generator had stopped and that the generator control panel indicated that it was in "fault" status. There was no indication of the cause of the generator fault.
4. Steck started the original emergency generator and, when it was running, started the largest pump, Pump #2.
5. The original emergency generator stopped after eight minutes of operation. Steck diagnosed the problem as no fuel in the fuel system day tank and he noted that the 20 amp circuit breaker feeding the day tank from Panel B was in the tripped position.
6. Steck attempted to provide power to the day tank equipment using a 1 KW portable generator with negative results.
7. Moore called Cashman to dispatch a technician for assistance.
8. Other NTPUD staff attempted to provide power to the day tank equipment using a 3.5 KW portable generator, with negative results.

9. Steck transported a 100 KW portable generator from the NTPUD yard to the Dollar Hill PS. Upon arrival, he and other NTPUD staff wired it directly to the Pump #3 starter. Pump #3 started and the wet well level fell, ending the overflow event.
10. The Cashman technician arrived, restored power to the day tank equipment using a temporary feed from the 100 KW portable generator, purged the air from the fuel system piping to the new generator, and restored operation.
11. NTPUD staff and the Cashman technician departed the site with the new generator and the day tank operating properly.

NTPUD staff returned to the Dollar Hill PS the morning of December 20. The pump station was operating on commercial power. Both the 30 amp secondary main circuit breaker in Panel B and the 20 amp circuit breaker that provided power to the fuel system day tank equipment were in the tripped position and the day tank was full of fuel. This indicates that the "as constructed" conditions in Panel B were insufficient to meet the electrical power demands of the generator support systems during conditions when the commercial power supply voltage is unstable.

WPE sent an electrician to the Dollar Hill PS on the morning of December 20 in response to calls from NTPUD. The WPE electrician, on his own initiative, added a second 20 amp circuit and circuit breaker between Panel B and the fuel system day tank equipment. In addition, he replaced the 30 amp secondary main circuit breaker in Panel B with a 40 amp circuit breaker and he replaced the original 20 amp circuit breaker feeding the fuel system day tank equipment with a new 20 amp circuit breaker[1].

None of the circuit breakers in Panel B have tripped in the three months since the changes made by WPE on December 20, 2010; however, Panel B is operating outside its rated capacity (a 40 amp secondary main circuit breaker is installed in Panel B that is labeled "Maximum size of secondary breaker – 30 amps").

9. INVESTIGATION AND TESTING

The authors inspected the Dollar PS facilities on January 27, 2011. This inspection focused on the emergency generators and their support systems. Particular attention was focused on the "as designed", "as constructed", and "as modified" generator fuel supply system. The observations and findings from this inspection were:

- Panel B was specified to be a 7.5 KVA transformer with a 40 amp capacity circuit breaker panel with one 20 amp feed to the day tank control panel (see Appendix D, Stantec Drawing E2.2).
- WPE Submittal #6 (see Appendix G) included manufacturers literature indicating that Panel B would be a 7.5 KVA transformer with a 30 amp capacity circuit breaker panel. Stantec (Dinter) approved this submittal (see Appendix G).

---

[1] The original Panel B circuit breakers (30 amp secondary main breaker and 20 amp breaker) in the fuel system day tank equipment feed were tested in the panel under a variety of load conditions on February 17, 2011 and were determined not to be defective.

- WPE installed a 7.5 KVA transformer with a 30 am capacity circuit breaker panel.
- The final inspection by Stantec and Dinter did not identify that Panel B did not meet the contract documents.
- SCADA monitoring contacts were specified in the fuel system day tank equipment purchase documents; however, remote monitoring of day tank equipment was not included in the installation design nor in the installation. NTPUD staff added SCADA monitoring of the day tank equipment power supply and low fuel alarm on December 20.

Subsequent analysis of the electrical loads connected to Panel B and concerns regarding the performance of the original circuit breakers (removed by WPE on December 20) caused the authors to request further inspections and tests. The original circuit breakers were requested from and returned by WPE. Panel B was configured back to the original "as constructed" condition for testing on February 17, 2011. The "as constructed" configuration included removal of the second power feed to the fuel system day tank equipment and re-installation of the original circuit breakers in Panel B: the original 30 amp secondary main breaker between the transformer and the circuit breaker panel and the original 20 amp circuit breaker in the circuit that feeds the fuel system day tank equipment. The observations and findings from these two site visits are:

- The Panel B test conditions were:
    - The block temperature in the new emergency generator was lowered to approximately 90 degrees Fahrenheit by turning off the block heater for approximately one hour.
    - The fuel system day tank level was reduced to below the 75% and the day tank control was placed in the manual position. In this configuration both fuel supply pumps ran continuously and the fuel return pump cycled on for approximately 40 seconds every two minutes (see Figure 6).
- The Panel B test results were:
    - The total electrical load to Panel B with all connected equipment (block heater, battery charger, ventilation louvers, and fuel system day tank equipment) in operation was 10.5 amps Phase A and 27.5 amps on Phase B. This exceeded the Stantec design (see Appendix D, Drawing E1.2) of 21 amps on Phase B (see Figure 7).
    - The total electrical load from the fuel system day tank, with three fuel pumps operating, was 20.1 amps. This exceeded the Stantec design (see Appendix D, Drawing E 1.2) of 1,000 watts or 8.3 amps at 120 volts.
    - Panel B was operated in this configuration for approximately 30 minutes. Neither the 30 amp secondary main breaker nor the 20 amp breaker feeding the fuel system day tank equipment tripped.

- Additional electrical loads were added to the fuel system day tank equipment feed circuit in order to evaluate the operation of the original circuit breakers.
    - The 20 amp breaker tripped after five minutes at 26.1 amps. This performance was within the design time-current envelop for this circuit breaker.
- No problems were observed during the internal inspection of the fuel system day tank.

Figure 6: Day Tank Control Panel in Manual Mode with Three Fuel Pumps Operating

It is apparent from the testing that Stantec's design underestimated the electrical loads associated with the emergency generator support systems: the electrical load on Phase B at 30 amp secondary main breaker was 27.5 amps and the electrical load at the 20 amp fuel system day tank equipment circuit breaker was 20.1 amps. It is the opinion of the authors that proper design of circuits supporting critical equipment such as the emergency generator support systems would be to provide a circuit with 20% greater current capacity than the total connected load. In this case, installing a 30 amp circuit breaker panel to feed the emergency generator support systems did not meet the design standard of care for this critical equipment. In addition, providing a 20 amp circuit to feed the fuel system day tank equipment did not meet the design standard of care for this critical equipment.

While the testing that was conducted on February 17, 2010 was not able to demonstrate the tripping of the circuit breakers that caused the loss of power to the generator fuel system, it was conducted under stable commercial power conditions. Voltage conditions which may have existed in June 2010 and definitely existed on December 19, 2010 (based on NTPUD staff observations) reasonably explain the intermittent tripping of the two marginally sized circuit breakers (the secondary main circuit breaker feeding Panel B and the circuit breaker feeding the fuel system day tank equipment).

Figure 7: ***Fuel System Day Tank Equipment Current (amps) with Three Fuel Pumps Operating***

10. SPILL CAUSE

The primary and contributory causes of the December 19, 2010 overflow are:

10.1. Primary Cause: Emergency Generator Fuel System Power Failure due to Design, Construction, and Inspection Errors

Based on fuel pumping and consumption rates and emergency generator run times (Section 7), it is likely that power to the fuel system day tank equipment originally failed circa June 2010. Fuel was either pumped out of the day tank or consumed when the two emergency generators were tested each month. With no power to the fuel supply pumps, the fuel was not replaced and there was little or no fuel left in the day tank on December 19, 2010.

The primary cause of the overflow was the inability of the backup power system to supply power to the pump station when the commercial power failed. This condition resulted from the loss of power to the generator fuel system that was caused by a series of errors and omissions that occurred during the design, construction, and inspection of the Dollar PS Emergency Generator Installation Project during 2009/10. These errors and omissions can be attributed to actions or omissions of the design, construction, and inspection professionals retained by NTPUD.

Specifically, the series of errors and omissions by the design, construction, and inspection professionals responsible for emergency generator procurement and installation include:

- The original design by Stantec failed to meet the design standard of care:
  - The fuel system day tank equipment load is shown in the contract documents as 1,000 watts while the actual total connected load was over 2,600 watts.
  - The 20 amp circuit providing power to the fuel system day tank equipment was undersized.
  - There was no provision for remote monitoring of fuel system day tank equipment power or fuel level alarm status.
- WPE proposed equipment for installation that did not conform to the contract documents:
  - The contract documents specified that the panel providing power to the emergency generator support systems should be a 7.5 KVA transformer with a 40 amp capacity circuit breaker panel.
  - The WPE Submittal #6 proposed equipment with a smaller, 30 amp capacity circuit breaker panel.
- The review and approval of submittals by Stantec failed to identify equipment that did not conform to the contract documents:
  - The undersized equipment included in WPE Submittal #6 was approved by Stantec.
- Stantec failed to notify NTPUD that equipment not conforming to the contract documents had been submitted and approved.
- WPE installed the undersized equipment that was not in conformance with the contract documents.
- The final inspection performed by Stantec and Dinter failed to identify installed equipment that did not conform to the contract documents.

10.2. Contributory Cause: Failure to Provide SCADA Monitoring of Day Tank

The fuel system day tank equipment is a critical element of the Dollar Hill PS backup power supply as it is the only source of fuel to both emergency generators. The plans for the installation of the new generator prepared by Stantec did not provide for SCADA monitoring of the fuel system day tank equipment nor did it provide any aids to the pump station operators in identifying problems as they occurred.

It is the opinion of the authors that at least two fuel system day tank equipment alarms should have been connected to SCADA: loss of power and low fuel level. Had these alarms been in place using the "SCADA monitoring contacts" provision included in the fuel system day tank equipment purchase specification (see Appendix C), the loss of power to the day tank equipment and/or low day tank fuel level would have been detected remotely and there would have been no overflow. NTPUD installed those alarms in December 20, 2010 in order to prevent a recurrence of the December 19 event.

11. SPILL VOLUME ESTIMATE

Two methods were used to estimate the volume of the spill. The first method was based on the Dollar Hill Flow Meter (DH_FM_FLW) data from SCADA and the second method was based on a photo of the overflowing manhole. The estimated volume that reached surface waters is 136,000 gallons. The estimates ranged from 132,000 to 136,000 gallons.

11.1. Method 1: Dollar Hill Flowmeter Data

The details for this estimate are included in Appendix J. The bases for the estimated spill volume are:

Unaccounted for Volume	136,330 gallons
Volume Recovered	500 gallons
Percolation/Evaporation	500 gallons
Total Reaching Surface Waters (rounded up)	136,000 gallons

11.2. Method 2: Overflowing Manhole Characteristics

The details for this estimate are included in Appendix J. The bases for the estimated spill volume are:

Start Time	14:10
End Time	17:06
Duration	176 minutes
Estimated Flow Rate	753 gpm
Volume Spilled	133,000 gallons
Volume Recovered	500 gallons
Percolation/Evaporation	500 gallons
Total Reaching Surface Waters	132,000 gallons

12. RECOMMENDATIONS

The recommendations to prevent this event from recurring and to support the NTPUD in a more effective response to any emergency at the Dollar Hill PS are:

1. Install a warning sign stating that the 480 volt feed to Panel B must be de-energized at its source prior to working in the panel.
2. Monitor fuel system day tank power supply status and low fuel alarm using SCADA (completed by NTPUD).
3. Replace Panel B with a 40 amp capacity unit as specified in the original design.
4. Provide two 20 amp feeds to fuel system day tank equipment (completed by WPE).
5. Install an external filling station so that fuel can be delivered directly to the day tank in the event that the day tank control panel, pumps, or piping fails.
6. Install locks on the 500 gallon storage tank filler and external fuel valves to prevent tampering/vandalism (completed by NTPUD).

7. Test the integrity of the fuel supply piping between the day tank and the emergency generators using both pressure and vacuum tests as recommended in the Caterpillar Application and Installation Guide to ensure there is no leakage that would allow air to enter.
8. Install a fuel heater in the fuel supply piping upstream of the fuel filters to prevent the fuel from plugging the fuel filters at temperatures below the diesel fuel cloud point (32 degrees Fahrenheit) as recommended in the Caterpillar Application and Installation Guide (see Appendix F). Alternatively, install an in-tank fuel heater in the 500 gallon storage tank and install heat tape on external fuel supply piping.
9. Install hand pumps and other appurtenances as needed to minimize the time needed to prime the fuel supply piping between the day tank and the emergency generators in the event of loss of fuel.
10. Extend the fuel supply and fuel return piping near the emergency generators to minimize the length of the flexible connections and replace the existing flexible hoses in fuel supply and fuel return lines with flexible connections that meet applicable National Fire Protection Association codes for fire resistance.
11. Increase the height of the day tank vents above the pump station roof to an elevation where interference from accumulated snow is unlikely.

13. REFERENCES

1. Main Sewer Pump Station Master Plan, Stantec Consulting, Inc., July 2009
2. Stantec Professional Services Agreements
3. Dollar Point Lift Station Standby Generator Option Report, J-4195, Dinter Engineering Co., June 10, 2009
4. Request for Bid, Dollar Standby Generator, for the North Tahoe Public Utility District, 2009
5. Generator Installation Plans and Specifications
6. Specifications
7. Mechanical Drawings M2.1 and M3.1
8. Electrical Drawings E1.2 and E2.2
9. Pryco Operations and Maintenance Manual
10. KFC Generator Installation Bid Documents
11. Caterpillar Application and Installation Guide, Diesel Fuels & Diesel Fuel Systems, 2009
12. WPE Submittal #6
13. Stantec and Dinter Final Inspection Reports

ATTACHMENT 2

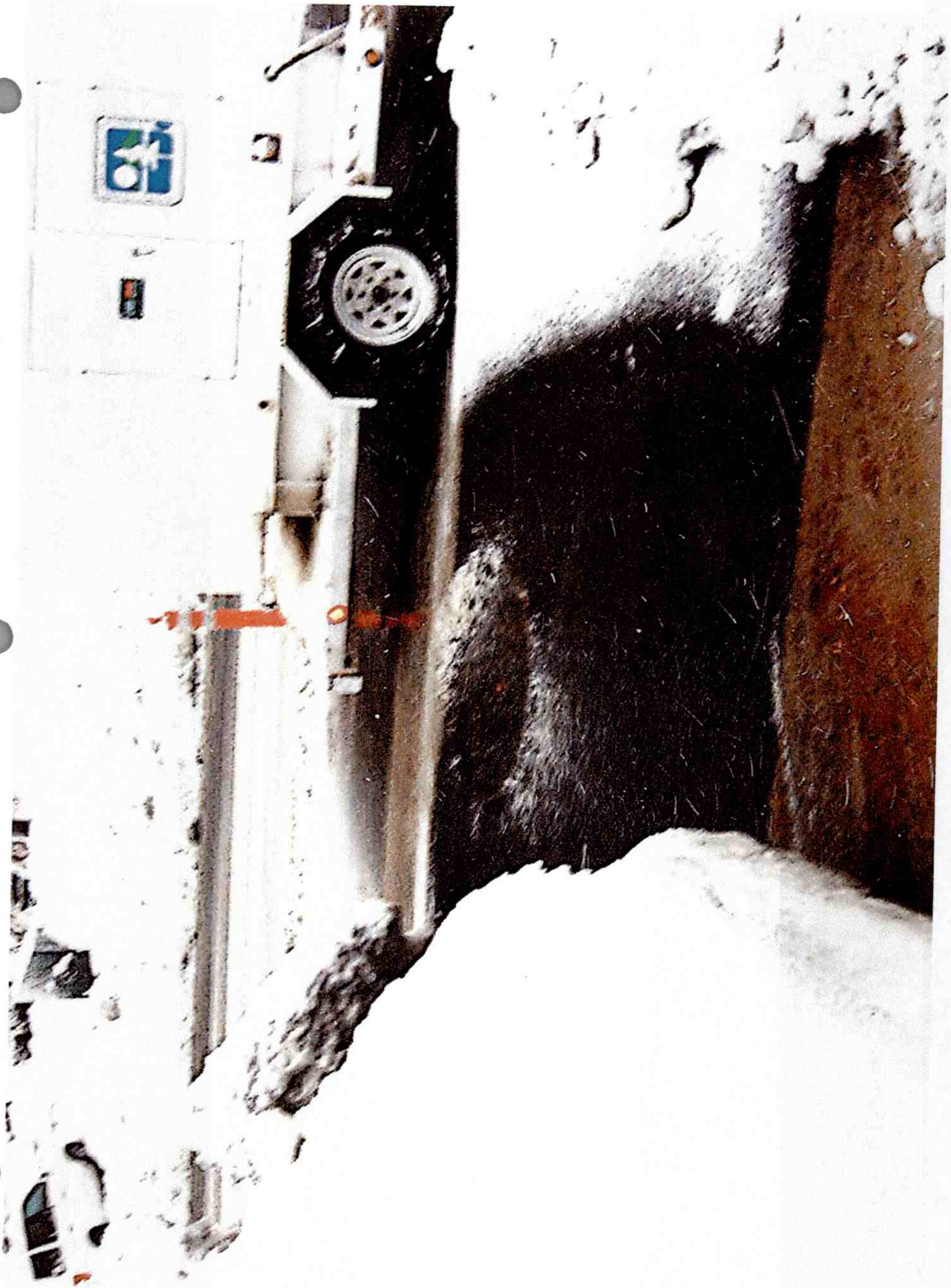
SPILL VOLUME ESTIMATES (APPENDIX J TO NTPUD SPILL REPORT)

APPENDIX J SPILL VOLUME ESTIMATES

NTPUD
Dollar Pump Station Spill Volume Estimate
Based on Dollar Hill Flow Meter Data (1300-1758)
1/22/11

Day of Week	Day/Date	Total Daily Flow, gal	Actual Flow (1300-1758), gal	Actual/ Estimated Flow, gal	Estimated Daily flow, gal	Estimated Spill Volume, gal
Thu	Thu, 12/16	827,160	174,180			
Fri	Fri, 12/17	822,020	177,810			
Sat	Sat, 12/18	1,074,830	371,598	371,598		
Sun	Sun, 12/19	No Data	228,670	365,000	1,144,685	136,330
Mon	Mon, 12/20	No Data	359,701	359,701	1,144,685	
Tues	Tue, 12/21	1,154,758	362,824			
Wed	Wed, 12/22	1,125,432	354,904			
Thur	Thu, 12/23	1,134,966	361,352			
Fri	Fri, 12/24	1,178,566	393,156			
Sat	Sat, 12/25	1,184,558	408,918			
Sun	Sun, 12/26	1,159,684	396,120			
	Average	1,144,685	359,694			

Estimated Spill Volume	136,330	gallons
Percolation	-500	
Evaporation	0	
Recovered	-500	
Estimated Volume to Lake Tahoe	135,330	gallons
Use	136,000	gallons



NTPUD
Spill Volume Estimate Using Manhole Discharge Picture taken on 12/19/10 at 1615
3/9/11

Area and pressure

36	inch diameter manhole
3	foot diameter
500	pounds
7.07	square feet
70.74	pounds per square foot
0.49	pressure, pounds per square inch
1.13	pressure, feet of water

Orifice Discharge Factor

0.5

Circumference

36	inch diameter manhole
3	foot diameter
9.42	feet
100%	with flow
9.42	feet
0.50	inch opening
0.04	foot opening
0.39	square feet

Spill Volume

Start time	1410	
End time	1706	
Duration	2	hours
	56	minutes
	176	minutes
flow, gpm	753	gpm
Spill Volume	132,581	
Round Up	133,000	Maximum without dislodging MH cover

MH Internal Pressure, feet	Velocity in gap, fps	Flow Area, square feet	Flow through gap, cfs	Flow through gap, gpm
1.13	8.55	0.39	1.68	753

ATTACHMENT 3

NTPUD JUNE 29, 2011 MEMO TO FILE REGARDING DISCHARGE TO PRIVATE RESIDENCE

north tahoe
PUBLIC UTILITY DISTRICT

June 29, 2011

Memo to File Regarding 3730 North Lake Boulevard, Tahoe City.

The intent of this memo is to summarize damage concerns and insurance payments regarding possible damages that may have occurred to the property located at 3730 North Lake Boulevard from the event on December 19, 2010.

Initially, the property owner identified the following items of concern:

- Approximately 1" of sewage covering floor of the living unit below the garage
- Living unit floor and surrounding sheet rock need to be replaced
- Living unit oriental rug may not be salvaged
- Approximately ¾" of sewage water entered the mechanical room and finished basement area
- Floors to the mechanical room and basement may need to be treated and some sheet rock replaced
- The dirt underneath living area, mechanical room, and basement needs to be sanitized

The District's insurance company conducted an investigation, authorized remedial action and made payments in the sum of $54,297 (of which $34,000 was for water extraction) as of June 29, 2011.

Recently, after the snow melted, the owner expressed additional concerns based upon items which were not visible during the winter. These items of concern are:

- Front deck and bridge had sewage water run against the structural posts and will need to be cleaned and sanitized
- Grass area received damage and may need to be replaced
- The entire walkway from the house to the lake is damaged or destroyed
- Rock stairs leading to the lake will need to be replaced or repaired
- Water feature/fountain in front of the house was damaged
- Sewage water ran underneath hot tub and will need to be checked
- Trees and plants have been destroyed
- Foundation posts may have been compromised

The District's insurance company recognizes that there may be a claim relating to these items and has assigned its independent adjuster the task of contacting the property owner and investigating. As of this date the extent and amount of any additional damages is unknown.

Damages to the property resulting from the December 19, 2010 incident are covered by District insurance and responsibility for compensation for such damages has been assumed by the District insurance company. The District expects the property owner to be fully compensated.

ATTACHMENT 4

WATERBOARD JULY 7, 2011 REQUEST FOR INFORMATION AND RESPONSE FROM STANTEC AND DINTER

FILE

California Regional Water Quality Control Board
Lahontan Region

Linda S. Adams
Acting Secretary for
Environmental Protection

2501 Lake Tahoe Boulevard, South Lake Tahoe, California 96150
(530) 542-5400 • Fax (530) 544-2271
www.waterboards.ca.gov/lahontan

Edmund G. Brown Jr.
Governor

July 7, 2011

Mr. John Walsh, P.E.
Managing Principal
Stantec Consulting Inc.
6980 Sierra Center Parkway, Suite 100
Reno, NV 89511

Peter K. Hackbusch
President and Principal-in-Charge
Dinter
385 Gentry Way
Reno, NV 89502

REQUEST FOR INFORMATION AND RESPONSE TO SPILL REPORT FOR THE DECEMBER 19, 2010 SEWAGE OVERFLOW FROM NORTH TAHOE PUBLIC UTILITY DISTRICT'S DOLLAR HILL PUMP STATION – DOLLAR HILL, PLACER COUNTY

Lahontan Regional Water Quality Control Board (Water Board) staff has reviewed the March 21, 2011 investigation report on the sewage spill that occurred on December 19, 2010 from the North Tahoe Public Utility District's Dollar Hill Pump Station in to Lake Tahoe. An electronic copy of the report is enclosed.

This letter is to inform both Stantec Consulting Inc. and Dinter that Water Board staff is considering pursuing further enforcement in this matter. This may include assessing administrative civil liabilities. The Water Board may impose administrative civil liability up to ten dollars ($10) for each gallon of waste discharged pursuant to California Water Code section 13350(e)(2). Alternatively, the Water Board may impose administrative liability of up to ten thousand dollars ($10,000) for each day in which the violation occurs and 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 pursuant to Water Code section 13385(c). The Water Board reserves its right to take any further enforcement action authorized by law.

Based upon the information contained in the enclosed report, it is estimated that up to 133,000 gallons of raw sewage was discharged to the waters of Lake Tahoe. The maximum potential liability could be up to $1,330,000.

We request you to review the enclosed report and submit a written response to us by no later than **August 15, 2011**. We will use your response in assisting us to determine appropriate penalty amounts and culpability in this matter.

Please contact Eric Taxer at (530) 542-5434 or Scott Ferguson at (530) 542-5432 if you have any questions regarding this matter.

Sincerely,

Lauri Kemper, P.E.
Assistant Executive Officer

enc: Compact Disc, containing electronic version of "Investigation and Report on the Cause, Extent, and Responsibility for the Electircal Failure and Subsequent Sewage Overflow on December 19, 2010 at and Near the North Tahoe Public Utility District Dollar Hill Pump Station"

cc: James Buffa, Project Manager, Stantec Consulting Inc.
Eric McGrath, P.E., Senior Associate, Stantec Consulting, Inc.
Thomas P. Federici, Dinter
Steve Sweet, Tahoe Regional Planning Agency

File: T:/Enforcement and Special Projects Unit/NTPUD/NTPUD, Stantec and Dinter Information Request, 2011-07-07 EJT

ATTACHMENT 5

STANTEC AND DINTER AUGUST 12, 2011 RESPONSE

Stantec Consulting Services Inc.
2950 East Harmony Road Suite 290
Fort Collins CO 80528
Tel: (970) 482-5922
Fax: (970) 482-6368

Stantec

August 12, 2011

LKC SAF 8/21
EJT

California Regional Water Quality Control Board
Lahonton Region
2501 Lake Tahoe Boulevard
South Lake Tahoe, California 96150

Attention: **Lauri Kemper, P.E.**
Assistant Executive Officer

Dear Ms. Kemper:

Reference: **Sewage Overflow Incident**
North Tahoe Public Utility District's Dollar Hill Pump Station - Dollar Hill, Placer County

Thank you for your letter of July 7, 2011, allowing Stantec Consulting Services Inc. (formerly Stantec Consulting Inc., hereinafter "Stantec") and Dinter Engineering Company ("Dinter) an opportunity to respond to the investigation report commissioned by the North Tahoe Public Utility District.

Stantec was the prime consultant retained in connection with the improvements to the Dollar Hill Pump Station, and Dinter was a subconsultant to Stantec. Dinter provided the electrical and mechanical engineering services required for the design of the new emergency generator and its corresponding fuel system. Since the allegations in the investigation report relate to the electrical components of the system, we are enclosing a copy of Dinter's response to the investigation report.

Respectfully,

STANTEC CONSULTING SERVICES INC.

Christy Leonard
Corporate Counsel
christy.leonard@stantec.com

Attachment: 1

c. John Welsh, P.E., Stantec Consulting Services Inc.
Frank Alverson, P.E., Stantec Consulting Services Inc.
Peter Hackbusch, Dinter Engineering Co.
Sam Muir, Collins, Collins, Muir and Stewart

DINTER

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Engineering Confidence.
Airfield
Electrical
Mechanical

August 12, 2011

Ms. Lauri Kemper
Assistant Executive Officer
California Regional Water Quality Control Board - Lahontan Region
2501 South Lake Tahoe Boulevard
South Lake Tahoe, California 96150

Subject: North Tahoe Public Utility District Dollar Hill Pump Station
Placer County, California

Dear Ms. Kemper:

As requested in your letter dated July 7, 2011, Dinter Engineering provides the following response to the Investigative Report ("Report") prepared by John A. Larson, P.E. and William F. Ettlich, P.E. for the North Tahoe Public Utility District ("NTPUD").

Based on our review of the Report, including an analysis by engineer of record Timothy Prockish, contrary to the opinion in the Report, the design of the fuel transfer pumps was adequate for the Dollar Hill Pump Station and met the standard of care. Based on our review of the Report and information available, the sewage overflow that originated from the station on December 19, 2010, was caused by improper operation and maintenance of the system and inability of NTPUD personnel to properly respond to the event.

IMPROPER OPERATION MODE

The Report and the testing methods utilized by its authors reveal that NTPUD had been incorrectly operating the fuel transfer pumps in the "manual mode", when the pumps should have been operated in "automatic mode". The manual mode is only for testing the system. Manual mode allows all three pumps to operate simultaneously and to run nearly continuously whether or not the generators are operational. This is the incorrect mode for operation.

It is critical that the transfer pumps be operated in the automatic mode to ensure proper sequencing of the pumps and to avoid simultaneous operation and overload. The fuel transfer pumps are designed to operate in the automatic mode, which allows the pump to transfer fuel when the generators are running and fuel levels drop significantly. When in automatic mode, there are interlocks built into the system that prevent all three pumps

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from operating simultaneously. This system of automatic mode interlocks are important because they prevent any possibility of overloading the circuit.

When operated in the proper automatic mode, the 6.6 amp primary pump only runs when enough fuel has been burned to drop the level in the tank to 86% fill. If the primary pump is unable to keep up with the demand for fuel and the fuel level drops to 82% fill level, then the secondary 6.6 amp pump turns on. These two pumps will operate together at 13.2 amps until the level reaches 100% fill and the primary and secondary pumps turn off. The 9.2 amp return pump only operates when the fuel level has reached an overflow level of 101% functioning, in a manner that for normal automatic operation, the primary and secondary pumps would not operate concurrent with the return pump. The return pump function is to provide for recirculation of possible overflow fuel back to the main tank in order to prevent fuel spills at the day tank only. It is not meant to run simultaneously with the supply pumps except when in the manual mode.

Please note also that the supply pumps are configured in a manner that establishes the secondary pump as a backup in the event the primary pump fails. During proper automatic mode operation, the primary and secondary supply pumps will not run simultaneously. This is based on the fact that the generators at 100% load utilize an estimated fuel flow of 0.71 gpm. Two generators combined would use approximately 1.42 gpm while the primary supply pump will refill the tank at a rate of 4.0 gpm, further indicating that proper operation of the system will require only a single 6.6 amp load cycling on and off—not all three pumps running concurrently and continuously.

If the NTPUD left the tank controls in the manual mode it would be contrary to the operational scheme of the system and would force the pumps to run continuously 24 hours a day, seven days a week, which would eventually contribute to a failure.

The Report found the load on the fuel tank was 20.1 amps and that this was improper design that exceeded the 20 amp breaker capacity and the authors of the Report infer that this contributed to the breaker tripping.

The Report states on page ES-2:

- **The fuel system day tank equipment load is shown in the contract documents as 1,000 watts while the actual total connected load was over 2,600 watts.**

The Report states on page 11:

- The total electrical load to Panel B with all connected equipment (block heater, battery charger, ventilation louvers, and fuel system day tank equipment) in operation was 10.5 amps Phase A and 27.5 amps on Phase B. This exceeded the Stantec design (see Appendix D, Drawing E1.2) of 21 amps on Phase B (see Figure 7).
- The total electrical load from the fuel system day tank, with three fuel pumps operating, was 20.1 amps. This exceeded the Stantec design (see Appendix D, Drawing E 1.2) of 1,000 watts or 8.3 amps at 120 volts.
- Panel B was operated in this configuration for approximately 30 minutes. Neither the 30 amp secondary main breaker nor the 20 amp breaker feeding the fuel system day tank equipment tripped.

However, the Report's findings are in error. The loads noted were taken in manual mode, not the automatic mode. Even so, the Report notes while testing in the manual mode, the breaker would not trip without the addition of additional loads that exceeded the manual operating condition. (Report at page 12, final paragraph.)

The conclusion of the Report indicates that all three pumps had to be running for some undisclosed period of time, which possibly caused the breaker to trip. However, had the generators not been running, as would be the normal condition under automatic mode, the circuit would have had no load on it and the breaker would not have been tripped.

While the Report claims there were "unstable" power conditions in June, our office has requested, but has not received any proof of such conditions. In order for the breaker to trip in June, all three pumps had to be running, which can only happen in the manual mode. If the pumps were properly set in the automatic mode, the breaker would not have tripped.

IMPROPER MAINTENANCE OF FUEL TRANSFER PUMPS

Routine fuel system inspection is a standard part of the normal monthly generator inspection duties for the operator of this type of facility. Our office has requested the operation and maintenance manuals and information on the scope of the training received by NTPUD staff; however, the NTPUD has failed to provide this information to us for our review.

The Report states that the circuit breaker feeding the transfer tank had most likely been tripped since June of 2010, which is almost six months prior to the overflow on

December 19, 2010. (See Report, page 13, section 10.1). If this statement in the Report is true that the NTPUD did not inspect and discover that: 1. fuel was unable to transfer to the generators. 2. There was a low fuel condition in the fuel transfer tank. 3. The tank control was improperly set on the "manual mode". 4 The tank level controls were not functioning properly. 5 The breaker to the tank had tripped. This clearly suggests for that six month period, the NTPUD failed to properly inspect and maintain its facility.

According to the Report, its authors were unable to recreate a breaker trip condition; nevertheless, the Report concludes that it was the unstable utility condition in June coupled with the commercial power outage that may have contributed to the breaker trip. This is specious. The Report includes a testing log that indicates six months of inadequate testing that likely would have drained the fuel tank while the breaker was off. Had the breaker not been tripped since June, there would have been 72 gallons of fuel available in December, which would have allowed the generator to operate for approximately one and a half hours, or even longer because the supply pumps would have been filling the day tank until the breaker tripped, which could have easily pushed the operational time for the generator beyond two hours.

Based on the observation that the generators started, but failed soon after, it is probable that the generators were running on a remnant of only fuel stored in the fuel lines. Once that fuel was burned, the generators would have dropped.

If proper testing had been done, the actual day tank flawed mode of operation would have been discovered at some point during testing. This is exactly why monthly load testing is required: to help ensure elements of the system are functional—not just to see if the generator will start.

While the Report indicates that NTPUD tested the two generators between June and December 2010 with no failures noted, we question whether adequate monthly maintenance and testing occurred. Proper testing should have included 30 minutes minimum each month under load with proper inspections. The recorded run times during testing are too short to properly warm engines and no load tests were conducted. Such inadequate testing does not meet the standard of care in the industry for monthly operation and maintenance of generating equipment. Based upon our experience, the industry standard for operation and maintenance typically requires monthly inspection and testing to ensure the system is fully functional, including all peripheral devices and accessories, that it will start automatically, that it will assume the required load and carry it for enough time to prove system readiness.

INADEQUATE TRAINING OF NTPUD PERSONNEL

The overflow started nearly one hour later after NTPUD personnel were already on site. Once on site, the NTPUD personnel should have been trained, able, and ready to reset the breaker and resume fuel flow to the day tank. They apparently were not.

Page 8 of the Report indicates that the NTPUD received a failure alarm within 4 minutes of when the sewage flow stopped, but were unable to get the generators running for a period of approximately 4 hours (13:10 to 17:06). If the responding NTPUD personnel had determined why the primary generator failed prior to starting the backup generator, the breaker could have simply been reset. It appears that before trouble-shooting procedures were performed, the backup generator was started without fuel in the tank and it too failed in eight minutes. The generator was not restored until nearly three hours had passed and the equipment supplier arrived and restarted the unit. These facts suggest that the NTPUD personnel responding did not have proper training in the operation or trouble-shooting procedures.

NTPUD personnel should have been trained on restarting a unit that has run out of fuel. These are basic operational training instructions required to keep a generating system functional. The Report states that NTPUD personnel were unable to jumper their portable generator to restart the day tank supply pumps and unable to purge and restart the generator. We need more information in order to understand why NTPUD personnel were unable to get the day tank functioning with two different portable generators

When a generator fails, there are typically only a few things that could be the cause: temperature overheat alarm, low oil level or high oil temperature, or loss of fuel. The very first step that one would typically take to assess a generator failure is to check the alarms and check whether there is any fuel. This apparently was not done until after the backup generator ran out of fuel. We also need more information in order to understand why NTPUD personnel did not use the manual hand pump that was installed with the day tank to transfer fuel to the day tank. The purpose of the hand pump is for a back up when the power fails.

ALARM NOTIFICATIONS MET PROJECT REQUIREMENTS

The Report states that the SCADA monitoring performed as designed. The system sent an alarm to the NTPUD main office upon generator failure, which allowed response to the site within eight minutes.

While the Report claims that additional monitoring of the day tank should have been included in the design, such monitoring was not required by the owner. Our instructions from the NTPUD were to design the SCADA the same way as the original system with a general generator failure alarm. The original day tank system did not have a SCADA monitor. The redesign alarm functioned properly and the NTPUD responded with adequate time; however, as discussed above, it appears the NTPUD personnel were not adequately trained to trouble shoot the problem and restore the fuel flow.

NTPUD HAD A DUTY TO INSPECT DURING CONSTRUCTION

While the Report claims that Dinter performed periodic and a final inspection, Stantec and Dinter were not the onsite inspectors. This responsibility was performed by NTPUD throughout the construction period.

Stantec and Dinter did not witness the four-hour generator commissioning load test. Rather, Stantec and Dinter were only required by our contractual scope of work to review the four-hour test data, which indicated a successful load test, and that is the only review they performed. Stantec and Dinter were requested by NTPUD to be onsite only to witness a brief demonstration (approximately 15- minute run time) of the system function at the time of completion, which was successful.

30A MAIN BREAKER IN PANEL "B" DID NOT CONTRIBUTE TO THE OVERFLOW

The 30A main breaker in panel "B" tripped the day after the event and therefore has no bearing on the overflow. The Contractor furnished and installed the 30 amp breaker in error and this was corrected to a 40 amp unit as specified on the construction drawings, after the event. However, the Report states that during testing, the authors were unable to get the original 30A breaker to trip. In any event, there is no evidence the 30 amp breaker tripped prior to the event that resulted in the spill, and thus it could not have caused the event.

CONCLUSION

The spill on December 19, 2010, was caused by improper operation and maintenance by the NTPUD, not errors and omissions in the design. Faulty presumptions in testing methodologies misled the drafters of the Report. The Report also presents a flawed assumption that the circuit to the fuel transfer tank was incorrect; however, the circuit was proper and was designed to meet the requirements arising from the proper

operational scheme of the fuel tank. The apparent operation and maintenance of the system in manual mode, rather than automatic, coupled with the apparent inability of NTPUD personnel to adequately respond to the alarm, caused the overflow.

Sincerely,

Peter K. Hackbusch, President
DINTER ENGINEERING

ATTACHMENT 6

WATERBOARD SEPTEMBER 14, 2011 REQUEST FOR INFORMATION AND RESPONSE FROM NTPUD

California Regional Water Quality Control Board
Lahontan Region

Matthew Rodriquez
Secretary for
Environmental Protection

2501 Lake Tahoe Boulevard, South Lake Tahoe, California 96150
(530) 542-5400 • Fax (530) 544-2271
www.waterboards.ca.gov/lahontan

Edmund G. Brown Jr.
Governor

File

September 14, 2011

Paul Schultz
North Tahoe Public Utility District
PO Box 139
Tahoe Vista, CA 96148

Neil Eskind, Esq.
P.O. Drawer Z
Tahoe City, CA 96145-1906

REQUEST FOR INFORMATION AND RESPONSE TO STANTEC CONSULTING SERVICES' REVIEW OF THE DECEMBER 19, 2010 SEWAGE OVERFLOW FROM NORTH TAHOE PUBLIC UTILITY DISTRICT'S DOLLAR HILL PUMP STATION – PLACER COUNTY

Lahontan Regional Water Quality Control Board (Water Board) staff has reviewed the August 12, 2011 letter report from Stantec Consulting Services and Dinter Engineering Company (enclosed) regarding the sewage spill into Lake Tahoe that occurred on December 19, 2010 from the North Tahoe Public Utility District's Dollar Hill Pump Station.

This letter serves to inform the North Tahoe Public Utility District that Water Board staff is considering pursuing enforcement in this matter. This may include, but is not limited to, pursuing a formal enforcement action to assess administrative civil liabilities. The Water Board may impose administrative civil liability in an amount not to exceed $5,000 per day or ten dollars ($10) for each gallon of waste discharged pursuant to California Water Code section 13350(e). Alternatively, the Water Board may impose administrative liability in an amount not to exceed the sum of both of the following: (1) ten thousand dollars ($10,000) for each day in which the violation occurs and ten dollars ($10) multiplied by the number of gallons by which the volume discharged but not cleaned up exceeds 1,000 gallons pursuant to Water Code section 13385(c). The Water Board reserves its right to take any further enforcement action authorized by law.

Based upon the information previously submitted to Water Board staff, it is estimated that 133,000 gallons of raw sewage discharged to the waters of Lake Tahoe. Thus, the maximum potential liability pursuant to Water Code section 13385(c) is $1,330,000.

Water Board staff request that you review the enclosed letter report and submit a written response to the address provided in the letterhead (or electronically to etaxer@waterboards.ca.gov and lkemper@waterboards.ca.gov) by no later than **October 17, 2011**. Your response will be considered in determining appropriate liability amounts and culpability in this matter should staff pursue an enforcement action.

Please contact Eric Taxer at (530) 542-5434 or Scott Ferguson at (530) 542-5432 if you have any questions regarding this matter.

Lauri Kemper, P.E.
Assistant Executive Officer

enc: August 12, 2011 letter and attachment from Stantec Consulting Services

cc: Steve Sweet, Tahoe Regional Planning Agency

EJT/clhT: NTPUD, NTPUD Response Request, 2011-09-14

ATTACHMENT 7

NTPUD OCTOBER 17, 2011 RESPONSE

north tahoe
PUBLIC UTILITY DISTRICT

OCT 18 2011
LK

October 17, 2011

Lauri Kemper, P.E.
Assistant Executive Officer
California Regional Water Quality Control Board
Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150

Sent via email to lkemper@waterboards.ca.gov and U.S. Mail

RE: Response to Stantec Comments to Larson Consulting Report on December 19, 2010 Sewage Overflow near North Tahoe Public Utility District Dollar Hill Pump Station

Dear Lauri:

The North Tahoe Public Utility District forwarded the August 12, 2011 letter from Stantec to the Regional Board to Larson Consulting for its analysis and comment.

We have received Larson Consulting's response and have enclosed it for your use. The District concurs with John Larson's analysis and comments.

Thank you for the opportunity to provide input. Please contact me if you require anything further.

Sincerely yours

Paul A. Schultz, P.E.
General Manager/CEO

Enclosure

LARSON CONSULTING

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SOUTH LAKE TAHOE, CA 96158
(925) 360-6600
JLARSON@LARSCON.COM

October 17, 2011

Paul A. Schultz, P.E., General Manager/CEO
NTPUD
P.O. Box 139
Tahoe Vista, CA 96148

Dear Mr. Schultz,

RE: Response to Dinter Engineering Company Letter to the Lahontan Regional Water Quality Control Board

At your request, Bill Ettlich of HDR Engineering and I evaluated the statements made by Dinter Engineering Company (Dinter) in their August 12, 2011 letter to Ms. Lauri Kemper of the Lahontan Regional Water Quality Control Board.

Overall, we found it very disconcerting that Dinter's professional engineers did not appear to have made any significant effort to adequately investigate the system failure and to determine the causes of the design and system failures that led to the December 19, 2010 sewage spill into Lake Tahoe. Instead, they chose to send a letter based entirely on erroneous information and hearsay denying any responsibility. The sole purpose of their letter is to shift the blame for their serious design and oversight errors that occurred during the Dollar Hill Pump Station Generator Installation Project on the public entity which hired them in good faith, relied upon their professed expertise in pump station design and the unique sensitivity of the Lake Tahoe Basin, and whose personnel were able to overcome their system design shortcomings and place the pump station back in operation in less than three hours during a major storm event.

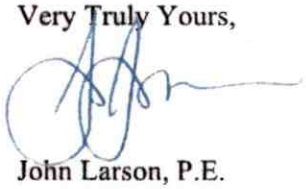
Our review of their letter found many unsupported opinions but did not find any new or credible information that would change our original assessment of their work. Dinter's letter, which was written eight months after the December 19, 2010 overflow event, demonstrates their continuing lack of understanding of system components, system operation, and their own system design. The generator fault alarm, which Dinter relies upon as part of their defense, was a secondary and not a primary alarm; it was received by NTPUD after the sequence of events that led to the standby power system failure, the pump station failure, and the overflow could not have been prevented. Once the diesel engines driving the generators ran out of fuel, the time to restore them to full operation was measured in hours with the result that the pump station overflow could not be prevented.

Our assessment of Dinter's work remains that their design and the services they provided during construction was replete with errors and shortcomings. The designers should have been able to identify design errors and shortcomings during their submittal review, site visits, and final inspection. Had the designers met the required standard of care and their contractual responsibilities, the errors and shortcomings would have been identified and

corrected before the construction work was accepted from the contractor thus avoiding the events of December 19, 2010.

Our detailed response to the statements contained in Dinter's letter is enclosed. Please contact me with any questions.

Very Truly Yours,



John Larson, P.E.

Enclosure

Enclosure

Detailed Response to Statements Included in Dinter Engineering Company Letter to the Lahontan RWQCB dated August 12, 2011

Dinter Statement #	Page #	Dinter Statement	Response
1	1	NTPUD had been incorrectly operating the fuel transfer pumps in the "manual mode", when the pumps should have been operated in the "automatic mode".	Dinter's statement regarding operating the day tank controls in the manual mode is incorrect. NTPUD properly operated the day tank in the automatic mode during normal operations. There is no evidence to suggest that NTPUD operated the day tank in the manual mode. The day tank was operated, at our request, in the manual mode during our site visit in order to determine the maximum connected load.
2	1	When in the automatic mode, there are interlocks built into the system that prevent all three pumps from operating simultaneously. The interlocks are important because they prevent any possibility of overloading the circuit.	Dinter's statement regarding the existence of interlocks is incorrect. Our review of the day tank pump control system did not reveal any "interlocks" that would prevent all three pumps from operating simultaneously in the automatic mode. While it is unusual that all three pumps would operate simultaneously in the automatic mode, it is not improbable.
3	2	During proper automatic mode operation, the primary and secondary supply pumps will not run simultaneously. This is based on the fact that the generators at 100% load utilize an estimated fuel flow of 0.71 gpm.	Dinter's statement regarding fuel flow rates in incorrect. The primary (new) generator fuel pump draws fuel at 60 gph at all loads, with unburned fuel being returned directly to the outside storage tank. The estimated fuel consumption of the primary generator is between 5 gph at no load and 43 gph at full load. The secondary (original) generator fuel pump draws fuel at 60 gph with unburned fuel being returned to the day tank. The estimated fuel consumption of the secondary generator is between 4 gph at no load and 28 gph at full load.

4	2	If the NTPUD left the tank controls in the manual mode it would be contrary to the operation scheme of the system...	There is no evidence to suggest that NTPUD operated the day tank in the manual mode. To the contrary, the continuous operation of all three day tank fuel pumps in manual mode would have resulted in sufficient noise such as to be immediately evident to NTPUD personnel who entered the station on a daily basis, and NTPUD personnel indicated that the pumps were not operating during their daily station inspections.
5	3	The conclusion of the Report indicates that all three pumps had to be running for some undisclosed period of time, which possibly caused the breaker to trip.	Dinter's statement regarding the Report conclusion is incorrect. The Report actually concludes that the electrical service to the day tank did not provide adequate capacity. In addition, it concludes that there were no alarms or other indications that would have notified NTPUD personnel that power to the day tank had failed or that the fuel level was low.
6	3	While the Report claims there were "unstable" power conditions in June, our office has requested, but has not received any proof of such conditions.	Dinter's statement regarding the Report is incorrect. The report actually concludes, based on the generator run times, fuel consumption, and pumping rates that the power to the day tank failed in June 2010. Based on the marginal design of the electrical service to the day tank and our testing which demonstrated that the circuit breakers performed in conformance with industry standards, we believe that the likely cause was a voltage fluctuation. Our experience, and that of the NTPUD Staff, is that voltage fluctuations are common in the Lake Tahoe Basin. Sierra Pacific Power Company does not keep detailed records of power fluctuations.
7	3/4	The Report states that the circuit breaker feed to the transfer tank had most likely been tripped since June of 2010, which is almost six months prior to the overflow on December 19, 2011. If this statement	Dinter's statement that the day tank level controls were "not functioning properly" is incorrect. They failed to function properly as a direct result of loss of power to the day tank. Likewise, Dinter's statement that the day tank was operated in the manual mode is

		in the Report is true that the NTPUD did not inspect and discover that: 1. Fuel was unable to transfer to the generators 2. There was a low fuel condition in the transfer tank 3. The tank control was improperly set on the "manual mode" 4. The tank level controls were not functioning properly 5. The breaker to the tank had tripped. This clearly suggests for that six month period, the NTPUD failed to properly inspect and maintain its facility.	incorrect. We found no evidence to suggest that NTPUD operated the day tank in the manual mode. Dinter's statement ignores the underlying cause of the day tank failure. The cause of the day tank failure was: • The electrical feed to the day tank was undersized and provided no margin of safety for voltage excursions that are common in the Lake Tahoe Basin. • There were no external indications that power to the day tank had failed. • There were no alarms that indicated that the power to the day tank had failed. • There were no alarms that the fuel level in the day tank was low. There is every reason to believe that a properly sized electrical feed to the day tank would have not failed as a result of voltage excursions.
8	4	The Report includes a testing log that indicates six months of inadequate testing...	Dinter's statement that the generator testing was inadequate is incorrect. NTPUD operated the generators and their support systems in accordance with the manufacturer's O&M manuals and the training provided by the equipment supplier.
9	4	If proper testing had been done, the actual day tank flawed mode of operation would have been discovered at some point during testing.	Dinter's statement that the day tank was operated in a "flawed" mode of operation is incorrect. The flawed mode refers to operation in the manual mode. We found no evidence to suggest that NTPUD operated the day tank in a manual mode. The fact is that the loss of power to the day tank was not discovered due to the absence of alarms and other indications of loss of power or low fuel level in the day tank.
10	4	Proper testing should have included 30 minutes each month under load with proper inspections.	NTPUD followed its monthly routine for testing the generators including ensuring the generators would start prior to the anticipated December 19, 2010 storm. Dinter's opinion that "proper testing" includes operating the generator under

			load 30 minutes each month would require that the design include a load bank to support the monthly testing. Dinter did not include the provision of a load bank in either the generator purchase specifications or the generator installation design and contract documents. Dinter's opinion regarding what constitutes "proper testing" is incorrect. The equipment supplier recommended the following exercise and load test program at our meeting on February 17, 2011. • Weekly exercise under no-load conditions for five minutes, and • Annual load testing with significant load. Dinter's statement ignores the fact that both generators were functioning perfectly and that the underlying cause of the December 19, 2010 was failure of power to the day tank.
11	5	The overflow started nearly one hour later after NTPUD personnel were already on site. Once on site, the NTPUD personnel should have been trained, able, and ready to reset the breaker and resume fuel flow to the day tank.	Dinter's statement appears to ignore the realities of the situation that their failed design and lack of oversight created. NTPUD received two alarms from the Dollar Hill PS on December 19, 2010: power failure and primary generator fault. The primary generator fault alarm indicates that the generator has shut down but does not provide any information to the SCADA operator or the responders regarding the reason for the shut down. Upon arrival of NTPUD responders, there was no power in the pump station. The primary generator panel indicated a "generator fault" condition. The NTPUD responders made the decision to start the second generator. The generator started and the operator started one of the sewage pumps thereby reducing the volume of the overflow. The second generator subsequently shut down. The responders then correctly diagnosed the cause of the generator failures and the need to get fuel to the day tank. The hand

			pump was useless because of the design (see Response to Statement #13 below for details). Simply resetting the breaker on the day tank electrical feed would not have energized the day tank because there was no power to the pump station. The operators then correctly attempted to get temporary power to the day tank. They installed two portable generators and neither one had adequate capacity. They then obtained a larger portable generator from the NTPUD yard in Tahoe Vista, transported it to the pump station, and installed it to power one of the sewage pumps thereby ending the spill. The Cashman technician then used the same portable generator to provide power to the day tank. Once there was fuel in the day tank, they purged the air from the generator fuel system, started the generator, and restored full pump station operation.
12	5	NTPUD personnel should have been trained on restarting a unit that has run out of fuel.	Dinter's opinion regarding the training of NTPUD personnel is incorrect. We were present at a meeting at the Dollar Hill Pump Station on February 17, 2011. In the course of that meeting, Joe Steck, the NTPUD operator at the pump station on December 19, 2010, explained his response procedures and his understanding of the process to restart the generator following loss of fuel to the technicians from Cashman Equipment (the generator and day tank equipment supplier). The Cashman technicians stated that Mr. Steck followed the proper procedures in diagnosing the generator failure and that his understanding of the process to start the generator following loss of fuel was correct. According to the Cashman technician, the loss of fuel to a generator allows air to enter the high pressure fuel piping that supplies the fuel injectors and the process of purging the air from this circuit can take

			hours. Dinter ignores the obvious solution which was to properly install and alarm the day tank so that the generators would not run out of fuel.
13	5	We also need more information in order to understand why NTPUD personnel did not use the manual hand pump that was installed with the day tank to transfer fuel to the day tank. The purpose of the hand pump is for a back up system when the power fails.	Dinter's statements regarding using the hand pump demonstrate their lack of understanding of their own system design. Dinter's statement regarding the purpose of the hand pump is incorrect. Stantec and Dinter's original design did not include a hand pump. The hand pump was installed under change order at the request of NTPUD because the day tank fuel transfer pumps are not self-priming and a hand pump is required to re-prime the day tank fuel transfer pumps if the flow of fuel from the outside tank to the day tank is interrupted. The change order design requires the hand pump to pump through the day tank suction piping to the fuel transfer pumps. This piping has an anti-siphon valve between the hand pump and the day tank fuel transfer pumps that is closed when there is no power to the fuel transfer pumps. Therefore, the hand pump cannot be used to pump fuel into the day tank. If Dinter believes that its design for the hand pump was to transfer fuel to the day tank during power failures it is admitting its design is faulty.
14	5	The Report states that the SCADA monitoring performed as designed. The system sent an alarm to the NTPUD main office upon generator failure, which allowed response to the site within eight minutes.	NTPUD received two alarms from the Dollar Hill PS: power failure and primary generator fault. The primary generator fault alarm indicates that the generator has shut down but does not provide any information regarding the reason for the shut down. As noted in the response to Statement # 11 above, by the time the responders arrived at the pump station the sequence of events that ultimately caused the overflow were already in motion. Dinter's

			characterization of a generator failure is incorrect. The generator did not fail; it ran out of fuel. The power to the day tank failed. The alarms received were not primary alarms, but were rather secondary alarms that notified NTPUD of the generator failure. Primary alarms would have notified NTPUD of the loss of power to the day tank and/or low fuel level in time to respond and prevent the pump station failure and overflow. Dinter's statement ignores the fact that the day tank had no external monitoring or internal/external alarms indicating loss of power and low fuel level. Had any of these been in place, the December 19, 2010 spill would not have occurred.
15	6	While the report claims that additional monitoring of the day tank should have been included in the design, such monitoring was not required by the owner.	The day tank is a critical system supporting the operation of the generator and, as such, should have been monitored in order to prevent the December 19, 2010 spill. Contrary to Dinter's opinion, it is the design professional and not the owner who is responsible for meeting the design professional's standard of care. In being selected for this work, Stantec represented itself to NTPUD as having experience with both sewage pump station design and understanding of the unique regulatory and environmental concerns within the Lake Tahoe Basin. In addition, Stantec conducted a detailed evaluation of the four major pump stations at NTPUD, which would have provided them with information with respect to the state of the District's infrastructure and O&M procedures. Stantec/Dinter should have recommended that SCADA monitoring of the day tank be included in the project. Dinter prepared the specifications for the purchase of the generator and the day tank. Those specifications included the provision for low fuel level SCADA contacts

			in the day tank control panel. They have not explained why they would include those specifications in the generator purchase and then not include their connection to SCADA in the final design.
16	6	The redesign alarm functioned properly and the NTPUD responded with adequate time; however, as discussed above, it appears that NTPUD personnel were not adequately trained to troubleshoot the problem and restore fuel flow.	The response to this claim has been addressed in the responses to Statements #11 and #14 above. It bears repeating that NTPUD received two alarms from the Dollar Hill PS: power failure and primary generator fault. The primary generator fault alarm indicates that the generator has shut down but does not provide any information regarding the reason for the shut down. These were secondary rather than primary alarms. Precious time was consumed in determining the cause of the generator failure with no power available at the pump station. Multiple levels of design errors created roadblocks and time delays in NTPUD's restoration of fuel flow and returning the pump station to full operation.
17	6	While the report claims that Dinter performed periodic and final inspections, Stantec and Dinter were not the onsite inspectors.	Stantec/Dinter reviewed and approved the contractor submittals and provided periodic and final inspections. They had a duty to ensure that the contractor submittals were in conformance with the design. They had the duty during their periodic and final inspections to ensure that the contractor's work conformed to the design. Dinter reviewed and approved contractor submittals that were not in conformance with its own specifications. Dinter's final inspection was conducted by a mechanical engineer (Thomas Federici, California Mechanical Engineer M-23495) and, according to his June 16, 2010 letter, Mr. Federici was focused on the "mechanical systems"; however, 65% of the cost of the installation contract was electrical in nature. There is no indication that Dinter conducted a final inspection of the electrical system components.

			It is interesting to note that Mr. Federici inspected the hand pump in the fuel line to the day tank but failed to note that it would not work without power to the day tank.
18	6	Stantec and Dinter did not witness the four-hour generator commissioning load test. Rather, Stantec and Dinter were only required to by our contractual scope of work to review the four-hour test data, which indicated a successful load test, and that is the only review they performed.	Dinter's characterization of its contractual responsibilities is incorrect. Page 2 of 2 to Exhibit "A" to the Professional Services Agreement between Stantec and NTPUD (See Appendix "B" of the Report) requires that "Electrical services will include a minimum of three visits: ... the third visit will be to complete the final punch list **during** the four-hour load test." (emphasis added). The load test was specified by Dinter to consist of a four-hour test at full load. The load test, as conducted, did not meet the requirements of the specifications. The generator load was gradually increased during the first 1¾ hours of the test so that the generator only operated for 2¼ hours at full load. By their own admission, neither Stantec nor Dinter was present at the generator load test to meet their contractual responsibilities.
19	6	The 30A main breaker in panel "B" tripped the day after the event and therefore has no bearing on the overflow.	Dinter's statement regarding the condition of the Panel B circuit breakers is misleading. The facts are as follows: • Prior to corrections being made by the electrical subcontractor, Panel B had a 30A main breaker and one circuit feeding the day tank with a 20A secondary circuit breaker. • The failure discovered on December 19 consisted of the 20A secondary breaker having been tripped at an earlier date, depriving the day tank of power. • The 20A secondary breaker in the feed to the day tank was reset before NTPUD personnel left the pump station on the evening of December 19, restoring power to the day tank. • The next morning, December 20,

			NTPUD personnel found **both** the 30A main breaker and the 20A secondary breaker tripped, again depriving the day tank of power. They were both reset and the main breaker was upgraded to a 40A circuit breaker later that day. • Therefore, there were **two** failures in Panel "B". The first failure occurred when 20A secondary breaker tripped in June 2010, which caused the overflow on December 19. The second failure occurred when **both** the 30A main breaker and the 20A secondary breaker tripped on December 20. The Report does not conclude that the 30A main breaker in Panel B was the sole likely cause of the day tank power failure. Rather, the facts demonstrate that Panel B, as installed, was insufficient to withstand voltage excursions common at all times of the year in the Lake Tahoe Basin. The fact that voltage excursions have not impacted the upgraded Panel B in the past ten months is evidence of the inadequacy of the initial design and installation.
20	6	The Report also presents a flawed assumption that the circuit to the fuel transfer tank was incorrect; however, the circuit was proper and it was designed to meet the requirements arising from the proper operational scheme of the fuel tank.	Dinter's statement regarding design requirements is incorrect. While the day tank manual mode is not a normal operating mode, it is one of the possible modes of operation included in the day tank design. It is used from time to time for testing and maintenance purposes. The standard of care is that the electrical design must provide adequate capacity to safely and reliably support all available day tank modes including the mode with the highest load (e.g. the manual mode). Dinter acknowledges that all three fuel pumps may operate simultaneously in the manual mode in the last sentence of the first full paragraph on Page 2, and therefore had a professional responsibility to provide a design to safely and reliably accommodate that operating mode.

21	6	The spill on December 19, 2010, was caused by improper operation and maintenance by the NTPUD, not errors and omissions in the design.	Dinter's conclusions regarding the cause of the December 19, 2010 pump station failure are incorrect. While many of the errors that led to the pump station failure and overflow have already been detailed, the following bears repeating: • The design is replete with errors and shortcomings. • The designers should been able to identify design errors and shortcomings during their submittal review, site visits, and final inspection. Had the designers met the required standard of care, these problems would have been corrected before the construction work was accepted from the contractor thus avoiding the events of December 19, 2010. • Even now, Dinter's letter, written some eight months after the event, demonstrates their lack of understanding of system components, system operation, and their own system design. • The generator alarms which Dinter relies upon heavily were secondary and not primary alarms and were received by the NTPUD after much of the system failure could not be prevented. • The design resulted in two critical electrical failures, not one. • There is no evidence to suggest that NTPUD operated the day tank in the manual mode. The continuous operation of the three day tank pumps in manual mode would have resulted in sufficient noise such as to be immediately evident to NTPUD personnel who entered the station on a daily basis.
21	7	The apparent operation and maintenance of the system in manual mode, rather than automatic, coupled with the apparent inability of NTPUD personnel to adequately respond to the alarm, caused the overflow.	

ATTACHMENT C

ENFORCEMENT POLICY METHODOLOGY SPREADSHEET

Penalty Calculation Methodology Worksheet - Version Date: 6/24/2010

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

Select Item	2 = Below Moderate
Select Item	3 = Discharged material poses above moderate
Select Item	< 50% of Discharge Susceptible to Cleanup or A
Select Item	Major

Discharger Name/ID: North Tahoe Public Utility District

			Violation 1	
Discharge Violations	**Step 1**	Potential Harm Factor (Generated from Button)	6	
	Step 2	Per Gallon Factor (Generated from Button)	0.22	
		Gallons	128,500	
		Statutory / Adjusted Max per Gallon ($)	10.00	
		Total		**$ 282,700**
		Per Day Factor (Generated from Button)	0.22	
		Days	1.00	
		Statutory Max per Day	10,000.00	
		Total		**$ 2,200**
Non-Discharge Violations	**Step 3**	Per Day Factor		
		Days		
		Statutory Max per Day		
		Total		$ -
		Initial Amount of the ACL		**$ 284,900.00**
Add'l Factors	**Step 4**	Culpability	1.10	$ 313,390.00
		Cleanup and Cooperation	0.75	$ 235,042.50
		History of Violations	0.90	$ 211,538.25
	Step 5	**Total Base Liability Amount**		**$ 211,538.25**
	Step 6	Ability to Pay & to Continue in Business	1.00	$ 211,538.25
	Step 7	Other Factors as Justice May Require	1.00	$ 211,538.25
		Staff Costs	20,550.00	$ 232,088.25
	Step 8	Economic Benefit	0.00	**$ 232,088.25**
	Step 9	Minimum Liability Amount	0.00	
		Maximum Liability Amount	1,300,000.00	
	Step 10	**Final Liability Amount**		**$ 232,088.25**

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

ENCLOSURE 2

WAIVER FORM
FOR ADMINISTRATIVE CIVIL LIABILITY COMPLAINT

By signing this waiver, I affirm and acknowledge the following:

I am duly authorized to represent the North Tahoe Public Utility District. (hereinafter "Discharger") in connection with Administrative Civil Liability Complaint No. R6T-2012-0010 (hereinafter the "Complaint"). I am informed that California Water Code section 13323, subdivision (b), states that, "a hearing before the regional board shall be conducted within 90 days after the party has been served [with the complaint]. The person who has been issued a complaint may waive the right to a hearing."

☐ ***(Check here if the Discharger waives the hearing requirement and will pay the liability.)***

a. I hereby waive any right the Discharger may have to a hearing before the Regional Water Board.

b. I certify that the Discharger will remit payment for the civil liability imposed in the total amount of **two hundred thirty two thousand one hundred dollars ($232,100)** by check that references "ACL Complaint No. R6T-2012-0010" made payable in the amount of **$232,100** to the "*State Water Pollution Cleanup and Abatement.*" Payment must be received by the Regional Water Board by **5:00 p.m. on April 20, 2012** or the Regional Water Board may adopt an Administrative Civil Liability Order requiring payment.

c. I understand the payment of the above amount constitutes a proposed settlement of the Complaint, and that any settlement will not become final until after the 30-day public notice and comment period mandated by the State Water Resources Control Board's Water Quality Enforcement Policy expires. Should the Regional Water Board receive significant new information or comments from any source (excluding the Water Board's Prosecution Team) during this comment period, the Regional Water Board's Assistant Executive Officer may withdraw the complaint, return payment, and issue a new complaint. I understand that this proposed settlement is subject to approval by the Regional Water Board, and that the Regional Water Board may consider this proposed settlement in a public meeting or hearing. I also understand that approval of the settlement will result in the Discharger having waived the right to contest the allegations in the Complaint and the imposition of civil liability.

d. I understand that payment of the above amount is not a substitute for compliance with applicable laws and that continuing violations of the type alleged in the Complaint may subject the Dischargers to further enforcement, including additional civil liability.

_____
(Print Name and Title)

_____
(Signature)

_____
(Date)