BOARD OF WATER SUPPLY of the COUNTY OF KAUA'I

REGULAR MEETING

Second Floor, Microbiology Lab Bldg
Kaua'i County Department of Water
4398 Pua Loke Street, Līhu'e, Kaua'i, Hawai'i 96766

THURSDAY, February 28, 2013

10:00 a.m.

Or soon thereafter

A. CALL TO ORDER

B. ROLL CALL

C. ACCEPTANCE OF AGENDA

D. MEETING MINUTES:
Review and approval of:
Regular Board Meeting – January 24, 2013

Review & Approval of Executive Session:
Executive Session – January 24, 2013

E. CORRESPONDENCE/ANNOUNCEMENTS
1. Welcome Deputy Manager, Kirk Saiki
2. Billing Service Assistant Short Term Position and Table of Organization
2. EMA - IT Strategic Plan *version #1 draft dated 11-29-2012*
3. DOW - Long Term IT Strategic Plan, Jeff Mendez *dated March 2012*

F. BOARD COMMITTEE REPORTS
1. Report of the Finance Committee of the Kauai County Board of Water Supply
   a. Water System Development Fee – Report to the Finance Committee
   b. Needs Assessment Study and FRC *revised* January 24, 2013
   c. Part 4 Fixing Rates for Water Service, Section VII Facilities Reserve Charge

G. OLD BUSINESS

H. NEW BUSINESS
1. *Manager's Report No. 13-25* - Request Board Approval and Funding for Job No. 13-3, Water Plan 2020 Job No. PLH-44b, Lihue Mill Bridge Waterline, Lihue, Kauai, Hawai'i

2. *Manager's Report No. 13-26* – Manager's Response to Ms. LaVerne Bessert's letter, dated December 19, 2012

NOTE: Special Accommodations for persons with disabilities are available upon request five (5) days prior to the meeting date. Please call the Department of Water, County of Kaua'i, at 245-5408 or drop by at 4398 Pua Loke Street, Līhu'e, Kauai. Our mailing address is P. O. Box 1706, Līhu'e, HI 96766

H. NEW BUSINESS cont'd:

3. *Manager's Report No. 13-27* - Manager's Response to Mr. Harold Matsunaga's letter, dated January 3, 2013

4. *Manager's Report No. 13-28* - Adoption Request of Amended Resolution No. 12-3 *(11/11)*, Pertaining to State Revolving Fund (SRF) Funding for Job No. 02-15, WK-28,Wailua Houselots Main Replacement, Phase I

5. *Manager's Report No. 13-29* - FY 13/14 Goals / Annual Evaluation for the Manager and Chief Engineer

6. *Manager's Report No. 13-30* – Request for Board to Approve the Hawai'i Water Agency Response Network (HIWARN) Agreement

7. *Manager's Report No. 13-31* – Purchase of a Private Water System

8. *Manager's Report No. 13-32* – Manager's Response to Mr. Michael Tresler's letter, dated December 14, 2012 relating to Electrical Service Accounts for Waiahi Surface Water

9. *Manager's Report No. 13-33* - Manager's Response to Mr. Michael Tresler's letter, dated December 18, 2012 relating to Waiahi Surface Water Treatment Plant Delivery Water Fee

I. REPORTS

MONTHLY

1. Statement of Kaua'i County Water Department's Revenues and Expenditures
2. Report by the Public Relations Specialist on Public Relations Activities
3. Chief of Operation's Summary Report on Monthly Operational Activities Report
4. Water Resources and Planning Subdivision Report - Report attached
5. Manager's Monthly Update Regarding Activities of Note of the Kaua`i County Water Department
    a. Report of the BAB Bond pay down as of January 2013

J. EXECUTIVE SESSION

Pursuant to H.R.S. §92-7(a), the Board may, when deemed necessary, hold an executive session on any agenda item without written public notice if the executive session was not anticipated in advance. Any such executive session shall be held pursuant to H.R.S. §92-4 and shall be limited to those items described in H.R.S. §92-5(a).

1. Pursuant to Haw. Rev. Stat. §§92-4 and 92-5(a)(4) the purpose of this executive session is to consider a letter, dated December 14, 2012, from Michael H. Tresler as Senior Vice President of Grove Farm. The purpose of this to consult with the Board's attorney on questions and issues

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J. EXECUTIVE SESSION cont'd:

pertaining to the Board's powers, duties, privileges, immunities, and liabilities as it relates to the Grove Farm's letter dated December 14, 2012.

2. Pursuant to Haw. Rev Stat. §§92-4, 92-5(a)(8), 92-5(a)(4) the purpose of this executive session is to deliberate concerning matters that require consideration of information as it relates to Grove Farm's letter dated December 18, 2012 that must be kept confidential pursuant to state law. Another purpose is to consult with the Board's attorney on questions and issues pertaining to the Board's powers, duties, privileges, immunities, and liabilities as it relates to the Grove Farm letter dated December 18, 2012.

3. Pursuant to Hawaii Revised Statutes Sections 92-4 and 92-5(a)(3), the purpose of this executive session is for the Board to deliberate concerning the authority of persons designated by the board to conduct negotiations for the acquisition of public property as it relates to the purchase of a private water system.

K. TOPICS FOR NEXT WATER BOARD MEETING

1. Draft Budget (FY 2013-2014)

L. TOPICS FOR FUTURE WATER BOARD MEETINGS

1. Public Hearing for Benefit Zones (*April 2013*)

M. UPCOMING EVENTS

1. 39th Annual AWWA Hawaii Section Conference Honolulu, HI *(May 7-10, 2013)*
2. AWWA Annual Conference, Denver, CO *(June 9-13, 2013)*
3. HWWA Hawai'i Section Maui, HI *(October 23-25, 2013)*

N. NEXT WATER BOARD MEETING

1. Thursday, March 21, 2013, 10:00 a.m.
2. Thursday, April 25, 2013, 10:00 a.m.
3. Thursday, May 23, 2013, 10:00 a.m.
4. Thursday, June 20, 2013, 10:00 a.m.

O. ADJOURNMENT

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Draft Minutes

REGULAR MEETING MINUTES
BOARD OF WATER SUPPLY
Thursday, January 24, 2013

The Board of Water Supply, County of Kaua'i, met in regular meeting at the Board Conference Room in Līhu'e on Thursday, January 24, 2013. Chairperson Randall Nishimura called the meeting to order at 10:12 a.m. On roll call, the following answered present:

BOARD: Mr. Randall Nishimura, Chairperson
Mr. Clyde Nakaya
Mr. Sherman Shiraishi
Mr. Roy Oyama
Mr. Michael Dahilig
Mr. Larry Dill

ABSENT/EXCUSED: Mr. Raymond McCormick

Quorum was achieved with 6 members present at the time of roll call.

STAFF: Mr. David Craddick
Mr. Val Reyna
Mr. Gregg Fujikawa
Ms. Marites Yano
Mr. Keith Aoki
Mr. Aaron Zambo
Mr. Carl Arume
Mr. Dustin Moises
Mr. Jeff Mendez
Ms. Sandi Nadatani-Mendez
Deputy County Attorney Andrea Suzuki

GUESTS: Mr. Allan Reitow, Kaua'i Watershed Alliance, The Nature Conservancy
Ms. Melissa Fisher, Kaua'i Watershed Alliance, The Nature Conservancy
Mr. Galen Kawakami, Kaua'i Action Alliance, Division of Forest and Wildlife (DOFW)
Ms. LaVerne Bessert
Mr. Jerry Kaluna

At 10:13 a.m. Chair Nishimura rearranged the agenda to hear the report of the IT Division regarding the new CC&B billing system before moving on to item D. Meeting Minutes and the Watershed Alliance update.

Commission Support Clerk requested a Point of Order to correct Correspondence Item 6 which should be dated January 11, 2013 and to delete "Hawai'i".

ACCEPTANCE OF AGENDA:
Mr. Oyama moved to accept the agenda as amended by Chair Nishimura and the Commission Support Clerk; seconded by Mr. Dill; with no objections, motion was carried with 6 ayes.

MINUTES:

Review and approval of:

Regular Board Meeting – December 20, 2012

Mr. Dahilig moved to accept the minutes of the Regular Board Meeting dated, December 20, 2012; seconded by Mr. Oyama; with no objections; motion was carried with 6 ayes.

Special Board Meeting – December 27, 2012

Commission Support Clerk advised the Board to amend Page 2, 1st Paragraph, 4th line, to change the word "that" to "than."

Mr. Oyama moved to accept the minutes of the Special Board Meeting dated, December 27, 2012 as amended; seconded by Mr. Shiraishi; with no objections; motion was carried with 6 ayes.

At 10:14 a.m., Chair Nishimura called a recess to allow the Board to review the Executive Session minutes.

At 10:19 a.m., Chair Nishimura called the meeting back to order.

Review & Receive Executive Session Minutes:

Executive Session – December 20, 2012

Mr. Dahilig moved to approve the Executive Session minutes dated December 20, 2012; seconded by Mr. Oyama; with no objections, motion was carried with 6 ayes.

Executive Session – December 27, 2012

Mr. Dahilig moved to approve the Executive Session minutes dated December 27, 2012; seconded by Mr. Oyama; with no objections, motion was carried with 6 ayes.

At 10:20 a.m. Chair Nishimura requested Ms. Sandi Nadatani-Mendez to present the CC&B Billing System Update.

Re: CC&B Billing System Update

PRESENTATION:

Ms. Nadatani-Mendez reported IT moved into the new billing system this past weekend. The billing staff manually entered all their transactions from Friday. All entries went smoothly and with no setbacks. On Tuesday, January 22nd, the billing staff entered their transactions. On Wednesday, the system went down which was detected on the Honolulu Board of Water side with a 5 to 10 minute set back. The system was able to get back up and billing entries were completed the remainder of the day. The new billing system was not open to the rest of the staff yet due to the internet connections. On the weekend there were no problems. Once staff came in and connected to the internet, the billing system kept getting kicked out of the system. Another reason Ms. Nadatani-Mendez came before the Board was to request to increase the internet bandwidth.

Mr. Dill congratulated Ms. Nadatani-Mendez on getting the CC&B implemented. Later, Mr. Dill would like to discuss with the Department of Water (DOW) of combining the Wastewater Department's sewer billing with the water bill.

Chair Nishimura also congratulated Ms. Nadatani-Mendez on the CC&B update. Chair Nishimura stopped by on the weekend to witness the CC&B implementation and requested Manager Craddick to extend appreciation to the Billing Section and the IT Division on the CC&B outcome.

NEW BUSINESS

1. **Kaua'i Watershed Alliance presentation and update on the DOW grant funds**.

Mr. Galen Kawakami, Branch Manager of the Division of Forest and Wildlife provided his testimony.

Mr. Galen Kawakami manages 88,000 acres of the mauka areas. As a member of the Kaua'i Watershed Alliance, the DOW funds will further their work in the mauka areas. As the DOW moves forward with the projects that will be presented later, the funds will greatly meet the non-Fed match component of their grants. The previous DOW funds helped in filling the fiscal and operations gaps. Mr. Kawakami expressed his appreciation for the DOW funds.

Mr. Allan Reitow, Coordinator of the Kaua'i Watershed Alliance (KWA) and The Nature Conservancy and Ms. Melissa Fisher, Deputy Director of the Kaua'i Watershed Alliance and The Nature Conservancy presented the Watershed Alliance update from a PowerPoint presentation.

Mr. Reitow reported that the Kauai Watershed Alliance was formed in 2003. Mr. Ernest Lau a former DOW Manager was the prime mover of this group. There were watershed partnerships on other islands in 2003. This partnership is an alliance with private land owners. The KWA operates in the conservation districts.

Mr. Reitow read the "Mission of the Kaua'i Watershed Alliance is to protect, preserve and manage our valuable watershed resources for the benefit our future residents, communities and all the generations through the concerted effort of the members."

There are 12 members who are private and public land owners and stake holders. The only entity that does not have physical land is the Department of Water (DOW). There are a number of absentee members but they communicate by phone at the quarterly membership meetings.

Ms. Fisher's presentation includes how the DOW's support has been integral in the development and with the completion of projects.

A breakdown of last year's budget was presented and how the DOW's funds fit in with the KWA's budget. The $150,000 KWA received from the DOW made a difference in the overall budget with private contributions making up the balance. The state, federal and DOW funds kept the KWA's project moving forward. An example of the current projects included the Alakai protective 4-1/2 mile fence that was completed in August 2011. KWA worked to remove the pigs and goats out of the unit successfully. To date, 68 pigs and 47 goats were removed by a

field crew of three and an AmeriCorps intern with different trapping methods. A few pigs and goats have evaded capture (4 adults and 4 piglets plus 8 goats). With rugged terrain and a small crew, KWA is trying to use technology to maximize the funding and to minimize the time on the ground with the crew. KWA is considering forward looking infra red units to scope out the pigs and goats while they are in the helicopter in order to drop the crews on the ground. This technology scope has been tested to remove the last remaining pigs and goats.

The Wainiha protective fence was completed in May 2011. It was easy to get in by helicopter and the fencing crew could drop down in Wainiha to complete the fence which is ¾ of a mile. The crew has not dropped down into this unit to remove the pigs but with a break in the weather, the crew was able to build a weather port. When the crew goes up four days and three nights at a time, they will have a dry area to stay while they are removing the pigs. They are continuing the Austrian Tree Fern control in Wainiha Valley. They flew over the area and took remote sensing images which were processed that were ortho rectified tied to a point on the ground to pin point each Austrian Tree Fern and then send a helicopter to target each individual tree fern and to take a GPS point. They would be able to take the maps of what they thought they treated and combine to see their success rate. After this is treated, they wait six months to a year to re-fly the area to see how the recruitment and how fast the tree fern grew up and compare this from their first mapping. KWA is working with Airborne Aviation and there may be 50 more flight hours to finish the first pass of treatment.

Kamehameha Schools has a contract and is a partner with the KWA to start treating Austrian Tree Fern in Lumaha'i Valley. KWA mapped this area five years ago and noticed that there are a lot more Austrian Tree Fern than Wainiha. It is important to treat Lumaha'i Valley because the Austrian Tree Fern is propagated by tree spores which are carried into the wind. Lumaha'i Valley blows straight into the Wainiha which goes into the Alakai plateau. The KWA is working with Mr. Kawakami's department to treat the Austrian Tree Fern at the top of Alakai plateau. KWA is learning how fast the Austrian Tree Fern shows up again after treatment.

KWA is looking at proposed fences. The red line indicated on the PowerPoint map is the Alakai fence and the line next to it is the proposed Kawai fence which is the next fence project looking to fund. Mr. Trae Manard presented to the Board a few months ago regarding the fence and the potential of funds being passed.

Currently there are biological surveys being done in the area. Mr. Ken Wood from the National Tropical Botanical Gardens has walked the fence line and is creating a report. This area is a prime watershed area which needs to be preserved.

KWA is currently seeking a variety of funding and trying to combine all sources. They are communicating with Fish and Wildlife for funding.

Mr. Reitow noted there are approximately 7,000 acres of (2) two completed projects. The last project would be an additional 1,000 acres.

Mr. Nishimura inquired about the overall scope. Mr. Reitow acknowledged the Governor's plan for "A New Day in Hawai'i" and DLNR's Rainfalls of the Forest. If the legislature finds a way to fund this through the Bag Bill or the increase of the conveyance tax, the KWA has an updated Management Plan which scales in the Rainfalls of the Forest mandate and is prepared with funding to add a significant portion the mauka watershed into protection.

Manager Craddick explained for the new board member, Mr. Shiraishi that this is the third year of funding by the DOW and is a major beneficiary which the Board funded $50,000 through the Water Resources managed by DOW's Chief of Water Resources and Planning, Mr. Fujikawa.

Mr. Reitow asked how the DOW would like their reports to be done if KWA is funded again. They received their last funding in September 2012. Mr. Nishimura would like to have another report for the next fiscal year. The KWA can stay in touch with Manager Craddick.

Mr. Dill recalled a KWA plan that was projected out a few years and wanted to know how the KWA achieved their goals. Mr. Reitow indicated they are behind in their project goals however, they are achieving their goals. At times the funding delays the implementation and projects because of the weather.

Mr. Reitow requested the DOW's Private Secretary, Ms. Garasi to forward the KWA's Management Plan to the Board members.

Mr. Dill moved to accept the Kauai Watershed Alliance update; seconded by Mr. Oyama; with no objections, motion was carried with 6 ayes.

At 10:39 a.m., Chair Nishimura called for a recess.

At 10:50 a.m., Chair Nishimura called the meeting back to order.

CORRESPONDENCE/ANNOUNCEMENTS

1. Announcement of New Deputy Manager from Manager Craddick dated January 17, 2013

Manager Craddick announced that Mr. Kirk Saiki, the new Deputy Manager will start on February 4th. Mr. Saiki is a University of Hawai'i graduate; Hawai'i registered Civil Engineer and has worked most of his professional life on the mainland responsible for Water and Wastewater project design.

Mr. Oyama moved to receive the Announcement of the New Deputy Manager by Manager Craddick; seconded by Mr. Dill; with no objections, motion was carried with 6 ayes.

2. Correspondence from Ms. LaVerne L. Bessert, dated December 19, 2012

Mr. Dahilig moved to receive and refer the correspondence from Ms. LaVerne L. Bessert regarding a high water bill to Manager Craddick for a report at the February Board meeting; seconded by Mr. Oyama; with no objections, motion was carried with 6 ayes.

3. Correspondence from Mr. Harold Matsunaga, dated January 3, 2013

Chair Nishimura explained that Mr. Matsunaga was seeking relief from his high water bill. Mary-jane Garasi, Private Secretary announced to the Board that Mr. Matsunaga was not able to attend the meeting today.

Mr. Shiraishi moved to refer the correspondence from Mr. Harold Matsunaga regarding a problem with his water bill to the Department for a respond to Mr. Matsunaga's letter; seconded by Mr. Dahilig.

DISCUSSION:
The Commission Support Clerk acknowledged that Mr. Matsunaga was contacted and was invited to appear at this meeting.

Mr. Shiraishi and Mr. Dill agreed to request the Department to notify Mr. Matsunaga of the procedures regarding a high water bill.

Manager Craddick added that Mr. Matsunaga has spoken to Mr. Mel Yamase, Accountant IV. From a printout of Mr. Matsunaga's meter, there were two (2) leaks that lasted about three (3) days each. From minusing the leaks, it amounted to approximately $3.00.

Mr. Shiraishi's concern is that high water bills should not be addressed to the Board but to the Department. Only if a customer is not satisfied, they can bring their high water bill concern to the Board.

Manager Craddick indicated this is the case with Mr. Matsunaga who is still not satisfied. Manager Craddick explained when Mr. Matsunaga read his meter and tried to corroborate the readings with his water bill, this information was not provided in his letter. The Department provided a day-by-day reading to and asked Mr. Matsunaga to give the Department a corresponding sheet. The Department has not received any information yet from Mr. Matsunaga. The discussion on the high water bill with Mr. Matsunaga is pending and on-going.

Mr. Mendez, Waterworks Information Technology Officer clarified that the print out listing is made available to customers who do not have computers.

Mr. Dill moved to receive and refer that the Department respond to Mr. Matsunaga's letter. If this matter cannot be resolved, it will be on the February Board agenda; seconded by Mr. Nakaya; with no objections, motion was carried with 6 ayes.

4. Correspondence Mr. Michael H. Tresler, Grove Farm Company, dated December 14, 2013

BACKGROUND:
Chair Nishimura summarized Mr. Tresler's letter which was sent to past Chairman Daryl Kaneshiro. Mr. Tresler complained that the Department had disconnected an electrical service account and transferred it to a Department account without permission or notification to Grove Farm.

Chair Nishimura recommended referring Mr. Tresler's letter to the Department for a response since the Department closed Grove Farm's account. This account was reverted back to Grove Farm with the reason why it was closed and transferred to the Department.

Mr. Dahilig commented this relates to legal and contractual issues.

DISCUSSION:
Mr. Dahilig recommended referral of this matter to the Deputy County Attorney, Andrea Suzuki for further action. Mr. Shiraishi added that Mr. Tresler is apprising the Board of the incident.

Mr. Dill would like to look into this matter with a response pending the results of the investigation.

Mr. Dahilig moved to refer Mr. Tresler's letter for two separate responses for Manager Craddick to respond to the Board and to the Deputy County Attorney Andrea Suzuki for evaluation to the Board in reference to the agreement; seconded by Mr. Oyama; with no objections, motion was carried with 6 ayes.

5. Correspondence from Mr. Michael H. Tresler, Grove Farm Company, dated December 18, 2012

BACKGROUND:
Chair Nishimura summarized Mr. Tresler's letter requesting that the DOW renegotiate the water rates for their Waiahi Surface Treatment Plant through 2015.

DISCUSSION:
Manager Craddick indicated the water rate has remained at $1.48.

Deputy County Attorney Andrea Suzuki read a portion from Mr. Tresler's letter that states, "*fee shall be adjusted by mutual agreement when and as requested by either party but not more often than once each year*."

Mr. Shiraishi indicated the letter refers to a formula in the 2nd paragraph and asked if anyone looked at the formula to see if Grove Farm is justified in requesting a rate change.

Deputy County Attorney Andrea Suzuki added that the formula is in accordance and is longer in the agreement. This requires a look at the relative financial documents to figure out the return of 10% on 2/3 of the cost.

Mr. Dill referred to the chart attached to the letter indicating Grove Farm is well behind from the 10% of the investment.

Mr. Dill moved to refer Mr. Tresler's letter, dated December 18, 2012 to Manager Craddick for an analysis of the numbers and recommendation to be consistent with the existing agreement; seconded by Mr. Oyama.

DISCUSSION:
Manager Craddick inquired with the Board what their interest is in getting real numbers. The chart indicated the numbers are not audited. The Department has no way to determine if the numbers are factual.

Mr. Dill pointed out that in 2003 there was one fee and in 2006 the $1.48 fee was established and wanted to know how that number was changed. Recommendation was made that the Department get backup information from Grove Farm that establishes the cost and for the Department to make a recommendation on the rates, electrical costs and taxes because there is no basis for the numbers.

Manager Craddick indicated that the electric costs are paid separately from their bill.

Mr. Dill noted that the electric costs are shown Grove Farm's pro forma as part of their calculation to determine on the return on their investment which is a significant number. The chart also shows electrical recovery which may be the patronage capital distributed from KIUC. There are thousands of dollars in the operations and maintenance expense. Copies of bills could be requested to review for justification. Depending on what Grove Farm presents will determine if an audit is needed.

Mr. Shiraishi followed up on the Deputy County Attorney's statement about any party can request a reevaluation but not more frequently than once a year. The letter is requesting an adjustment by mutual agreement and that the Grove Farm request is to renegotiate.

Mr. Dill indicated that both parties would negotiate in good faith. If the Department has an agreement that 10% rate of return on 2/3 of their capital investment is the basis of this agreement, the Department is obligated to respond to Grove Farm.

Mr. Shiraishi moved to refer to the Department for a response and analysis of the numbers to be consistent with the Department's existing agreement with a report to the Board and a dialog with Grove Farm for fact finding; seconded by Mr. Oyama.

Mr. Shiraishi and Mr. Oyama withdrew their previous motion.

As originally stated, Mr. Dill moved to refer to the Department for an analysis and to check the numbers provided by Grove Farm and to come back to the Board with factual audited numbers with a response to Grove Farm that is consistent with the Department's agreement; seconded by Mr. Oyama; with no objections, motion was carried with 6 ayes.

Deputy County Attorney will provide a copy of the entire agreement for the Board members to review.

6. Correspondence from Mr. Michael H. Tresler, Grove Farm Company, dated January 11, 2013

BACKGROUND:
Chair Nishimura summarized Mr. Tresler's letter dated, January 11, 2013 regarding the Facilities Reserve Charge (FRC) that the Rules and Finance Committees are considering.

Mr. Dill recommended to refer Mr. Tresler's letter to the Department for a response to the Rules Committee; seconded by Mr. Oyama; with no objections, motion was carried with 5 ayes to 1 nay.

7. Hawaii Water Agency Response Network (HIWARN) Mutual Aid Agreement

BACKGROUND:
Chair Nishimura acknowledged that the Board previously signed off on the HIWARN agreement but has since been modified from 2010.

DISCUSSION:
Manager Craddick requested the Board to review the agreement regarding indemnification issues where the Department is indemnifying a non respondent.

Mr. Shiraishi agreed with Manager Craddick's comments but after reviewing the agreement the Board needs to look at the indemnification provisions which is very broad and it applies to non responding members. There is no reference as to fault or not; it is a blanket indemnification and Mr. Shiraishi does not agree on the "duty to defend' and can see to indemnify another party but not assume the "duty of defense."

Deputy County Attorney Andrea Suzuki added that this clause arose out of certain incident in California and will research this relative to the agreement.

Mr. Dill moved to receive and refer to the Department and Deputy County Attorney Andrea Suzuki the HIWARN Mutual Aid Agreement for further review for a response by the next board meeting; seconded by Mr. Oyama; with no objections, motion was carried with 6 ayes.

BOARD COMMITTEE REPORTS

1. Report of the Finance Committee of the Kauai County Board of Water Supply
   a. Water System Development Fee
   b. Part 4 Fixing Rates for Water Service, Section VII Facilities Reserve Charge

Mr. Dill reported that the Finance Committee met on January 22, 2013 and heard a presentation from Mr. Andrew Baker, SAIC Consultant regarding the FRC. Questions were posed to Mr. Baker and a response will be available by the next board meeting.

Mr. Nakaya moved to accept the Finance Committee report; seconded by Mr. Shiraishi; with no objections, motion was carried with 6 ayes.

2. Report of the Rules Committee of the Kauai County Board of Water Supply
   a. Water System Development and FRC Proposed Rules
   b. *Manager's Report No. 13-7* – Board Discussion and Possible Action on Part 2 Section IX of the Rules: Adjustment of Bills for Undetected Leaks and Unforeseen Damages

Mr. Dahilig reported that the Rules Committee met on January 23, 2013. The first item that was Part 2 of Section IX of the Rules: Adjustment of Bills for Undetected Leaks and Unforeseen Damages. The draft presented by Manager Craddick was amended by the Rules committee to strike one paragraph and to make amendments to two other paragraphs. There will be draft language to transmit to the full Board for review and for action on the rules at the next meeting.

The second item the Rules Committee received was an update on the Rules portion of the FRC. The matter was referred back to the Task Force for further discussion.

Mr. Dill moved to receive the Rules Committee report; seconded by Mr. Oyama; with no objections, motion was carried with 6 ayes.

OLD BUSINESS

1. **2013 Appointment of Committee Members for the Rules Committee and the Finance Committee**

Chair Nishimura appointed Board Member Ray McCormick and Board Member Sherman Shiraishi to the Rules Committee and Board Member Clyde Nakaya and Board Member Roy Oyama to the Finance Committee. When Mr. Oyama is relieved of his duties, the new Board member would fulfill the requirements of the Finance Committee.

NEW BUSINESS

1. Resolution No. 13-4, (01/13), Mahalo and Aloha Deputy Manager William Eddy

Mr. Dahilig moved to approve *Resolution 13-4*; seconded by Mr. Oyama; with no objections, motion was carried with 6 ayes.

Chair Nishimura added that the DOW staff signed a poster and a card that will be transmitted to Mr. Eddy.

Mr. Nakaya requested a Point of Order that Old Business Item No. 2 was not discussed.

OLD BUSINESS

2. Manager's Report No. 13-7 – Possible Action on Part 2 Section IX of the Rules Adjustment of Bills for Undetected Leaks and Unforeseen Damages.

Mr. Dahilig reported that a revised draft will be reviewed by the Board for consideration at the next board meeting.

Mr. Dahilig moved to defer action on the revised draft of *Manager's Report No. 13-7* – Possible Action on Part 2 Section IX of the Rules Adjustment of Bills for Undetected Leaks and Unforeseen Damages for the February Board meeting; seconded by Mr. Shiraishi; with no objections, motion was carried with 6 ayes.

NEW BUSINESS

3. Manager's Report No. 13-21 – Emergency Autoclave Replacement

BACKGROUND:

Mr. Carl Arume, the DOW's Microbiologist IV requested approval from the Board to replace a 15 year old emergency autoclave machine which is not in service. The autoclave is a giant sterilizer which is used to prepare media and to disinfect the waste material in the lab. When the lab was built, the machine was brand new and over the past years it has had some problems and been repaired inexpensively. The last repair was an electrical problem on the main board which got damaged and the repair person could not explain the cause of the damage. The parts would cost over $1,000 and Mr. Arume did not know the cost of the labor.

DISCUSSION:

Manager Craddick indicated the funding is from the Operations budget. Mr. Reyna mentioned he would not be purchasing as much fire hydrants. The only change to the budget is the source of the funding.

Mr. Arume indicated the life expectancy of the autoclave is about 10 to 15 years. About $3,000 has been spent on repairs for seals, relieve valves and pumps.

Mr. Dill inquired what if the autoclave is not serviceable. Mr. Arume said the worst case scenario is that the Certification would be in jeopardy. The micro lab is certified by the state do their own autoclave because the lab is required to disinfect the waste products. The micro lab cannot take the waste to the Department of Health (DOH) to dispose the waste because it would cost the DOW a lot of money.

The funding Mr. Arume requested more than what the autoclave would cost which includes the installation of a reverse osmosis system to prolong the life of the autoclave. Mr. Dahilig supports an additional buffer for compliance requirements so that the DOW is not at risk.

Mr. Nakaya inquired with Manager Craddick and Mr. Reyna if the funding for the autoclave will not jeopardize the fire hydrant in the Operations budget. Mr. Reyna assured Mr. Nakaya that there are enough unused fire hydrants as a buffer.

Mr. Nakaya moved to approve *Manager's Report No. 13-21* – Emergency Autoclave Replacement; seconded by Mr. Oyama; with no objections, motion was carried with 6 ayes.

4. Manager's Report No. 13-22 – Request Board Approval to Purchase Internet Bandwidth Services

BACKGROUND:
Mr. Mendez explained that when most of the staff accesses the internet, the billing staff gets kicked off the system. The bandwidth needs to be increased to resolve these issues. The Department is also trying to implement a mobile workforce which will alleviate this problem with the billing system. With the old system only five people could connect to the internet but with the new system the whole Department could access the internet.

DISCUSSION:
Ms. Dill feels this is a reasonable request to increase the bandwidth and inquired what measure the Department has to put this in place to insure the internet is maintained for business purposes only. Mr. Mendez would like to decrease some of the internet restrictions if the bandwidth is increased. Currently all staff are on the internet with restrictions due to the billing system.

Manager Craddick mentioned most of the employees have signed the current Standard Operating Procedures (SOP). The SOP was sent to the union for review but once the Department made employees signed the SOP, the union took the SOP more seriously. The Department is waiting to hear back from the union.

Chair Nishimura inquired if Mr. Mendez will be maintaining the existing service or deleting the service once the new service starts. Mr. Mendez will keep the exiting service but in the new fiscal year, IT will budget to double the bandwidth service. With a 20 mg bandwidth, a redundancy would be in place if one of technology is down especially when the billing system is up and running. Eventually one of the services will be eliminated.

Mr. Dill moved to approve to *Manager's Report No. 13-22* – Requesting Board Approval to Purchase Internet Bandwidth Services; seconded by Mr. Oyama; with no objections, motion was carried with 6 ayes.

5. **Manager's Report No. 13-23 – Request Board Approval to Amend the FY12-13 Budget to Fund the Short Term Engineering Program Assistant**

BACKGROUND:
Manager Craddick announced that the Deputy's Secretary resigned and short term Engineering Program Assistant would be the person to do this work. The Department is ready to put jobs out to bid. The Department probably would not get this position through the normal channels. There are enough funds in the budget for salaries that have not been used and no change on the bottom line in the budget.

DISCUSSION:
Mr. Craddick assured the Board that $24,000 is adequate for two 89-day assignments each. Manager Craddick added that the process for the permanent Deputy Secretary position has begun.

Mr. Dahilig moved to approve *Manager's Report No. 13-23* – Request Board Approval to Amend the FY12-13 Budget to Fund the Short Term Engineering Program Assistant; seconded by Mr. Oyama; with no objections, motion was carried with 6 ayes.

6. **Manager's Report No. 13-24 – Request Board Approval to Amend the 2012-2013 Budget to Fund the Short Term Billing Service Assistant**

BACKGROUND:
Manager Craddick explained that the Department has begun the new billing system and has been short one person the last six months. The Department thought that the Billing Service Assistant position would be filled when the reorganization was done. A temporary position is needed until the Department of Personnel (DPS) completes their reorganization and evaluation; then a permanent person can be hired. There is one person performing this position twice as many times along with additional duties. One person will get retroactive pay back when the request was originally made.
Ms. Yano confirmed that the $14,000 funding is sufficient for a two 89-day contract hire. This is a data entry level position with no benefits.

Mr. Nakaya moved to approve *Manager's Report No. 13-24* - Request Board Approval to Amend the 2012-2013 Budget to Fund the Short Term Billing Service Assistant; seconded by Mr. Oyama; with no objections, motion was carried with 6 ayes.

At 11:51 a.m., Chair Nishimura called for a 10-minute recess.

At 12:08 p.m., Chair Nishimura called the meeting back to order.

STAFF REPORTS
Re: Statement of Kaua'i County Water Department's Revenues and Expenditures

PRESENTATION:
Ms. Yano referred to Page 63 *(iPad)* of the Fiscal report beginning with the Budget Status Summary as of November 30, 2012. The Comparative Charts of Revenues, Receipts and Water Consumption in gallons are on Pages 83 to 85.

At 12:10 p.m., Mr. Shiraishi exits the meeting.

Mr. Dahilig moved to receive the Kauai County Water Department's Revenues and Expenditures; seconded by Mr. Oyama; with no objections, motion was carried with 5 ayes.

At 12:11 p.m. Mr. Shiraishi reenters the meeting.

Re: Report by the Public Relations Specialist on Public Relations Activities

PRESENTATION:
Manager Craddick reported for Ms. Buccat who was excused. On January 9th most of the DOW staff and community attended the 1st Annual Joint State Water Conference at Kaua'i Community College. The DOW/PR worked with Department of Health, Water Commission and USGS on the conference which was well attend which may be an annual conference in the future.

Manager Craddick facilitated various community meetings around the island regarding the Water System Development Fee (Kōloa, Kapa'a, Kekaha, Līhu'e, Kīlauea, Hanapēpē and Kalāheo).

The DOW will be participating with the Honolulu Board of Water Supply and other counties in a joint summer water conservation initiative/ad campaign.

The Detect-a-Leak-Week is scheduled for March 11 – 18, 2013.

Mr. Nishimura questioned the Miscellaneous Item regarding the research and reading of the 50-year Annual Report that Manager Craddick requested as is part of the PR Specialist hiring process. Manager Craddick has tried to get a 50-year Annual Report the last two years. There have been sporadic annual reports but nothing has been done yearly. The Annual Report usually includes financial information and a list of CIP projects.

Mr. Nakaya inquired what is the purpose of the record of going back 50 years? Manager Craddick explained the reports would be used as reference materials and a record (i.e., research on the FRC). The annual report would then be done on a yearly basis.

Mr. Dill questioned if the DOW has any programs offered to help customers on their side of the meter to detect leaks. Manager Craddick explained there are no programs set up. The DOW has done this in the past with some public agencies.

Deputy County Attorney Andrea Suzuki mentioned that the DOW tested a leak detection remote meter device but it does not work because the power is not strong enough. This detection device is normally put on a refrigerator. Manager Craddick mentioned that Pural, an off-island company has sophisticated leak detection devices but are very expensive.

Chair Nishimura addressed the issue of the short notices that were sent out on the recent community meetings regarding the Water System Development Fee. Chair Nishimura requested that Limtiaco or the PR Specialist need to post the notices at least one week in advance of any community meetings in the future.

Chair Nishimura questioned if there were any redundancies with the Joint State Water Conference in addition to Hawai'i Water Works Association (HWWA) and the American Water Works Association (AWWA) and if the funding can be spent on the two. Manager Craddick

explained that the Joint State Water Conference funding was used for the brochures that were mailed. The food was grant funded by the state. Chair Nishimura wanted to make sure the rate holders were not paying for the food or other expenses. Mr. Dill expressed it is wise for the Department to send the staff to take advantage of the workshops at no cost. Some staff members were able to receive educational credit (C.U.'s) for attending the afternoon workshops.

Mr. Dill moved to receive the Public Relations Specialist on Public Relations Activities; seconded by Mr. Oyama; with no objections, motion was carried with 6 ayes.

Re: Chief of Operation's Summary Report on Monthly Operational Maintenance

PRESENTATION:
Mr. Reyna highlighted the number of calls that are received for the month. Usually Operations receives 40 or 50 calls. In December, 2012 26 calls were received which was less than normal. Since there were a lot of rain in December, it was hard to distinguished leaks on the road.

The overtime charts reflected higher overtime which previously was trending down. Mr. Reyna called attention to the red chart which is the regular time most of the crew was on vacation. Crew members who were not on vacation were called to do emergency calls which resulted in lots of overtime. Specialized crews were recalled from their vacation for calls (electricians, SCADA electricians, or equipment operators).

Mr. Dill moved to receive the Chief of Operation's Summary Report on Monthly Operational Maintenance; seconded by Mr. Oyama; with no objections, motion was carried with 6 ayes.

Re: Water Resources and Planning Subdivision Report

PRESENTATION:
Mr. Fujikawa's Monthly Subdivision Summary included the following applicants: Kukui'ula Development Co., Princeville Prince Golf Course, R3BST, LLC, Sue Ann Takata; Kenji Yamashiro; Renee Yamashiro; Clayton Yamashiro and KMN, LLC.

Mr. Fujikawa explained to new Board member, Mr. Shiraishi that this report monitors the water activity on subdivisions that is generated by the Planning Department. This report is based on subdivision applications.

DISCUSSION:
Mr. Shiraishi inquired about boundary adjustments. Mr. Fujikawa explained that if a boundary adjustment is required for a subdivision application, and is required by the Planning Department, a boundary adjustment would be generated.

Mr. Dahilig confirmed that a consolidation of a re-subdivision is considered a subdivision. In certain circumstances, in-house it is called an "agency 360" when the Planning Department distributes requests to the various departments to provide input. This law may trigger that no 360 is required for 4 lots with no additional density required. The boundary adjustment may involve 5 or more lots which may hit the Water Department for comment which is an open application.

Mr. Oyama moved to receive the Water Resources and Planning Subdivision Report; seconded by Mr. Dill; with no objections, motion was carried with 6 ayes.

Re: Manager's Monthly Update Regarding Activities of Note of the Kaua`i County Water Department

PRESENTATION:
Manager Craddick highlighted the following DOW activities in December 2012:

1. There were no Contracts awarded.
2. There were no Pump Installation permits.
3. There were no Water, Release and Indemnity Agreements.
4. Personnel Matters – Roll Call was applied to the Operations Division. Administration, Fiscal, Water Resources & Planning, Engineering, Construction Management and Water Quality Divisions participated in a trial run of the Automated Attendance Log. A consultation has been scheduled with HGEA in the later part of January.
   Recruitment Positions and Position Changes occurred in the Operations Division, Fiscal Division, Engineering Division, Construction Management Division, Water Quality Division and Water Resources & Planning Division and Administration.
5. Warrant Vouchers were paid in the amount of $2,212,131.02
6. Conveyance of Water Facility: Honunohu Ranch Condominium and Aukahi Farm, LLC. Total $26,000.00
7. Water Quality Report – No violations
8. County Attorney Quarterly Report - No claims settled
9. Recap of Manager's Meeting at NRWA and WUC –
   The water loss issue group did not want to impose on the members to do a water loss analysis. Halifax has done a good program on water loss which they track. Manager Craddick and the Halifax representative got the board to agree that this is an important issue and thank the committee for their work and recommendation to every utility to monitory their water loss. Manager Craddick noted that the DOW is working on a water loss program.
10. Limtiaco Update - Community Informational Meetings were held around the island to gather input on the proposed fee structure (Kōloa, Kapa'a, Kekaha, Līhu'e, Kalāheo, Hanapēpē and Kīlauea). Board Chair Nishimura, Mr. Nakaya and Mr. Oyama attended the some of the meetings. Mr. Dill will attend the Kīlauea meeting. Manager Craddick is available to speak to individual groups.
11. CC&B Billing System Update – Miss Nadatani-Mendez presented this report (refer to Page 2 of minutes).
12. IT Strategic Plan Update – This was sent to the Board members for comments and will be on the February agenda. One item on the account system was funds were not put in to replace the system, which is a draft change.
13. Atrazine Settlement Update – The DOW received $6,692.96 to reimburse the costs of water source testing for Atrazine.
14. Affordable Housing Update – An update will be provided after the next Task Force meeting is held.

Mr. Dahilig moved to receive the Manager's Monthly Update Regarding Activities of Note of the Kauai County Water Department; seconded by Mr. Oyama; with no objections, motion was carried with 6 ayes.

a. Report of the BAB Bond pay down as of December 2012

DISCUSSION:
Chair Nishimura requested information about the projection of the Building America Bond (BAB) spend down if it will be encumbered by May.

Manager Craddick explained there a lot of expansion projects. Jobs will not be awarded until the DOW decides on the development fee to repay that money. The Department should look at other replacement projects. If there are expansion jobs that are ready to bid. Buildings are a non-recurring issue which should be funded with borrowed money, not paid out of cash. If this is done at $6M out of the remaining $21M, it would be a large portion. A portion of the building should be funded by FRC for future expansion.

Chair Nishimura inquired how many dollar value or replacement projects are shovel ready. Mr. Moises, Construction Project Management Officer indicated $10M was done during the current flat period. Manager Craddick added that there is one $11M for the 'Anini Beach project that may be broken in phases which will be ready in two months.

Mr. Moises indicated $10M could have been spent down but there was a different priority to fund expansion from BAB from the last budget cycle.

Manager Craddick provided an explanation for Mr. Shiraishi on BAB. The BAB is out of the Build America Recovery & Re-Investment Act which is grant money. A sub-portion of BAB is the recognition that people were use to be able to issue a tax exempt bond but there wasn't a market for them because everyone was dealing with financial losses. Public agencies could not issue the normal tax-exempt bonds. The BAB was to issue taxable bonds but the government would pay a portion of the interest rate to make the utility pay the normal interest rate that a non-taxable bond would pay. The DOW is getting a 35% subsidy which is $1M a year and will go into the interest. All the funds should be encumbered by March 2013.

Mr. Dahilig moved to receive the Report of the BAB Bond pay down as of December 2012; seconded by Mr. Oyama; with no objections, motion was carried with 6 ayes.

QUARTERLY

1. Quarterly Update on Project Status

a. Construction Management Division Status

PRESENTATION:
Mr. Moises highlighted the Design projects in the Executive Summary and significant changes in the quarter. The Special Project Division and Design & Construction Divisions were officially reorganized into the Construction Management (CM) and Engineering Division in August 2012. The update reflects projects currently within the CM Division. The Engineering Division is the new design division.

October 17, 2012 was the first Public Meeting on the Kahili Horizontal Directional Drilled Well. The prep meeting notice was posted this month. At this meeting all Board members were distributed a CD on the Environmental Impact Statement, Preparation Notice, Kaua'i Water

System Energy Conservation. The sub-consultants are already doing field visits on all of the sites. A public scoping meeting is planned for March or April with all of the sites determined.

The County Council approved the Zoning Amendment on the Līhu'e facility base yard improvement on the triangle. Use Permits will be submitted in a month. The final plans and specs will arrive tomorrow for review. Mr. Moises project should start in April or May based on agency approvals.

Design Item 3, Pipeline Replacement along Waipouli and Olohena Roads and Item 4, Wailua Houselots Main Replacement were pulled from BAB due to SRF agreements that were made for the grant funding and to use cash funds for the water utility.

The three projects that went out the beginning of the year were cash funded which are not reflected on the BAB spend down. With the transition of the reorganization, the Department will succeed again in time. A few of construction projects have been completed and new projects have started.

Mr. Dill congratulated Mr. Moises for receiving his Professional Engineering (P.E.) license recently which is a significant accomplishment.

Chair Nishimura inquired about cash funding of the three projects on the dollar amount. Mr. Moises indicated it was $9M for replacement projects. Wailua Houselots was SRF and had to upfront the cash $4.5M. Mr. Moises received a $750,000 grant from Department of Health (DOH) for submitting a green project. In total, $4M was taken from DOH for construction which saves the Department $150,000. The Waipouli Olohena Road and the Phase 2 of the Fuji Beach project is $4.5M cash funded from CIP.

Manager Craddick indicated there are a lot of projects to spend on BAB which are all expansion projects except the building. Not all projects are expansion projects and there would be a ratio to decide if they are expansion or replacement. This is a non-re-occurring job and a prime candidate for debt funding.

At 12:49 p.m., Mr. Dill exited the meeting.

Mr. Oyama moved to receive the Quarterly Update on Project Status on the Construction and the Management Division Status; seconded by Mr. Nakaya; with no objections, motion was carried with 5 Ayes.

1. <u>Quarterly Update on Project Status</u>
b. Engineering Division Design Status

<u>PRESENTATION</u>:
Mr. Zambo referred to Pages 119-128 of the Engineering Design projects which are Department funded. The private jobs were omitted but will be submitted in the next quarterly report. Phase 1 of the 'Anini Beach project has been submitted for final comments.

Mr. Shiraishi moved to receive the Quarterly Update on Project Status for the Engineering Division Design Status; seconded by Mr. Oyama; with no objections, motion was carried with 5 ayes.

Quarterly Update on Affordable Housing

PRESENTATION:
Manager Craddick has not met with Affordable Housing but reported the county will be doing affordable housing in Eleele and Līhu'e.

The DOW is getting a transmission line to pump water at a lower elevation between Hanapēpē and Eleele, a CIP request if it gets funded. There will be support from the county Administration.

Mr. Oyama questioned if the water comes from the tank above. Manager Craddick indicated there is a lower tank at the bottom of the subdivision in Hanapēpē. With the transmission line, the tanks would fill together so it would not have to pump the water to high and come down. There needs to be a tank put in as a booster pump at the bottom and a tank at the top. A consultant is still working on the design. Mr. Craddick feels this would not be a wise use of electricity.

Mr. Moises commented that in 2007 the affordable housing development was going to be located in Līhu'e. If the Department supports initiatives for county related affordable housing on the land use area, the Department should develop source, storage and transmission. It takes four to five years to complete. The area has been well defined than in the past. The current area where the affordable housing is located is not in the area where the Department initiated these projects. The Department needs to be more informed before consultants are hired and to reprioritize Water Plan 2020.

Mr. Nakaya moved to receive the Quarterly Update on Affordable Housing; seconded by Mr. Oyama; with no objections, motion was carried with 5 ayes.

TOPICS FOR NEXT WATER BOARD MEETING *(February 2013)*
1. Public Hearing for Public Benefit Zone
2. IT Strategic Plan
3. Operations Inventory Report
4. Board Goals and Annual Evaluation for the Manager & Chief Engineer
   Chair Nishimura has been in touch with Boards and Commissions they do not have a comprehensive evaluation form. The Board will be using the old form.
5. Hawai'i Water Agency Response Network (HIWARN) Mutual Aid Agreement
6. Purchase of a Water System

TOPICS FOR FUTURE WATER BOARD MEETINGS
1. Draft Budget (FY 2013-2014) *(March 2013)*

UPCOMING EVENTS
1. 39th Annual AWWA Hawai'i Section Conference Honolulu, HI *(May 7-10 2013)*
2. AWWA Annual Conference, Denver, CO *(June 9-13, 2013)*
   Chair Nishimura recommended Mr. Shiraishi attend next year.
3. HWWA Hawai'i Section Maui, HI *(October 23-25, 2013)*

NEXT WATER BOARD MEETING

1. Thursday, February 28, 2013, 10:00 a.m.
2. Thursday, March 21, 2013, 10:00 a.m.
3. Thursday, April 25, 2013, 10:00 a.m.
4. Thursday, May 21, 2013, 10:00 a.m.

At 1:10 p.m., Mr. Dahilig moved to go to Executive Session on Item J3; seconded by Mr. Oyama; with no objections, motion was carried with 5 ayes.

EXECUTIVE SESSION*:*

Pursuant to H.R.S. §92-7(a), the Board may, when deemed necessary, hold an executive session on any agenda item without written public notice if the executive session was not anticipated in advance. Any such executive session shall be held pursuant to H.R.S. §92-4 and shall be limited to those items described in H.R.S. §92-5(a).

1. *Pursuant to Haw. Rev. Stat. §§92-4 and 92-5(a)(4) the purpose of this executive session is to receive and consider a letter from the Manager and Chief Engineer responding to certain inquiries posed by the Board at the October 25, 2012 Board meeting. The purpose of this to consult with the Board's attorney on questions and issues pertaining to the Board's powers, duties, privileges, immunities, and liabilities as it relates to the Manager's response letter dated October 29, 2012.*

[Not entertained]

2. *Pursuant to Hawai'i Revised Statutes Sections 92-4 and 92-5(a)(4), the purpose of this executive session is to provide the Board with a briefing regarding the Re-Establishment of Assistant Chief of Operations - Position #2400. This briefing and consultation with the Board counsel involves the consideration of the powers, duties, privileges, immunities and/or liabilities of the Board and the Department as they relate to this agenda item.*

[Not entertained]

3. *Pursuant to Haw. Rev. Statues Sections 92-4 and 92-5(a)(6) the purpose of this executive session is to consider sensitive matters related to public safety or security.*

ADJOURNMENT

There being no further business, Chair Nishimura adjourned the Regular Board meeting at 1:10 p.m.; with no objections, motion was carried.

Respectfully Submitted,

Edie Ignacio Neumiller
Commission Support Clerk

Approved,

Sherman Shiraishi
Secretary – Board of Water Supply

DRAFT

Correspondence

DEPARTMENT OF WATER

County of Kaua'i

"Water has no Substitute – Conserve It!"

MANAGER'S REPORT NO. 13-23:

January 24, 2013

Re. Request Board Approval to Amend the 2012-2013 Budget to Fund the Short Term Engineering Program Assistant

RECOMMENDATION: It is recommended that the Board approve the request to amend the budget to fund the short term Engineering Program Assistant.

BACKGROUND: The Department is in need of further support in the areas of noticing upcoming projects and finalizing contracts. The support was available for the latter half of last year. Still the demands for keeping up with the construction projects are high and with a recent vacancy of a support position in Administration, we face a lag in getting the projects out in a timely manner. Funding for this position may require two 89-day appointments. Your approval for this is sincerely appreciated.

FUNDING:
FISCAL - Salaries #15

Administration
Contract Hire (Short Term)..... ($24,000)

Respectfully Submitted,

David R. Craddick, P.E., C.E.M.
Manager and Chief Engineer

Attachment: Engineering Program Assistant Position Description dated 12-13-10

DCP:mjg
Mgrrp/Regular/January 2013/Engineering Program Assistant (1-24-13):mjg

---4398 Pua Loke Street, Lihu'e, Kaua'i, Hawai'i or P. O. Box 1706, Lihu'e, HI 96766-5706---
Phone No. (808) 245-5400 – Administration FAX No. (808) 246-8628 – Engineering/Fiscal/Shop FAX No. (808) 245-5813

REGULAR BOARD MEETING: Thursday, January 24, 2013
Board's Decision: ☒APPROVED - ☐ DENIED - ☐ DEFERRED ☐ Received for the record ☐ Information only ☐ Defer Indefinitely
Notations: Michael Dahilig moved to approve, seconded by Roy Oyama; with no objections motion was carried with 6 ayes
Board Members Present: Chair, Randall Nishimura, Michael Dahilig, Larry Dill, Roy Oyama, Clyde Nakaya, Sherman Shiraishi
Board Members Absent & Excused: Raymond McCormick

DEPARTMENT OF WATER

County of Kaua'i

"Water has no Substitute – Conserve It!"

MANAGER'S REPORT NO. 13-24:

January 24, 2013

Re: Request Board Approval to Amend the 2012-2013 Budget to Fund the Short Term Billing Services Assistant

RECOMMENDATION: It is recommended that the Board approve the request to amend the budget to fund the short term Billing Services Assistant.

BACKGROUND: The Department has been experiencing a major lag in upkeep of the information needed to transition to and to maintain the updated records in new monthly Billing System. The Department of Personnel Services has not completed the Department's request to update the Billing Section positions and include the budgeted NEW positions in the Fiscal Division. In line with that, the Department of Water has had a vacant position in the Billing Section since August 2012, while trying to train and transition into the new billing system.
There is a potential for loss revenue by not keeping up with the needed support in the Billing system that it has become crucial to fill a short term position, at least, at this time. Thank you.

FUNDING:
FISCAL - Salaries #15

Accountant II (Vacant - Pending DPS Approval)	$ 39,000
Contract Hire (Short Term)	(14,000)
REMAINING BALANCE	$ 25,000

Respectfully Submitted,

Marites Yano
Waterworks Controller

Concurred:

David R. Craddick, P.E., C.E.M.
Manager and Chief Engineer

Attachment: Billing Assistant Position Description v 1-14-13

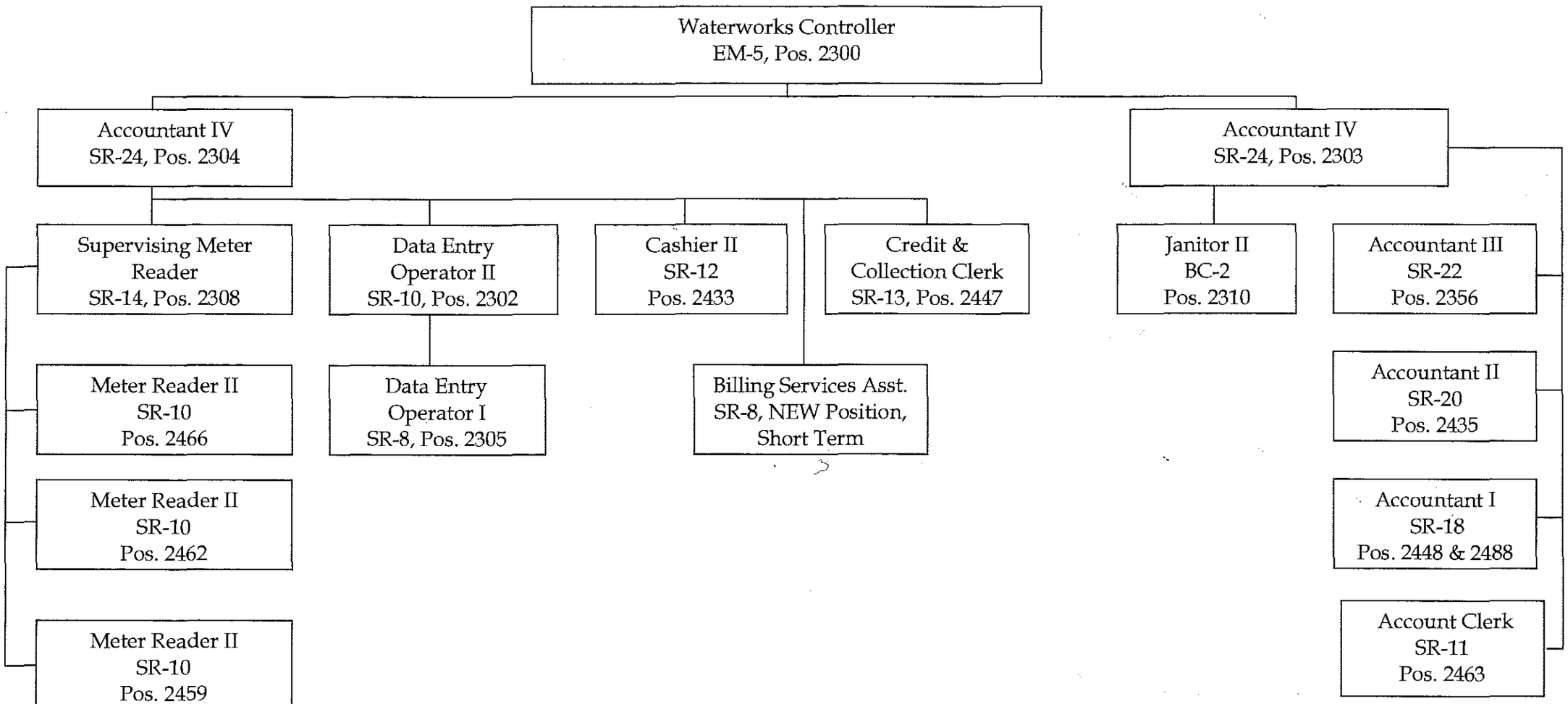
DCP:mjg
Mgrrp/Regular/January 2013/Billing Services Assistant (1-24-13):mjg

REGULAR BOARD MEETING: Thursday, January 24, 2013
Board's Decision: ☒APPROVED - ☐ DENIED - ☐ DEFERRED ☐ Received for the record ☐ Information only ☐ Defer Indefinitely
Notations: Clyde Nakaya moved to approve, seconded by Roy Oyama; with no objections motion was carried with 6 ayes
Board Members Present: Chair, Randall Nishimura, Michael Dahilig, Larry Dill, Roy Oyama, Clyde Nakaya, Sherman Shiraishi
Board Members Absent & Excused: Raymond McCormick

PREPARED BY: _____ 1/24/2013
DEPARTMENT HEAD DATE

APPROVED BY: _____
BOARD CHAIRPERSON DATE

COUNTY OF KAUAI
KAUAI DEPARTMENT OF WATER
ORGANIZATION CHART
FISCAL DIVISION



DEPARTMENT OF PERSONNEL SERVICES
COUNTY OF KAUAI
4444 RICE STREET, SUITE 140
LIHUE, HI 96766

Date: January 30, 2013

TO: **DEPARTMENT OF WATER**

FROM: **THOMAS TAKATSUKI, HUMAN RESOURCES MANAGER II**

SUBJECT: **INITIAL ALLOCATION**

Position No.(s) 10103 Incumbent(s) Vacant

New Class Billing Services Assistant
Salary Range Assigned Unclassified
Wage Board Assigned

Existing Class
Salary Range Assigned
Wage Board Assigned

Effective Date 1/30/13

Note:
As requested, per Board of Water approved on January 24, 2013

Human Resources Manager II

Attachment: Position Description ☒ Department
☒ Employee
Class Specification ☐

cc: Finance Department

Form 400 (Rev 10-10)

JAN 28 2013

Position No: 10103

County of Kaua'i Position Description

1. For specific information on preparing position descriptions, please review the Department of Personnel Services (DPS) Personnel Procedures, Chapter A4.401, Preparation of Position Descriptions.
2. This form is a basic Word Table. To navigate around the form, use the TAB key to move forward, and SHIFT-TAB to move backward, or use your mouse to move to a specific field.
3. Complete every item; if not applicable, so indicate. Press F1 for Help with each item.
4. Be accurate. This is an official document upon which classification determinations will be based. In addition, it may be utilized for other personnel related processes, including performance evaluations.
5. When saving the document, the file name should include the position number followed by date (m-d-yy) in parentheses, e.g. 001 (10-10-10).
6. To complete processing, submit the completed position description through appropriate channels. Incomplete forms may be returned for completion.
7. By submitting this position description, the Appointing Authority certifies that the information provided herein is accurately described and the duties and responsibilities are consistent with the approved organization chart.
8. ***This position description is not considered official until action is taken by the Director of Personnel Services.***

Department of Personnel Services Use Only

Allocation:	**Billing Services Assistant**
Class Code:	**10103**
Pay Range:	**Unclassified**
Effective:	**1/30/13**
BU:	
Supervisory:	**Non-supervisory**
Act 64:	No
Other:	Initial Allocation, Short-term
PPD:	
Reference:	
Appointing Authority:	**David R. Craddick** **Manager and Chief Engineer**
Classification Approved:	
Date:	**1/30/13**

Present Class	New		Department	Water
Present Pay Range			Division	Fiscal
Present Class Code			FLSA	
Position Status	Permanent		Other	
	F/T ☒ P/T ☐ # Hrs		Work Location	Lihue
Immediate Supervisor	Position No. 2304	Class Title and Pay Range Accountant IV, SR-24		
Subordinates	Position No.	Class Title and Pay Range		
Licenses or Certificates required to perform the essential functions of this position				
Equipment or tools regularly operated or used. (For trucks, provide GVW, TARE weight & license number.)	Personal Computer, phone, fax, copy machine.			
Special Work Requirements				

DESCRIPTION OF THE MAJOR DUTIES AND RESPONSIBILTIES ASSIGNED OR DELEGATED TO THIS POSITION.
List only those duties that are part of the regular work of this position throughout the year. List the duties in order of importance or frequency and combine related details. Environmental and physical demands, hazards, and/or unusual isolation involved in the performance of the work must be identified for each duty or group of duties. Opposite each description of a duty or group of duties, enter the approximate percentage of time devoted to that work. Percentages of time for all duties and responsibilities must total 100%. Enter in the last column, the appropriate ADA indicator(s) as shown below:

(1) The performance of this function is the reason that the job exists.
(2) The number of other employees available to perform this function is limited.
(3) This function is highly specialized, and employee is hired for special expertise or ability to perform this function.

#	Description of Duties and Responsibilities	% of Time	ADA Indicator (s)
General Summary: (Describe the overall purpose and objective of this position) Under the immediate supervision of the Accountant IV. Assists the Billing Section staff providing clerical support in the areas of customer service that include water applications, complaints, payments, meter relocations and other requests for service.			
1	Answers billing inquiry calls relating to customer accounts and billing inquiries. Provides information regarding water charges and services. Assists customer service staff as needed.	20%	1,2
2	Assist handling mail collections (opening mail, bank, S&L collections) making sure each payment is accounted for; balances check totals with stub totals. Review letters accompanying payments relating to name and address changes or corrections, termination of service, return receipts, account status, high bills, etc. and prepare necessary forms for processing.	20%	
3	Assists Billing staff in the transition of the change from CAS bi-monthly billing system into CC&B monthly billing program. The impact on the volume of daily transactions is anticipated to double up with this change.	25%	
4	Assists customers and applicants with processing applications for the establishment, discontinuance, or transfer of services, changes of address, etc.	5%	1,2
5	Assists inputting "Tenant Deposit" from Customer Service Representatives in computer system and maintains Tenant Deposit Accounts.	5%	1,2
6	Receives applications for agricultural rates. Assists in the determination if an application needs engineering approval.	5%	1,2
7	Assists with the Automatic Bill Payment Program (ABP) and updates the ABP service payment file for disputed accounts.	5%	
8	Provides information to the public regarding policies, rules and regulations on water services.	5%	1,2
9	Follows up on job orders to determine status. Assists with customer file updates.	5%	1,2
10	Performs other duties as directed.	5%	

Department of Water,
County of Kaua'i

IT Strategic Plan

Version #1
DRAFT
11/29/2012

EMA
Improving Performance Through
PEOPLE & IDEAS

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This Information Technology Strategic Plan (ITSP) recommends new technology, technology upgrades, and related support activities. These recommendations are based on an analysis of current needs as well as an evaluation of available solutions and the costs of various alternatives to address the needs of the Department of Water (DOW).

The analysis of the current situation builds upon the work completed by DOW in its Long Term IT Strategic Plan (March 2012). After reviewing this material, EMA interviewed DOW staff from all business areas, documented their concerns and ideas, and evaluated the technology that is currently in place. EMA worked with DOW managers to develop a vision for information technology and then crafted a series of recommendations to move the department toward the vision. These recommendations were then reviewed and refined by DOW personnel.

Vision Identifies Expected Outcomes of IT Investments

The priorities in this plan reflect the following vision for information technology:

The Kaua'i Department of Water will design and deploy information technology to:

- Broaden Information Access while Maintaining Security
- Streamline Processes and Reduce Shadow Systems
- Provide Geographic Representation of Enterprise Data
- Measure Operational Performance
- Control Initial and Ongoing Costs
- Utilize Existing Staff to as Great a Degree as Possible

Recommendations Support Vision

The plan includes ten major recommendations that support this vision. The following matrix introduces the recommendations and indicates which elements of the vision are supported.

RECOMMENDATIONS	Broaden Access	Streamline Work	Geographic Data	KPIs	Control Costs	Existing Staff
1. Redevelop Chart of Accounts and Re-implement FIS		✓		✓	✓	✓
2. Relax Internet Access Restrictions	✓				✓	✓
3. SharePoint for Document and Project Management	✓	✓			✓	✓
4. Develop Web-based GIS Viewer and Map Layers	✓	✓	✓		✓	
5. Develop Capabilities for Asset-based Work Orders		✓	✓	✓	✓	✓
6. Automate SOP's for Routine Work		✓		✓	✓	✓
7. Use Computer-aided Map & Drawing Maintenance Tools	✓	✓	✓		✓	✓
8. Upgrade Wonderware and Servers			✓	✓	✓	
9. Develop KPI Reports from CMMS and FIS	✓			✓	✓	✓
10. Upgrade IT Infrastructure & Expand IT Support	✓				✓	✓

Recommendations Provide Variety of Benefits

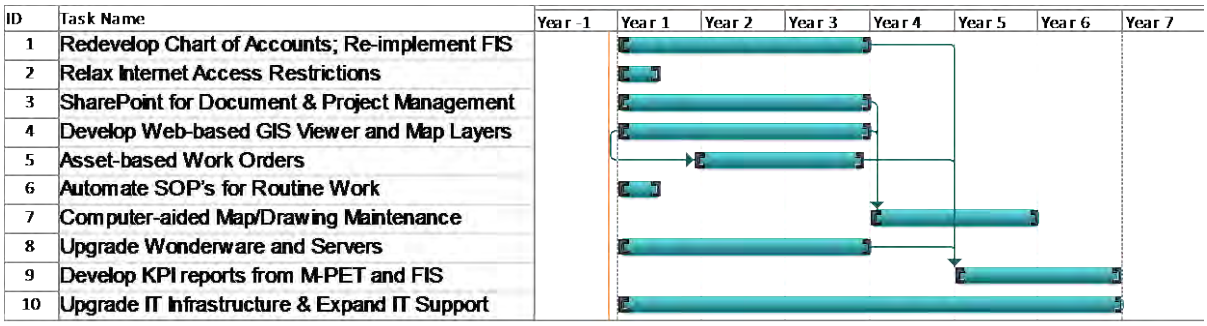
Each recommendation includes quick wins and possibly longer term investments. Quick wins are actions that can be taken in a matter of weeks with limited investment. Longer term investments may include new technology purchases, new personnel, and/or contract services. Following is a brief summary of each recommendation, including benefits and quick wins.

Recommendation	Description	Benefits and Quick Wins
1. Redevelop Chart of Accounts and Re-implement FIS	• Reduce number of accounts and build them based on fund, organizational unit, and object • Re-implement Dynamics GP to remove customization and introduce budgeting, encumbrances, project accounting, and item master with commodity codes • Develop interface to CC&B to post daily receivables and receipts	**Benefits** • Support accepted accounting standards • Improve financial data • Improve budget control and financial analysis capabilities • Reduce, or eliminate, shadow accounting processes **Quick Wins** • Give users read-only access to POs (reduce internal requests for PO status checks)
2. Relax Internet Access Restrictions	• Relax website blocking • Develop and enforce internet access policies (monitor usage) • Fully deploy Symantec Endpoint Protection	• Improve productivity (eliminate lost time waiting for and activating clearance) • Improve morale by demonstrating trust • Entire recommendation is Quick Win
3. Migrate to SharePoint for Document and Project Management	• Implement SharePoint for Document Management • Use digital signatures • Use SharePoint workflow to manage responses • Create CIP project sites with links to project documents and FIS data	**Benefits** • Broader, faster access to documents and project data • Less paper • Improves productivity • Streamlines project management tasks **Quick Wins** • Digital signatures reduce paper immediately
4. Develop Web-Based GIS Viewer And Map Layers	• Implement enterprise GIS with data on all assets • Use asset references to automatically map work orders • Develop maps of major projects and operational data (flows, water quality) • Develop web-based map viewer for all DOW staff	**Benefits** • Provide easy access to maps • Improve data and decision quality • Streamlines access to asset and project documentation • Support asset-based work orders **Quick Wins** • “Starter” web application provides access to existing maps

Recommendation	Description	Benefits and Quick Wins
5. Develop Capabilities for Asset Based Work Orders	• Create asset number for each linear asset • Complete field maps (including asset numbers) • Track work and costs against specific assets • Consider replacing M-PET • Build service request interface from CC&B to CMMS	**Benefits** • Improve decisions on asset renewal and replacement (using operations data specific to the asset) • Eliminate retyping of work orders from CC&B **Quick Win** • Capturing available field asset numbers in M-PET (start developing assert history)
6. Automate SOPs for Routine Work	• Develop SOPs for routine maintenance jobs and meter installations • Copy these into M-PET instead of retyping for each work order	• Eliminates need to excess typing • Entire recommendation is a quick win
7. Use Computer-aided Map and Drawing Maintenance Tools	• Convert all mylar and paper maps and drawings to SharePoint. • Create GIS layer with images of paper maps. • Link digital drawings to map (GIS document portal) • Require digital submittals from contractors.	**Benefits** • Improve access to information • Improve map accuracy • Update maps and drawings faster **Quick Wins** • Require digital submittals to avoid scanning contractor paper
8. Upgrade Wonderware and Servers	• Develop specification for upgrade of the Wonderware system to the latest release. • Evaluate need for replacement of servers and other hardware. • Evaluate communication infrastructure reliability and resiliency. • Procure system integrator services on an evaluated bid basis.	• Improve reliability (and prevent deterioration and obsolescence) of a mission critical system • Maintain current system to as great a degree as possible, thereby minimizing cost • There are no quick wins; this is essential IT maintenance
9. Develop KPI Reports	• Review and evaluate KPI alternatives for the water industry • Define KPIs that can be extracted from existing systems • Develop the algorithms and create presentation techniques	• Use a “best business practices” approach to utility management • There are no quick wins; this recommendation depends on completion of other initiatives
10. Upgrade IT Infrastructure and Expand IT Support and Resiliency	• Add an IT Position with Skills in Network Communications, Servers, and SCADA • Train IT Staff • Investigate Development of Countywide GIS database • Provide VPN wireless for mobile workforce • Replace older wiring • Investigate faster ISP • Add wireless to board room	• Greater independence for application administration • Greater operational resiliency • Reduce GIS costs • Provide faster, more reliable internet access • Provide access to board agenda packet

Six-year Timeline Addresses Priorities within Resource Constraints

The quick wins described above can be implemented immediately with minimal investment. The longer term activities have been scheduled over a six year period based on relative priorities, interdependencies among the recommendations, and DOW resource constraints. The following graphic provides a high level overview of the timing of the recommendations.



Recommended Program is Financially Sound

Some of these recommendations are strategic in nature, meaning that they are necessary for the DOW to maintain level of service. Other recommendations will improve level of service, increase productivity, or allow the DOW to avoid or reduce costs of service. The strategic and financial impact of each recommendation is discussed in the body of the report. The table below provides a high level overview of the financial impact of each recommendation. The high ends of the cost ranges include relatively more new hardware and software than the lower ends of the ranges, and they also include the cost of exiting DOW personnel with respect to their participation in the various projects. The low ends of the ranges exclude the cost of existing DOW personnel and assume that DOW will be able to leverage more of its existing technology.

	Cost Range		Benefits	Net Present Value		Annualized ROI	
(Present Values in 000's)	***Low***	***High***	***thru yr 6***	***Low***	***High***	***Low***	***High***
1. Redevelop Chart of Accounts and Re-implement FIS	$310	$600	$1,096	$495	$786	14%	42%
2. Relax Internet Access Restrictions	$2	$27	$51	$24	$50	15%	516%
3. SharePoint for Document and Project Management	$207	$303	$548	$245	$341	13%	27%
4. Develop Web-based GIS Viewer and Map Layers	$144	$379	$853	$474	$709	21%	82%
5. Develop Capabilities for Asset-based Work Orders	$46	$474	$314	($160)	$324	-6%	116%
6. Automate SOP's for Routine Work	$0	$20	$2	($18)	$2	-15%	1142%
7. Use Computer-aided Map and Drawing Maintenance Tools	$18	$92	$87	($5)	$69	-1%	64%
8. Upgrade Wonderware and Servers	$192	$355	$202	($152)	$11	-7%	1%
9. Develop KPI Reports from CMMS and FIS	$85	$201	$197	($4)	$111	0%	22%
10. Upgrade IT Infrastructure & Expand IT Support	$69	$564	$38	($527)	($31)	-16%	-8%
TOTAL PROGRAM	**$1,073**	**$3,015**	**$3,389**	**$374**	**$2,372**	**2%**	**37%**

2 ITSP PURPOSE, VISION AND METHODOLOGY

This Information Technology Strategic Plan (ITSP) recommends new technology, technology upgrades, and related support activities. These recommendations are based on an analysis of current needs as well as an evaluation of available solutions and the costs of various alternatives to address the needs of the Department of Water (DOW).

The analysis of the current situation builds upon the work completed by DOW in its Long Term IT Strategic Plan (March 2012). After reviewing this material, EMA interviewed DOW staff from all business areas, documented their concerns and ideas, and evaluated the technology that is currently in place. See Appendix A for a list of personnel interviewed and Appendix B for interview notes.

After completing these interviews, EMA worked with DOW managers to develop a vision for information technology and then crafted a series of recommendations to move the department toward the vision. These recommendations were then reviewed and refined by DOW personnel.

Vision

The priorities in this plan reflect the following vision for information technology:

The Kauaʻi Department of Water will design and deploy information technology to:

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- Streamline Processes and Reduce Shadow Systems
- Provide Geographic Representation of Enterprise Data
- Measure Operational Performance
- Control Initial and Ongoing Costs
- Utilize Existing Staff to as Great a Degree as Possible

The plan includes ten major recommendations that support this vision. The following matrix introduces the recommendations and indicates which elements of the vision are supported.

RECOMMENDATIONS	Broaden Access	Streamline Work	Geographic Data	KPIs	Control Costs	Existing Staff
1. Redevelop Chart of Accounts and Re-implement FIS		✓		✓	✓	✓
2. Relax Internet Access Restrictions	✓				✓	✓
3. SharePoint for Document and Project Management	✓	✓			✓	✓
4. Develop Web-based GIS Viewer and Map Layers	✓	✓	✓		✓	
5. Develop Capabilities for Asset-based Work Orders		✓	✓	✓	✓	✓
6. Automate SOP's for Routine Work		✓		✓	✓	✓
7. Use Computer-aided Map & Drawing Maintenance Tools	✓	✓	✓		✓	✓
8. Upgrade Wonderware and Servers			✓	✓	✓	
9. Develop KPI Reports from CMMS and FIS	✓			✓	✓	✓
10. Upgrade IT Infrastructure & Expand IT Support	✓				✓	✓

Methodology for Financial Analysis

This report includes a financial analysis for each recommendation. The detailed assumptions are provided in Appendix C. The methodology for this financial analysis is as follows:

- The analysis covers a fixed six-year timeframe (2013 – 2019) and includes only the costs and benefits that occur within that window.
    - *Note:* For most of these recommendations, benefits will continue to accrue beyond this window. The value of these future benefits is not included in the analysis.
- All costs and benefits are presented as present values. For purposes of discounting future cash flows, the inflation rate is assumed to be 1.5%, and the cost of capital is assumed to be 5%.
- The opinion of costs is presented as a range. The low end of the range assumes that DOW leverages relatively more existing hardware and software, and it excludes the cost of existing DOW personnel who may be involved in the implementation of the recommendation (e.g., participation on the project team). The higher end of the range includes all internal staff costs and assumes that more new software and hardware are needed. Some recommendations include the evaluation of the need for software and hardware replacement, and until such evaluation is complete, it is uncertain whether the low or high end of the cost range is more appropriate. Cost projections include:
    - DOW staff time (included in the high end of the cost range)
    - New hardware and software and associated annual maintenance fees
    - Fees for consultants and system integrators, including project management and technical development services
    - Note: Fees for cloud-based application hosting are not included as it is assumed that such costs would be offset by a reduction in costs associated with the local data center.
- The value of productivity benefits and the cost of DOW staff time are calculated based on hourly labor rates of $21, $32, and $40 for junior/clerical personnel, senior/technical personnel, and managers, respectively. These standard hourly wages are burdened with a fringe rate of 65%, and it is assumed that labor costs will rise 2% per year.
- Low and high net present values (NPV) are determined by subtracting the low and high ends of the cost range from the projected tangible benefits. Likewise, a range of annualized return on investment (ROI) values is obtained by dividing the low and high NPVs by the low and high costs and dividing by the planning period of six years.

Existing DOW Staff Commitment

The financial analysis includes the assumptions about the number of hours that existing DOW staff will spend on the implementation of each recommendation. The table below summarizes these assumptions. The tenth recommendation includes the addition of a third IT staff position. There are strategic reasons for this new position that are addressed in the detailed description of the recommendation. Because the total cost of employing this individual is included in the cost estimate for the tenth recommendation, all the labor hours for the position are shown in that recommendation. It is anticipated that this new individual will focus on the SCADA and work management systems as well as network and communications support. For this reason, the

estimated time commitment for existing IT staff is relatively low for the Asset-based Work Order and Wonderware SCADA recommendations.

Estimated DOW Labor Hours to Implement the Recommendations (Total over 6 Years)	Current IT Staff (Two Positions)	New IT Staff Positions	Project Team (Non-IT)
Redevelop Chart of Accounts and Re-implement FIS	2,000 hrs		800 hrs
Relax Internet Access Restrictions	162 hrs		
SharePoint for Document and Project Management	800 hrs		
Develop Web-based GIS Viewer and Map Layers	1,600 hrs		
Develop Capabilities for Asset-based Work Orders	80 hrs		360 hrs
Automate SOP's for Routine Work	16 hrs		8 hrs
Use Computer-aided Map & Drawing Maintenance Tools	40 hrs		200 hrs
Upgrade Wonderware and Servers	40 hrs		200 hrs
Develop KPI Reports from CMMS and FIS	1,000 hrs		500 hrs
Upgrade IT Infrastructure & Expand IT Support		12,480 hrs	
Total Program	**5,738 hrs**	**12,480 hrs**	**2,068 hrs**

The high ends of the cost ranges incorporate the cost of the labor hours shown above. The low ends exclude these hours.

Each of the recommendations is described below. The descriptions identify the business issues addressed and discuss the strategic and financial benefits of the investment. A preliminary opinion of costs and financial analysis are also included. The financial analysis is based on schedule assumptions that are included in each description.

1. Redevelop Chart of Accounts and Re-implement Financial Information System (FIS)

The DOW uses the Dynamics GP software product and owns the core module, which supports general ledger, accounts payable, accounts receivable, budgeting, and procurement. The Department does not own the project cost accounting module.

This recommendation addresses issues with DOW's finance and accounting processes as well as the software used to support those processes. Following is a summary of the issues to be addressed.

Background

The Dynamics GP software in use at DOW is an older version that will need to be upgraded to retain vendor support

The Dynamics GP software was heavily customized. In general, customization makes a software product more difficult to support. In DOW's case, the customizations are also interfering with the exercise of standard accounting practices.

The Chart of Accounts is long and difficult to use and interpret. It does not follow generally accepted protocols for account definition based on fund, organizational unit, and object. Many of the accounts are not used. DOW's auditors have indicated to DOW staff that the current Chart of Accounts is a problem due to its length and structure.

DOW maintains its budget outside of the FIS, and the budget is not organized by the chart of accounts. A shadow accounting system (on spreadsheets) is used to track expenditures against budget line items. This approach is prone to error and creates a significant administrative burden, not only for data maintenance but also for monthly reporting of budget status. It is not possible for DOW staff to see the status of their budget line items in the FIS. They must rely on the published monthly report, which is by definition a month out of date and also does not reflect unpaid amounts from approved/issued purchase orders.

The purchasing process is typically initiated and approved on paper rather than via the FIS, so important information about these transactions is often difficult to find, and there is an unnecessary workload associated with scanning and filing the paper purchasing documentation

DOW does not encumber funds via the approval of purchase orders and does not associate purchase orders with particular GL accounts at the time of purchase approval, so shadow accounting systems (on spreadsheets) are used to determine funds availability and prevent the issuance of purchase orders that exceed budget limits. An accounting supervisor reviews each purchase order to determine which GL codes will be debited when the items/services are

purchased and also reviews budget balances (unrelated to these GL codes) to ensure that there are sufficient funds. The GL codes are included as notes on the purchase order; no financial transactions are entered until goods or services are received, at which point the receipts are distributed per the accounting supervisor's notes.

There are no standard item or part numbers to use on purchase order lines, and there are likewise no commodity codes or standard units of measure in the FIS. The FIS software has functionality to support the creation and maintenance of standard part numbers and commodity codes. Use of such codes supports inventory control, review of previous purchases, and general materials management. In the absence of a master list of parts, DOW uses free form text in all its purchase order lines, making it difficult to research previous purchases.

DOW is not using the out-of-the-box tax and freight fields in the purchasing application. Instead, tax and freight are added as line items to each purchase. This departure from standard practices adds complexity to the accounting process, particularly when there are partial shipments/receipts. The tax and freight line items are entered with a quantity of 1 and are received in full even with a partial shipment, so the Purchasing Clerk must amend the purchase order to add a new set of freight and tax lines for each partial receipt.

All capital project information is tracked in spreadsheets rather than in the FIS. Accounting gets information from Engineering as invoices are paid and also gets some information from the labor distribution prepared by the Payroll Clerk. It is hard to keep track of project status to determine when projects should be capitalized.

There is no contract information (and no corresponding purchase orders) in Dynamics GP, so spreadsheets are used to keep track of contract limits and invoices to date. Separate spreadsheets are maintained by engineering and accounting personnel.

The Department is unable to close its books on a monthly or quarterly basis because of the complex accounting processes and reliance on shadow spreadsheets. Books are closed once per year, and the process takes about three months. Auditors typically make a number of journal entries to correct DOW's books.

Recommended Actions

Provide DOW personnel with training on typical water utility accounting practices, including encumbrances.

Redesign a shorter chart of accounts in a manner that conforms to typical water utility accounting practices. Base the codes on fund, organizational unit and object.

Develop a master list of parts, including standard commodity codes.

Review the out-of-the-box functionality of the latest version of Dynamics GP (including the project accounting module) and develop a plan for implementing this version to support DOW with minimal customization and in a fashion that takes advantage of functionality for budget management, encumbrances, and project accounting. Include a plan for historical data conversion or archival.

Implement the latest version of Dynamics GP, including the following interfaces:

- Interface to Oracle CC&B billing system to post daily receivables and receipts
- Interface to provide computerized maintenance management system with master parts list to be used for inventory management and work order costing

Strategic and Financial Benefits

These actions will position the DOW to utilize generally accepted accounting principles typical of the water utility industry.

They will improve the quality and timeliness of DOW's financial data, providing greater budget control and analytical capabilities.

They will improve access to financial information, which will in turn improve financial decision making.

This recommendation will reduce or eliminate shadow accounting processes that are a drain on productivity and a source of risk with respect to the accuracy and timeliness of financial data.

In addition to these strategic benefits, the following tangible benefits are anticipated:

- Productivity Improvement: Save 50% of the time of a senior full-time-equivalent staff position (FTE) by pulling monthly budget reports from Dynamics GP rather than assembling this information manually
- Productivity Improvement: Provide all personnel the ability to quickly see budget status in Dynamics GP and eliminate manual budget status research. Savings are spread across dozens of employees at all levels and amount to less than an hour to more than several hours per week per person. The total value is assumed to be equivalent to 50% of a senior FTE.
- Productivity Improvement: Eliminate the maintenance of shadow spreadsheets for budget, contracts, and project accounting. This time savings for Accounting and Engineering staff amounts to 1.5 senior FTEs.
- Productivity Improvement: Reduce year end closing effort by approximately 250 senior labor hours per year.

Priority and Schedule Assumptions

This is a top priority recommendation. It is assumed that work will begin in the first year and that it will take 2-3 years to complete all recommended actions. The financial analysis assumes that costs are incurred in the first two years and that benefits accrue beginning in year 3.

Financial Analysis

The present value of the tangible benefits listed above is projected to be over $1M. Costs are projected to range from $310,000 to $600,000, depending on a number of factors including whether or not the costs of existing staff time are included in the analysis. This yields a net present value in the range of $495,000 to $786,000, which translates into an annualized return on investment between 14% and 42%. Even at the more conservative end of the range, there is a good financial business case for this investment. Payback is anticipated in 3-4 years.

The following tables depict cash flows and financial data using the low and high ends of the cost range.

Projections for Low End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	($167,500)	($143,500)	($1,000)	($1,000)	($1,000)	($1,000)
Productivity Benefits	$0	$0	$299,386	$305,373	$311,481	$317,710
Other Benefits	$0	$0	$0	$0	$0	$0
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	($167,500)	($138,717)	($934)	($903)	($873)	($844)
Total Annual Costs	*($167,500)*	*($138,717)*	*($934)*	*($903)*	*($873)*	*($844)*
Cumulative Costs	*($167,500)*	*($306,217)*	*($307,151)*	*($308,054)*	*($308,928)*	*($309,772)*
Productivity Benefits	$0	$0	$279,759	$275,842	$271,981	$268,173
Other Benefits	$0	$0	$0	$0	$0	$0
Total Annual Benefits	*$0*	*$0*	*$279,759*	*$275,842*	*$271,981*	*$268,173*
Cumulative Benefits	*$0*	*$0*	*$279,759*	*$555,602*	*$827,582*	*$1,095,755*
Cumulative Net Benefits	**($167,500)**	**($306,217)**	**($27,392)**	**$247,547**	**$518,655**	**$785,984**

Breakeven Year: 2016-17
Payback Period (in Years): 3
Net Present Value: $785,984
Present Value of Costs: $309,772
Return on Investment: 42.29% *(Annualized)*

Projections for High End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	($51,810)	($59,915)	$0	$0	$0	$0
Contract/Procurement Costs	($250,000)	($238,000)	($3,000)	($3,000)	($3,000)	($3,000)
Productivity Benefits	$0	$0	$299,386	$305,373	$311,481	$317,710
Other Benefits	$0	$0	$0	$0	$0	$0
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	($51,810)	($57,918)	$0	$0	$0	$0
Contract/Procurement Costs	($250,000)	($230,067)	($2,803)	($2,710)	($2,620)	($2,532)
Total Annual Costs	*($301,810)*	*($287,984)*	*($2,803)*	*($2,710)*	*($2,620)*	*($2,532)*
Cumulative Costs	*($301,810)*	*($589,794)*	*($592,598)*	*($595,308)*	*($597,927)*	*($600,459)*
Productivity Benefits	$0	$0	$279,759	$275,842	$271,981	$268,173
Other Benefits	$0	$0	$0	$0	$0	$0
Total Annual Benefits	*$0*	*$0*	*$279,759*	*$275,842*	*$271,981*	*$268,173*
Cumulative Benefits	*$0*	*$0*	*$279,759*	*$555,602*	*$827,582*	*$1,095,755*
Cumulative Net Benefits	**($301,810)**	**($589,794)**	**($312,839)**	**($39,706)**	**$229,655**	**$495,296**

Breakeven Year: 2017-18
Payback Period (in Years): 4
Net Present Value: $495,296
Present Value of Costs: $600,459
Return on Investment: 13.75% *(Annualized)*

Quick Wins

There are two steps that DOW can take immediately to mitigate some of the existing issues. These steps can be taken in the current version of Dynamics GP with minimal investment of time.

First, it is recommended that DOW train Dynamics GP users to create purchase order lines for tax and freight with dollars as the unit of measure and with a quantity equivalent to the total dollar amount of tax and freight. This will allow for partial receipts against the purchase order lines, eliminating the need to amend the purchase order to add more tax and freight lines every time there is a partial receipt. Note: This practice should continue only until the system is re-implemented, at which point DOW should begin using the out-of-the-box functionality for managing tax and freight on purchase orders.

The second quick win is to provide all users with read-only access to purchase orders so that they can monitor the status of their requested purchases. In conjunction with this security change, training should be provided to all users regarding the Department's policy on communication with vendors. Specifically, users should be instructed that it is a violation of department policy to provide an unapproved purchase order number to a vendor, and they should be informed of the consequences of such a violation. Access to purchase orders has been restricted because of prior violations of this policy. By restoring access and reinforcing the policy, the DOW will achieve an immediate improvement in productivity because employees will be able to check the status of their purchase requests independently rather than asking Accounting to check on the status for them. This quick win should also improve workplace morale by demonstrating trust and respect.

2. Relax Internet Access Restrictions

The DOW uses Fortinet software to block access to a wide range of websites. The DOW also uses Symantec software to protect PCs from viruses and other harmful software.

This recommendation addresses issues related to internet access and network security. Following is a summary of the issues to be addressed.

Background

DOW has relatively low bandwidth to connect to the internet. This connection is used by DOW's Billing personnel to access the utility customer service and billing system. Without reliable internet connectivity, Billing personnel are hampered in their efforts to provide good customer service and to process payments and resolve inquiries in a timely fashion. In the interest of preserving bandwidth for essential billing system functions, DOW placed restrictions on general internet usage.

DOW uses Fortinet to block access to websites. Internet access restrictions reduce traffic and thus reduce demands on bandwidth.

The restrictions are also part of a strategy to protect the network from infection with viruses and malware. When a PC is infected, it can take as much as half a day for an IT staff person to make repairs.

As a result of these restrictions, most employees are limited in terms of the web sites they can access, and many of the restricted sites are essential for everyday business. For example, staff have reported difficulty accessing the County's web site as well as sites that provide manufacturer recommendations and other maintenance information related to DOW parts and equipment.

Public Relations staff do not have access to the DOW Facebook page and Twitter account because these internet sites are blocked. As a result, only IT personnel are able to access the sites to post responses.

DOW staff report that they spend many hours looking for alternative sites and requesting and waiting for temporary access to specific sites. In addition to the productivity impact of these delays, the situation has a negative impact on morale because it demonstrates a lack of trust.

Recommended Actions

Relax all Fortinet website blocking for all office personnel who rely on the internet to do their jobs. In conjunction with the liberalization of access, provide refresher training to all affected users regarding the DOW's internet access policies. This includes reinforcement by DOW senior management that violations of internet access policies will be treated as disciplinary issues.

Consider monitoring internet usage to verify that policies are being followed. This may involve the use of special monitoring software but such software may not be necessary if spot inspections reveal that policies are being respected.

Fully deploy the Symantec Endpoint Protection product to prevent infection by viruses and malware, and configure the software to automatically update users' virus libraries. Use email to inform users of new threats that may not be covered by their Symantec software and spot-check devices to ensure that virus libraries are up to date.

Shift responsibility for social media monitoring and responses from IT staff to Public Relations staff.

Strategic and Financial Benefits

This recommendation will improve productivity by eliminating lost time waiting for and activating web site clearances. Specific financial benefits include:

- Productivity Improvement: Reduce time of IT personnel to unblock sites, which amounts to 30 minutes per month (3 hours per year for a Manager and 3 hours per year for a Technician)
- Productivity Improvement: Reduce time spent waiting for IT to unblock sites or navigating around blocked sites. This benefit affects all internet users and is assumed to be 12 hours per month (72 hours per year for Managers and 72 hours per year for Senior personnel)

In addition to these financial benefits, there is a more important intangible benefit arising from the demonstration of trust and the resulting improvement in morale.

Another strategic benefit of this recommendation is that is aligns internet access rights with business responsibility, allowing Public Relations personnel and others to do their jobs more effectively while allowing IT personnel to concentrate on the maintenance and support of DOW's business applications and IT infrastructure.

Note: One of the costs of this initiative is the likely increase in the number of PC rebuilds necessary due to malware infections. This is assumed to be 2 rebuilds per year for a total of 8 hours per year for a Technician.

Priority and Schedule Assumptions

Because this recommendation can be implemented quickly with minimal investment and yields a valuable strategic benefit, it is assumed that implementation will occur in Year 1 and that benefits will accrue immediately.

Financial Analysis

The present value of the tangible benefits listed above is projected to be $51,000 over six years. Costs are projected to range from $2,000 (for additional PC rebuilds due to malware infection) to $27,000 (for additional monitoring utilities should they be found necessary). This yields a net present value in the range of $24,000 to $50,000, which translates into an annualized return on investment between 15% and 516%. Even at the more conservative end of the range, there is a good financial business case for this investment. Payback is almost immediate.

The following tables depict cash flows and financial data using the low and high ends of the cost range.

Projections for Low End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	($277)	($283)	($288)	($294)	($300)	($306)
Contract/Procurement Costs	$0	$0	$0	$0	$0	$0
Productivity Benefits	$8,856	$9,033	$9,213	$9,398	$9,586	$9,777
Other Benefits	$0	$0	$0	$0	$0	$0
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	($277)	($273)	($269)	($266)	($262)	($258)
Contract/Procurement Costs	$0	$0	$0	$0	$0	$0
Total Annual Costs	*($277)*	*($273)*	*($269)*	*($266)*	*($262)*	*($258)*
Cumulative Costs	*($277)*	*($551)*	*($820)*	*($1,086)*	*($1,348)*	*($1,606)*
Productivity Benefits	$8,856	$8,732	$8,609	$8,489	$8,370	$8,253
Other Benefits	$0	$0	$0	$0	$0	$0
Total Annual Benefits	*$8,856*	*$8,732*	*$8,609*	*$8,489*	*$8,370*	*$8,253*
Cumulative Benefits	*$8,856*	*$17,587*	*$26,196*	*$34,685*	*$43,055*	*$51,308*
Cumulative Net Benefits	**$8,578**	**$17,037**	**$25,376**	**$33,600**	**$41,707**	**$49,702**

Breakeven Year:	2013-14	
Payback Period (in Years):	0	
Net Present Value:	$49,702	
Present Value of Costs:	$1,606	
Return on Investment:	515.77%	*(Annualized)*

Projections for High End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	($1,861)	($1,360)	($1,387)	($1,415)	($1,443)	($1,472)
Contract/Procurement Costs	($10,000)	($2,000)	($2,000)	($2,000)	($2,000)	($2,000)
Productivity Benefits	$8,856	$9,033	$9,213	$9,398	$9,586	$9,777
Other Benefits	$0	$0	$0	$0	$0	$0
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	($1,861)	($1,315)	($1,296)	($1,278)	($1,260)	($1,242)
Contract/Procurement Costs	($10,000)	($1,933)	($1,869)	($1,807)	($1,746)	($1,688)
Total Annual Costs	*($11,861)*	*($3,248)*	*($3,165)*	*($3,085)*	*($3,006)*	*($2,931)*
Cumulative Costs	*($11,861)*	*($15,109)*	*($18,274)*	*($21,359)*	*($24,365)*	*($27,296)*
Productivity Benefits	$8,856	$8,732	$8,609	$8,489	$8,370	$8,253
Other Benefits	$0	$0	$0	$0	$0	$0
Total Annual Benefits	*$8,856*	*$8,732*	*$8,609*	*$8,489*	*$8,370*	*$8,253*
Cumulative Benefits	*$8,856*	*$17,587*	*$26,196*	*$34,685*	*$43,055*	*$51,308*
Cumulative Net Benefits	**($3,006)**	**$2,478**	**$7,922**	**$13,327**	**$18,690**	**$24,012**

Breakeven Year:	2014-15	
Payback Period (in Years):	1	
Net Present Value:	$24,012	
Present Value of Costs:	$27,296	
Return on Investment:	14.66%	*(Annualized)*

Quick Wins

This entire recommendation is a quick win.

3. Migrate to SharePoint for Document and Project Management

The DOW uses Stellent software to store and index documents and uses a product called Team to log correspondence and manage responses. Projects are managed on personal spreadsheets. DOW has a license for SharePoint 2010 but is not currently using this for document management. Some users have Microsoft Project licenses, but this tool is not widely used for project management.

This recommendation addresses issues with DOW's document management and project management processes as well as the software used to support those processes. Following is a summary of the issues to be addressed.

Background

The Stellent product is obsolete and underutilized. The Team product is likewise approaching obsolescence and is not used for all correspondence.

Internal documents such as correspondence are printed, manually signed, and then scanned so that the digital images can be stored and indexed in the document management system. In some cases, the paper copies of the documents are also filed. This process is time consuming and inefficient. DOW's attorney reviewed Hawaii Revised Statute 489E-1 related to electronic

transactions, and it appears that DOW can use digital signatures for all documents, including those requiring notarization as well as conveyance documents to be recorded. [1]

Although DOW has multiple scanners, most are unable to scan in color, so Board agenda packet items, correspondence on letterhead, and other materials requiring color have to be sent to IT to be scanned.

Staff are unsure of what to do with paper after it is scanned. There are stacks of paper in and around all the office space, including many duplicate copies of reports and proposals as well as paper copies of material that has been scanned.

Many administrative staff store documents on their personal hard drives or in the Shoyu directory rather than indexing them in Stellent. This limits access to the documents. Also, there may not be a backup if the hard drives go down. When collaborating on these documents, only one person can access a file form the Shoyu directory at a time. The work has to be coordinated carefully so they do not overwrite each other's modifications.

Some administrative personnel have stopped using Team, reportedly because there are a large volume of historical records that are still open, making it difficult to identify records that are truly active. As a result, some records of correspondence are kept in personal spreadsheets; this information does not make it into Teams so nobody else has access to it.

Only IT staff are permitted to index documents in Stellent. Administrative support personnel assemble paper documents for scanning and then rely on IT to scan and index their documents. Documents that are pending the scanning and indexing process are not readily available for reference, and this can be problematic for engineering and operations.

Plans, drawings and other material from consultants and contractors are typically submitted on paper and must be scanned in order for the DOW to maintain digital copies.

Engineers track project status in spreadsheets. Some high level data on the 2020 plan is available on the DOW intranet site. Although these high level descriptions and some spreadsheet data are available on the intranet, there is not a single point of access for all project data.

Recommended Actions

Design a SharePoint-based architecture for document indexing and retrieval.

Use digital signatures on internal documents so that they do not have to be printed and signed manually. Utilize DOW's internal certificates for employees who sign general correspondence but do not sign or notarize legally binding agreements or stamp engineering drawings. Maintain

[1] EMA is not providing DOW with legal advice. We did review relevant Hawai'i statutes identified by DOW's legal counsel for informational purposes. DOW should rely on its attorney for legal guidance with respect to these rules and statutes. See http://www.capitol.hawaii.gov/hrscurrent/vol11_ch0476-0490/hrs0489e/hrs_0489e-.htm and http://www.capitol.hawaii.gov/hrscurrent/Vol12_Ch0501-0588/HRS0502/HRS_0502-0122.htm.

public certificates for 3-4 employees (e.g., General Manager/Chief Engineer, Notary) so that their digital signatures can be verified outside the DOW domain.

Annotate internal documents to indicate transmittal method (e.g., email, mail, fax) and transmittal date so that this information is available directly on the document. This data can be tracked in standardized form in a header or footer.

Where possible, transmit internal documents via email so that they do not have to be printed.

Implement a SharePoint solution for document storage and indexing.

Store working documents in native formats if practical. For example, word processing documents and spreadsheets should be stored as such so that they can be retrieved and, viewed and edited using office automation tools. Technical documents (e.g., AutoCAD files, Microsoft Project Gantt charts) may be stored both in native format (to facilitate editing) and in more broadly available viewing formats such as pdf. Formally signed and sealed documents (official records) should be stored in a read-only format that is broadly available to the public; copies of these documents in their native formats may be retained as working files to facilitate editing and re-use.

Train administrative support staff to scan and index documents so that they can do this work independent of IT, preferably on the same day that documents are received by DOW.

Retire the Team product and use SharePoint workflow to manage responses to correspondence.

Migrate documents from Stellent to SharePoint and retire the obsolete Stellent software.

Migrate documents from the Shoyu directory to SharePoint and stop using Shoyu as the repository for correspondence and other business documents.

Create SharePoint sites for each capital project with links to related documents including project schedules, contracts, plans, specifications, design and construction correspondence, inspection reports, invoices, etc.

Link Project SharePoint sites to project-related financial data from the FIS.

Strategic and Financial Benefits

This recommendation provides broader, faster access to documents. It reduces the quantity of paper that is filed or stacked awaiting filing. The elimination of excess paper will release a significant amount of office space for other purposes.

This recommendation replaces outdated technology with an industry standard solution using software that the DOW already owns.

This recommendation improves productivity by eliminating scanning and paper filing for internal documents. It and streamlines the document indexing process and transfers responsibility for this administrative task from technical personnel to administrative support personnel. This frees IT staff for high value technical activities such as user training and the development of quick reference guides.

This recommendation streamlines project management tasks and communication of project status. It provides broad access to project information and creates a transparent process for viewing the progress of capital project execution.

In addition to these strategic benefits, the following tangible benefits are anticipated:

- Productivity Improvement: Reduce time spent printing and scanning internal paper. This affects all clerical personnel and is assumed to total 1 junior/clerical FTE.
- Productivity Improvement: Reduce document search time. This benefit amounts to approximately 1 hour per week in labor savings for 10 senior personnel (or .25 senior FTEs per year).
- Other Benefit: Eliminate Team and Stellent support costs ($3,200 per year)
- Other Benefit: Free 200 square feet now occupied by paper for use as office space. Assume $200 per square foot in avoided construction costs amortized over 20 years for a total annual benefit of $2,000.

Priority and Schedule Assumptions

This is a top priority recommendation. It is assumed that work will begin in the first year and that it will take 2-3 years to complete all recommended actions. The financial analysis assumes that costs are incurred in the first two years and that benefits accrue beginning in year 3.

Financial Analysis

The present value of the tangible benefits listed above is projected to be $548,000. Costs are projected to range from $207,000 to $303,000, depending on a number of factors including whether or not the costs of existing staff time are included in the analysis. This yields a net present value in the range of $249,000 to $245,000, which translates into an annualized return on investment between 14% and 27%. Even at the more conservative end of the range, there is a good financial business case for this investment. Payback is anticipated in 2-3 years.

The following tables depict cash flows and financial data using the low and high ends of the cost range.

Projections for Low End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	($85,300)	($125,300)	($300)	($300)	($300)	($300)
Productivity Benefits	$49,764	$101,519	$103,549	$105,620	$107,732	$109,887
Other Benefits	$0	$3,200	$5,200	$5,200	$5,200	$5,200
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	($85,300)	($121,123)	($280)	($271)	($262)	($253)
Total Annual Costs	*($85,300)*	*($121,123)*	*($280)*	*($271)*	*($262)*	*($253)*
Cumulative Costs	*($85,300)*	*($206,423)*	*($206,704)*	*($206,975)*	*($207,237)*	*($207,490)*
Productivity Benefits	$49,764	$98,135	$96,761	$95,406	$94,070	$92,753
Other Benefits	$0	$3,093	$4,859	$4,697	$4,541	$4,389
Total Annual Benefits	*$49,764*	*$101,228*	*$101,620*	*$100,103*	*$98,611*	*$97,143*
Cumulative Benefits	*$49,764*	*$150,992*	*$252,612*	*$352,715*	*$451,326*	*$548,469*
Cumulative Net Benefits	**($35,536)**	**($55,431)**	**$45,908**	**$145,740**	**$244,089**	**$340,979**

Breakeven Year: 2015-16
Payback Period (in Years): 2
Net Present Value: $340,979
Present Value of Costs: $207,490
Return on Investment: 27.39% *(Annualized)*

Projections for High End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	($20,130)	($20,533)	$0	$0	$0	$0
Contract/Procurement Costs	($108,100)	($158,100)	($600)	($600)	($600)	($600)
Productivity Benefits	$49,764	$101,519	$103,549	$105,620	$107,732	$109,887
Other Benefits	$0	$3,200	$5,200	$5,200	$5,200	$5,200
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	($20,130)	($19,848)	$0	$0	$0	$0
Contract/Procurement Costs	($108,100)	($152,830)	($561)	($542)	($524)	($506)
Total Annual Costs	*($128,230)*	*($172,678)*	*($561)*	*($542)*	*($524)*	*($506)*
Cumulative Costs	*($128,230)*	*($300,908)*	*($301,469)*	*($302,011)*	*($302,535)*	*($303,041)*
Productivity Benefits	$49,764	$98,135	$96,761	$95,406	$94,070	$92,753
Other Benefits	$0	$3,093	$4,859	$4,697	$4,541	$4,389
Total Annual Benefits	*$49,764*	*$101,228*	*$101,620*	*$100,103*	*$98,611*	*$97,143*
Cumulative Benefits	*$49,764*	*$150,992*	*$252,612*	*$352,715*	*$451,326*	*$548,469*
Cumulative Net Benefits	**($78,466)**	**($149,916)**	**($48,857)**	**$50,704**	**$148,791**	**$245,427**

Breakeven Year: 2016-17
Payback Period (in Years): 3
Net Present Value: $245,427
Present Value of Costs: $303,041
Return on Investment: 13.50% *(Annualized)*

Quick Wins

There are two steps that DOW can take immediately to mitigate some of the existing issues. These steps can be taken in the current version of SharePoint with minimal investment of time.

First, DOW can set up digital signatures using a Microsoft Office Product or Microsoft SharePoint. Documents can then be signed digitally using a traditional-looking copy of DOW staff signatures. Internally generated correspondence documents can then be annotated with transmittal information using a standard header or footer annotation. This will eliminate the need to print, manually sign and then scan internally generated documents, which will reduce paper and improve productivity.

Second, DOW can train all administrative staff to scan and index documents so that this workload can be shifted from IT resources to administrative resources. This will free IT staff for high value technical activities such as user training and development of quick reference guides

4. Develop Web-Based GIS Viewer and Map Layers

The County of Kaua'i owns enterprise license for Esri's ArcGIS software, including the ArcSDE GIS database management system and ArcGIS Server software that supports web-based access to the GIS maps.

DOW has mapped some of its field infrastructure and also has access to base maps provided by the County.

This recommendation addresses issues with DOW's GIS software and asset data. Following is a summary of the issues to be addressed.

Background

DOW has invested in GIS data collection for a number of years. Field infrastructure data is available in several service areas. The information is available only to users with specialized GIS software and the skills to use these tools.

Data collection for the remaining service areas is ongoing.

The DOW does not have a formal process for maintaining field infrastructure data in the GIS. Assets may be installed, removed or replaced as the result of capital projects or routine work orders, but these actions are not communicated to anyone responsible for GIS editing.

Field personnel rely on paper maps and drawings to locate infrastructure for maintenance activities.

Recommended Actions

Implement an enterprise geodatabase for all vertical and horizontal assets, including cost, installation date, and links to a table of project summary data for installation, rehabilitation, replacement, and retirement projects.

Establish the GIS as the internal system of record for all distribution system assets (i.e., the source for basic information about asset location, physical characteristics, operational status,

and installation/removal dates, with references to associated engineering drawings and other documents that may provide greater detail). Design and implement procedures for reporting asset installation and retirement to GIS editors who can then update the asset database. Design and implement procedures for DOW personnel to report map errors and asset data errors so that the GIS can be corrected. Design and implement procedures for propagating the asset information into the computerized maintenance management system (CMMS). Note: If DOW replaces M-PET with a GIS-based CMMS, this last step will be unnecessary. If DOW retains M-PET or replaces it with a CMMS that is not GIS-based, then it will likely be necessary to create and update distribution system asset records in the CMMS so that the CMMS carries the same asset information as the GIS and/or so that CMMS users can quickly find the basic asset information in the GIS.

Develop GIS feature classes (maps) for work orders recorded in the CMMS. Render the location of the work orders based on the location of the map feature that corresponds to the asset referenced on the work order. Create separate map representations for open and closed work orders.

Develop feature classes (maps) to display the locations (boundaries) of capital projects, and link these project records to the assets that are installed, rehabilitated or retired by the projects.

Develop feature classes (maps) of operational data, including flows, pressures and other operational data from the SCADA system as well as water quality data from the State lab. Tie the operational data to map features depicting SCADA monitoring points and water sampling locations.

Develop and deploy an ArcGIS application that allows DOW personnel to view all the asset, work, project, and operational map layers via a web browser with no special software or training.

Track Project Number on the project map and also on work orders related to the project. Link the project map features to 2020 plan data for the project.

Investigate alternative deployment approaches for the Geodatabase and web application. These may include a shared Countywide database and application hosted by the County on its network, by DOW on its network, or in the cloud.

Note: This recommendation involves the design of map layers and applications for map display. It does not include the effort to complete field data collection to populate the GIS. The data collection effort is included in the recommendation related to asset-based work orders.

Strategic and Financial Benefits

This recommendation streamlines access to asset and project documentation, and it supports hydraulic modeling, network tracing, and map production processes.

This initiative also provides the data and technology needed to associate field work orders with specific assets.

This recommendation expands access to maps and data on assets, work, projects, and system operations without requiring special skills or software on the part of the user/viewer. It makes

available the data that have been collected to date and allows DOW staff to access information as it is collected rather than waiting for production of paper map book updates.

The more timely and accurate asset information will improve asset management decisions. Better asset management decisions may include deferral of investments and more efficient investments. It is assumed that these improvements will amount to 1% - 2% of capital spending, some of which is attributable to this GIS initiative and some of which will be attributable to the recommendation for asset-based work orders. For purposes of the financial analysis, it is assumed that the GIS data and applications will be responsible for 80% of the value, which is calculated as 80% * 1.5% * $20M in capital spending = $240,000 per year.

Priority and Schedule Assumptions

This is a high priority recommendation. It is assumed that work will begin in the first year and that it will take 2-3 years to complete all recommended actions. The financial analysis assumes that costs are incurred in the first two years and that benefits accrue beginning in year 3.

Financial Analysis

The present value of the tangible benefits listed above is projected to be $853,000. Costs are projected to range from $144,000 to $379,000, depending on a number of factors including whether or not the costs of existing staff time are included in the analysis. This yields a net present value in the range of $474,000 to $709,000, which translates into an annualized return on investment between 21% and 82%. Even at the more conservative end of the range, there is a good financial business case for this investment. Payback is anticipated in 2-3 years.

The following tables depict cash flows and financial data using the low and high ends of the cost range.

Projections for Low End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	($33,750)	($113,750)	$0	$0	$0	$0
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$0	$0	$240,000	$240,000	$240,000	$240,000
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	($33,750)	($109,958)	$0	$0	$0	$0
Total Annual Costs	*($33,750)*	*($109,958)*	*$0*	*$0*	*$0*	*$0*
Cumulative Costs	*($33,750)*	*($143,708)*	*($143,708)*	*($143,708)*	*($143,708)*	*($143,708)*
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$0	$0	$224,267	$216,791	$209,565	$202,579
Total Annual Benefits	*$0*	*$0*	*$224,267*	*$216,791*	*$209,565*	*$202,579*
Cumulative Benefits	*$0*	*$0*	*$224,267*	*$441,058*	*$650,623*	*$853,202*
Cumulative Net Benefits	**($33,750)**	**($143,708)**	**$80,558**	**$297,349**	**$506,914**	**$709,493**

Breakeven Year: 2015-16
Payback Period (in Years): 2
Net Present Value: $709,493
Present Value of Costs: $143,708
Return on Investment: 82.28% *(Annualized)*

Projections for High End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	($66,000)	($40,392)	$0	$0	$0	$0
Contract/Procurement Costs	($90,000)	($190,000)	$0	$0	$0	$0
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$0	$0	$240,000	$240,000	$240,000	$240,000
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	($66,000)	($39,046)	$0	$0	$0	$0
Contract/Procurement Costs	($90,000)	($183,667)	$0	$0	$0	$0
Total Annual Costs	*($156,000)*	*($222,712)*	*$0*	*$0*	*$0*	*$0*
Cumulative Costs	*($156,000)*	*($378,712)*	*($378,712)*	*($378,712)*	*($378,712)*	*($378,712)*
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$0	$0	$224,267	$216,791	$209,565	$202,579
Total Annual Benefits	*$0*	*$0*	*$224,267*	*$216,791*	*$209,565*	*$202,579*
Cumulative Benefits	*$0*	*$0*	*$224,267*	*$441,058*	*$650,623*	*$853,202*
Cumulative Net Benefits	**($156,000)**	**($378,712)**	**($154,446)**	**$62,346**	**$271,910**	**$474,490**

Breakeven Year: 2016-17
Payback Period (in Years): 3
Net Present Value: $474,490
Present Value of Costs: $378,712
Return on Investment: 20.88% *(Annualized)*

Quick Wins

DOW can achieve a quick win by deploying a "starter" web application that allows users to browse existing data. This application would ultimately be replaced with a tool that provides more robust functionality, but as an interim step, the starter application will allow DOW staff to begin using the GIS data that have been collected to date. This will support the capture of asset IDs on work orders.

5. Develop Capabilities for Asset-based Work Orders

The DOW uses M-PET software for work management. This is a standalone solution provided by a small company that frequently customizes the code in response to DOW's requests for new functionality. The County uses the same software but runs a separate instance of it. .

This recommendation addresses issues with DOW's work management processes as well as the software used to support those processes. Following is a summary of the issues to be addressed.

Background

DOW has numbered its vertical assets (pump station and storage equipment) and rolling stock, and maintenance personnel note these asset numbers on work orders. This supports analysis of maintenance history on the assets in question. The asset numbers are available for "look-up" within the computerized maintenance management system (CMMS) and are also listed on print-outs in the office.

Although some field infrastructure (pipes and appurtenances) has been numbered as part of the GIS data collection effort, these numbers are not used on work orders. Instead, field work is associated with service areas. The list of service areas used in the CMMS differs somewhat from the list used in the financial and SCADA systems. Maintenance history on specific pipes, valves and hydrants is therefore not available. Such information would be very valuable for purposes of long range planning, CIP development, and determination of appropriate preventive and corrective maintenance strategies. Asset references on field work orders would also allow for the spatial (map-based) display of those work orders.

The M-PET software product is a niche product developed by a small firm that has provided reliable support and customization services to DOW for several years. This arrangement has served DOW well to date; DOW personnel are making good use of the system and are able to manage work orders and track maintenance costs. However, niche products from small vendors are typically riskier than more mainstream software solutions with large installed bases. When a relatively small number of people are available to support a product, there is a risk that the software will become unsupported once these people leave the firm or in the event that the firm ceases operation. When dealing with niche products, it is typically difficult to obtain support from firms other than the software vendor, and this limits DOW's options with respect to ongoing support and interface development. Some DOW personnel are concerned about these risks and about the ongoing cost of maintenance and customization services for the M-PET product.

Recommended Actions

Create asset numbers (unique sequence numbers) for each maintainable unit of field infrastructure (pipes, hydrants, valves, etc.). These asset identifiers should be generated in the

GIS and should not contain any “intelligence” related to asset location. Information about the asset’s location and physical characteristics should be tracked as separate attributes. The asset identifiers should be unique across all classes of assets (including field infrastructure, rolling stock, and equipment located in vertical facilities such as pump stations).

Complete the data collection effort for all the GIS asset feature classes, making asset numbers visible as map annotation and in the web application for map viewing.

Note: This recommendation does not involve the design of feature classes that contain the asset data or the design of the web application to display this data. These geodatabases and software development activities are in included in the recommendation for the enterprise GIS database and web application.

Establish work processes to track maintenance activities and costs on an asset basis. This will involve specifying a single asset on each maintenance work order and establishing a mechanism for linking larger construction work orders and capital projects to the assets that are installed, removed or rehabilitated. Users should be able to copy asset numbers from the GIS web viewing application and paste them into their work orders, which should then make the work orders themselves visible on the maps. (This is dependent on the development of functionality described in the Enterprise GIS Database and Web Application recommendation. It does not require any integration between the M-PET system and the GIS as long as the M-PET system is able to accept the asset numbers for the field infrastructure.).

Consider replacing the M-PET software with a more mainstream product that is integrated with GIS. This may involve pre-procurement review of available products and evaluation of relative costs, risks and functionality. If DOW determines that product replacement is warranted, then select the software, review the out-of-the-box functionality and industry leading practices for work management, and develop and execute a software implementation plan that minimizes configuration/customization and emphasizes user training and data conversion.

Build an interface from the Oracle CC&B billing system to the CMMS (either M-PET or, if a new product is selected, to the new product). This interface should automatically generate asset-based (meter or service-based) work orders for CC&B service requests and should update the status of the CC&B requests based on the status of the related CMMS work order.

Strategic and Financial Benefits

This recommendation will allow DOW to base its capital planning (asset rehabilitation and replacement) decisions on asset maintenance costs and performance histories and to view and analyze patterns of field infrastructure failures and maintenance.

It will allow maintenance managers to review the history of an asset as part of the process of planning a repair or preventive maintenance strategy for the asset.

The interface to the CC&B billing system will eliminate the need to retype work orders generated from the billing system and will improve data quality and consistency in both systems (by keeping work status information in sync).

The asset-based maintenance functionality can be achieved either with M-PET or with a new, mainstream CMMS application. The advantage of the former is the opportunity to leverage existing software to provide mappable, asset-based work order data at a relatively low cost. The advantage of the latter is that it provides mappable, asset-based work order functionality while reducing the risk associated with a customized niche product for a critical business application. The latter approach may also provide greater functionality for preventive and predictive maintenance and project management, depending on the product selected.

The introduction of a mainstream product would reduce risk, which is a strategic benefit, but the financial benefits associated with the introduction of asset-based work management are product-independent. The maintenance and performance history data will improve asset management decisions. Better asset management decisions may include deferral of investments and more efficient investments. It is assumed that these improvements will amount to 1% - 2% of capital spending, some of which is attributable to this GIS initiative and some of which is attributable to this recommendation for asset-based work orders. For purposes of the financial analysis, it is assumed that the asset-based work management recommendation will be responsible for 20% of the value, which is calculated as 20% * 1.5% * $20M in capital spending = $60,000 per year.

In addition to this tangible benefit, the recommendation provides a quantifiable productivity improvement by eliminating the need for retyping of CC&B-generated work orders. This saves roughly 1 hour per day for 3 senior O&M staff (780 senior hours per year), and this benefit is independent of the CMMS product used.

Priority and Schedule Assumptions

This recommendation requires the development of GIS functionality and therefore is scheduled to begin after the launch of the GIS Database and Web Application initiative. It is assumed that work will begin year 2 and that it will take up to two years to complete the recommended actions, depending on whether additional software is procured. It is assumed that benefits will be realized beginning in year 3.

Financial Analysis

The present value of the tangible benefits listed above is projected to be $314,000. Costs are projected to range from a low of $46,000 (which assumes continued use of M-PET and excludes internal labor costs) to high of $474,000 (which assumes implementation of a new CMMS product and includes the labor costs of the DOW project team). This projected net present value at the low end of the cost range is $324,000, which equates to an annualized return on investment of 116% and a payback period of two years. At the high end of the cost range, the six-year cumulative cost exceeds benefits by $160,000 (if internal labor costs are included) or by $130,000 (if internal labor costs are excluded). If the business case for replacement of the work management software were based strictly on the financial analysis, it would appear to be an inappropriate investment. However, an evaluation of alternative products is recommended for two reasons. First, DOW may determine that the risk reduction afforded by a mainstream product provides adequate business rationale for the replacement, irrespective of net present value. Second, the evaluation process itself will be good preparation for eventual replacement of the M-PET product even if DOW opts to defer replacement until such time as M-PET's underlying architecture becomes obsolete or the product becomes unsupported.

The following tables depict cash flows and financial data using the low and high ends of the cost range.

Projections for Low End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	($48,000)	$0	$0	$0	$0
Productivity Benefits	$0	$0	$42,848	$43,705	$44,579	$45,470
Other Benefits	$0	$0	$60,000	$60,000	$60,000	$60,000
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	($46,400)	$0	$0	$0	$0
Total Annual Costs	*$0*	*($46,400)*	*$0*	*$0*	*$0*	*$0*
Cumulative Costs	*$0*	*($46,400)*	*($46,400)*	*($46,400)*	*($46,400)*	*($46,400)*
Productivity Benefits	$0	$0	$40,039	$39,478	$38,926	$38,381
Other Benefits	$0	$0	$56,067	$54,198	$52,391	$50,645
Total Annual Benefits	*$0*	*$0*	*$96,106*	*$93,676*	*$91,317*	*$89,026*
Cumulative Benefits	*$0*	*$0*	*$96,106*	*$189,782*	*$281,099*	*$370,124*
Cumulative Net Benefits	**$0**	**($46,400)**	**$49,706**	**$143,382**	**$234,699**	**$323,724**

Breakeven Year: 2015-16
Payback Period (in Years): 2
Net Present Value: $323,724
Present Value of Costs: $46,400
Return on Investment: 116.28% *(Annualized)*

Projections for High End of Cost Range (inclusive of Internal Labor)

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	($15,080)	($15,381)	$0	$0	$0
Contract/Procurement Costs	$0	($317,500)	($147,500)	$0	$0	$0
Productivity Benefits	$0	$0	$42,848	$43,705	$44,579	$45,470
Other Benefits	$0	$0	$0	$60,000	$60,000	$60,000
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	($14,577)	($14,373)	$0	$0	$0
Contract/Procurement Costs	$0	($306,917)	($137,831)	$0	$0	$0
Total Annual Costs	*$0*	*($321,494)*	*($152,204)*	*$0*	*$0*	*$0*
Cumulative Costs	*$0*	*($321,494)*	*($473,697)*	*($473,697)*	*($473,697)*	*($473,697)*
Productivity Benefits	$0	$0	$40,039	$39,478	$38,926	$38,381
Other Benefits	$0	$0	$0	$54,198	$52,391	$50,645
Total Annual Benefits	*$0*	*$0*	*$40,039*	*$93,676*	*$91,317*	*$89,026*
Cumulative Benefits	*$0*	*$0*	*$40,039*	*$133,715*	*$225,032*	*$314,057*
Cumulative Net Benefits	**$0**	**($321,494)**	**($433,658)**	**($339,982)**	**($248,665)**	**($159,640)**

Breakeven Year: Does Not Break Even
Payback Period (in Years): No Payback Anticipated
Net Present Value: ($159,640)
Present Value of Costs: $473,697
Return on Investment: -5.62% *(Annualized)*

Projections for High End of Cost Range (exclusive of Internal Labor)

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	($317,500)	($147,500)	$0	$0	$0
Productivity Benefits	$0	$0	$42,848	$43,705	$44,579	$45,470
Other Benefits	$0	$0	$0	$60,000	$60,000	$60,000
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	($306,917)	($137,831)	$0	$0	$0
Total Annual Costs	*$0*	*($306,917)*	*($137,831)*	*$0*	*$0*	*$0*
Cumulative Costs	*$0*	*($306,917)*	*($444,747)*	*($444,747)*	*($444,747)*	*($444,747)*
Productivity Benefits	$0	$0	$40,039	$39,478	$38,926	$38,381
Other Benefits	$0	$0	$0	$54,198	$52,391	$50,645
Total Annual Benefits	*$0*	*$0*	*$40,039*	*$93,676*	*$91,317*	*$89,026*
Cumulative Benefits	*$0*	*$0*	*$40,039*	*$133,715*	*$225,032*	*$314,057*
Cumulative Net Benefits	**$0**	**($306,917)**	**($404,708)**	**($311,032)**	**($219,715)**	**($130,690)**

Breakeven Year: Does Not Break Even
Payback Period (in Years): No Payback Anticipated
Net Present Value: ($130,690)
Present Value of Costs: $444,747
Return on Investment: -4.90% *(Annualized)*

Quick Wins

If DOW proceeds with the deployment of a "starter" web application as part of the GIS Database and Web Application recommendation, this will provide a quick win opportunity for asset-based work management. M-PET users can use the "starter" application to copy asset numbers from the GIS and paste them into their work orders. While the full analytical and mapping capabilities may not be available immediately, this early action will allow DOW to start building its asset maintenance histories, at least for those assets that have already been mapped and numbered.

6. Automate SOPs for Routine Work

DOW staff manually type detailed instructions into each M-PET work order. Much of the routine work performed by DPW involves standard sets of instructions, and the estimated costs and resource requirements for routine work are consistent from job to job.
This recommendation addresses the development and use of standard operating procedures and job cost estimates for routine work. Following is a summary of the issues to be addressed.

Background

M-PET users manually type detailed instructions for each work order, and this can be very time consuming.

Lack of standard job templates may lead to inconsistencies in work practices and associated job costs, which may reduce the value of historical maintenance cost data that supports asset management decisions. For this reason, it is an industry leading practice to prepare standard operating procedures for routine work and to use these standard procedures when preparing work orders.

Recommended Actions

Develop standard instructions (task lists) for routine maintenance jobs and meter installations, including fill-in-the-blank templates with typical work requirements, materials and equipment.

Store the standard procedures either in an enterprise SharePoint site available to all CMMS users or, if the software allows, directly in the CMMS.

Develop protocols for reviewing and updating standard operating procedures for different types of work, and assign responsibility maintaining specific SOPs.

Use the SOP templates to prepare work orders in the CMMS. Depending on the functionality of the CMMS, this may involve the use of CMMS software functionality, or it may involve copying and pasting the fill-in-the-blank instructions from the SOP document into the CMMS work order.

Strategic and Financial Benefits

This recommendation will eliminate the need for manual typing of standard job instructions. DOW staff believe the typing workload for maintenance supervisors is relatively small, so no tangible productivity benefit is included for these uses. Within the customer service group, clerical personnel spend roughly one hour per month typing routine instructions for meter installation. This equates to a potential productivity benefit of 12 hours per year, which has been quantified for purposes of the financial analysis.

More important than the tangible productivity improvements is the intangible benefit of improved consistency in work practices. Consistent practices allow maintenance managers to compare "apples to apples" when analyzing work order costs and determining appropriate maintenance strategies.

Priority and Schedule Assumptions

This recommendation can be implemented quickly with minimal investment. It is assumed that work will begin in the first year and benefits will be realized immediately.

Financial Analysis

There may be no cost associated with this recommendation other than a minimal amount of internal staff time to capture the standard operating procedures, particularly if DOW uses a CMMS software product that provides robust functionality for the use and maintenance of standard operating procedures and cost estimates for routine work. If this is the case, then the net present value of the recommendation is roughly the same as the accumulated benefits ($2,000 over six years), and payback is immediate.

If DPW decides to customize its M-PET software to enhance SOP functionality, this will increase the costs of the recommendation such that net present value over six years falls below zero. Such enhancements should not be considered unless the strategic benefits of the additional functionality are extremely compelling or unless the enhancements provide additional tangible benefits.

The following tables depict cash flows and financial data using the low and high ends of the cost range.

Projections for Low End of Cost Range

The following chart is exclusive of internal labor costs except for a nominal cost included in the first year so that there is a non-zero investment cost for purposes of determining ROI.

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	($35)	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	$0	$0	$0	$0	$0
Productivity Benefits	$416	$424	$433	$441	$450	$459
Other Benefits	$0	$0	$0	$0	$0	$0
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	($35)	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	$0	$0	$0	$0	$0
Total Annual Costs	*($35)*	*$0*	*$0*	*$0*	*$0*	*$0*
Cumulative Costs	*($35)*	*($35)*	*($35)*	*($35)*	*($35)*	*($35)*
Productivity Benefits	$416	$410	$404	$399	$393	$387
Other Benefits	$0	$0	$0	$0	$0	$0
Total Annual Benefits	*$416*	*$410*	*$404*	*$399*	*$393*	*$387*
Cumulative Benefits	*$416*	*$826*	*$1,230*	*$1,629*	*$2,022*	*$2,409*
Cumulative Net Benefits	**$381**	**$791**	**$1,195**	**$1,594**	**$1,987**	**$2,374**

Breakeven Year: 2013-14
Payback Period (in Years): 0
Net Present Value: $2,374
Present Value of Costs: $35
Return on Investment: 1142.11% *(Annualized)*

Projections for High End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	($832)	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	($15,000)	($5,000)	$0	$0	$0
Productivity Benefits	$416	$424	$433	$441	$450	$459
Other Benefits	$0	$0	$0	$0	$0	$0
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	($832)	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	($14,500)	($4,672)	$0	$0	$0
Total Annual Costs	*($832)*	*($14,500)*	*($4,672)*	*$0*	*$0*	*$0*
Cumulative Costs	*($832)*	*($15,332)*	*($20,004)*	*($20,004)*	*($20,004)*	*($20,004)*
Productivity Benefits	$416	$410	$404	$399	$393	$387
Other Benefits	$0	$0	$0	$0	$0	$0
Total Annual Benefits	*$416*	*$410*	*$404*	*$399*	*$393*	*$387*
Cumulative Benefits	*$416*	*$826*	*$1,230*	*$1,629*	*$2,022*	*$2,409*
Cumulative Net Benefits	**($416)**	**($14,506)**	**($18,774)**	**($18,375)**	**($17,982)**	**($17,595)**

Breakeven Year: Does Not Break Even
Payback Period (in Years): No Payback Anticipated
Net Present Value: ($17,595)
Present Value of Costs: $20,004
Return on Investment: -14.66% *(Annualized)*

Quick Wins

This entire recommendation is a quick win if DOW implements the SOPs without any software modifications.

7. Use Computer-aided Map and Drawing Maintenance Tools

DOW owns AutoCAD software for computer-aided drafting (developing and updating engineering drawings) as well as Adobe software for editing pdf files. Many maps and drawings are still maintained on mylar or paper using manual drafting techniques.

This recommendation addresses engineering drawing maintenance processes and the software that supports these processes. Following is a summary of the issues to be addressed.

Background

DOW stores paper copies of submitted drawings and subdivision maps, some of which are hand-drawn by contractors or developers and some of which are electronic drawings that may be delivered to DOW as paper printouts or as electronic files. Some of these submittals are scanned and indexed as digital images. The scanned drawings are not editable. There is often a large backlog of submittals to be scanned, making it difficult for engineers to find recent drawings.

The information on submitted plans and drawings is not added to the GIS.

Instead, DOW maintains 400-foot scale distribution system maps on mylar using manual drafting techniques that are accurate but time-consuming. Valve drawings (intersection maps) are likewise maintained on mylar using accurate but time-consuming manual techniques.

Access to the mylar maps and valve drawings is limited. They cannot be used readily by crews in the field, so it is unlikely that field crews will notice and communicate map errors discovered during the course of field maintenance. The mylars are inconvenient for operations and maintenance personnel who do not office in building where the maps are filed. Contractors that require access to the maps must come into the office and/or obtain hardcopy prints from DOW. Engineers involved in capital project design frequently need access to maps depicting existing systems. Reliance on mylars creates inefficiencies both for DOW engineers and for consulting engineers, whose costs are typically passed on to the DOW.

These essential business documents are at risk of physical deterioration and are much more vulnerable to loss than electronic documents. The manual nature of the maps does not lend itself to version control (an audit trail of map modifications).

DOW staff believe the mylar maps to be accurate and are concerned that the GIS will not provide the same content or accuracy.

Recommended Actions

Convert all mylar and paper maps and drawings (valve pages, etc.) to digital format and organize these in SharePoint.

Create a GIS layer of geo-referenced images of the mylar distribution system maps. This will allow GIS users to view the information from the original mylars, preserving the historical data as the department transitions to an automated data maintenance process.

Associate the digital drawings (e.g., valve cards) with map features to facilitate access to these drawings via the GIS. Note: The design of document portal functionality is included in the earlier GIS recommendation. This Automated Drafting recommendation includes the steps needed to attach the digital drawings to the appropriate map features to facilitate access via the GIS portal.

Eliminate hand-drafting on mylar or paper for all new drawings and drawing updates. Create new procedures and train personnel to maintain used DOW's AutoCAD software to create and maintain engineering drawings.

Stop maintaining the 400-scale distribution maps on mylar and transition to maintenance of field infrastructure maps in GIS. Provide technical training to the designated GIS editors. Establish organizational roles and responsibilities for the maintenance of each feature class. Develop standard procedures for updating the map based on input from contractors, developers, and DOW inspectors and field personnel. This includes review and processing of all conformed drawings (as-builts) by GIS editors as well as processes for field personnel to submit requests for map corrections.

Require contractors to submit digital drawings in AutoCAD format.

Strategic and Financial Benefits

This recommendation will improve access to essential business data while securing the data from physical hazards.

It will allow DOW to update its engineering drawings more efficiently and to make these drawings broadly available for use by DOW staff and contractors.

This GIS layer of historical images will preserve historical information that may not translate readily to GIS representation.

At the same time, the transition to GIS-based map maintenance procedures will improve the quality of maps (accuracy, timeliness, completeness)

Tangible benefits include:

- Productivity Improvement: Reduce map update workload by approximately 30 hours per month (360 hours per year) for a senior engineering staff member
- Productivity Improvement: Reduce document search time by 2 hours per week for roughly 5 senior staff members (a combination of engineers, managers, O&M personnel and Accounting staff) for an estimated savings of 10 hours per week of senior staff time (.25 senior FTEs)

Priority and Schedule Assumptions

Many of the actions in this recommendation depend on completion of the recommendations for the GIS Database and Web Application and Asset-based Work Orders. Although some quick win steps can be taken immediately, the bulk of the actions are assumed to occur in years 4 and

5, after the GIS database is implemented and populated. Benefits are assumed to begin in year 5.

Financial Analysis

Because of the relatively late start of this initiative within the overall schedule, there is only a short window of time in which benefits are realized. The present value of the tangible benefits in years 5 and 6 is projected to be $87,000. Benefits will continue to accumulate after year 6, so the following financial analysis is quite conservative.

The present value of projected costs ranges from $18,000 to $92,000, depending on a number of factors including the degree of reliance on contractors and whether or not the cost of internal labor is counted. At the low end of the cost range, the net present value is $69,000, which equates to an annualized ROI of 64% and payback in the first year. At the high end of the cost range, the net present value is just below zero. This reflects the constraints of the relatively short time period for which benefits are considered and should not be interpreted as an indication of significant financial risk.

The following tables depict cash flows and financial data using the low and high ends of the cost range.

Projections for Low End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	$0	$0	($20,000)	$0	$0
Productivity Benefits	$0	$0	$0	$0	$50,294	$51,300
Other Benefits	$0	$0	$0	$0	$0	$0
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	$0	$0	($18,066)	$0	$0
Total Annual Costs	*$0*	*$0*	*$0*	*($18,066)*	*$0*	*$0*
Cumulative Costs	*$0*	*$0*	*$0*	*($18,066)*	*($18,066)*	*($18,066)*
Productivity Benefits	$0	$0	$0	$0	$43,916	$43,301
Other Benefits	$0	$0	$0	$0	$0	$0
Total Annual Benefits	*$0*	*$0*	*$0*	*$0*	*$43,916*	*$43,301*
Cumulative Benefits	*$0*	*$0*	*$0*	*$0*	*$43,916*	*$87,217*
Cumulative Net Benefits	**$0**	**$0**	**$0**	**($18,066)**	**$25,850**	**$69,152**

Breakeven Year:	2017-18	
Payback Period (in Years):	4	
Net Present Value:	$69,152	
Present Value of Costs:	$18,066	
Return on Investment:	63.80%	*(Annualized)*

Projections for High End of Cost Range

The cash flows below indicate payback would occur in 2019-20, just outside the time window used for the financial analysis and within three years of the initial investment.

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	$0	$0	($14,008)	$0	$0
Contract/Procurement Costs	$0	$0	$0	($42,000)	($40,000)	($8,000)
Productivity Benefits	$0	$0	$0	$0	$50,294	$51,300
Other Benefits	$0	$0	$0	$0	$0	$0
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	$0	$0	($12,653)	$0	$0
Contract/Procurement Costs	$0	$0	$0	($37,938)	($34,927)	($6,753)
Total Annual Costs	*$0*	*$0*	*$0*	*($50,592)*	*($34,927)*	*($6,753)*
Cumulative Costs	*$0*	*$0*	*$0*	*($50,592)*	*($85,519)*	*($92,272)*
Productivity Benefits	$0	$0	$0	$0	$43,916	$43,301
Other Benefits	$0	$0	$0	$0	$0	$0
Total Annual Benefits	*$0*	*$0*	*$0*	*$0*	*$43,916*	*$43,301*
Cumulative Benefits	*$0*	*$0*	*$0*	*$0*	*$43,916*	*$87,217*
Cumulative Net Benefits	**$0**	**$0**	**$0**	**($50,592)**	**($41,603)**	**($5,054)**

Breakeven Year: Does Not Break Even
Payback Period (in Years): No Payback Anticipated
Net Present Value: ($5,054)
Present Value of Costs: $92,272
Return on Investment: -0.91% *(Annualized)*

Quick Wins

Although most of the actions in this recommendation are dependent upon completion of the SharePoint and GIS initiatives, there are some immediate benefits that can be achieved by requiring all contractors and developers to provide digital submittals. This will save DOW the time and trouble of scanning the documents. Staff will be able to add the documents to the appropriate SharePoint sites (and, in the very short term, index them in Stellent if warranted) without the extra step of scanning and without the overhead of storing paper copies of the documents.

8. Upgrade Wonderware and Servers

DOW's SCADA system uses a Wonderware HMI running a Microsoft 2000 operating system. The system monitors and controls close to 100 different sites, each with a SCADA pack RTU, MDS 9810 900 MHz spread spectrum radio and associated power supplies, instrumentation, and local HMI panel.

This recommendation addresses the need to maintain reliable SCADA technology to monitor and control DOW's distribution system. Following is a summary of the issues to be addressed.

Background

The Wonderware software and operating system are older versions that must be updated to maintain vendor support. The servers are old and becoming less reliable and more difficult to support. The operation of the distribution system is highly dependent on the SCADA system. Failures in the software, hardware, or communication components pose a significant threat to operations because DOW is not staffed to support ongoing manual operations at all 100 sites.

Glenmont Global Solutions (formerly Fluidiqs) implemented the SCADA system for DOW and continues to provide system support. The Division has one electrician that coordinates with Glenmont for system maintenance. The Department has no staff trained in SCADA maintenance or upgrade processes.

The system has good graphics and the hardware documentation is well-done.

Water system operators have SCADA laptops in their vehicles. Each site is visited about once per week because the hypochlorite tanks need to be filled that often.

There are persistent alarms at virtually all stations, so the alarms showing on the HMI are ignored. If a "serious" alarm occurs, an auto dialer at the station calls one of the operators.

SCADA communications are reported to be generally reliable but there is some concern about resiliency of the communication system.

Recommended Actions

Develop a specification for upgrade of the Wonderware system to the latest release, and complete this upgrade.

Evaluate the need for replacement of servers and other hardware, and schedule these upgrades as warranted.

Evaluate communication infrastructure reliability and resiliency, and schedule upgrades as warranted.

As part of the upgrade process, train a DOW staff member to provide first line support of the SCADA communication network and the SCADA software. (Note: The tenth recommendation includes the creation of a new IT staff position. It is assumed that this individual would take on responsibility for support of the SCADA software and communications network, working closely with electricians and technicians in the Operations group.)

As part of the upgrade process, evaluate current set points and alarm conditions, and modify the software to reduce or eliminate nuisance alarms.

Strategic and Financial Benefits

This recommendation leverages the existing SCADA technology to as great a degree as possible, thereby minimizing cost.

The investment is necessary to maintain a mission critical system and will improve the reliability of this system. The system upgrades will also make it easier for DOW personnel to access and analyze valuable operations data.

The recommendation provides DOW with greater independence with respect to maintenance of this core technology and also improves the usefulness of the technology be addressing shortcomings in the current alarm strategy.

The most compelling benefit of this recommendation is the ability to maintain reliable operations of the water system. In addition to this important strategic consideration, the recommendation

provides tangible benefits related to productivity. By maintaining its SCADA technology, DOW will reduce the likelihood of system failures and avoid the cost of deploying operators to the field to manually operate equipment. Field deployment typically affects 5 senior O&M personnel for two weeks per failure. Assuming that two failures per year can be avoided by upgrading the technology, this comes to a total of 800 senior labor hours per year (2 failures * 5 staff * 80 hours).

Priority and Schedule Assumptions

This is a top priority recommendation because of the critical nature of the SCADA system and the risks to the business if the system becomes unreliable due to the age and older architecture of the components. The majority of costs are anticipated to occur in the first two years with benefits beginning to accumulate in year 3.

Financial Analysis

The benefit of continued operational reliability cannot readily be quantified, so projected tangible benefits of $202,000 over the six-year planning period provide only a partial measure of the value of the investment. The financial analysis shows that net present value is likely to fall below zero; however, this should not be interpreted as an indication that the investment is unwarranted. The investment is necessary to continue providing reliable water service.

The cost range of $192,000 to $355,000 reflects uncertainty about the extent of hardware and communication upgrades that will be needed. DOW has already received an estimate of $200,000 for the software upgrade from Glenmont.

The following tables depict cash flows and financial data using the low and high ends of the cost range.

Projections for Low End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	($97,500)	($97,500)	$0	$0	$0	$0
Productivity Benefits	$0	$43,085	$43,946	$44,825	$45,722	$46,636
Other Benefits	$0	$0	$0	$0	$0	$0
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	($97,500)	($94,250)	$0	$0	$0	$0
Total Annual Costs	*($97,500)*	*($94,250)*	*$0*	*$0*	*$0*	*$0*
Cumulative Costs	*($97,500)*	*($191,750)*	*($191,750)*	*($191,750)*	*($191,750)*	*($191,750)*
Productivity Benefits	$0	$41,649	$41,066	$40,491	$39,924	$39,365
Other Benefits	$0	$0	$0	$0	$0	$0
Total Annual Benefits	*$0*	*$41,649*	*$41,066*	*$40,491*	*$39,924*	*$39,365*
Cumulative Benefits	*$0*	*$41,649*	*$82,714*	*$123,205*	*$163,129*	*$202,493*
Cumulative Net Benefits	**($97,500)**	**($150,101)**	**($109,036)**	**($68,545)**	**($28,621)**	**$10,743**

Breakeven Year: 2018-19
Payback Period (in Years): 5
Net Present Value: $10,743
Present Value of Costs: $191,750
Return on Investment: 0.93% *(Annualized)*

Projections for High End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	($6,600)	($6,732)	$0	$0	$0	$0
Contract/Procurement Costs	($175,000)	($143,000)	($8,000)	($8,000)	($8,000)	($8,000)
Productivity Benefits	$0	$43,085	$43,946	$44,825	$45,722	$46,636
Other Benefits	$0	$0	$0	$0	$0	$0
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	($6,600)	($6,508)	$0	$0	$0	$0
Contract/Procurement Costs	($175,000)	($138,233)	($7,476)	($7,226)	($6,985)	($6,753)
Total Annual Costs	*($181,600)*	*($144,741)*	*($7,476)*	*($7,226)*	*($6,985)*	*($6,753)*
Cumulative Costs	*($181,600)*	*($326,341)*	*($333,816)*	*($341,043)*	*($348,028)*	*($354,781)*
Productivity Benefits	$0	$41,649	$41,066	$40,491	$39,924	$39,365
Other Benefits	$0	$0	$0	$0	$0	$0
Total Annual Benefits	*$0*	*$41,649*	*$41,066*	*$40,491*	*$39,924*	*$39,365*
Cumulative Benefits	*$0*	*$41,649*	*$82,714*	*$123,205*	*$163,129*	*$202,493*
Cumulative Net Benefits	**($181,600)**	**($284,692)**	**($251,102)**	**($217,838)**	**($184,900)**	**($152,288)**

Breakeven Year: Does Not Break Even
Payback Period (in Years): No Payback Anticipated
Net Present Value: ($152,288)
Present Value of Costs: $354,781
Return on Investment: -7.15% *(Annualized)*

Quick Wins

There are no quick wins associated with this recommendation. However, if DOW hires someone with prior SCADA experience to fill the new IT staff position described in the tenth recommendation, this provide some immediate benefits with respect to independent maintenance of the SCADA technology.

9. Develop KPI Reports

DOW does not currently have a performance management system or an automated method of presenting key performance indicators to the Board, managers and staff.

This recommendation addresses leading practices associated with performance management and the technology needed to support these practices.

Background

Key performance indicators (KPIs) are measures of efficiency, effectiveness or quality that are used to support strategic planning and day-to-day tactical decisions.

Industry leading practices for performance management include:

- Identification of measurable objectives that are directly linked to a utility's business strategy and priorities
- Definition of enterprise (utility-wide) KPIs that reflect progress toward these objectives
- Definition of KPIs for individual business units that reflect the business unit's contribution to enterprise performance
- Automated calculation and presentation of actual performance data
- Business practices that incorporate KPI data into tactical decision making (daily operations) and strategic planning and budgeting

DOW does not currently have a performance management system and does not produce reports of KPIs other than monthly reports of budget status.

Recommended Actions

Develop a performance management program based on a set of KPIs that reflect the utility's business strategy and operational priorities. This may involve a review of KPIs typical in the water industry as well as an evaluation of business priorities and the design of appropriate, measurable objectives to achieve these priorities.

Define enterprise and business unit KPIs, focusing on those that can be extracted from existing systems such as the financial system, billing system, and work management system.

Design methods for capturing and reporting the performance data in an automated fashion.

Develop procedures for using this performance data for tactical and strategic decision making.

Strategic and Financial Benefits

This recommendation provides decision makers with important information about the utility's performance so that tactics and strategies can be adjusted to better meet the organization's business strategy and priorities.

While it is difficult to quantify specific benefits of better operating decisions, it is reasonable to assume that accurate and timely performance data will have some measurable impact on performance. For purposes of the financial analysis, it is conservatively assumed that a performance management program would improve the efficiency and effectiveness of operational expenditures by a 0.5%, creating a tangible benefit of $75,000 per year (0.05% * $15M in annual O&M spending)

Priority and Schedule Assumptions

This recommendation is scheduled for the latter part of the six-year planning period, both because it is of lower priority than the other recommendations and also because the data needed for KPI reporting is going to come from systems that are being re-implemented as part of earlier initiatives.

Financial Analysis

Tangible benefits are projected to be close to $200,000 for the last three years of the financial analysis period. The projected costs range from $85,000 to $201,000 and depend on a number of factors, including the complexity of the program and whether or not internal labor costs are included in the total.

The range of net present value projections is slightly below zero to $111,000, equates to a range of annualized ROIs between zero and 22% with payback occurring within the first three years.

The following tables depict cash flows and financial data using the low and high ends of the cost range.

Projections for Low End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	$0	$0	($72,500)	($22,500)	$0
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$0	$0	$0	$75,000	$75,000	$75,000
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	$0	$0	($65,489)	($19,647)	$0
Total Annual Costs	*$0*	*$0*	*$0*	*($65,489)*	*($19,647)*	*$0*
Cumulative Costs	*$0*	*$0*	*$0*	*($65,489)*	*($85,136)*	*($85,136)*
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$0	$0	$0	$67,747	$65,489	$63,306
Total Annual Benefits	*$0*	*$0*	*$0*	*$67,747*	*$65,489*	*$63,306*
Cumulative Benefits	*$0*	*$0*	*$0*	*$67,747*	*$133,236*	*$196,542*
Cumulative Net Benefits	**$0**	**$0**	**$0**	**$2,258**	**$48,101**	**$111,407**

Breakeven Year:	2013-14	
Payback Period (in Years):	0	
Net Present Value:	$111,407	
Present Value of Costs:	$85,136	
Return on Investment:	21.81%	*(Annualized)*

Projections for High End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	$0	$0	($21,362)	($44,293)	$0
Contract/Procurement Costs	$0	$0	$0	($95,000)	($65,000)	$0
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$0	$0	$0	$75,000	$75,000	$75,000
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	$0	$0	($19,296)	($38,676)	$0
Contract/Procurement Costs	$0	$0	$0	($85,813)	($56,757)	$0
Total Annual Costs	*$0*	*$0*	*$0*	*($105,109)*	*($95,433)*	*$0*
Cumulative Costs	*$0*	*$0*	*$0*	*($105,109)*	*($200,543)*	*($200,543)*
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$0	$0	$0	$67,747	$65,489	$63,306
Total Annual Benefits	*$0*	*$0*	*$0*	*$67,747*	*$65,489*	*$63,306*
Cumulative Benefits	*$0*	*$0*	*$0*	*$67,747*	*$133,236*	*$196,542*
Cumulative Net Benefits	**$0**	**$0**	**$0**	**($37,362)**	**($67,307)**	**($4,001)**

Breakeven Year: Does Not Break Even
Payback Period (in Years): No Payback Anticipated
Net Present Value: ($4,001)
Present Value of Costs: $200,543
Return on Investment: -0.33% *(Annualized)*

Quick Wins

There are no quick wins associated with this recommendation.

10. Upgrade IT Infrastructure and Expand IT Support and Resiliency

DOW's IT department consists of a manager and technical specialist who support a variety of software products and servers on a network that is independent of the County's communication system (albeit with limited access to the County's HTE system for timekeeping). Internet access is provided via a commercial service with limited bandwidth. Mobile communications are limited to SCADA access from laptops in the operators' vehicles.

This recommendation addresses the need to provide a robust and resilient IT support organization and adequate communication and hardware infrastructure to support the utility's business applications and associated network traffic. . Following is a summary of the issues to be addressed.

Background

DOW's IT organization consists of only two individuals. If they take leave simultaneously, DOW will be without IT support while they are away. These individuals have skills in specific areas but it is impossible for a single individual to maintain expertise in all aspects of information technology. For example, DOW does not have anyone on staff with SCADA support experience. While it is appropriate to outsource certain aspects of IT support, it is advisable to maintain certain core skills in-house so that the organization can support core business systems that are run on internal servers over the local area network.

DOW managers have expressed a desire to create additional organizational depth with respect to IT support.

DOW staff would like additional application support from IT personnel, including one-on-one training in the new Oracle CC&B product prior to go-live in January as well as the development of step-by-step procedures (quick reference guides for different types of activities). Staff are also interested in additional training in document indexing procedures. Some training will also be needed for staff to take advantage of a web-based GIS application. These user training and support activities are difficult to schedule given the current workload handled by the two IT staff resources.

DOW's internet access is a small business solution provided by Roadrunner. Bandwidth is inadequate to support current business uses. For example, the connection to the billing system in Honolulu is periodically disrupted, causing the customer service representatives screens to freeze while they are talking to customers. This happens 20-30 times per day on bad days. Problems have also been noted with the new billing system that is being implemented, and IT staff in Honolulu have confirmed that the root cause is Kaua'i's network connection. (Maui connects in a similar fashion and is not experiencing these problems.) The new billing system will provide additional functionality and will encourage increased use and access, which will exacerbate the existing bandwidth issues. Liberalization of internet access policies will also likely increase internet traffic.

Inspectors and other field personnel require access to DOW business systems and documents (work management, SharePoint, GIS). Office personnel would also benefit from access to the network during Board meetings. There is currently no wireless access in the Board room and no mobile access to the business network for field personnel.

The DOW office buildings are wired with Category 5 cable, which does not support gigabit Ethernet communication speeds. DOW's servers and other hardware would support these speeds if the wiring supported it.

The security cameras protecting the office building rely on older VHS technology. The tapes are cumbersome to review, and the technology is nearing obsolescence.

DOW owns and maintains GEMS hydraulic modeling software although nobody in the department is using the software and nobody on staff has been trained in hydraulic modeling techniques. Many water utilities rely on consulting engineers to run and analyze hydraulic models as part of periodic master planning exercises and/or as part of the design of capital projects. It is typical for small and medium-sized organizations to provide their consulting engineers with the data necessary to run the model, including the GIS "network" of the distribution system as well as operational data from the SCADA and laboratory systems.

Some of the business applications used by DOW (specifically, the GIS, CMMS and SharePoint document management system) are candidates for a shared approach with the County. Both the County and DOW rely on the same GIS base maps, and both would benefit from access to the other's infrastructure maps (with appropriate security protocols to ensure sensitive data are not released indiscriminately). A common web-based application could support County and DOW GIS users. Both the County and DOW currently use M-PET for work management.

Currently, different instances of this application are maintained on the two networks, but DOW believes both instances are deployed with the same configurations/customizations, so there is a possibility that both groups could utilize the same instance of the software to manage work orders (with appropriate security to prevent indiscriminate dissemination of sensitive data and unauthorized access to other department's work orders). Many of the documents that are of interest to the DOW (subdivision drawings, construction plans, business permits) are also of interest to the County. The SharePoint application that DOW uses is licensed to the County, so this is also a candidate for shared application support. The County is interested in outsourcing data center services (providing applications in the cloud) as opposed to expanding the capacity of the existing data center. DOW's GIS software vendor (Esri) provides cloud-based solutions, and there are a number of other service providers who could host the GIS, CMMS, and/or SharePoint applications, for which DOW could share the cost with the County.

Recommended Actions

Create and fill a new IT staff position, ideally with an individual skilled in network communications, servers, and SCADA. Note: DOW has already budgeted for this position, but it has not yet been authorized or filled.

Invest in IT skills development for Dynamics GP administration and accounting practices, SharePoint administration, GIS application development, GIS data management and network topology, and SCADA software and communications technology.

Investigate the possibility of developing a shared Countywide GIS, including ArcSDE and ArcGIS servers maintained by the County (or by DOW on behalf of the County, or by a commercial service provider offering cloud-based GIS). This may involve the creation of a connection between the DOW and County business networks or may require an increase in available internet bandwidth, depending on the approach utilized. Regardless of who supports the servers and application software, this enterprise approach to GIS would involve development of an enterprise data maintenance and data access plan as well as development of a shared web-based data access application (or suite of applications). The costs of server and software administration and application development could be shared by DOW and the County.

In conjunction with the evaluation of opportunities for a County-wide GIS database and application, investigate options for implementing a Countywide SharePoint solution for document management and/or a Countywide instance of the CMMS. This would involve exploration of alternatives for supporting the application software and servers (e.g., County data center, DOW, or a commercial service provider offering a cloud-based solution). Regardless of who supports the servers and application software, this enterprise approach to document management and/or work management would involve development of enterprise strategies for application deployment and data access. The costs of server and software administration and application development could be shared by DOW and the County.

Set up VPN access to the DOW business network and provide wireless air cards to mobile users. This includes the four inspectors and may include other field personnel over time. Note: If all the applications needed by field personnel are provided in the cloud, it may not be necessary to provided VPN access; access to the internet and to the commercial service provider's servers would be sufficient.

Replace older wiring in DOW's office buildings with newer (Category 6) cabling in conjunction with remodeling or rehabilitation of the structures. Replace security cameras with newer digital technology at the same time.

Replace the current internet service with a higher-bandwidth alternative, preferably via more than one service provider so that there is resiliency in case one of the provider's services are disrupted.

Add a wireless hub to the to board room.

Stop paying maintenance on the GEMS water modeling software. Focus instead on building internal proficiency in core competencies associated with computer aided drafting and GIS data maintenance so that DOW can provide consultants with high quality data to support models run for specific master planning or engineering design projects.

Strategic and Financial Benefits

Benefits of the investment in an additional IT staff position include greater independence for application administration (assuming the new resource has the skills to support DOW's SCADA and communications technology) as well as greater operational resiliency. The latter is particularly important since DOW's current IT staff consists of a staff of two, leaving the department vulnerable to lapses in technical support should these two take leave simultaneously.

Benefits of the investments in technology to support county-wide shared applications (GIS and possibly SharePoint and/or the CMMS) include the following:

- Reduce the total cost of application administration (Note: This benefit is not quantified in the financial analysis because it is premature to determine whether DOW would realize benefits directly or whether they might be realized instead by the County in the form of additional services provided to DOW for compensation. Irrespective of whether DOW realizes the benefits directly, the utility's customers will benefit from the reduced cost of public services.)
- Improve the quality and timeliness of County-maintained base map data used by DOW, and facilitate access to other map data of interest (i.e., County's linear infrastructure, work locations, project locations)

If cloud-based solutions are deemed appropriate for GIS and/or other applications, additional benefits will include access to core business applications following a natural disaster (by DOW staff and/or external emergency responders) as well as robust data back-up and recovery capabilities available from commercial server farms.

Benefits of the upgrades in communication technology include:

- Faster, more reliable performance of the billing system
- Faster, more reliable internet access (which is a pre-requisite for consideration of the use of cloud-based solutions)
- Broader access to board agenda packet information, eliminating the need for manual loading of the tablets

The investments in communications infrastructure are necessary to support increased network traffic associated with the CC&B billing system and mobile access to the GIS and SharePoint applications.

Priority and Schedule Assumptions

The schedule for many of the recommended actions depends on factors unrelated to the DOW's IT program. For example, it is assumed that the upgrades to network cabling in the existing DOW office buildings will be deferred until these buildings are remodeled or rehabilitated, possibly in conjunction with construction of a new office building. Some actions should be implemented immediately, including expansion of the available bandwidth for accessing the internet (and the billing system) as well as the creation of a new IT staff position. For this reason, the recommendation is assumed to span the entire six-year timeframe.

Financial Analysis

This recommendation addresses fundamentals of the organizational and technical infrastructure required to support DOW's business applications. There are minimal tangible benefits associated with the cessation of maintenance payments on the GEMS software that is not used. However, the vast majority of the actions in this recommendation are infrastructure investments that do not provide direct tangible direct benefits.

This recommendation includes a wide range of costs. The low end of the range ($69,000) assumes deferral of many infrastructure investments and limited deployment of mobile capabilities, and it also excludes the cost of DOW personnel, including the new IT staff position. The high end of the range ($564,000) includes broader deployment of mobile communication, more extensive upgrades to wiring and other physical IT infrastructure, greater bandwidth (faster and more reliable web access) and, most significantly, the full burdened cost of a new IT staff position.

The following tables depict cash flows and financial data using the low and high ends of the cost range.

Projections for Low End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	($2,000)	($5,500)	($4,000)	($56,500)	($4,000)	($4,000)
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$6,800	$6,800	$6,800	$6,800	$6,800	$6,800
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	($2,000)	($5,317)	($3,738)	($51,036)	($3,493)	($3,376)
Total Annual Costs	*($2,000)*	*($5,317)*	*($3,738)*	*($51,036)*	*($3,493)*	*($3,376)*
Cumulative Costs	*($2,000)*	*($7,317)*	*($11,054)*	*($62,091)*	*($65,583)*	*($68,960)*
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$6,800	$6,573	$6,354	$6,142	$5,938	$5,740
Total Annual Benefits	*$6,800*	*$6,573*	*$6,354*	*$6,142*	*$5,938*	*$5,740*
Cumulative Benefits	*$6,800*	*$13,373*	*$19,728*	*$25,870*	*$31,808*	*$37,547*
Cumulative Net Benefits	**$4,800**	**$6,057**	**$8,673**	**($36,221)**	**($33,776)**	**($31,412)**

Breakeven Year: Does Not Break Even
Payback Period (in Years): No Payback Anticipated
Net Present Value: ($31,412)
Present Value of Costs: $68,960
Return on Investment: -7.59% *(Annualized)*

Projections for High End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	($72,072)	($73,513)	($74,984)	($76,483)	($78,013)	($79,573)
Contract/Procurement Costs	($3,000)	($12,000)	($12,000)	($92,000)	($22,000)	($22,000)
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$6,800	$6,800	$6,800	$6,800	$6,800	$6,800
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	($72,072)	($71,063)	($70,068)	($69,087)	($68,120)	($67,166)
Contract/Procurement Costs	($3,000)	($11,600)	($11,213)	($83,103)	($19,210)	($18,570)
Total Annual Costs	*($75,072)*	*($82,663)*	*($81,281)*	*($152,190)*	*($87,330)*	*($85,736)*
Cumulative Costs	*($75,072)*	*($157,735)*	*($239,016)*	*($391,207)*	*($478,537)*	*($564,273)*
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$6,800	$6,573	$6,354	$6,142	$5,938	$5,740
Total Annual Benefits	*$6,800*	*$6,573*	*$6,354*	*$6,142*	*$5,938*	*$5,740*
Cumulative Benefits	*$6,800*	*$13,373*	*$19,728*	*$25,870*	*$31,808*	*$37,547*
Cumulative Net Benefits	**($68,272)**	**($144,362)**	**($219,289)**	**($365,337)**	**($446,729)**	**($526,726)**

Breakeven Year: Does Not Break Even
Payback Period (in Years): No Payback Anticipated
Net Present Value: ($526,726)
Present Value of Costs: $564,273
Return on Investment: -15.56% *(Annualized)*

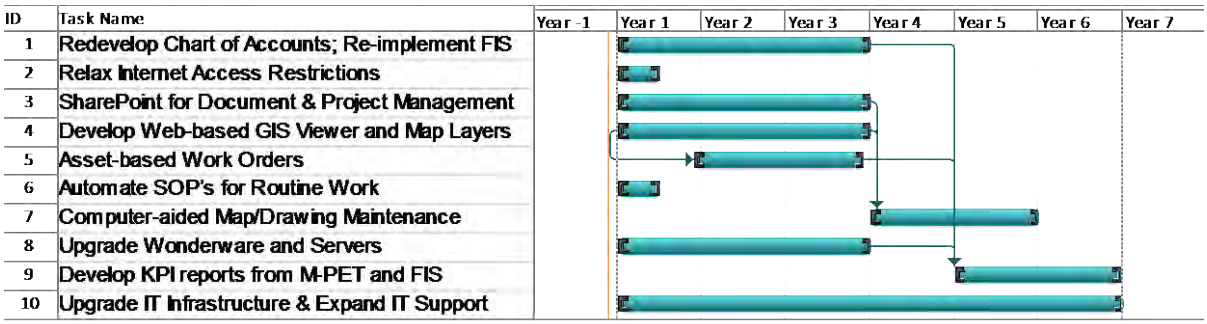
Quick Wins

DOW can immediately eliminate payment of then maintenance fees on the hydraulic modeling software that is not used.

Another quick win is the introduction of a wireless hub in the Board room. This new technology is reasonably inexpensive and will provide immediate benefit, including the ability for attendees to view agenda packet information posted on the DOW web site as well as the ability for the DOW attorney and other staff members to search the web for information in response to questions from Board members.

Schedule

The following graphic provides a high level overview of the timing of the recommendations.



Costs and Benefits

Some of these recommendations are strategic in nature, meaning that they are necessary for the DOW to maintain an adequate level of service. Other recommendations will improve level of service, increase productivity, or allow the DOW to avoid or reduce costs of service.

The table below provides a high level overview of the financial impact of each recommendation. The high ends of the cost ranges include relatively more new hardware and software than the lower ends of the ranges, and they also include the cost of exiting DOW personnel with respect to their participation in the various projects. The low ends of the ranges exclude the cost of existing DOW personnel and assume that DOW will be able to leverage more of its existing technology.

	Cost Range		Benefits	Net Present Value		Annualized ROI	
(Present Values in 000's)	*Low*	*High*	*thru yr 6*	*Low*	*High*	*Low*	*High*
1. Redevelop Chart of Accounts and Re-implement FIS	$310	$600	$1,096	$495	$786	14%	42%
2. Relax Internet Access Restrictions	$2	$27	$51	$24	$50	15%	516%
3. SharePoint for Document and Project Management	$207	$303	$548	$245	$341	13%	27%
4. Develop Web-based GIS Viewer and Map Layers	$144	$379	$853	$474	$709	21%	82%
5. Develop Capabilities for Asset-based Work Orders	$46	$474	$314	($160)	$324	-6%	116%
6. Automate SOP's for Routine Work	$0	$20	$2	($18)	$2	-15%	1142%
7. Use Computer-aided Map and Drawing Maintenance Tools	$18	$92	$87	($5)	$69	-1%	64%
8. Upgrade Wonderware and Servers	$192	$355	$202	($152)	$11	-7%	1%
9. Develop KPI Reports from CMMS and FIS	$85	$201	$197	($4)	$111	0%	22%
10. Upgrade IT Infrastructure & Expand IT Support	$69	$564	$38	($527)	($31)	-16%	-8%
TOTAL PROGRAM	**$1,073**	**$3,015**	**$3,389**	**$374**	**$2,372**	**2%**	**37%**

LIST OF DOW PERSONNEL INTERVIEWED

The following DOW personnel participated in interviews:

Accounting:

Tess Yano

Ann Parrott

Fay Tateishi

Karen Delgado

Carolyn Carviero

Analyn Flores

Administration:

David Craddick

Bill Eddy

MJ Garasi

Cherisse Zaima

Edie Ignacio-Neumiller

Bekki Malapit

Margie Loo

Andrea Suzuki

Joy Buccat

Andy Canavan

Peggy Yoshioka

Jeff Mendez

Sandi Nadatani-Mendez

Billing:

Mel Yamase

Mona Yamauchi

Roz Cristobal-Ribucan

Norma Imada

Construction Management:

Dustin Moises

Koni Silva

Leo Anguay

Engineering:

Aaron Zambo

Operations:

Val Reyna

Ryan Smith

Virgil Kapanui

Chris Nakamura

Rena Horikawa

Amy Kiyotsuka

Water Resources and Planning:

Eddie Doi

Regina Flores

Cleve Shigematsu

Keith Konishi

Kaua‘i ITSP Kick-off Notes

Project Team

The project manager is Jeff Mendez. The steering team is Jeff, Tess, Bill and Dave.

Critical Success Factors

Critical success factors include:

- Buy-in from end users. It is mandatory to have end users, as well as the IT staff, accept the recommendations of the Plan.
- Broad access to all information (no more human gatekeepers). The plan should create solutions that allow users to access information from many sources so as to minimize the need to search out information from multiple people
- Data security (including data preservation and hacking prevention). Data security is critical. There has not been a hacking event but security from outside sources is still important. Data security also includes data backup systems and hardware redundancy where appropriate.
- Paperless offices (go green). Support the notion that “your office is where your computer is”. Recommendations should allow for Water Department work to be done from remote locations as may be necessary based on the jobs being performed.
- Spend IT funds wisely.

Constraints

A general discussion of constraints that might hamper realization of the success criteria was conducted. No serious constraints were identified. However, the following issues were discussed:

- Construction plans are inaccurate. Pipeline locations shown on the plans do not correspond well with parcel maps, creating a perception that there is a challenge for application of GIS technology.
- Generally the staff has a fairly modest level of technology expertise. Personnel are literate in English but may not have much computer experience, and some have trouble interpreting construction plans.
- The Water Department is a subset of the County. Human resources and payroll functions are provided by the county through its SunGard system. The Water Department’s time keeping methods do not integrate with SunGard, creating a fairly cumbersome manual process.
- People are very busy. There is a perception that it will be difficult to take on significant technology implementation projects

Kaua‘i ITSP Interview Notes

General Administration

Support staff use Dynamics GP to create purchase orders. These are mostly small items such as snacks for Board meetings. Do not use purchase cards or blanket purchase orders, so even these small purchases must go through approval process. The approval process (signoff) occurs on paper before the PO is entered into GP. Information on the quotes that are received is typed into the notes of the PO but does not show up on any reports or printouts of the PO. Issue: Cannot see purchase orders after they are entered/requested. They must call one of two supervisors in the Accounting group to find out status of the POs.

They spend a lot of time producing internal documents (mostly correspondence and Board agenda packet material) and then printing these for manual signature and scanning them back into the system. They are not using digital signatures although they do place scanned image of the David’s signature on some documents to speed processing.

Issue: They are unable to scan in color. This is a problem for the agenda packets in particular. They have to send the material to IT to be scanned if they want color. Also, a lot of their internal documents (including letterhead) should be in color.

Issue: They are unsure of what to do with paper after it is scanned. There are stacks of paper in and around all the office space, including many duplicate copies of reports and proposals as well as paper copies of material that has been scanned.

Issue: Many administrative staff are storing documents on their hard drives rather than indexing them in Stellent. This limits access to the documents. Also, there may not be a backup if the hard drives go down.

Issue: The Division Heads are slow to submit material for the Board agenda packages and many last-minute changes are submitted. This makes the process of assembling the material difficult to plan and schedule in advance. Packets are often not final until the morning of the meeting, so Board members are not able to prepare for the meeting with the final packets. The material is loaded manually onto iPads for all but four Board members and division heads; there are still four individuals who insist on paper, so packets are printed for them. The material is also posted to the web site.

Issue: When collaborating on documents, only one person can access a file form the Shoyu directory at a time. The work has to be coordinated carefully so they do not overwrite each other’s modifications.

MJ does not use Team because so many of the old records are still open. She found the data problems made the system hard to use and interpret. She keeps a personal spreadsheet of correspondence that she opens for David and uses it to track responses; this information does not make it into Teams so nobody else has access to it. She is not sure if her hard drive is backed up; she does not make back-ups.

Another reason for keeping the files on her hard drive and/or the Shoyu with the only action records in her personal spreadsheet is that she needs to keep certain documents in confidence.

Management

The Department is now using the Connect Meter Data Management software. Badger is recommending a $15,000 upgrade to their new ReadCenter product in order to stay on a current software version. The new system stores 2-3 years of reads in a SQL Server database. The $15,000 license allows for software installation on up to five client PCs. It may be possible to provide access to the read data in SQL Server directly (without use of the client software) at no additional charge. Badger is investigating this. They are not doing any leak detection or targeting water conservation education based on the meter reading histories now, but management would like to be able to do this in the future. Note: The current practice is for meter readers to pull over and call customer service if their drive-by read indicates a possible leak. Customer Service then calls the customer to let them know.

Managers use the intranet to view customer account data and Water Plan 2020 files. The intranet site is great for accessing this relatively static information but is otherwise somewhat out of date.

Construction invoices (large invoices that managers need to review) are submitted on paper, and review is handled manually. Approval is handled via signatures on hard copies. The review process of purchase requisitions is likewise manual and requires a hard copy signature, even for sole source contracts and small purchases.

Issue: Even managers are unable to easily access existing purchase orders to check status. Managers are allowed to view the purchase orders but cannot query the system for them except by PO Number, so if this is not known, there is no way to pull up an existing record.

All financial reports are maintained on spreadsheets independent of the GP financial system. The reports are limited. The data cannot be pulled from Dynamics GP. Managers cannot tell what was spent on a specific capital project or type of project. The Construction Services Engineer keeps a spreadsheet with project financials, but this level of data is not in GP.

Plans are all submitted on paper, and files are scanned. Some plan review files are tracked in Stellent and some documents are recorded in Team, but it is difficult to keep track of the review process, and sometimes plan documents are lost. The County is moving to a digital plan check for building permits but this will not extend to plats and other types of construction review. The County is also moving to online procurement so that paper specifications can be avoided. They might be willing to host DOW procurements.

Base yard security is still using VHS. Managers would prefer to be able to view digital images on a server and also want an alarm system. The VHS tapes are hard to review.

Internet controls are very tight. Operations personnel cannot get to sites they need.

Management wants IT to be resilient enough to ensure business continuity. People should be able to continue working even if they have to work from home during a disaster such as a pandemic. Management would also like to create organizational depth with respect to IT support.

Management is interested in digital signatures but is concerned that State may not allow these for conveyance documents or notarization. The Department Attorney is investigating.

Management is curious about whether wireless access within the buildings would be helpful and whether cloud computing would be beneficial. In particular, a wireless hub in the Board Room would allow the press to connect to the web site for the agenda packet. Department personnel do not have laptops. There are some iPads that are used by Board members and some division heads strictly as a substitute for paper agenda packets at the monthly Board meetings.

Customer Service

Staff would like more training and practice time with the new Oracle CC&B product prior to go-live in January. They would also like step-by-step procedure lists (quick reference guides for different types of activities).

The New Accounts CSR uses M-PET once or twice per day to create work orders for new meter installation. This process involves lots of manual typing of detailed work descriptions that are fairly consistent from one installation to the next. The new meter process still involves paper applications that are filed with meter cards. Meter readers research these paper documents when they need to find meters that have been buried. These records (including some old microfilm) are organized in paper files. Some records have been added to Stellent, but meter readers do not rely on Stellent because it is not up to date.

Cashiers take about 30 checks per day from walk-in customers. All cashiering is done on paper and then totals are entered into the billing system. Late payments and partial payments are tracked manually and informally; they are planning to track this formally in CC&B.

Issue: The connection to Honolulu (CAS) goes down periodically, and CSRs screens freeze while they are talking to customers. This happens 20-30 times per day on bad days. It has not happened as much with CC&B, but things started to run slow during the last dress rehearsal.

IT

IT would like to provide access to GIS data, perhaps with an ArcGIS Server application. The County owns an enterprise license that the department can use. The County is running version 9.3; they will need to upgrade to version 10 to use ArcGIS for SharePoint.

Department management is reluctant to give pipeline data (maps) to the County for security reasons.

We will contact County IT to determine whether they would be willing to host an enterprise GIS database and web application and whether they can support a connection between the County and Water networks. We will also determine what the County did to increase its internet bandwidth. The Department uses Roadrunner Business Class service for internet access but might have an issue with bandwidth (based on user reports of slow performance and frozen screens).

Issue: IT does not get information from CAS when new meters are created or meters are replaced. This makes it difficult to keep the meter and service line feature classes up to date.

IT staff use Dell Kace to track hardware and software components (all devices with agents) and to process roughly 250 help desk calls per month. Some of these calls can be resolved quickly, but some require a lot of time (e.g., providing end user training).

IT personnel are concerned about the risks of opening up the scanning and indexing process to users because many users do not understand the different document classifications, and this could lead to poor indexing and lost documents.

Dynamics GP accounts are not segregated by business unit. Funds are not encumbered properly. There is no inventory item master list. Purchases are labeled with free form text and refer to general classes of items such as Software or Hardware, so there is no way to track purchasing history for specific types of supplies. The reason GP users are restricted from viewing purchase orders is that there were incidents in the past in which users created POs and then called vendors with the PO numbers before the POs were approved.

The Department had the opportunity to move to CC&B for tracking backflow prevention devices but opted to stay with its current system, which keeps a list of approximately 3,000 backflow devices. The system tracks the inspection due dates. Users select devices that are due and then print and send letters and test forms. Due dates are updated manually.

Annual IT maintenance costs are $161,100, including:

Item	Annual Budget
Hardware Maintenance	$37,000
Ascent Capture Scanning Software	$2,000
Symantec Anti- virus Enterprise Edition (includes SPAM filter and client endpoint protection)	$7,000
IP Phone	$10,000
Backup Exec Essential	$2,500
Dynamics GP FIS	$11,000
Stellent Document Indexing (Oracle)	$2,700
Paxca/Century Technical Services Consulting Block (Honolulu company assisting with GP and Stellent)	$25,000 for 120 hours
XC2 Backflow Software	$1,200
M- PET maintenance management (include software maintenance and ongoing customization)	$35,000
GEMS Water CAD hydraulic model	$6,800
AutoCAD drafting software	$3,500
Go Exchange mail server	$3,500
Ipswitch	$800
Busch Consulting (assistance with Fortinet)	$12,000
TEAM correspondence response management	$500
Unified Communication Certificate	$600

Issue: IT is concerned that the M-PET system is overly customized and is being modified to do things that should be handled by other systems (e.g., timecards, purchasing). The County also uses the product, and IT believes that the Department of Water is paying for customizations that also benefit the County.

Finance and Accounting

The Department has 75 employees. All timesheet data must be entered manually into the County payroll system (HTE). The Payroll Clerk enters information from M-PET printouts (from Operations) and paper timesheets (from other divisions). The totals in HTE must then be reconciled with the totals in M-PET and manual totals of the paper time cards. The Payroll Clerk also records all summary time data for each employee on a shadow timekeeping spreadsheet and reconciles these spreadsheets with the time totals in HTE. One spreadsheet is used to support labor distribution (allocating the labor costs to appropriate GL codes, which are entered into Dynamics GP manually as payroll expenses). The Payroll Clerk also maintains a shadow spreadsheet that shows actual hours worked each pay period and actual leave time earned and used. This shadow spreadsheet is the Department's system of record for accrued leave because they do not believe HTE is accurate. This is in part because time data are entered into HTE in arrears but also because of perceived errors in the way the system accrues leave. The Payroll Clerk periodically sends the County requests for adjustments to accrued leave, but these are not always posted properly. The Payroll Clerk spends 50% of her time entering data into HTE and the shadow spreadsheets and another 30% of her time reconciling the data in the different locations.

The Purchasing Clerk enters purchase orders from approved paper requests that come to her with signatures. Some users are entering their POs directly in GP, and this is the policy, but many still send in paper forms for Purchasing to enter. The Purchasing Clerk reviews each purchase order to ensure it is complete and then the PO goes to a supervisor for review. There is no funds appropriation on the purchase requisitions, and there is no budget data in GP, so there are no controls to prevent a purchase order from exceeding budget limits. For this reason, a supervisor must determine which GL codes will be debited when the items/services are purchased and must also review budget balances (unrelated to these GL codes) to ensure that there are sufficient funds to be distributed to these GL Codes when goods/services are received. There is no encumbrance when a PO is approved or issued. Purchases are all expensed upon receipt, and the receipts are distributed based on the GL code(s) that the Accounting Supervisor identifies in the notes associated with the PO.

Issue: There are no standard item or part numbers to use on PO lines, and there are likewise no commodity codes or standard units of measure in GP. The PO lines consist of free form text so it is hard to research previous purchases. There is a list of valid vendors. It is case-sensitive, which complicates searches. Also, they do not retire/deactivate values when vendors go out of business. Another issue with the vendor codes is that they are not very descriptive, and it is hard to determine who the vendor is when viewing a list of vendors; users have to open the individual vendor records to see the full name and description of the vendor.

Issue: Also, they do not use the tax and freight fields on the PO. Instead, tax and freight are added as line items to each PO, and the Purchasing Clerk was not sure why this is the case. (Upon investigation, it was discovered that this rule was put in place because the tax and freight amounts could not be distributed to GL Codes when goods were received, and there are no GL codes on the PO record to capture these expenses.) The PO lines for tax and freight are problematic when there are partial shipments/receipts; the Purchasing Clerk must amend the PO to add a new set of freight and tax PO lines for each partial receipt. This is because the lines are set up with a quantity of "1." GP does not capture any audit trail on the PO records, so the only

way to tell if someone modified a PO record is if they followed the standard procedure of entering their initials in the PO notes.

Account refunds (customer refunds) involve a great deal of paperwork. Hard copy refund requests are signed by the Customer Service Supervisor and customer. Accounting personnel then create purchase orders in GP as well as receipts so they can cut checks for the refunds. All the necessary data is already in the billing system. Staff are not sure why the paper process is in place,

Issue: The Chart of Accounts is unwieldy. There are no real fund, organization or object segments. Some segments are used to designate service areas, but nobody uses this information and these codes are largely unused. It is hard to roll up GL data to organizational units or activities or funds, and it is impossible to roll it up to specific projects because there is no project accounting within GP. The budget is maintained in completely separate spreadsheets with categories that do not line up with the GL codes, so reconciling spending with the budget is a manual process that takes practically all month prior to each Board meeting. Budget status is therefore reported a month in arrears.

Accounting needs an installation date, original cost and installation project ID for all assets in order to properly account for their retirement/replacement, but this data is not available so staff have to estimate values to be written off the books.

Fixed Asset Accounting keeps a spreadsheet ledger of all capital projects and then maintains a separate spreadsheet (subsidiary ledger) for each capital project. None of this data is in GP. Accounting gets information from Engineering as invoices are paid and also gets some information from the labor distribution prepared by the Payroll Clerk. It is hard to keep track of project status to determine when projects should be capitalized. Some work that is currently capitalized includes rehabilitation or replacement of component parts of larger facilities, and Accounting staff believe some of this should really be expensed immediately.

In addition to the project subsidiary ledger spreadsheets maintained by Fixed Asset staff, an Accounting Supervisor maintains a payment tracking spreadsheet for every open contract. The contract spreadsheets are used to record the contract limits, any amendments, and all payments. For construction contracts, the spreadsheets also include estimates to complete provided by the engineers (who may be maintaining their own spreadsheets as they approve contractor invoices). These spreadsheets are needed because there is no contract information in GP, so the spreadsheets are the only way to manage the contracts. The engineers do not have access to the accounting spreadsheets, and Accounting does not have access to the engineers' spreadsheets. Accounting uses its contract spreadsheets to determine the unpaid balance of each contract at the end of each fiscal year so that this amount can be rolled over to the following fiscal year. The Accounting Supervisor also uses the spreadsheets to determine whether specific invoices and payments are within contract limits; this is part of the approval process for invoice payments.

An Accounting Supervisor spends 50% of her time compiling a monthly budget status report for the prior month and 30% of her time updating the contract spreadsheets.

The Department does not close its books monthly or quarterly. Books are closed once per year, and the process takes about three months. Auditors typically must make a number of journal entries (as many as a few dozen, although last year only a dozen were needed). The auditors have indicated that the Chart of Accounts is unwieldy.

Public Relations

PR staff do not have access to social media, including the department Facebook page and Twitter account, because these internet sites are blocked. Only IT is able to access the sites to post responses. PR does not have any access to internet or intranet content management. All press releases are prepared in MS Word and sent to the media. PR also accesses the County's Civil Defense System for communication related to emergencies.

Laboratory

Laboratory personnel use the State's on-line system to track samples and log results of field analysis. Chain of custody is still tracked on paper forms, and samples are sent to contractors and the state for testing. The Department does not have to prepare water quality regulatory reports because the State already has all their data. They can download this data from the State system. The records include GPS locations of each sampling point.

Lab personnel do not pull samples after main break repairs or following new asset installation/flushing. The engineer is supposed to ensure that new pipes are disinfected.

Lab staff do not currently do any water quality modeling but do have an interest in it although water quality is generally so good that it is not much of an issue.

Issue: Lab personnel are blocked from the web sites they need to access in the course of their duties and frequently have to request that sites be unblocked, or they spend time looking for alternate sites.

Attorney

The attorney uses office automation and the internet to support contract review, contract drafting, dispute resolution, notices of violation, review and development of utility regulations, defense of claims against employees, and general legal research. She would like to be able to access the web from the Board Room during meetings so that she can respond to questions quickly. She currently does some of this on her personal mobile phone, but the screen is small, and she would rather be able to use a laptop or one of the iPads.

She will investigate whether digital signatures are accepted by the Bureau of Conveyances and also whether the State will permit digital notarization (or notarization of digitally signed documents).

Water Resources

The division has a variety of responsibilities:

- Backflow prevention testing notices are managed by an application known as XC2. The system sends out about 1400 annual test notices per year. Licensed testers are listed. Customers contact the testers who in turn send test reports back to the Department. The

system works well but is a candidate for replacement by functionality provided by the document management system or possibly by the billing system.

- A key Division function is management of the 2020 Plan. Repair and rehabilitation projects are defined by the Division based on the plan's recommendations and discussions with Operations. There seems to be little hard data that goes into the decisions. The Operations Division keeps records of work done on linear asset within 19 geographic areas. There is no data on work completed or funds expended on specific field assets.
- The Division does not operate a hydraulic model that would enable analysis of potential service constraints.
- Developer drawings are kept on paper files. Subdivision maps are not entered into GIS. There are about 34 400-scale distribution maps which are accurately maintained on mylar. Valve drawings (intersection maps) are accurately maintained by hand on mylar as well.
- The Division scans hand-drawn maps and drawings and files them in the SharePoint system. While this system has good document management functionality, it seems these capabilities are not well understood or exploited by end users. There is often a month or more of scanning back log.
- Some developer drawings come to the Department in AutoCAD form. Some developers submit paper drawings.
- The County permit approval process is electronic. When plans are reviewed and permits approved, it is done through the County's AS-400 system.

Engineering Division

The Division deals with both internal and developer generated projects. Following are observations of current project management procedures and technology:

- Keith Aoki manages about 10 to 20 developer projects at any one time. Most all of the correspondence used to track progress is done by a paper based system. He updates XC-2 when a backflow preventer is required. There seems to be little visibility into the status of these projects.
- Internally generated projects include repair or rehabilitation projects or those needed for growth. The 2020 master plan and its revisions define most of these projects. At present there are about 40 projects in the design phase. Consultants are chosen from a list of preselected firm. Scopes are developed by Water Resources and refined by Engineering and are then provided to consultants, after which fees are negotiated, contracts are awarded, and design work is begun. Interim deliverables are submitted for review and approval. Currently the status of each project is tracked on an Excel spreadsheet application. Paper invoices are received, reviewed, approved and carried to accounting for payment.
- Information needs consist of:
    - Access to SCADA data to address questions raised by designers
    - A GIS layer that shows project work in progress
    - A project management system that handles design documents and project correspondence in a standard, well-organized fashion that provides for accessible schedule information.

Operations

The SCADA system and the M-PET work management system were both reviewed with the following observations:

SCADA

- There are about 98 sites, each with a SCADA pack RTU, MDS 9810 900 MHz spread spectrum radio and associated power supplies, instrumentation, local HMI panel, etc.
- The HMI is Wonderware running the Microsoft 2000 operating system. Graphics are well done.
- There are persistent alarms at virtually all stations. The alarms showing on the HMI are ignored. If a "serious" alarm occurs, an auto dialer at the station calls one of the operators.
- Fluidiqs, now Glenmont Global Solutions, was the system integrator and continues to provide system support. The hardware documentation they provided is quite well done. Software documentation was not reviewed.
- Water system operators have SCADA laptops in their vehicles. Each site is visited about once per week. Hypochlorite tanks need to be filled that often.
- The Division has one electrician that coordinates with Glenmont for system maintenance. The Department has no staff trained in SCADA maintenance or upgrade processes.
- Glenmont has given the Department a rough estimate of $200k to upgrade the Wonderware system to the latest release. It's not known if that figure includes hardware upgrades.

M-PET

- Each work order includes labor, equipment and material costs. For field work orders, these costs are "tagged" to one of 17 geographic water system areas (numbers 01 through 16 and 99) because the work orders are not associated with specific assets. In later discussions with the Accounting Division, it was determined that the location-based costs are not reflected in the financial system and are not maintained for future analysis. Costs against such large segments of the system are virtually useless.
- Materials are withdrawn from the warehouse by one of the three supervisors and given to the crews each morning. Material used is shown on the work order. Unused material is either returned to the warehouse by the crews at the end of the day or kept on the truck for spares should they be needed in the future.
- Four Winds, the provider of M-PET, has an inventory module that displays part counts and reorder points. The Department does not use the module at this time.
- M-PET has a large list of "reports" many of which are not used and some of which are simple lists of assets, such as the "SUV report" being a list of SUV style rolling stock. Reports are written in Crystal.
- The system does not include pre-developed job descriptions. The description for each work order is manually entered by the supervisor, as is the location information.
- There is not an interface to the GIS available. Occasionally a map is printed out and stapled to the work order.
- The paper work order is completed by the crew which includes the time worked. The supervisor enters the time information in the time keeping application provided by M-PET. This is printed and given to Accounting staff, who enter the data into various Excel spreadsheets as well as the County's time keeping system. The "real" time records are kept

on the Excel spreadsheet maintained by Accounting, not the HTE system maintained by the County.

- There are three supervisors who spend the bulk of their days creating and closing out work orders.

Construction Management

- Construction Management staff see a need for transparency with respect to the status of projects in all phases of planning, design and construction.
- Scanner privileges were discussed. There is a need to broaden the number of people trained in the proper use of the scanner and indexing and filing of documents.
- GPS tools to shoot pipe locations as they're being installed is a need. It's important to develop a GIS technician who could take such information and input it in construction drawings and maps to create accurate as-built information.
- Inspectors need mobile access to a variety if technologies on their laptops, including:
    - Ability to view of AutoCAD drawings from the field
    - Ability to create daily reports and upload them to appropriate files in an electronic fashion. They don't want to create hand written reports.
    - Ability to take photographs or videos of construction activities.
    - Possibly the ability to do on-line real time video (i.e. Skype) so engineers in the office can see construction-related issues and quickly develop solutions.
- The Division would like to see a GIS application that cross-references Project 2020 assets and work done on those assets. For example, if work were to be done to repair a certain pipe segment that was a portion of a Project 2020 project, the maintenance work and the capital project should both be evident on the GIS map.
- Currently only Dustin has the version of Adobe that allows for editing. He believes that all staff should have edit privileges.
- This sentiment was repeated by many staff in this and other business units. There is a broad desire for less stringent controls (e.g., elimination of internet access restrictions), the pushing down of responsibilities and authorities into the organization, and more trust and training.

Each of the financial analyses covers a 6-year time period from FY 2013-14 to FY 2018-19. Some recommendations are scheduled for implementation toward the end of that period, so there is a limited window of time in which benefits accumulate. This narrow window makes the analysis conservative.

For each recommendation there is a projected cost range, and financial metrics have been calculated for the high and low ends of the range to illustrate the sensitivity of the net present value figures to those projections.

The following general assumptions are used in each analysis:

- Inflation Rate: 1.5%
- Opportunity Cost of Capital: 5%
- Estimated Annual Cost of Living Adjustment Affecting Future Years' Labor Costs: 2%

Internal labor costs are estimated using burdened hourly rates. A fringe rate of 65% is assumed. The burdened rates are generalized into three categories:

Job Category	Current Average Hourly Rate	Fringe	Burdened Hourly Rate
Manager	$40.00	65.00%	$66.00
Senior/Technical	$32.00	65.00%	$52.80
Junior/Clerical	$21.00	65.00%	$34.65

Following are the detailed assumptions behind the financial analyses for each of the recommendations.

1. Redevelop Chart of Accounts and Re-implement Financial Information System (FIS)

Benefit Assumptions

Job Category: Senior/Technical Specific Productivity Benefits	2013-14 Hours	2014-15 Hours	2015-16 Hours	2016-17 Hours	2017-18 Hours	2018-19 Hours
Save 50% senior FTE by pulling monthly budget reports from GP rather than assembling manually			1,040.00	1,040.00	1,040.00	1,040.00
Eliminate manual budget status research; savings spread across dozens of employees at all levels; total value is assumed to be equivalent to 50% of a senior FTE.			1,040.00	1,040.00	1,040.00	1,040.00
Eliminate the maintenance of shadow spreadsheets for budget, contracts, and project accounting - This is 1.5 senior FTEs that includes time spent by Accounting and Engineering staff			3,120.00	3,120.00	3,120.00	3,120.00
Reduce year end closing effort by approximately 250 senior labor hours per year			250.00	250.00	250.00	250.00
Total Hours Saved for this Job Category	0.00	0.00	5,450.00	5,450.00	5,450.00	5,450.00

(in future year dollars) Job Category	Valuation Method	2013-14 Savings	2014-15 Savings	2015-16 Savings	2016-17 Savings	2017-18 Savings	2018-19 Savings
Senior/Technical	*per Hour*	$0	$0	$299,386	$305,373	$311,481	$317,710
Junior/Clerical	*per Hour*	$0	$0	$0	$0	$0	$0
Manager	*per Hour*	$0	$0	$0	$0	$0	$0
Total Productivity Benefits		$0	$0	$299,386	$305,373	$311,481	$317,710

Cost Assumptions

Low End Projection: External Costs

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Project planning, consulting, and business analysis/systems analysis						
Chart of Accts Redevelopment	$20,000.00					
Program Management	$67,500.00	$67,500.00				
New software						
Project Accounting	$5,000.00					
Software maintenance fees						
Project Accounting		$1,000.00	$1,000.00	$1,000.00	$1,000.00	$1,000.00
Application development (programming)						
Dynamics GP redeploy	$75,000.00	$75,000.00				
Total External Costs	$167,500	$143,500	$1,000	$1,000	$1,000	$1,000
Total External Investment	**$315,000**					

High End Projection: External Costs

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Project planning, consulting, and business analysis/systems analysis						
Chart of Accts Redevelopment	$25,000.00					
Program Management	$135,000.00	$135,000.00				
New software						
Project Accounting	$15,000.00					
Software maintenance fees						
Project Accounting		$3,000.00	$3,000.00	$3,000.00	$3,000.00	$3,000.00
Application development (programming)						
Dynamics GP redeploy	$75,000.00	$100,000.00				
Total External Costs	$250,000	$238,000	$3,000	$3,000	$3,000	$3,000
Total External Investment	**$500,000**					

High End Projection: Internal Labor Costs

Job Category	Valuation Method	Nature of Work	2013-14 Hrs or FTEs	2014-15 Hrs or FTEs	2015-16 Hrs or FTEs	2016-17 Hrs or FTEs	2017-18 Hrs or FTEs	2018-19 Hrs or FTEs
Senior/Technical	*per Hour*	Core Team Participation	200	200				
Junior/Clerical	*per Hour*	Internal PM + Core Team Participation	1,000	1,200				
Manager	*per Hour*	Oversight	100	100				

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Job Category	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**
Senior/Technical	$10,560	$10,771	$0	$0	$0	$0
Junior/Clerical	$34,650	$42,412	$0	$0	$0	$0
Manager	$6,600	$6,732	$0	$0	$0	$0
Total Internal Labor Costs	$51,810	$59,915	$0	$0	$0	$0
Total Internal Labor Investment	**$111,725**					

Financial Analysis

Projections for Low End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	($167,500)	($143,500)	($1,000)	($1,000)	($1,000)	($1,000)
Productivity Benefits	$0	$0	$299,386	$305,373	$311,481	$317,710
Other Benefits	$0	$0	$0	$0	$0	$0
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	($167,500)	($138,717)	($934)	($903)	($873)	($844)
Total Annual Costs	*($167,500)*	*($138,717)*	*($934)*	*($903)*	*($873)*	*($844)*
Cumulative Costs	*($167,500)*	*($306,217)*	*($307,151)*	*($308,054)*	*($308,928)*	*($309,772)*
Productivity Benefits	$0	$0	$279,759	$275,842	$271,981	$268,173
Other Benefits	$0	$0	$0	$0	$0	$0
Total Annual Benefits	*$0*	*$0*	*$279,759*	*$275,842*	*$271,981*	*$268,173*
Cumulative Benefits	*$0*	*$0*	*$279,759*	*$555,602*	*$827,582*	*$1,095,755*
Cumulative Net Benefits	**($167,500)**	**($306,217)**	**($27,392)**	**$247,547**	**$518,655**	**$785,984**

Breakeven Year: 2016-17
Payback Period (in Years): 3
Net Present Value: $785,984
Present Value of Costs: $309,772
Return on Investment: 42.29% *(Annualized)*

Projections for High End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	($51,810)	($59,915)	$0	$0	$0	$0
Contract/Procurement Costs	($250,000)	($238,000)	($3,000)	($3,000)	($3,000)	($3,000)
Productivity Benefits	$0	$0	$299,386	$305,373	$311,481	$317,710
Other Benefits	$0	$0	$0	$0	$0	$0
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	($51,810)	($57,918)	$0	$0	$0	$0
Contract/Procurement Costs	($250,000)	($230,067)	($2,803)	($2,710)	($2,620)	($2,532)
Total Annual Costs	*($301,810)*	*($287,984)*	*($2,803)*	*($2,710)*	*($2,620)*	*($2,532)*
Cumulative Costs	*($301,810)*	*($589,794)*	*($592,598)*	*($595,308)*	*($597,927)*	*($600,459)*
Productivity Benefits	$0	$0	$279,759	$275,842	$271,981	$268,173
Other Benefits	$0	$0	$0	$0	$0	$0
Total Annual Benefits	*$0*	*$0*	*$279,759*	*$275,842*	*$271,981*	*$268,173*
Cumulative Benefits	*$0*	*$0*	*$279,759*	*$555,602*	*$827,582*	*$1,095,755*
Cumulative Net Benefits	**($301,810)**	**($589,794)**	**($312,839)**	**($39,706)**	**$229,655**	**$495,296**

Breakeven Year: 2017-18
Payback Period (in Years): 4
Net Present Value: $495,296
Present Value of Costs: $600,459
Return on Investment: 13.75% *(Annualized)*

2. Relax Internet Access Restrictions

Benefit Assumptions

Job Category: Senior/Technical	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Specific Productivity Benefits	**Hours**	**Hours**	**Hours**	**Hours**	**Hours**	**Hours**
Productivity Improvement: Reduce time spent waiting for IT to unblock sites or navigating around blocked sites; this benefit affects all internet users and is assumed to be 12 hours per month (72 hours per year for Managers and 72 hours per year for Senior personnel)	72.00	72.00	72.00	72.00	72.00	72.00
Total Hours Saved for this Job Category	72.00	72.00	72.00	72.00	72.00	72.00

Job Category: Junior/Clerical	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Specific Productivity Benefits	**Hours**	**Hours**	**Hours**	**Hours**	**Hours**	**Hours**
Productivity Improvement: Reduce time spent unblocking sites by 30 minutes per month (3 hours per year for a Manager and 3 hours per year for a Technician)	3.00	3.00	3.00	3.00	3.00	3.00
Total Hours Saved for this Job Category	3.00	3.00	3.00	3.00	3.00	3.00

Job Category: Manager	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Specific Productivity Benefits	**Hours**	**Hours**	**Hours**	**Hours**	**Hours**	**Hours**
Productivity Improvement: Reduce time spent unblocking sites by 30 minutes per month (3 hours per year for a Manager and 3 hours per year for a Technician)	3.00	3.00	3.00	3.00	3.00	3.00
Productivity Improvement: Reduce time spent waiting for IT to unblock sites or navigating around blocked sites; this benefit affects all internet users and is assumed to be 12 hours per month (72 hours per year for Managers and 72 hours per year for Senior personnel)	72.00	72.00	72.00	72.00	72.00	72.00
Total Hours Saved for this Job Category	75.00	75.00	75.00	75.00	75.00	75.00

(in future year dollars)	**Valuation**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Job Category	**Method**	**Savings**	**Savings**	**Savings**	**Savings**	**Savings**	**Savings**
Senior/Technical	*per Hour*	$3,802	$3,878	$3,955	$4,034	$4,115	$4,197
Junior/Clerical	*per Hour*	$104	$106	$108	$110	$113	$115
Manager	*per Hour*	$4,950	$5,049	$5,150	$5,253	$5,358	$5,465
Total Productivity Benefits		$8,856	$9,033	$9,213	$9,398	$9,586	$9,777

Cost Assumptions

Low End Projection: External Costs

No external costs are projected at the low end of the cost range.

High End Projection: External Costs

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
New software						
Usage Monitoring	$10,000.00					
Software maintenance fees						
		$2,000.00	$2,000.00	$2,000.00	$2,000.00	$2,000.00
Total External Costs	$10,000	$2,000	$2,000	$2,000	$2,000	$2,000
Total External Investment	**$20,000**					

High End Projection: Internal Labor Costs

Job Category	Valuation Method	Nature of Work	2013-14 Hrs or FTEs	2014-15 Hrs or FTEs	2015-16 Hrs or FTEs	2016-17 Hrs or FTEs	2017-18 Hrs or FTEs	2018-19 Hrs or FTEs
Senior/Technical	*per Hour*							
Junior/Clerical	*per Hour*	Rebuild 2 PCs per year	8	8	8	8	8	8
Manager	*per Hour*	Update, communicate and enforce access policy	24	16	16	16	16	16

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Job Category	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**
Senior/Technical	$0	$0	$0	$0	$0	$0
Junior/Clerical	$277	$283	$288	$294	$300	$306
Manager	$1,584	$1,077	$1,099	$1,121	$1,143	$1,166
Total Internal Labor Costs	$1,861	$1,360	$1,387	$1,415	$1,443	$1,472
Total Internal Labor Investment	**$8,938**					

Financial Analysis

Projections for Low End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	($277)	($283)	($288)	($294)	($300)	($306)
Contract/Procurement Costs	$0	$0	$0	$0	$0	$0
Productivity Benefits	$8,856	$9,033	$9,213	$9,398	$9,586	$9,777
Other Benefits	$0	$0	$0	$0	$0	$0
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	($277)	($273)	($269)	($266)	($262)	($258)
Contract/Procurement Costs	$0	$0	$0	$0	$0	$0
Total Annual Costs	*($277)*	*($273)*	*($269)*	*($266)*	*($262)*	*($258)*
Cumulative Costs	*($277)*	*($551)*	*($820)*	*($1,086)*	*($1,348)*	*($1,606)*
Productivity Benefits	$8,856	$8,732	$8,609	$8,489	$8,370	$8,253
Other Benefits	$0	$0	$0	$0	$0	$0
Total Annual Benefits	*$8,856*	*$8,732*	*$8,609*	*$8,489*	*$8,370*	*$8,253*
Cumulative Benefits	*$8,856*	*$17,587*	*$26,196*	*$34,685*	*$43,055*	*$51,308*
Cumulative Net Benefits	**$8,578**	**$17,037**	**$25,376**	**$33,600**	**$41,707**	**$49,702**

Breakeven Year: 2013-14
Payback Period (in Years): 0
Net Present Value: $49,702
Present Value of Costs: $1,606
Return on Investment: 515.77% *(Annualized)*

Projections for High End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	($1,861)	($1,360)	($1,387)	($1,415)	($1,443)	($1,472)
Contract/Procurement Costs	($10,000)	($2,000)	($2,000)	($2,000)	($2,000)	($2,000)
Productivity Benefits	$8,856	$9,033	$9,213	$9,398	$9,586	$9,777
Other Benefits	$0	$0	$0	$0	$0	$0
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	($1,861)	($1,315)	($1,296)	($1,278)	($1,260)	($1,242)
Contract/Procurement Costs	($10,000)	($1,933)	($1,869)	($1,807)	($1,746)	($1,688)
Total Annual Costs	*($11,861)*	*($3,248)*	*($3,165)*	*($3,085)*	*($3,006)*	*($2,931)*
Cumulative Costs	*($11,861)*	*($15,109)*	*($18,274)*	*($21,359)*	*($24,365)*	*($27,296)*
Productivity Benefits	$8,856	$8,732	$8,609	$8,489	$8,370	$8,253
Other Benefits	$0	$0	$0	$0	$0	$0
Total Annual Benefits	*$8,856*	*$8,732*	*$8,609*	*$8,489*	*$8,370*	*$8,253*
Cumulative Benefits	*$8,856*	*$17,587*	*$26,196*	*$34,685*	*$43,055*	*$51,308*
Cumulative Net Benefits	**($3,006)**	**$2,478**	**$7,922**	**$13,327**	**$18,690**	**$24,012**

Breakeven Year: 2014-15
Payback Period (in Years): 1
Net Present Value: $24,012
Present Value of Costs: $27,296
Return on Investment: 14.66% *(Annualized)*

3. Migrate to SharePoint for Document and Project Management

Benefit Assumptions

Job Category: Senior/Technical	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Specific Productivity Benefits	**Hours**	**Hours**	**Hours**	**Hours**	**Hours**	**Hours**
Reduce document search time. This benefit amounts to approximately 1 hour per week in labor savings for 10 senior personnel (or .25 senior FTEs per year).	260.00	520.00	520.00	520.00	520.00	520.00
Total Hours Saved for this Job Category	260.00	520.00	520.00	520.00	520.00	520.00

Job Category: Junior/Clerical	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Specific Productivity Benefits	**Hours**	**Hours**	**Hours**	**Hours**	**Hours**	**Hours**
Reduce time spent printing and scanning internal paper. This affects all clerical personnel and is assumed to total 1 junior/clerical FTE.	1,040.00	2,080.00	2,080.00	2,080.00	2,080.00	2,080.00
Total Hours Saved for this Job Category	1,040.00	2,080.00	2,080.00	2,080.00	2,080.00	2,080.00

(in future year dollars)	Valuation	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Job Category	**Method**	**Savings**	**Savings**	**Savings**	**Savings**	**Savings**	**Savings**
Senior/Technical	*per Hour*	$13,728	$28,005	$28,565	$29,137	$29,719	$30,314
Junior/Clerical	*per Hour*	$36,036	$73,513	$74,984	$76,483	$78,013	$79,573
Manager	*per Hour*	$0	$0	$0	$0	$0	$0
Total Productivity Benefits		$49,764	$101,519	$103,549	$105,620	$107,732	$109,887

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Specific Other Benefits	**Benefits**	**Benefits**	**Benefits**	**Benefits**	**Benefits**	**Benefits**
Eliminate Team and Stellent support costs		$3,200.00	$3,200.00	$3,200.00	$3,200.00	$3,200.00
Free 200 square feet now occupied by paper for use as office space. Assume $200 per square foot in avoided construction costs amortized over 20 years for a total annual benefit of $2,000.			$2,000.00	$2,000.00	$2,000.00	$2,000.00
Total Other Benefits	$0	$3,200	$5,200	$5,200	$5,200	$5,200

Cost Assumptions

Low End Projection: External Costs

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Project planning, consulting, and business analysis/systems analysis						
Develop document indexing and retrieval strategy	$40,000.00					
Program Management	$45,000.00	$45,000.00				
Application and interface design (and enhancement design)						
Workflow and template design		$40,000.00				
Application development (programming)						
Sharepoint workflow and template development		$40,000.00				
Other						
Public Certificates for Digital Signatures	$300.00	$300.00	$300.00	$300.00	$300.00	$300.00
Total External Costs	$85,300	$125,300	$300	$300	$300	$300
Total External Investment	**$211,800**					

High End Projection: External Costs

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Project planning, consulting, and business analysis/systems analysis						
Develop document indexing and retrieval strategy	$40,000.00					
Program Management	$67,500.00	$67,500.00				
Application and interface design (and enhancement design)						
Workflow and template design		$40,000.00				
Application development (programming)						
Sharepoint workflow and template development		$50,000.00				
Other						
Public Certificates for Digital Signatures	$600.00	$600.00	$600.00	$600.00	$600.00	$600.00
Total External Costs	$108,100	$158,100	$600	$600	$600	$600
Total External Investment	**$268,600**					

High End Projection: Internal Labor Costs

Job Category	Valuation Method	Nature of Work	2013-14 Hrs or FTEs	2014-15 Hrs or FTEs	2015-16 Hrs or FTEs	2016-17 Hrs or FTEs	2017-18 Hrs or FTEs	2018-19 Hrs or FTEs
Senior/Technical	*per Hour*							
Junior/Clerical	*per Hour*	Site Design and Set-up	200	200				
Manager	*per Hour*	Site Design and Set-up	200	200				

(in future year dollars) Job Category	2013-14 Labor Cost	2014-15 Labor Cost	2015-16 Labor Cost	2016-17 Labor Cost	2017-18 Labor Cost	2018-19 Labor Cost
Senior/Technical	$0	$0	$0	$0	$0	$0
Junior/Clerical	$6,930	$7,069	$0	$0	$0	$0
Manager	$13,200	$13,464	$0	$0	$0	$0
Total Internal Labor Costs	$20,130	$20,533	$0	$0	$0	$0
Total Internal Labor Investment	**$40,663**					

Financial Analysis

Projections for Low End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	($85,300)	($125,300)	($300)	($300)	($300)	($300)
Productivity Benefits	$49,764	$101,519	$103,549	$105,620	$107,732	$109,887
Other Benefits	$0	$3,200	$5,200	$5,200	$5,200	$5,200
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	($85,300)	($121,123)	($280)	($271)	($262)	($253)
Total Annual Costs	*($85,300)*	*($121,123)*	*($280)*	*($271)*	*($262)*	*($253)*
Cumulative Costs	*($85,300)*	*($206,423)*	*($206,704)*	*($206,975)*	*($207,237)*	*($207,490)*
Productivity Benefits	$49,764	$98,135	$96,761	$95,406	$94,070	$92,753
Other Benefits	$0	$3,093	$4,859	$4,697	$4,541	$4,389
Total Annual Benefits	*$49,764*	*$101,228*	*$101,620*	*$100,103*	*$98,611*	*$97,143*
Cumulative Benefits	*$49,764*	*$150,992*	*$252,612*	*$352,715*	*$451,326*	*$548,469*
Cumulative Net Benefits	**($35,536)**	**($55,431)**	**$45,908**	**$145,740**	**$244,089**	**$340,979**

Breakeven Year: 2015-16
Payback Period (in Years): 2
Net Present Value: $340,979
Present Value of Costs: $207,490
Return on Investment: 27.39% *(Annualized)*

Projections for High End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	($20,130)	($20,533)	$0	$0	$0	$0
Contract/Procurement Costs	($108,100)	($158,100)	($600)	($600)	($600)	($600)
Productivity Benefits	$49,764	$101,519	$103,549	$105,620	$107,732	$109,887
Other Benefits	$0	$3,200	$5,200	$5,200	$5,200	$5,200
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	($20,130)	($19,848)	$0	$0	$0	$0
Contract/Procurement Costs	($108,100)	($152,830)	($561)	($542)	($524)	($506)
Total Annual Costs	*($128,230)*	*($172,678)*	*($561)*	*($542)*	*($524)*	*($506)*
Cumulative Costs	*($128,230)*	*($300,908)*	*($301,469)*	*($302,011)*	*($302,535)*	*($303,041)*
Productivity Benefits	$49,764	$98,135	$96,761	$95,406	$94,070	$92,753
Other Benefits	$0	$3,093	$4,859	$4,697	$4,541	$4,389
Total Annual Benefits	*$49,764*	*$101,228*	*$101,620*	*$100,103*	*$98,611*	*$97,143*
Cumulative Benefits	*$49,764*	*$150,992*	*$252,612*	*$352,715*	*$451,326*	*$548,469*
Cumulative Net Benefits	**($78,466)**	**($149,916)**	**($48,857)**	**$50,704**	**$148,791**	**$245,427**

Breakeven Year: 2016-17
Payback Period (in Years): 3
Net Present Value: $245,427
Present Value of Costs: $303,041
Return on Investment: 13.50% *(Annualized)*

4. Develop Web-Based GIS Viewer and Map Layers

Benefit Assumptions

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Specific Other Benefits	**Benefits**	**Benefits**	**Benefits**	**Benefits**	**Benefits**	**Benefits**
Make better asset management decisions, including deferral of investments and more efficient investments. Assume this amounts to 1% - 2% of capital spending for which this initiative is 80% responsible (80% * 1.5% * $20M = $240,000 per year)			$240,000.00	$240,000.00	$240,000.00	$240,000.00
Total Other Benefits	$0	$0	$240,000	$240,000	$240,000	$240,000

Cost Assumptions

Low End Projection: External Costs

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Project planning, consulting, and business analysis/systems analysis						
Program Management	$33,750.00	$33,750.00				
Application and interface design (and enhancement design)						
Geodatabase and application design		$40,000.00				
Application development (programming)						
Application development		$40,000.00				
Total External Costs	$33,750	$113,750	$0	$0	$0	$0
Total External Investment	**$147,500**					

High End Projection: External Costs

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Project planning, consulting, and business analysis/systems analysis						
Program Management	$90,000.00	$90,000.00				
Application and interface design (and enhancement design)						
Geodatabase and application design		$50,000.00				
Application development (programming)						
Application development		$50,000.00				
Total External Costs	$90,000	$190,000	$0	$0	$0	$0
Total External Investment	**$280,000**					

High End Projection: Internal Labor Costs

Job Category	Valuation Method	Nature of Work	2013-14 Hrs or FTEs	2014-15 Hrs or FTEs	2015-16 Hrs or FTEs	2016-17 Hrs or FTEs	2017-18 Hrs or FTEs	2018-19 Hrs or FTEs
Senior/Technical	*per Hour*							
Junior/Clerical	*per Hour*							
Manager	*per Hour*	Data collection/analysis and oversight of application development	1,000	600				

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Job Category	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**
Senior/Technical	$0	$0	$0	$0	$0	$0
Junior/Clerical	$0	$0	$0	$0	$0	$0
Manager	$66,000	$40,392	$0	$0	$0	$0
Total Internal Labor Costs	$66,000	$40,392	$0	$0	$0	$0
Total Internal Labor Investment	**$106,392**					

Financial Analysis

Projections for Low End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	($33,750)	($113,750)	$0	$0	$0	$0
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$0	$0	$240,000	$240,000	$240,000	$240,000
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	($33,750)	($109,958)	$0	$0	$0	$0
Total Annual Costs	*($33,750)*	*($109,958)*	*$0*	*$0*	*$0*	*$0*
Cumulative Costs	*($33,750)*	*($143,708)*	*($143,708)*	*($143,708)*	*($143,708)*	*($143,708)*
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$0	$0	$224,267	$216,791	$209,565	$202,579
Total Annual Benefits	*$0*	*$0*	*$224,267*	*$216,791*	*$209,565*	*$202,579*
Cumulative Benefits	*$0*	*$0*	*$224,267*	*$441,058*	*$650,623*	*$853,202*
Cumulative Net Benefits	**($33,750)**	**($143,708)**	**$80,558**	**$297,349**	**$506,914**	**$709,493**

Breakeven Year: 2015-16
Payback Period (in Years): 2
Net Present Value: $709,493
Present Value of Costs: $143,708
Return on Investment: 82.28% *(Annualized)*

Projections for High End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	($66,000)	($40,392)	$0	$0	$0	$0
Contract/Procurement Costs	($90,000)	($190,000)	$0	$0	$0	$0
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$0	$0	$240,000	$240,000	$240,000	$240,000
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	($66,000)	($39,046)	$0	$0	$0	$0
Contract/Procurement Costs	($90,000)	($183,667)	$0	$0	$0	$0
Total Annual Costs	*($156,000)*	*($222,712)*	*$0*	*$0*	*$0*	*$0*
Cumulative Costs	*($156,000)*	*($378,712)*	*($378,712)*	*($378,712)*	*($378,712)*	*($378,712)*
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$0	$0	$224,267	$216,791	$209,565	$202,579
Total Annual Benefits	*$0*	*$0*	*$224,267*	*$216,791*	*$209,565*	*$202,579*
Cumulative Benefits	*$0*	*$0*	*$224,267*	*$441,058*	*$650,623*	*$853,202*
Cumulative Net Benefits	**($156,000)**	**($378,712)**	**($154,446)**	**$62,346**	**$271,910**	**$474,490**

Breakeven Year: 2016-17
Payback Period (in Years): 3
Net Present Value: $474,490
Present Value of Costs: $378,712
Return on Investment: 20.88% *(Annualized)*

5. Develop Capabilities for Asset-based Work Orders

Benefit Assumptions

Job Category: Senior/Technical Specific Productivity Benefits	2013-14 Hours	2014-15 Hours	2015-16 Hours	2016-17 Hours	2017-18 Hours	2018-19 Hours
Eliminate retyping of CC&B-generated work orders. This saves roughly 1 hour per day for 3 senior O&M staff (780 senior hours per year)			780.00	780.00	780.00	780.00
Total Hours Saved for this Job Category	0.00	0.00	780.00	780.00	780.00	780.00

(in future year dollars) Job Category	Valuation Method	2013-14 Savings	2014-15 Savings	2015-16 Savings	2016-17 Savings	2017-18 Savings	2018-19 Savings
Senior/Technical	*per Hour*	$0	$0	$42,848	$43,705	$44,579	$45,470
Junior/Clerical	*per Hour*	$0	$0	$0	$0	$0	$0
Manager	*per Hour*	$0	$0	$0	$0	$0	$0
Total Productivity Benefits		$0	$0	$42,848	$43,705	$44,579	$45,470

(in future year dollars) Specific Other Benefits	2013-14 Benefits	2014-15 Benefits	2015-16 Benefits	2016-17 Benefits	2017-18 Benefits	2018-19 Benefits
Make better asset management decisions, including deferral of investments and more efficient investments. Assume this amounts to 1% - 2% of capital spending for which this initiative is 20% responsible (20% * 1.5% * $20M = $60,000 per year)				$60,000.00	$60,000.00	$60,000.00
Total Other Benefits	$0	$0	$0	$60,000	$60,000	$60,000

Cost Assumptions

Low End Projection: External Costs

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Project planning, consulting, and business analysis/systems analysis						
Program Manager		$18,000.00				
Application development (programming)						
Interface to import CC&B work orders into M-PET		$30,000.00				
Total External Costs	$0	$48,000	$0	$0	$0	$0
Total External Investment	**$48,000**					

High End Projection: External Costs

Note: These projections assume replacement of M-PET with a low cost product geared for small organizations. A top tier CMMS would be considerably more expensive to procure and implement.

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Project planning, consulting, and business analysis/systems analysis						
Program Manager		$67,500.00	$67,500.00			
CMMS implementation		$50,000.00	$50,000.00			
New software						
New CMMS		$200,000.00				
Application development (programming)						
Interface to import CC&B work orders into new CMMS			$30,000.00			
Total External Costs	$0	$317,500	$147,500	$0	$0	$0
Total External Investment	**$465,000**					

High End Projection: Internal Labor Costs

Job Category	Valuation Method	Nature of Work	2013-14 Hrs or FTEs	2014-15 Hrs or FTEs	2015-16 Hrs or FTEs	2016-17 Hrs or FTEs	2017-18 Hrs or FTEs	2018-19 Hrs or FTEs
Senior/Technical	*per Hour*	Core Team Participation		180	180			
Junior/Clerical	*per Hour*	Assume implementation handled by new IT staff member; 100% of this cost is included in recommendation #10						
Manager	*per Hour*	Investigate CMMS software options; Train users to pull asset numbers from GIS		80	80			

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Job Category	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**
Senior/Technical	$0	$9,694	$9,888	$0	$0	$0
Junior/Clerical	$0	$0	$0	$0	$0	$0
Manager	$0	$5,386	$5,493	$0	$0	$0
Total Internal Labor Costs	$0	$15,080	$15,381	$0	$0	$0
Total Internal Labor Investment	**$30,461**					

Financial Analysis

Projections for Low End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	($48,000)	$0	$0	$0	$0
Productivity Benefits	$0	$0	$42,848	$43,705	$44,579	$45,470
Other Benefits	$0	$0	$60,000	$60,000	$60,000	$60,000
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	($46,400)	$0	$0	$0	$0
Total Annual Costs	*$0*	*($46,400)*	*$0*	*$0*	*$0*	*$0*
Cumulative Costs	*$0*	*($46,400)*	*($46,400)*	*($46,400)*	*($46,400)*	*($46,400)*
Productivity Benefits	$0	$0	$40,039	$39,478	$38,926	$38,381
Other Benefits	$0	$0	$56,067	$54,198	$52,391	$50,645
Total Annual Benefits	*$0*	*$0*	*$96,106*	*$93,676*	*$91,317*	*$89,026*
Cumulative Benefits	*$0*	*$0*	*$96,106*	*$189,782*	*$281,099*	*$370,124*
Cumulative Net Benefits	**$0**	**($46,400)**	**$49,706**	**$143,382**	**$234,699**	**$323,724**

Breakeven Year: 2015-16
Payback Period (in Years): 2
Net Present Value: $323,724
Present Value of Costs: $46,400
Return on Investment: 116.28% *(Annualized)*

Projections for High End of Cost Range (inclusive of Internal Labor)

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	($15,080)	($15,381)	$0	$0	$0
Contract/Procurement Costs	$0	($317,500)	($147,500)	$0	$0	$0
Productivity Benefits	$0	$0	$42,848	$43,705	$44,579	$45,470
Other Benefits	$0	$0	$0	$60,000	$60,000	$60,000
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	($14,577)	($14,373)	$0	$0	$0
Contract/Procurement Costs	$0	($306,917)	($137,831)	$0	$0	$0
Total Annual Costs	*$0*	*($321,494)*	*($152,204)*	*$0*	*$0*	*$0*
Cumulative Costs	*$0*	*($321,494)*	*($473,697)*	*($473,697)*	*($473,697)*	*($473,697)*
Productivity Benefits	$0	$0	$40,039	$39,478	$38,926	$38,381
Other Benefits	$0	$0	$0	$54,198	$52,391	$50,645
Total Annual Benefits	*$0*	*$0*	*$40,039*	*$93,676*	*$91,317*	*$89,026*
Cumulative Benefits	*$0*	*$0*	*$40,039*	*$133,715*	*$225,032*	*$314,057*
Cumulative Net Benefits	**$0**	**($321,494)**	**($433,658)**	**($339,982)**	**($248,665)**	**($159,640)**

Breakeven Year: Does Not Break Even
Payback Period (in Years): No Payback Anticipated
Net Present Value: ($159,640)
Present Value of Costs: $473,697
Return on Investment: -5.62% *(Annualized)*

Projections for High End of Cost Range (exclusive of Internal Labor)

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	($317,500)	($147,500)	$0	$0	$0
Productivity Benefits	$0	$0	$42,848	$43,705	$44,579	$45,470
Other Benefits	$0	$0	$0	$60,000	$60,000	$60,000
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	($306,917)	($137,831)	$0	$0	$0
Total Annual Costs	*$0*	*($306,917)*	*($137,831)*	*$0*	*$0*	*$0*
Cumulative Costs	*$0*	*($306,917)*	*($444,747)*	*($444,747)*	*($444,747)*	*($444,747)*
Productivity Benefits	$0	$0	$40,039	$39,478	$38,926	$38,381
Other Benefits	$0	$0	$0	$54,198	$52,391	$50,645
Total Annual Benefits	*$0*	*$0*	*$40,039*	*$93,676*	*$91,317*	*$89,026*
Cumulative Benefits	*$0*	*$0*	*$40,039*	*$133,715*	*$225,032*	*$314,057*
Cumulative Net Benefits	**$0**	**($306,917)**	**($404,708)**	**($311,032)**	**($219,715)**	**($130,690)**

Breakeven Year: Does Not Break Even
Payback Period (in Years): No Payback Anticipated
Net Present Value: ($130,690)
Present Value of Costs: $444,747
Return on Investment: -4.90% *(Annualized)*

6. Automate SOPs for Routine Work

Benefit Assumptions

Job Category: Junior/Clerical	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Specific Productivity Benefits	**Hours**	**Hours**	**Hours**	**Hours**	**Hours**	**Hours**
Reduce 1 hour of typing per month (12 hours per year) for a clerical staff member	12.00	12.00	12.00	12.00	12.00	12.00
Total Hours Saved for this Job Category	12.00	12.00	12.00	12.00	12.00	12.00

(in future year dollars)	Valuation	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Job Category	**Method**	**Savings**	**Savings**	**Savings**	**Savings**	**Savings**	**Savings**
Senior/Technical	*per Hour*	$0	$0	$0	$0	$0	$0
Junior/Clerical	*per Hour*	$416	$424	$433	$441	$450	$459
Manager	*per Hour*	$0	$0	$0	$0	$0	$0
Total Productivity Benefits		$416	$424	$433	$441	$450	$459

Cost Assumptions

Low End Projection: External Costs

No external costs are projected at the low end of the cost range.

High End Projection: External Costs

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Application and interface design (and enhancement design)						
Design SOP functionality		$5,000.00				
Application development (programming)						
Native SOP reuse enhancements		$10,000.00	$5,000.00			
Total External Costs	$0	$15,000	$5,000	$0	$0	$0
Total External Investment	**$20,000**					

High End Projection: Internal Labor Costs

Job Category	Valuation Method	Nature of Work	2013-14 Hrs or FTEs	2014-15 Hrs or FTEs	2015-16 Hrs or FTEs	2016-17 Hrs or FTEs	2017-18 Hrs or FTEs	2018-19 Hrs or FTEs
Senior/Technical	*per Hour*							
Junior/Clerical	*per Hour*	Write SOPs	24					
Manager	*per Hour*							

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Job Category	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**
Senior/Technical	$0	$0	$0	$0	$0	$0
Junior/Clerical	$832	$0	$0	$0	$0	$0
Manager	$0	$0	$0	$0	$0	$0
Total Internal Labor Costs	$832	$0	$0	$0	$0	$0
Total Internal Labor Investment	**$832**					

Financial Analysis

Projections for Low End of Cost Range

The following chart is exclusive of internal labor costs except for a nominal cost included in the first year so that there is a non-zero investment cost for purposes of determining ROI.

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	($35)	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	$0	$0	$0	$0	$0
Productivity Benefits	$416	$424	$433	$441	$450	$459
Other Benefits	$0	$0	$0	$0	$0	$0
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	($35)	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	$0	$0	$0	$0	$0
Total Annual Costs	*($35)*	*$0*	*$0*	*$0*	*$0*	*$0*
Cumulative Costs	*($35)*	*($35)*	*($35)*	*($35)*	*($35)*	*($35)*
Productivity Benefits	$416	$410	$404	$399	$393	$387
Other Benefits	$0	$0	$0	$0	$0	$0
Total Annual Benefits	*$416*	*$410*	*$404*	*$399*	*$393*	*$387*
Cumulative Benefits	*$416*	*$826*	*$1,230*	*$1,629*	*$2,022*	*$2,409*
Cumulative Net Benefits	**$381**	**$791**	**$1,195**	**$1,594**	**$1,987**	**$2,374**

Breakeven Year: 2013-14
Payback Period (in Years): 0
Net Present Value: $2,374
Present Value of Costs: $35
Return on Investment: 1142.11% *(Annualized)*

Projections for High End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	($832)	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	($15,000)	($5,000)	$0	$0	$0
Productivity Benefits	$416	$424	$433	$441	$450	$459
Other Benefits	$0	$0	$0	$0	$0	$0
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	($832)	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	($14,500)	($4,672)	$0	$0	$0
Total Annual Costs	*($832)*	*($14,500)*	*($4,672)*	*$0*	*$0*	*$0*
Cumulative Costs	*($832)*	*($15,332)*	*($20,004)*	*($20,004)*	*($20,004)*	*($20,004)*
Productivity Benefits	$416	$410	$404	$399	$393	$387
Other Benefits	$0	$0	$0	$0	$0	$0
Total Annual Benefits	*$416*	*$410*	*$404*	*$399*	*$393*	*$387*
Cumulative Benefits	*$416*	*$826*	*$1,230*	*$1,629*	*$2,022*	*$2,409*
Cumulative Net Benefits	**($416)**	**($14,506)**	**($18,774)**	**($18,375)**	**($17,982)**	**($17,595)**

Breakeven Year: Does Not Break Even
Payback Period (in Years): No Payback Anticipated
Net Present Value: ($17,595)
Present Value of Costs: $20,004
Return on Investment: -14.66% *(Annualized)*

7. Use Computer-aided Map and Drawing Maintenance Tools

Benefit Assumptions

Job Category: Senior/Technical	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Specific Productivity Benefits	**Hours**	**Hours**	**Hours**	**Hours**	**Hours**	**Hours**
Reduce map update workload by approximately 30 hours per month (360 hours per year) for a senior engineering staff member					360.00	360.00
Reduce document search time by 2 hours per week for roughly 5 senior staff members (combination of engineers, managers, O&M personnel and Accounting staff) for an estimated savings of 10 hours per week of senior staff time (.25 senior FTEs)					520.00	520.00
Total Hours Saved for this Job Category	0.00	0.00	0.00	0.00	880.00	880.00

(in future year dollars)	Valuation	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Job Category	**Method**	**Savings**	**Savings**	**Savings**	**Savings**	**Savings**	**Savings**
Senior/Technical	*per Hour*	$0	$0	$0	$0	$50,294	$51,300
Junior/Clerical	*per Hour*	$0	$0	$0	$0	$0	$0
Manager	*per Hour*	$0	$0	$0	$0	$0	$0
Total Productivity Benefits		$0	$0	$0	$0	$50,294	$51,300

Cost Assumptions

Low End Projection: External Costs

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Project planning, consulting, and business analysis/systems analysis						
Program Management				$18,000.00		
Staff development and training						
Computer-based training				$2,000.00		
Total External Costs	$0	$0	$0	$20,000	$0	$0
Total External Investment	**$20,000**					

High End Projection: External Costs

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Project planning, consulting, and business analysis/systems analysis						
Program Management				$18,000.00	$18,000.00	
Software implementation services				$4,000.00	$4,000.00	
Staff development and training						
Training					$4,000.00	
New hardware (purchase price or lease payments)						
Larger monitors					$10,000.00	
Hardware maintenance fees						
						$4,000.00
New software						
				$20,000.00		
Software maintenance fees						
					$4,000.00	$4,000.00
Total External Costs	$0	$0	$0	$42,000	$40,000	$8,000
Total External Investment	**$90,000**					

High End Projection: Internal Labor Costs

Job Category	Valuation Method	Nature of Work	2013-14 Hrs or FTEs	2014-15 Hrs or FTEs	2015-16 Hrs or FTEs	2016-17 Hrs or FTEs	2017-18 Hrs or FTEs	2018-19 Hrs or FTEs
Senior/Technical	*per Hour*	Core Team Participation and Training				200		
Junior/Clerical	*per Hour*							
Manager	*per Hour*	Program oversight				40		

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Job Category	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**
Senior/Technical	$0	$0	$0	$11,206	$0	$0
Junior/Clerical	$0	$0	$0	$0	$0	$0
Manager	$0	$0	$0	$2,802	$0	$0
Total Internal Labor Costs	$0	$0	$0	$14,008	$0	$0
Total Internal Labor Investment	**$14,008**					

Financial Analysis

Projections for Low End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	$0	$0	($20,000)	$0	$0
Productivity Benefits	$0	$0	$0	$0	$50,294	$51,300
Other Benefits	$0	$0	$0	$0	$0	$0
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	$0	$0	($18,066)	$0	$0
Total Annual Costs	*$0*	*$0*	*$0*	*($18,066)*	*$0*	*$0*
Cumulative Costs	*$0*	*$0*	*$0*	*($18,066)*	*($18,066)*	*($18,066)*
Productivity Benefits	$0	$0	$0	$0	$43,916	$43,301
Other Benefits	$0	$0	$0	$0	$0	$0
Total Annual Benefits	*$0*	*$0*	*$0*	*$0*	*$43,916*	*$43,301*
Cumulative Benefits	*$0*	*$0*	*$0*	*$0*	*$43,916*	*$87,217*
Cumulative Net Benefits	**$0**	**$0**	**$0**	**($18,066)**	**$25,850**	**$69,152**

Breakeven Year:	2017-18	
Payback Period (in Years):	4	
Net Present Value:	$69,152	
Present Value of Costs:	$18,066	
Return on Investment:	63.80%	*(Annualized)*

Projections for High End of Cost Range

The cash flows below indicate payback would occur in 2019-20, just outside the time window used for the financial analysis and within three years of the initial investment.

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	$0	$0	($14,008)	$0	$0
Contract/Procurement Costs	$0	$0	$0	($42,000)	($40,000)	($8,000)
Productivity Benefits	$0	$0	$0	$0	$50,294	$51,300
Other Benefits	$0	$0	$0	$0	$0	$0
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	$0	$0	($12,653)	$0	$0
Contract/Procurement Costs	$0	$0	$0	($37,938)	($34,927)	($6,753)
Total Annual Costs	*$0*	*$0*	*$0*	*($50,592)*	*($34,927)*	*($6,753)*
Cumulative Costs	*$0*	*$0*	*$0*	*($50,592)*	*($85,519)*	*($92,272)*
Productivity Benefits	$0	$0	$0	$0	$43,916	$43,301
Other Benefits	$0	$0	$0	$0	$0	$0
Total Annual Benefits	*$0*	*$0*	*$0*	*$0*	*$43,916*	*$43,301*
Cumulative Benefits	*$0*	*$0*	*$0*	*$0*	*$43,916*	*$87,217*
Cumulative Net Benefits	**$0**	**$0**	**$0**	**($50,592)**	**($41,603)**	**($5,054)**

Breakeven Year: Does Not Break Even
Payback Period (in Years): No Payback Anticipated
Net Present Value: ($5,054)
Present Value of Costs: $92,272
Return on Investment: -0.91% *(Annualized)*

8. Upgrade Wonderware and Servers

Benefit Assumptions

Job Category: Senior/Technical	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Specific Productivity Benefits	**Hours**	**Hours**	**Hours**	**Hours**	**Hours**	**Hours**
Productivity Improvement: Avoid deploying operators to the field when system fails. This amounts to 5 senior O&M personnel for 2 weeks per failure. Assuming 2 failures per year, this comes to 800 senior labor hours (2 failures * 5 staff * 80 hours)		800.00	800.00	800.00	800.00	800.00
Total Hours Saved for this Job Category	0.00	800.00	800.00	800.00	800.00	800.00

(in future year dollars)	Valuation	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Job Category	**Method**	**Savings**	**Savings**	**Savings**	**Savings**	**Savings**	**Savings**
Senior/Technical	*per Hour*	$0	$43,085	$43,946	$44,825	$45,722	$46,636
Junior/Clerical	*per Hour*	$0	$0	$0	$0	$0	$0
Manager	*per Hour*	$0	$0	$0	$0	$0	$0
Total Productivity Benefits		$0	$43,085	$43,946	$44,825	$45,722	$46,636

Cost Assumptions

Low End Projection: External Costs

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Project planning, consulting, and business analysis/systems analysis						
Program Management	$22,500.00	$22,500.00				
Technical Services	$75,000.00	$75,000.00				
Total External Costs	$97,500	$97,500	$0	$0	$0	$0
Total External Investment	**$195,000**					

High End Projection: External Costs

The following projection assumes that DOW will be able to defer significant costs associated with instrumentation and communication system upgrades to a point outside the six-year planning window and/or that these upgrades will occur as part of capital projects for facility rehabilitation.

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Project planning, consulting, and business analysis/systems analysis						
Program Management	$45,000.00	$45,000.00				
Technical Services	$90,000.00	$90,000.00				
New hardware (purchase price or lease payments)						
New Servers	$40,000.00					
Hardware maintenance fees						
New Servers		$8,000.00	$8,000.00	$8,000.00	$8,000.00	$8,000.00
Total External Costs	$175,000	$143,000	$8,000	$8,000	$8,000	$8,000
Total External Investment	**$350,000**					

High End Projection: Internal Labor Costs

Financial Analysis

Projections for Low End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	($97,500)	($97,500)	$0	$0	$0	$0
Productivity Benefits	$0	$43,085	$43,946	$44,825	$45,722	$46,636
Other Benefits	$0	$0	$0	$0	$0	$0
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	($97,500)	($94,250)	$0	$0	$0	$0
Total Annual Costs	*($97,500)*	*($94,250)*	*$0*	*$0*	*$0*	*$0*
Cumulative Costs	*($97,500)*	*($191,750)*	*($191,750)*	*($191,750)*	*($191,750)*	*($191,750)*
Productivity Benefits	$0	$41,649	$41,066	$40,491	$39,924	$39,365
Other Benefits	$0	$0	$0	$0	$0	$0
Total Annual Benefits	*$0*	*$41,649*	*$41,066*	*$40,491*	*$39,924*	*$39,365*
Cumulative Benefits	*$0*	*$41,649*	*$82,714*	*$123,205*	*$163,129*	*$202,493*
Cumulative Net Benefits	**($97,500)**	**($150,101)**	**($109,036)**	**($68,545)**	**($28,621)**	**$10,743**

Breakeven Year: 2018-19
Payback Period (in Years): 5
Net Present Value: $10,743
Present Value of Costs: $191,750
Return on Investment: 0.93% *(Annualized)*

Projections for High End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	($6,600)	($6,732)	$0	$0	$0	$0
Contract/Procurement Costs	($175,000)	($143,000)	($8,000)	($8,000)	($8,000)	($8,000)
Productivity Benefits	$0	$43,085	$43,946	$44,825	$45,722	$46,636
Other Benefits	$0	$0	$0	$0	$0	$0
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	($6,600)	($6,508)	$0	$0	$0	$0
Contract/Procurement Costs	($175,000)	($138,233)	($7,476)	($7,226)	($6,985)	($6,753)
Total Annual Costs	*($181,600)*	*($144,741)*	*($7,476)*	*($7,226)*	*($6,985)*	*($6,753)*
Cumulative Costs	*($181,600)*	*($326,341)*	*($333,816)*	*($341,043)*	*($348,028)*	*($354,781)*
Productivity Benefits	$0	$41,649	$41,066	$40,491	$39,924	$39,365
Other Benefits	$0	$0	$0	$0	$0	$0
Total Annual Benefits	*$0*	*$41,649*	*$41,066*	*$40,491*	*$39,924*	*$39,365*
Cumulative Benefits	*$0*	*$41,649*	*$82,714*	*$123,205*	*$163,129*	*$202,493*
Cumulative Net Benefits	**($181,600)**	**($284,692)**	**($251,102)**	**($217,838)**	**($184,900)**	**($152,288)**

Breakeven Year: Does Not Break Even
Payback Period (in Years): No Payback Anticipated
Net Present Value: ($152,288)
Present Value of Costs: $354,781
Return on Investment: -7.15% *(Annualized)*

9. Develop KPI Reports

Benefit Assumptions

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Specific Other Benefits	**Benefits**	**Benefits**	**Benefits**	**Benefits**	**Benefits**	**Benefits**
Assume that access to more accurate and timely performance data will improve performance by 0.5%, realized as more efficient and effective spending of the O&M budget amounting to $75,000 per year (0.05% * $15M in annual O&M spending)				$75,000.00	$75,000.00	$75,000.00
Total Other Benefits	$0	$0	$0	$75,000	$75,000	$75,000

Cost Assumptions

Both sets of cost projections assume that DOW personnel will develop the reports once the program has been designed.

Low End Projection: External Costs

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Project planning, consulting, and business analysis/systems analysis						
Program Management				$22,500.00	$22,500.00	
KPI Program Design Services				$50,000.00		
Total External Costs	$0	$0	$0	$72,500	$22,500	$0
Total External Investment	**$95,000**					

High End Projection: External Costs

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Project planning, consulting, and business analysis/systems analysis						
Program Management				$45,000.00	$45,000.00	
KPI Program Design Services				$50,000.00	$20,000.00	
Total External Costs	$0	$0	$0	$95,000	$65,000	$0
Total External Investment	**$160,000**					

High End Projection: Internal Labor Costs

	Valuation		2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Job Category	**Method**	**Nature of Work**	**Hrs or FTEs**	**Hrs or FTEs**	**Hrs or FTEs**	**Hrs or FTEs**	**Hrs or FTEs**	**Hrs or FTEs**
Senior/Technical	*per Hour*	Core Team Participation				250	250	
Junior/Clerical	*per Hour*	Report Development				200	800	
Manager	*per Hour*							

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Job Category	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**
Senior/Technical	$0	$0	$0	$14,008	$14,288	$0
Junior/Clerical	$0	$0	$0	$7,354	$30,005	$0
Manager	$0	$0	$0	$0	$0	$0
Total Internal Labor Costs	$0	$0	$0	$21,362	$44,293	$0
Total Internal Labor Investment	**$65,655**					

Financial Analysis

Projections for Low End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	$0	$0	($72,500)	($22,500)	$0
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$0	$0	$0	$75,000	$75,000	$75,000
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	$0	$0	$0	($65,489)	($19,647)	$0
Total Annual Costs	*$0*	*$0*	*$0*	*($65,489)*	*($19,647)*	*$0*
Cumulative Costs	*$0*	*$0*	*$0*	*($65,489)*	*($85,136)*	*($85,136)*
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$0	$0	$0	$67,747	$65,489	$63,306
Total Annual Benefits	*$0*	*$0*	*$0*	*$67,747*	*$65,489*	*$63,306*
Cumulative Benefits	*$0*	*$0*	*$0*	*$67,747*	*$133,236*	*$196,542*
Cumulative Net Benefits	**$0**	**$0**	**$0**	**$2,258**	**$48,101**	**$111,407**

Breakeven Year: 2013-14
Payback Period (in Years): 0
Net Present Value: $111,407
Present Value of Costs: $85,136
Return on Investment: 21.81% *(Annualized)*

Projections for High End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	$0	$0	($21,362)	($44,293)	$0
Contract/Procurement Costs	$0	$0	$0	($95,000)	($65,000)	$0
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$0	$0	$0	$75,000	$75,000	$75,000
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	$0	$0	($19,296)	($38,676)	$0
Contract/Procurement Costs	$0	$0	$0	($85,813)	($56,757)	$0
Total Annual Costs	*$0*	*$0*	*$0*	*($105,109)*	*($95,433)*	*$0*
Cumulative Costs	*$0*	*$0*	*$0*	*($105,109)*	*($200,543)*	*($200,543)*
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$0	$0	$0	$67,747	$65,489	$63,306
Total Annual Benefits	*$0*	*$0*	*$0*	*$67,747*	*$65,489*	*$63,306*
Cumulative Benefits	*$0*	*$0*	*$0*	*$67,747*	*$133,236*	*$196,542*
Cumulative Net Benefits	**$0**	**$0**	**$0**	**($37,362)**	**($67,307)**	**($4,001)**

Breakeven Year: Does Not Break Even
Payback Period (in Years): No Payback Anticipated
Net Present Value: ($4,001)
Present Value of Costs: $200,543
Return on Investment: -0.33% *(Annualized)*

10. Upgrade IT Infrastructure and Expand IT Support and Resiliency

Benefit Assumptions

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Specific Other Benefits	**Benefits**	**Benefits**	**Benefits**	**Benefits**	**Benefits**	**Benefits**
Eliminate maintenance of GEMS Water CAD software	$6,800.00	$6,800.00	$6,800.00	$6,800.00	$6,800.00	$6,800.00
Total Other Benefits	$6,800	$6,800	$6,800	$6,800	$6,800	$6,800

Cost Assumptions

Low End Projection: External Costs

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Network enhancements						
install Cat-6 wiring as part of building upgrade				$50,000.00		
New hardware (purchase price or lease payments)						
New security camera installed as part of building upgrade				$2,500.00		
Application service provider (ASP) and Internet service provider (ISP) fees						
ISP upgraded service	$1,500.00	$1,500.00	$1,500.00	$1,500.00	$1,500.00	$1,500.00
Additional communication fees (e.g., wireless charges, leased lines)						
wireless cards with low-cost network access option		$4,000.00	$2,500.00	$2,500.00	$2,500.00	$2,500.00
wireless hub in conf room	$500.00					
Total External Costs	$2,000	$5,500	$4,000	$56,500	$4,000	$4,000
Total External Investment	**$76,000**					

High End Projection: External Costs

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Network enhancements						
install Cat-6 wiring as part of building upgrade				$70,000.00		
New hardware (purchase price or lease payments)						
New security camera installed as part of building upgrade				$10,000.00		
Application service provider (ASP) and Internet service provider (ISP) fees						
ISP upgraded service with redundancy	$2,000.00	$2,000.00	$2,000.00	$2,000.00	$2,000.00	$2,000.00
Additional communication fees (e.g., wireless charges, leased lines)						
wireless cards and secure network access		$10,000.00	$10,000.00	$10,000.00	$20,000.00	$20,000.00
wireless hub in conf room	$1,000.00					
Total External Costs	$3,000	$12,000	$12,000	$92,000	$22,000	$22,000
Total External Investment	**$163,000**					

High End Projection: Internal Labor Costs

Job Category	Valuation Method	Nature of Work	2013-14 Hrs or FTEs	2014-15 Hrs or FTEs	2015-16 Hrs or FTEs	2016-17 Hrs or FTEs	2017-18 Hrs or FTEs	2018-19 Hrs or FTEs
Senior/Technical	*per Hour*							
Junior/Clerical	*per Hour*	New Position	2,080	2,080	2,080	2,080	2,080	2,080
Manager	*per Hour*							

(in future year dollars)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Job Category	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**	**Labor Cost**
Senior/Technical	$0	$0	$0	$0	$0	$0
Junior/Clerical	$72,072	$73,513	$74,984	$76,483	$78,013	$79,573
Manager	$0	$0	$0	$0	$0	$0
Total Internal Labor Costs	$72,072	$73,513	$74,984	$76,483	$78,013	$79,573
Total Internal Labor Investment	**$454,639**					

Financial Analysis

Projections for Low End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	($2,000)	($5,500)	($4,000)	($56,500)	($4,000)	($4,000)
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$6,800	$6,800	$6,800	$6,800	$6,800	$6,800
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	$0	$0	$0	$0	$0	$0
Contract/Procurement Costs	($2,000)	($5,317)	($3,738)	($51,036)	($3,493)	($3,376)
Total Annual Costs	*($2,000)*	*($5,317)*	*($3,738)*	*($51,036)*	*($3,493)*	*($3,376)*
Cumulative Costs	*($2,000)*	*($7,317)*	*($11,054)*	*($62,091)*	*($65,583)*	*($68,960)*
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$6,800	$6,573	$6,354	$6,142	$5,938	$5,740
Total Annual Benefits	*$6,800*	*$6,573*	*$6,354*	*$6,142*	*$5,938*	*$5,740*
Cumulative Benefits	*$6,800*	*$13,373*	*$19,728*	*$25,870*	*$31,808*	*$37,547*
Cumulative Net Benefits	**$4,800**	**$6,057**	**$8,673**	**($36,221)**	**($33,776)**	**($31,412)**

Breakeven Year: Does Not Break Even
Payback Period (in Years): No Payback Anticipated
Net Present Value: ($31,412)
Present Value of Costs: $68,960
Return on Investment: -7.59% *(Annualized)*

Projections for High End of Cost Range

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Future Cash Flows						
Internal Labor Costs	($72,072)	($73,513)	($74,984)	($76,483)	($78,013)	($79,573)
Contract/Procurement Costs	($3,000)	($12,000)	($12,000)	($92,000)	($22,000)	($22,000)
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$6,800	$6,800	$6,800	$6,800	$6,800	$6,800
Present Value Multiplier:	*100.0%*	*96.7%*	*93.4%*	*90.3%*	*87.3%*	*84.4%*
Present Values						
Internal Labor Costs	($72,072)	($71,063)	($70,068)	($69,087)	($68,120)	($67,166)
Contract/Procurement Costs	($3,000)	($11,600)	($11,213)	($83,103)	($19,210)	($18,570)
Total Annual Costs	*($75,072)*	*($82,663)*	*($81,281)*	*($152,190)*	*($87,330)*	*($85,736)*
Cumulative Costs	*($75,072)*	*($157,735)*	*($239,016)*	*($391,207)*	*($478,537)*	*($564,273)*
Productivity Benefits	$0	$0	$0	$0	$0	$0
Other Benefits	$6,800	$6,573	$6,354	$6,142	$5,938	$5,740
Total Annual Benefits	*$6,800*	*$6,573*	*$6,354*	*$6,142*	*$5,938*	*$5,740*
Cumulative Benefits	*$6,800*	*$13,373*	*$19,728*	*$25,870*	*$31,808*	*$37,547*
Cumulative Net Benefits	**($68,272)**	**($144,362)**	**($219,289)**	**($365,337)**	**($446,729)**	**($526,726)**

Breakeven Year: Does Not Break Even
Payback Period (in Years): No Payback Anticipated
Net Present Value: ($526,726)
Present Value of Costs: $564,273
Return on Investment: -15.56% *(Annualized)*

Long Term I.T. Strategic Plan
By Jeff Mendez

March 2012

COUNTY OF KAUAI
DEPARTMENT OF WATER
LONG TERM I.T. STRATEGIC PLAN

1.0 INTRODUCTION

Relative to the Department's original Long Term Computer Plan, which was written in 1998, a great deal of computerization has been achieved since the original plan was written. The Department has gone from having about twenty (20) stand-alone computers and 10 inkjet printers, to a computerized networked of over 100 computers / laptops / servers and 16 networked printers that support our Business Local Area Network (LAN) and Supervisory Control and Data Acquisition (SCADA) LAN.

This plan has been written to evaluate the Department's future computer requirements and to develop a strategy and recommendations to meet those requirements. The Department recognizes that an investment in a highly integrated computer system can provide significant improvements in the efficiency, reliability, and quality of our operations for the benefit of our customers. This plan presents the results of our initial analysis of the current computer usage, anticipated technological applications and needs, and the hardware and software requirements to effectively meet current and future needs.

The Department plans to hire a consultant to further assist in the analysis and to help develop a master plan to help the Department reach its goals.

Note that this I.T. Master Plan will represent a point-in-time analysis. As circumstances change, I.T. priorities must change accordingly. Consequently, this plan should be treated as a living document, reviewed annually, and revised as necessary.

The strategic computerization plan included consideration of the following:

Long Term Goals
Application Needs and Priorities
Implementation Strategies
Costs and Resources

1.1 LONG-TERM GOALS

The I.T. mission is to provide a responsive and efficient I.T. environment and services in support of the Departments strategic commitments. Due to lack of integration between system applications and application functionality needs, the Department is looking to make significant changes to software and hardware wherever necessary.

The computerization plan is intended to support this mission by increased efficiency and reliability of our operations. All divisions of the Department will benefit from automation through streamlining day-to-day operations and enhancing our ability to identify and resolve problem areas.

The I.T. Goals are to include:

1. Make informed, strategic, business based investments in technology
2. Leverage the full capability of business applications
3. Provide responsive, customer-oriented I.T. services
4. Utilize a secure, responsive, and cost-effective technology infrastructure
5. Foster a technology literate workforce

1.2 Application Needs and Priorities

The computerization plan's application needs and priorities will be based in part on current usage and functions of the Department. The intent is to establish a strategic framework while allowing flexibility for decisions regarding selection of particular applications or vendors, and to have flexibility to accommodate user priorities.

Once fully implemented, the hardware and software systems purchased should serve its purpose for a minimum period of 5 years, before considering any significant upgrades. System setup should be flexible to allow compatibility with future applications or programs developed on a State, Federal or County Wide basis.

1.3 Implementation Strategies

It is assumed that the implementation will be performed in phases that will be established based on Department priorities, resource allocations and constraints, and funding considerations. Flexibility will be necessary; priorities on any application may be subject to change based on immediate needs of the Department. Board approval will be required for the program and major investments.

For purposes of discussion, phases have been broken down into the following functional areas:

1. Network Infrastructure (hardware)
2. Application Usage
3. Major System Implementations/Objectives

- The initial phase of the new computerization plan will focus on upgrading the network infrastructure. With an aging phone system that needs to be replaced and the need to consolidate and reduce the footprint of servers at the department, changes to the network infrastructure will be necessary.

- The Application Usage phase will focus on increased utilization of the existing applications. The Department has an array of applications that are underutilized or used minimally. The Department needs to move towards using these applications as they were intended to be used. Additional training may be necessary to get the user made aware of or re-introduced to these applications.

- The major implementations phase will look at our current state of applications across the Department and making determinations on the usefulness to the Department. In some cases, with better integration, an application may still hold some value to the Department, but in most cases, based on needs and functionality, most applications will likely be replaced. There are known applications at the Department that have been retired by the manufacturer and will be replaced. Integration of applications across the Department is the major goal.

Each phase is not a pre-requisite to the other. It is assumed that there may be parallel implementation based on the overall master I.T. plan.

1.4 COSTS AND RESOURCES

Current resources include a staff of two that support the I.T. needs of the Department and an annual expenditures budget of $50,000. Additionally, approximately $75,000 is budgeted for maintenance/support of hardware and software applications, such as Financial Applications and Water modeling applications, just to name a few.

There is additional budget funding for maintenance/development of our Facilities Management System (M-Pet) and our SCADA network.

Currently, the Department leases all network computers (servers, desktop computers, and laptops). We estimate budgeting about twenty (20) total per year. With about sixty (60) plus network computers, we strategically try to rotate these 20 on a four year basis, which has proven to be very manageable. It is estimated that the leasing budget is $20,000 per year.

It is estimated that the maintenance budgeting will increase at least 5% each year. Additionally consumables and accessories, such as toner, paper, and uninterruptible power supplies will increase about 5% each year, which will increase our expenditures budget as well.

The Department currently has a budget to replace our Document Imaging System and a budget to virtualize our network servers. Based on the master plan, additional funding may be necessary.

2.0 RECAP OF CURRENT COMPUTUERIZATION APPLICATIONS AND TECHNOLOGY

The Department standardizes on the Windows Operating System (OS) and currently has a mix of operating systems in use. For the desktops and laptops, there is still a mix of Windows XP and Windows 7. The few remaining XP computers will be phased out as older computers are replaced.

For the servers, on our Business LAN, we have a mix of Windows 2003 and 2008 Server OS and our SCADA LAN, it is all Windows 2000 Server OS. Most servers have a level of fault tolerance built in either by Raid 1 or Raid 5 hard drive technology and dual power supplies.

For our computerization hardware needs, the Department has standardized on Dell computers, laptops, and servers. The Department has received top notch service from Dell and they have served the Department well in keeping up with our technology needs.

Here is a recap on some of the computerization to date:

1. Design and Implement the Local Area Network (LAN)
2. Redundant Firewall (Fortinet)
3. Standardization of Office Automation (Software Standards)
4. Maintenance Management (M-Pet)
5. Geographical Information System (GIS)
    a. TMK Parcels Updates provided once a year from County of Kauai
    b. Obtained Pipe/Tank/Wells Layers via Water Plan 2020 process
    c. Geographical Positioning System (GPS) Project Started – 3 systems completed In-house
6. Hydraulic Modeling (WaterGems)
7. SCADA (Supervisory Control and Data Acquisition)
8. Financial Accounting System (Great Plains)
9. Document Imaging (Stellent)
10. Team (Project Management)
11. XC2 (Backflow Prevention)
12. Automated Meter Reading (AMR)
13. Billing (via HBWS)
14. AS/400 via County of Kauai (Payroll and Building Permits)
15. Building Permits (via County of Kauai – AS/400 application)
16. Sharepoint Server
17. Operations Applications (Gasboy / Telogers / Schlage)
18. Website Development (Internet/Intranet)
19. FTP Server
20. In-house developed applications and reports
21. Training (In-house, Classroom setting, or On-line virtual classroom)
22. Oce Plotter

3.0 NETWORK INFRASTRUCTURE

3.1 Current infrastructure[1]

Combining our Business and SCADA LAN's, the Department currently has approximately 100 desktop computers, laptops, and servers, and 16 laser printers. The Department has adopted the strategy to lease computers and servers rather than purchase, this way we can ensure that the Department can keep up with the demands of new technology requirements.

The Department infrastructure has been upgraded, wherever necessary, to replace faulty equipment or to replace leased equipment. With the growth of the Department, there have been several occasions where switches have been introduced into areas where more staff than data outlets existed to keep up with the growth.

The Department utilizes redundant Firewall servers to maintain uptime for our external connectivity needs, including internet, e-mail and VPN applications. The Department has upgraded its Internet bandwidth Connection to achieve greater web download and upload speeds. This connection also allows for a much quicker access to the Honolulu Board of Water Supply Billing System. The Department also uses an 128K Frame Relay line for its SCADA system and a 56K Frame Relay to connect the County of Kauai for their Payroll and Building Permit applications.

3.2 Network Infrastructure Goals

The goal of investing in a highly integrated system of applications begins with the network infrastructure. Providing the necessary tools for maximum productivity is a requirement for providing a high level of service to our customers.

Providing a network that would improve reliability, uptime and business continuity would provide the foundation for this high level of service. Supplying this foundation is the basis for staff to perform their work efficiently.

The following technology is recommended to provide this foundation for the Department.

3.3 Virtualization of Servers

Virtualization allows multiple applications to run in their own environment all within a single server. By deploying virtualization, the Department would be able to consolidate all or most of its servers. As a result, there would be a reduced use of electricity, simplified I.T. management, and improved reliability and continuity of operations.

The biggest savings from virtualization come from reduced hardware costs. This includes direct savings from purchasing fewer servers to run I.T. operations, but also indirect savings by reducing maintenance costs, as well as reduced power and cooling costs.

[1] See Appendix A, 1.0 Network Infrastructure

With virtualization, servers can be created and removed as necessary. If a new application requires a new server, I.T. staff can spin up a new server in a matter of hours rather than waiting for a given period of time for a new server to arrive.

If a physical server requires maintenance, the virtual applications on each server can be moved to another server without the need for any downtime.

Major benefits of virtualization:

1. Business Continuity and Disaster Recovery
2. Reduce Energy usage by cutting in half or more the amount of servers
3. Shared Storage Device
4. Snapshots of data, so you can restore data from a certain point
5. If physical server goes down, virtual servers can restore on another physical server
6. Easy to add more servers and/or upgrade memory (reallocate memory)
7. Virtual Desktop – setup one desktop that can follow user wherever he/she goes
8. Mobile Workforce - remotely logon to virtual desktop from home.

With a lean I.T. staff of two, the idea is to do more with less.

3.4 SAN (Storage Area Network)

A component of a virtualized network is a SAN device (Storage Area Network).

The SAN device is connected to all the physical servers in the virtual network environment. Aside from holding all the data from all of the virtual servers, the SAN also holds snapshots of data for each virtual server. A major benefit of using the SAN is that instead of getting a backup of a file from the previous night's backup tape, you can go back to a particular snapshot and restore from there. Restoring from backup could mean the loss of a lot of work.

In the past performing a backup of 12 servers can take several hours, but in a virtual environment you reduce the backup from 12 servers to just one SAN device, as all virtual servers would be connected to the one SAN device. For enhanced uptime, you could provide data synchronization from one SAN device to another. Another SAN device could be located in a different part of the DOW campus, probably in the new building that will be beginning construction in the near future.

3.5 Virtual Desktop

A big benefit and a way of taking advantage of the new data center infrastructure is the implementation of a virtual desktop environment.

Migrating from our current environment to a client virtual environment would result in saving the Department substantial funds by extending the life of current computers and even purchasing thin clients that have little or no hard drive.

The client gets all of its resources from the Virtual Desktop server. Users, regardless from what computer they are using, can get the same desktop. This saves a lot of I.T. staff time to avoid in setting

up user shortcuts, printers, applications, etc. onto each computer in a typical client-server network. Each user gets their own virtual computer with a full operating system and applications. Users could even connect to the same desktop from a remote location if set up to have that capability.

Desktop virtualization improves security manageability and maintenance because everything is housed in the data center and can be centrally managed.

3.6 VoIP – Voice over I.P. (Phone System)[2]

The Department's current Norstar phone system (PBX) was installed in 1994 and has reached its end of life. It is no longer supported by Hawaiian Tel. We have recently had major problems with the phone system and there is a need to replace the system.

After upgrading our network switches, the Department will have the infrastructure to handle a VoIP phone system.

These upgraded network switches would be able to provide better network performance and provide technology to effectively separate voice and data. The network switches also provide POE (power over Ethernet) to each IP phone. These switches provide power to the IP phones, so as long as the network switches are up and running, the phone will have power.

One major benefit of purchasing this kind of system is that we can bring down the costs of phone administration by enabling self-service moves, adding additional phones, and changes. It can also provide a unified messaging system, such as retrieving your voice mail from your Outlook Inbox and even having capabilities to possibly fax from your computer.

An added bonus of this new type of phone system, depending on the system purchased, it can be integrated into our new billing system that we are scheduled to go live in the upcoming months. As a call comes in the phone system pulls up the number in the billing system and lets Billing staff know who the next employee in the queue is. This allows to quickly pull up the information for the next customer.

In effect, wherever you have a computer or data outlet, you could put an IP phone in that area. In the future, with technology getting better and a new Department building in the works, the Department may want to look at including video phones at different locations throughout the Department. This could provide a means to communicate with some key vendors and associates that use the same technology that are not on island.

3.7 Wiring / Bandwidth Infrastructure

Currently the Department has the wiring infrastructure to handle an IP phone system. With the construction of a new building in the near future, the latest technology should be incorporated into all the buildings across the Department.

Currently the Department uses category 5 wiring that handles 10/100Mbps speeds. The Department should incorporate Gigabit Ethernet capabilities to allow the Department to make better use of new

[2] See Appendix A, 1.1 Network Infrastructure – Phones and Switches

technology and prevent bottlenecks in communication. Single and multi-mode fiber will be used where ever necessary to link buildings together and provide for a more efficient LAN.

With more access to cloud technology, the Department should consider increasing bandwidth and/or having a backup solution in place. Currently, we have the top of the line Road Runner Business connection to meet our internet needs. If we bring in Hawaiian Tel technology or other technology, we can increase our bandwidth, but also should one technology temporarily go down, such as Road Runner, we still have technology in place up and keep the Department running and maintaining our business continuity.

4.0 SOFTWARE

In the area of software applications, the Department has come a long way to become more automated.

From doing job functions manually, such as accounting through General Ledger books, filling out requisition books in triplicate and the various spreadsheet programs, we have progressed to having a more integrated computerized accounting package. This accounting package allows the Department to generate our Budgeting, Purchase Orders, Accounts Payables, and Fixed Assets. Instead of pulling files out of a file cabinet, a user has the capability of retrieving files via a Document Imaging System, all without a user leaving their desk. Operations field technicians are able to control water tank levels via our SCADA network remotely instead of being on site and finally our meter readers have the ability to read meters without having to get out of their vehicle. These are just a few examples of where technology has taken us.

While technology has served the department well and has allowed the Department to accomplish tasks in a more efficient manner, there is a real need to evaluate our applications, incorporate more data integration and streamline workflow. This, in turn, will allow for better service to our customers.

The goal of investing in a highly integrated system of applications is our main focus. This will help to ensure the end result of providing a high level of service to our customers.

4.1 SOFTWARE STANDARDS

The Department has standardized on the following software:

- Windows Operating Systems (OS)
- Symantec Endpoint Anti-virus protection
- Microsoft Office Suite

Currently the Department is using Microsoft Office 2010. To ensure keeping up with technology, the Department maintains what Microsoft calls “Software Assurance” plan. This plan will ensure that the Department can get updates for free within a specified time frame.

Similar purchases and maintenance plans are done for other standardized software at the Department. From time to time, the Department compares functionality of software to determine if the Department is getting the most benefit for its dollars being spent.

4.2 Software Selection for System Applications

Selection of application system software will be determined primarily by the needs of the system users and the functionality of the applications.

All application systems selected must meet the needs of the Department and be flexible enough to integrate with other applications systems.

There will be some users within the Department that will have distinctive specialty application software needs. In the area of Operations, for example, some of the equipment in use may only work with proprietary software.

With help from consultant(s), a needs analysis will be done to better determine job functions and to help select the ideal applications for integration. This information will be documented and a list of application software needs will be established and priorities for software acquisition will be established. After the application needs are defined, it is recommended that a committee be developed for each functional area of the Department. The committee will be responsible for establishing the criteria for selection of the software application(s).

The criteria will include, but will not be limited to the following:

- Meet the Needs of the Department
- ***Minimal or No Customization***
- Ease of Use and Installation
- Flexibility of Software
- System Integration Capabilities
- Years in the Business of Supplying Software System
- Number of Clients
- References from similar Utilities
- Maintenance/Upgrade Plan
- Technical Support

A typical committee will be made up of the end users of the application. Evaluation will typically be done through request for proposal (RFP) and after narrowing the selection to a few proposals, a presentation of the software from the vendor is recommended.

As necessary, the Department will use a consultant to assist in the selection and development of an application system. The consultant, wherever possible, will assist in determining our needs, choosing the software package(s) to best fit the needs of the Department, and assist in the conversion of data between application system software.

As noted in previous long term computer plans, it is highly recommended that there should be very little customization for software system applications. As has been proven, such customizations only add to the duration of the project and can be very costly. In some ways, the Department has to learn how to conform to how the program works instead of forcing the application to conform to how it has been done in the past.

4.3 MOBILE TECHNOLOGY

To provide for better workplace efficiency, the Department needs to leverage technology beyond the office.

Enabling users to access applications and data from outside the network domain can be a means to keeping employees productive while they are physically away from the office.

The Department has already begun a program to use mobile technology in the field. The Department currently has the technology, via laptop, to connect wirelessly to our Maintenance Management System (M-Pet) that allows our field crews to fill out timesheets and work orders out in the field. The field crews also have access to our Sharepoint Server, which gives them access to As-Built drawings. We currently are in a testing mode but plan on going full scale somewhere in the near future.

Enterprise mobility is imperative to business innovation and growth. The key to success, especially in working with our field crews will be end user acceptance. The best technology in the world won't benefit the Department if the end users don't use it or buy in to the technology.

For future mobile applications, such as GIS in the field, the end users need to be involved in the design process. This way as we are testing, we may get a better understanding of what they like and dislike, and determine bottlenecks in their workflow.

Remote access technology could benefit the Department by leveraging applications, such as our maintenance management system and GIS to field personnel on jobsites.

4.4 CLOUD TECHNOLOGY

With an effort to be more mobile, the Department has begun to provide application systems to end users in the field. As such, the Department has begun the process of making a private cloud.

Using VPN technology, users in the Department's domain can get access to these application systems. It is not open to the public. The idea of a private cloud in inevitable, because it allows for people to come to work and connect to an application locally or connect from a remote location.

The "Cloud" is a term that has been commercialized and is not altogether something new.

The Department has been connected directly to the Honolulu Board of Water Supply for about 20 years. At its earliest inception, we were connected via POTS (plain old telephone system). Within the past few years, with HBWS getting their own Firewall within their own network, we now have a dedicated VPN connection which has provided the Department with much better connectivity. In the future, with this type of connectivity, we will be able to give access to more Department users all from a web browser.

The Department, with the help of consultants, need to determine (on a case by case basis) if the Department is suited to have future applications in the cloud, either as a Public, Private, or Hybrid.

Private cloud is a marketing term for a proprietary computing architecture that provides hosted services to a limited number of people behind a firewall. With advances in server virtualization and distributed computing, the Department can effectively become our own service provider. Private clouds are more ideal, if you want to have more control over your data.

Public cloud is a term for having an outside company provide these hosted services all from an outside network infrastructure, in other words with somebody else's equipment and technology. The term public refers to being able to access it regardless of the computer you are connected to. Typically in this type of scenario, you can have less control over your data.

A hybrid cloud is a term for having a combination of a Private and a Public Cloud.

Although not clear with the direction, the Department needs to take advantage of Cloud Technology in some fashion to make our workforce more mobile. With this type of technology making tremendous strides, it is now much more available and hopefully presents itself to be more affordable. At the very least, more options have opened up for the Department to look into and taking advantage of.

As we are a government entity, the Department should make all assurances that the highest level of service will be delivered to our customers. When there's an Internet outage, the effect on users is less with local in-house applications than with cloud based technology. Employees can still come to work and access the applications, reports, and files, even if they can't surf the internet.

Developing a private cloud with virtual technology brings many benefits, and with storage devices being relatively inexpensive, the department can purchase two or more storage devices or SAN's and leverage real-time replication.

Finally, service to our customers and security of our data are considerations that should not be ignored. Relying on the cloud means that the Department would be putting the fortunes of our business in the hands of another entity. Should that entity be hacked or suffer outages, then the Department and ultimately our customers would suffer. Great care should be taken when considering moving our applications to the cloud.

4.5 ADDITIONAL IT STAFFING[3]

With the amount of computers and technology that the Department now has to maintain, the need to hire additional IT staff will be necessary during this five year plan.

The Department currently has an IT staff of two that manages a SCADA and Business LAN, manage multiple application systems, web development, GIS development, Firewall Maintenance, and network troubleshooting.

Currently, a position has been budgeted for a support technician to help with troubleshooting and focus on document imaging. With a staff of two, this position soon needs to be filled to better help support the current needs of the Department. With technology growing and expanding in the Operations Division, there may be a need for additional I.T. support.

[3] See Appendix A, 2.0 I.T Support Detail

As growth in GIS develops, there will be a need for additional staff in this area. As it is the goal to integrate data from all or most application systems into our GIS models, there will be a lot of growth in GIS and it will serve the Department well to provide staff to maintain GIS models and data integration. This position may also perform help desk support, although it would not be a primary responsibility.

The best case scenario, as previously noted, is to do more with less, so new technology to make things easier to manage is the desired goal.

4.5 APPLICATION USAGE[4]

The main focus of this phase is to expand the utilization of existing applications that have been implemented during previous computerization plans. These applications either are being used in a limited fashion or not as they are intended to use, or they are being used heavily in one Division of the Department.

These applications include but are not limited to the following:

1. Document Imaging
2. Accounting System (Great Plains)
3. SCADA
4. GIS
5. Water Modeling (WaterGems)
6. Sharepoint Server

4.5.1 DOCUMENT IMAGING

Currently the Document Imaging System has focused mainly on the Engineering Forms and Applications. End users have the ability to retrieve documents, such as Water Service Inquiries, Subdivision, and CPR Project documents, just to name a few. Because of indexing requirements, these applications have been handled in-house.

Other applications have been setup, but due to lack of funding to outsource the scanning and/or insufficient manpower, the demand to keep up with scanning in all documents has fallen behind. As Engineering has the most documents set up for scanning and they have seen the most benefit in using it, an effort has been made to try and keep up with the demand in this area.

With the desire to go paperless and clear up some much needed office space, the Department needs to get retrieval capabilities to all areas of the Department. Giving all users of the Department the capability to retrieve documents from their desk instead of a hard copy from a file cabinet will save the Department space and allow users to work more efficiently.

With the current Document Imaging System (Stellent), IT staff has received a certificate on creating user applications. This gives the Department the ability to create new scanning applications in-house.

[4] See Appendix A, 3.0 Application Usage

However, the IT section recently learned that the current Document Imaging System has been retired by the manufacturer and is no longer supported.

4.5.2 ACCOUNTING SYSTEM

Currently the Accounting System (Great Plains) is used mainly by the Accounting section. The modules that have been implemented for the Accounting System are General Ledger, Accounts Payable, Fixed Assets, Budget, with modules such as Payroll never completed.

The goal of implementing a project/job costing module was never accomplished due to the vendor's inability to complete all the modules during the initial implementation.

A Standard Operating System (SOP) was written to put in some requirements for generating and approving purchase orders. However, this SOP was never followed through. The Department hopefully can move towards having each Division generating and approving their own purchase orders. This will make all department users familiar with the program when new options or modules are opened up for use.

Unfortunately, the Accounting group still inputs most of the purchase orders for the Department and approves all of the purchase orders. With no approval hierarchy, it is possible to make a purchase and use another division's budget without notification to those responsible for that budget.

The Department would benefit for better automation of timesheets. Timesheets gets distributed to several individuals who process a different component of the timesheet. With automation, this workflow can be streamlined and handled much more efficiently.

While implementing this Accounting application system, a major rule of implementation was broken. The Department requested too much customization, which resulted in long extended delays.

4.5.3 SCADA

SCADA is an acronym for Supervisory Control and Data Acquisition. SCADA systems are used to monitor and control a plant or equipment in an industry such as Water and Wastewater. A SCADA system gathers information, such as tank levels, and transfers the information back to a central site. It can be very beneficial to the Operations Division in cases where tank levels or some other component gives off some type of alarm.

Now that the implementation of the physical components, controls, and network equipment is island wide, the Department will need to look into having someone in-house that can handle day-to-day issues.

A major issue for the Department is staffing for the long term support of the SCADA system. It may be beneficial to have staff in-house that can develop, implement and maintain the SCADA technology without relying heavily on consultants. The Department has used the in-house electrician to handle troubleshooting issues and has caused electrical work to be backlogged.

4.5.4 GEOGRAPHIC INFORMATION SYSTEM (GIS)

GIS is an acronym for Geographical Information System. Simply put**,** a GIS combines layers of information about a location to give you a better understanding of that location. It allows an individual to graphically view the information. The Department has standardized on the GIS software by ESRI.

Having used GIS technology to generate maps in 1999 for the Water Plan 2020 program, the GIS program is still used sparingly throughout the Department. GIS as an application is underutilized and is mainly used for map making rather than for analysis and modeling.

The Department has begun a program of using GPS technology to build GIS models of our Water Systems. The Department needs to work at a steady pace to complete the GIS models. As for any application used, the end user needs to trust the information that is being displayed in the model. If we are using outdated models, then the end user most likely will not use it.

The Department still relies too heavily on paper maps and we need to move away from that direction.

Currently, the Department has the capability to view TMK parcels, tanks, pumps, wells, hydrants and pipe layer information, but as noted, for the most part, for an outdated Water System.

4.5.4 WATER MODELING (WATERGEMS)

WaterGems is a comprehensive water distribution modeling application that gives Water Resource and Planning Division the ability to determine the water needs for a Water System.

WaterGems works within our GIS program or can run as a standalone application. From fire flow and water quality simulations, to criticality and energy cost analysis, WaterGems gives the Department the ability to analyze different facets of a Water System.

Unfortunately, for the most part, the Department is still running water simulations from data models that were created by consultants from around the year 2000.

Most water systems have new sources and/or subdivisions and they need to be updated.

The Department needs to train staff to learn how to import the GIS model(s) and calibrate the system to run analysis on up to date water models. This program has a lot of functionality, but only a small portion of the program is actually being utilized.

Upon receiving training, the goal would be for the Department to calibrate and maintain the water model in-house.

4.5.5 SHAREPOINT SERVER

The Department currently uses SharePoint Server technology to store As-Built drawings. End users have the ability to retrieve these drawings via internet explorer from their computers. These drawings are also being linked to our GIS pipe layer and users have the ability to retrieve maps via the GIS system or directly from SharePoint.

SharePoint is a collaboration tool that the Department needs to utilize more to incorporate workflow and collaboration needs.

4.5.6 TRAINING

To ensure that the Department can make full use of all the program applications discussed in the above sections, training and in some cases re-training of employees should be made available as needed.

It is recommended that I.T. staff take a class or series of classes on Firewall Security and Management.

To make better use of SharePoint and all it has to offer, training of I.T staff is necessary so that we may have more in-house knowledge of the product and to better set up group portals. I.T. staff could provide training to the rest of the Department, as necessary.

Extensive training has been offered to all employees via Kauai Community College Adult Learning for the Microsoft Office Suite of programs, including Word, Excel, PowerPoint, Outlook, and Access. Also included were classes about Internet Explorer and the Windows Operating System.

As needed, training has been made available in the following ways:

1. In-house by I.T., such as GIS training or equipment usage, such as copier/scanner
2. Teacher led course at a training facility
3. On-line via the internet
4. Webinars

5.0 MAJOR IMPLEMENTATIONS / OBJECTIVES

The Department recognizes that an investment in a highly integrated computer system can provide significant improvements in the efficiency, reliability, and quality of our operations for the benefit of our customers.

The major implementations phase will look at our current state of applications across the Department and making determinations on the usefulness to the Department. In some cases, the Department may be able to leverage the full capability of an existing application. In other cases, application change is likely. There are known applications at the Department that have been retired by the manufacturer and will definitely need replacement.

With assistance from consultants, the Department will need to determine if we implement an Enterprise Resource Planning System, Best of Breed, or a combination of application systems. In any event, the approach determined will need to ensure that the applications selected are highly integrated.

The anticipated needs of the Department are to upgrade, replace, integrate or implement the following application systems and/or modules:

- Enterprise Resource Planning or Best of Breed
- Enterprise Content Management (Document Imaging / SharePoint)
- Maintenance Management System (currently M-Pet)
- Fleet Management
- SCADA
- Billing
- GIS / Hydraulic Water Modeling
- Laboratory Information System (LIMs)

For a successful implementation of any kind, the Department, with critical assistance from a consultant, needs to effectively and thoroughly analyze current business process before implementing.

5.1 Enterprise Resource Planning (ERP)

ERP systems integrate information across an entire organization. Their purpose is to facilitate the flow of information between all business functions inside the boundaries of the Department. Benefits of having an ERP system include:

- One common database to support all of the ERP Modules
- A consistent look and feel from module to module
- Data integration inherit in the application
- Best practices typically built in

The Department would benefit from having a high level of data integration between applications/modules such as:

- Financials, such as General Ledger, Billing, Fixed Assets, Budgeting, Work Orders and Payroll
- Human Resources
- Customer Service
- Project Management
- Fleet Maintenance

These are just a few modules that the Department may benefit from implementing. In general, the greater the number of modules selected, the greater the integration benefits, but also the greater the costs involved.

A huge benefit of having an ERP system is that best practices are incorporated in to the application modules. Through several implementations, the vendor has determined the most effective way to perform each business process.

As previously noted, customization should be kept to a minimum. More customized end products tend to have the higher integration costs and tend to have a higher maintenance and reliability costs. If a lot of customization is built in, every time a module has a major upgrade, the vendor has to verify the customizations are incorporated into the upgrade.

5.2 Enterprise Content Management (Document Imaging)

Enterprise Content Management (**ECM**) is a formalized means of organizing and storing an organization's documents, and other content that relate to the organization's processes. The term encompasses strategies, methods, and tools used throughout the lifecycle of the content.

A Document Imaging System is a form of ECM, but is more focused on the storing and retrieval of documents.

Currently the Department has a Document Imaging System (Stellent) that is used Department wide. Having learned recently that the manufacturer has retired our current system, the Department will need to replace it.

SharePoint Server is meant to be an ECM platform. The Department also has a SharePoint Server, and it is being utilized across the Department. It currently is being used mainly to store as-built drawings that can be retrieved Department wide and in the field by our Operations crews.

With the right infrastructure (storage, database and applications) and a few tools to integrate with SharePoint, the Department may be able to utilize SharePoint as a true ECM system and use it to replace the Document Imaging System.

Migration of data from the Document Imaging System to SharePoint would need to take place.

An ECM system can reduce storage and paper needs, making employees more efficient, and hopefully result in better, more informed decisions across the Department. With the desire to go paperless and clear up some much needed office space, the Department needs to get retrieval capabilities to all areas of the Department. Giving all users of the Department the capability to retrieve documents from their desk instead of a hard copy from a file cabinet will save the Department space and allow users to work more efficiently.

Currently the Document Imaging System (Stellent) in place has focused mainly on documents that support the Engineering sections. Other document types have been setup, but due to lack of funding to outsource the scanning and/or insufficient manpower, the demand to keep up with scanning in all documents has fallen behind in these areas.

Some benefits of an ECM include:

- Document Management
- Document Retrieval
- Collaboration
- Work Flow

Regardless of whether we replace our Document Imaging System or migrate it into SharePoint, a high degree of integration into other software implementations, such as GIS, will be the desired goal.

5.3 Maintenance Management (M-PET.NET)

The Department uses the M-PET.NET software system to track all maintenance activities performed by our operations and maintenance personnel. The M-PET.NET application provides management with a view into what work is being performed and provides supervisors with a planning and scheduling system to ensure work is being monitored and performed in a timely manner.

M-PET.NET also captures daily time card information, which is utilized in the cost accounting reports necessary for accounting. Assets and maintenance activities are being tracked to include pump stations, fire hydrants, isolation valves, water holding tanks, and water meter installations.

The Department is currently starting a program to have supervisors and crew leaders take M-PET.NET out into the field via laptop computers. Having the ability to use this technology out in the field, gives our field crews more access to key information and a better means to address maintenance questions.

In recent years, the application has gotten better, providing for better reporting and ease of use, and work is being done to provide more integration between applications at the Department.

There is some key information in our M-PET.NET system that would be ideal for integration into our GIS system. Having a Maintenance Management System that could be integrated into our GIS is a major goal for the Department.

5.4 Fleet Management System

To keep better information regarding our vehicle usage, the Department should consider getting a Fleet Management System.

A Fleet Management System would help in reducing fleet maintenance costs, improve service levels and support a preventive maintenance program. Getting a Fleet Management system with GPS capabilities can help the Department provide an up-to-date and more efficient method of managing a fleet of vehicles. Knowing where vehicles are in times of emergency would help the Department quickly dispatch the closest crews and provide flexibility for unexpected calls. With fuel being a big expense for the Department, having the ability to route vehicles better could help the Department reduce and better manage fuel consumption.

Using GPS technology would give a better gauge of vehicle usage and even provide specific vehicle data as mileage logged, speed, fuel consumption, and diagnostic trouble codes, which would improve vehicle operations.

Having a system that can keep the Department more informed about fuel usage, provide better reports on vehicle mileage and historical repairs, and provide better routing and tracking of vehicles would help the Department provide a better overview of vehicle usage with the intent of extending the life of our fleet of vehicles.

5.5 SCADA (Hardware and Software)

The Department's SCADA Network, which is separate from our Business LAN, has been up and running since 2003. Since that time, no changes have been made to this network infrastructure, including the network servers and software.

To keep up with changes in technology, it is recommended that the Department upgrade the SCADA software and database software. It will also be necessary to replace the network servers. The current servers are no longer under warranty and have recently had to replace hard drives twice in one of its servers.

The SCADA network is built on Windows 2000 Server Operating System. Multiple changes to both server hardware technology and Operating Systems have been made since the inception of SCADA in 2003. While replacing the servers is necessary, especially to work with the newer versions of SCADA software technology, the Department may consider moving its infrastructure to one with Virtual Server technology. Having a Storage Area Network device (SAN) attached on the back end would allow the SCADA network to store ample amounts of data and possibly be able to run historical reports over a long period of time. Having an infrastructure of virtual servers, would allow for a solid foundation and guaranteeing improved reliability and uptime.

Currently the Department is working with Wonderware In Touch version 8.0. This puts us several versions behind in software technology. With upgrading our Wonderware software to most recent version, which is VMWare ready, the Department would be able to make use of virtual server technology.

While upgrading the Microsoft Office technology (Office 2003), there have been communication problems in linking the Wonderware software application with the Microsoft software, specifically Excel. The Department has upgraded Microsoft Office twice (2003 to 2007 to 2010) since the inception of SCADA. The Department still has to maintain an older version of Office 2003 on a computer(s) to be able to link up to the data and run reports.

5.6 Billing System

Currently the Honolulu Board of Water Supply (HBWS) generates our water bills for our customers. Although the Department is happy with the service we get from HBWS, we are not directly connected to their network and are not in control of the data.

Once a month, we download a data dump from HBWS that has customer information, meter information, consumption information and mailing addresses for each customer. Although we currently have bi-monthly billing, somehow HBWS "normalizes" the data and provides us with monthly consumption information for each of our customers.

With limited connectivity to the Billing System, I.T. gets this data dump and puts this information on our intranet so that it is available to all our end users at the Department. With this process, all users at the Department can pull customer information from our intranet with just a web browser. While this is very beneficial to those who are not connected directly to the Billing System, the data is not always accurate.

While HBWS is upgrading their Billing System, hopefully a process can be implemented to make the data more readily available. A major improvement in HBWS upgrading their system is that more employees at the Department will have access to the system, providing for better and up-to-date customer lookups.

Although moving to monthly billing will provide for more accurate consumption usage reports for our customers and Water Systems, it is hard to generate certain types of reports from a data dump. If the department were to bring a Billing System in-house at some point in time, this would give the Department more control of the data and a means to create more necessary and useful reports. Having direct access to this type of data is especially helpful when being used in consideration of Water Rate increases.

Bringing a Billing System in-house would also allow the Department to potentially serve the customers more efficiently. Allowing customers to view account information, update account information themselves or pay on-line would be beneficial to the Department, and is something that should be considered at some point in time.

Regardless of whether the Department brings Billing in-house or not, the Billing System needs to be have a high level of data integration with the Department Financial System.

5.8 GIS/GPS

A Geographic Information System, or GIS, integrates data, hardware, software and GPS to assist in the analysis and display of geographically referenced information. A more robust GIS presence offers increased data trending and analysis capabilities, enabling end users to analyze varied datasets and assist in making informed decisions.

The Department still relies too heavily on paper maps and we need to move away from that direction. Using mobile technology, it would be advantageous for field personnel to access GIS maps and As-Built drawings remotely and not have to take a set of plans out on job sites.

The Department has begun a program of using GPS technology to build GIS models of our Water Systems. The Department needs to continue towards completing these GIS models.

To ensure that the Department makes good use of GIS technology, the end users need to trust the information that is being displayed in the model. If we are using outdated models, then the end user most likely will not use it.

GIS as a technology is underutilized, making its use primarily for map making rather than for geographic modeling and analysis.

To fully utilize GIS technology at the Department, a GIS Implementation Plan needs to be developed. This plan should include the following:

1. Clearly define a strategic direction for enterprise GIS
2. Identify required software and hardware requirements
3. Identify staffing requirements
4. Identify associated costs and benefits
5. Define implementation tasks and schedules
6. Application System Integration
7. Leverage mobile technology
8. Training

5.8.1 GIS Integration with Application Systems

The ability to access information stored in other applications is a key benefit to a well-designed GIS System. Data integration can be developed to link our application databases to our GIS system. This would allow us to view this data in a graphical representation.

The following describes some applications that the Department can benefit from integrating into a GIS database:

SCADA:
SCADA provides near real-time information on facility flow and reservoir levels. This data can be integrated into a GIS database. This data can be displayed in GIS when linked to the associated feature or layer.

Hydraulic Modeling:
The Department currently uses WaterGems as hydraulic modeling software. It has the ability to pull in a GIS model developed from our ArcGIS software. Having the ability to pull in data from GIS integration, such as water consumption from meters, gallons pumped from wells and fire flow data, would give the Department to determine water needs for the Department to help support our Water Plan 2020 program.

Billing System (Currently Customer Accounting System – CAS with Honolulu Board of Water Supply):
An interface to the CAS system would allow users to run queries on consumption upon linking to meter or TMK GIS layers. It would also be possible to identify customer information, meter information, customer complaints, and delinquent customers among other things. Currently the Department get a download once a month from HBWS. The ability to make the connection to this data more dynamic would make the data more current.

Maintenance Management:
The Department currently uses M-PET.NET as its maintenance management system. As a lot of the data in M-PET is associated with a location, there is a lot of potential to link this data to our GIS assets and water models. As we currently use M-PET to generate Work Orders, linking jobs to a map would give better visibility to jobs and potentially help schedule a better flow of work assignments for crews.

Document Imaging / SharePoint:
Currently there is some linking of as-built maps that is on our SharePoint Server to our GIS Pipes Layer. This allows an end-user to click on a pipe and have the ability to retrieve a listing of as-built drawings for a particular job or subdivision. Adding this type of functionality to GIS for our end-users allows for easier retrieval of data and more efficient end-users.

Project Management:
As we replace our infrastructure to support Water Plan 2020, it would be a big benefit to add the ability to pull up jobs information and job schedules via our GIS system.

Fleet Maintenance:
If a Fleet Maintenance System is implemented, having the ability to provide an up-to-date and more efficient method of managing a fleet of vehicles would be a big benefit to the Department.

Customer Service:
Anything that can be tied to a location potentially can be linked to GIS. Main breaks, customer complaints and delinquent customers are just a few of the types of customer service info that could be linked and viewed in GIS. Being able to visually retrieve and view information graphically, can be a very powerful tool.

6.0 Conclusion

The I.T. mission is to provide a responsive and efficient I.T. environment and services in support of the Departments strategic commitments.

As should be evident, a theme with this I.T. Plan is to implement application systems across the Department with a high level of data integration. Also, upgrading our network infrastructure would provide improvements in reliability, uptime, and business continuity.

Potential benefits for implementing a new I.T. Plan include:

- Shared Data and Applications by All DOW Divisions
- Maximize Organizational Productivity
- Prevent Duplicating Efforts
- Optimize Water System Operations
- Go Green (Paperless / Reduce Energy)
- Increased Communication
- Mobile Technology Capabilities
- Business Continuity

With the goal of the Department to provide our customers with the highest level of service and support, linking our applications can result in a better flow of data and a big reduction of time and effort by reducing a duplication of effort. Meeting this goal would provide significant improvements in the efficiency, reliability, and quality of our operations for the benefit of our customers.

APPENDIX A

1.0 NETWORK INFRASTRUCTURE

A *local area network* (LAN) is a collection of two or more computers linked together so that they can communicate with each other. Most networks are based around a cable/wire that links computers through a connection. That connection permits the computers to talk through the wire. LAN's are those networks that are confined to a geographical area, such as a building or a series of buildings like a school.

The Department uses the following technology for our base domain:

Cabling Installation
The Department uses Category 5 Unshielded Twisted Pair, which is the most common form of cabling media used today. The wiring and its end connectors are inexpensive, and its easy to install new cable. In our Ethernet LAN, it is terminated at a central location on a patch panel. Patch panels are useful, because it is an easy way to identify a computer to a specific port on the patch panel.

We also have fiber connectivity from the Administration Building to both the Operations Building and the Microbiology Lab.

Hub/Switch Technology
Hubs/Switches are used to connect together two or more Ethernet segments of any media type. They allow several point to point segments to be joined into one network. One end is attached to the hub/switch and the other end is attached to the computer.

Hubs/Switches provide better cable monitoring and management. This allows for a better overall management of the network.

The Department uses only switches to handle our main network communications. In areas where there are not enough connections, hubs have been integrated into the network to allow for more user connections or for printers.

Routers
Routers are used to connect LAN to LAN systems, creating what is known as a Wide Area Network (WAN). Routers are also used to route or filter out network traffic. The purposes of installation of a Router include connection to the Internet, and to connect to the County of Kauai (I.S.) network and/or the Honolulu Board of Water for quicker access to their AS/400 and Vax systems respectively.

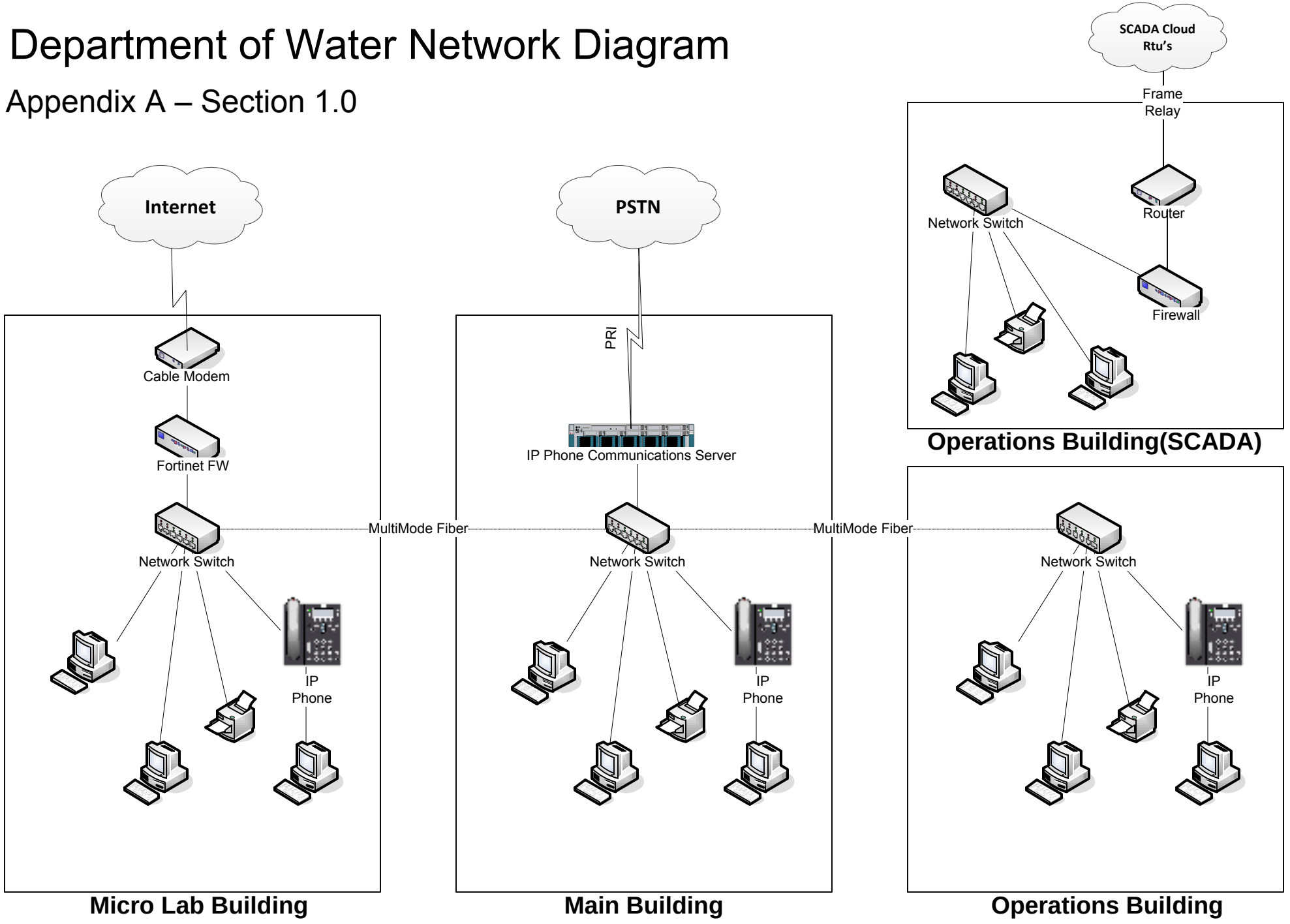
Servers
The Department currently has several servers that handle a multitude of services to the Department, including:

- Domain Controllers
- Firewall (Redundant)
- Exchange Server (E-mail)
- Anti-Virus Protection
- Web Security
- Tape Backup
- Network Attached Storage
- Application Servers, such as Document Imaging and Financial Packages
- Web Server that houses our Intranet

Most of these servers are installed with redundancy to try to provide and maintain a high level of up time to the Department.

Department of Water Network Diagram

Appendix A – Section 1.0



Includes: IP Phones that will be used to replace our old PBX System

1.1 NETWORK INFRASTRUCTURE – PHONES AND SWITCHES

In the process of writing this document, the Department has begun the process of replacing our aging phone system.

The Department is replacing our Nortel PBX system with a Cisco Unified Communications Manager System. This VoIP system includes redundancy in the form of dual Communication Servers and dual Voicemail Servers.

In the process of replacing our phone system, it is necessary to replace our network switches. The Department will be upgrading to a Cisco Catalyst 2060S switches that have gigabit Ethernet capabilities and are POE (Power over Ethernet) ready.

The new phones are capable of handling multiple lines and a multitude of features.

System:	Cisco Unified Communications Manager 8.x
Switches:	Cisco Catalyst 2960 (96 and 48 Ports) and Cisco Catalyst 3560
Phones:	Cisco Unified IP Phone 7965G
	Cisco Unified IP Phone 7975G
	Cisco Unified IP Conference Station 7937G

2.0 I.T. SUPPORT DETAIL

As the Department has a staff of two full time employees dedicated to I.T. related duties, the following details the responsibilities of the Department of Water I.T. staff.

Customer Support

Help Desk

Provide all activities related to troubleshooting and support of network standardized software applications, such as, Microsoft Office, E-mail, PDF, etc. This support includes all computer hardware and network connectivity problems.

Application Support

Support all activities regarding the use of applications system software, including, Financial Management System, Maintenance Management System, Document Imaging, SharePoint, GIS, Billing, and SCADA.

Application support includes those activities related to developing, installing, configuring, and otherwise maintaining the software needed to meet the operational, management, and reporting requirements of the organization

This includes maintenance and upgrades of application system software on application system servers.

Training

Provide training as necessary aimed at staff getting started with new applications or to enhance their skills, knowledge and performance. Past training of staff has included Microsoft Office and GIS training. In the case of GIS, specialized course design was developed by I.T. staff, based on knowledge of end users. As we get new equipment, such as scanner/copier and postage machines, I.T. will train staff on how to use the equipment/features.

Network Support

Infrastructure Services include those activities related to implementing and maintaining the organization's computers, systems software, and connectivity (servers, networks, etc.).

Network Infrastructure (LAN/WAN)

The activities related to implementing and maintaining the operational integrity of the Department's local area network, including building wiring, fiber optic data circuits, and point-to-point technologies such as VPN and firewall activities. These activities include responding to user requests for assistance, coordinating with external network service providers, and taking appropriate corrective actions as needed.

Server Administration

The activities related to implementing and maintaining our Windows based servers. These activities also include administration, user account management, and operation of File, Print, and application servers and other logical network devices; applying operating system patches and upgrades; and administering configuration data. This also includes Email account administration and email account management.

Personal Computer Administration
The activities related to the setup, configuration, original installation, and scheduled maintenance of end users' desktop and laptop computers. Administration includes configuration of PC operating systems and network connectivity and software, such as personal productivity tools and anti-virus applications.

Security Administration
The processes related to developing, maintaining, and administering the security for the Department's servers, personal computers, and network peripherals. Security administration includes administering and maintaining our Firewall Servers.

GIS
GIS administration includes relating data to existing GIS structures. Support all Projects by providing project maps and determining affected customers. Project maps are mailed out to affected customers and displayed on the Department website.

Using GPS technology, I.T. staff has developed GIS Water System Models for three Water Systems. I.T. determined and developed the ability to view As-Built data via linking GIS layers and SharePoint Server technology.

Developed over 200 plus project maps to support the Water Plan 2020 project.

As needed, train users in GIS and Pictometry.

Web (Internet/Intranet)
Management and maintenance of applications related to web activities, including the design, maintenance and development of all web pages on our internet and intranet websites.

Phone Systems Support
The I.T. staff inherited the administration and management of a PBX phone system. In the near future, I.T. will handle the implementation, configuration, and maintenance of a Voice Over IP Phone System.

SCADA
Management and maintenance of the applications related to Supervisory Control And Data Acquisition, including maintainence and management of all SCADA network servers and desktop computers and laptops.

I.T. Administration
IT Administration includes those activities related to the oversight and administration of the technology function at the Department, including:

Asset Management
The processes related to managing the IT properties of the organization, include tracking serial number, warranty, and inventory.

IT Procurement
The processes related to acquisition of goods and services in support of all IT functions; including the development of RFP's, evaluation and selection of vendors, management of purchasing activities, receipt and inventory of goods, and

tracking of warranty information and performance guarantees. Also includes developing specifications and procuring postage machines, fax machines, and copier/scanners.

Standards and Policies Development
Those processes related to the creation and updating of Department IT standards and policies related to proper use of computer usage, network security, e-mail, and internet activities.

Strategic Planning and Research
The process related to identifying and evaluating the future directions for I.T. application, networks, and hardware for the Department, including strategic planning, evaluating and prioritizing, technological research, and participating in committees and task forces.

Project Management
Those processes related to the oversight and coordination of major systems-related technology initiatives.

Disaster Recovery / Planning
The processes related to developing, maintaining, updating, and testing the organization's IT disaster recovery plan, and to activating and managing the plan in the event of a disaster.

Support Special Projects

Supported WaterPlan 2020 by developing over 200+ maps to show project locations and update and maintain Water Plan 2020 projects. Developed a database/reports to track and to help prioritize projects.

Supported and assisted Manager in Water Rate Study.

Annually generate the CCR (Water Quality Reports) and mail out to all customers.

An I.T. staff member has organized and planned the last 3 HWWA conferences that have been held on Kauai. This event takes place every 4 years.

I.T. taking the lead in HBWS new Billing Project called Loihi. Projected to train all Department staff users on usage of new system in June/July of 2012.

Research to replace phone systems.

Appendix A - Section 3.0

Application Usage

Applications / Division	Admin	Fiscal	Billing	Engineering	WRP	Special Projects	Operations	I.T.
Standardization of Office Automation (Software Standards)	x	x	x	x	x	x	x	
Maintenance Management (M-Pet)	x	x	x	x	x	x	x	x
Geographical Information System (GIS)	x			x	x	x	x	
Hydraulic Modeling (WaterGems)					x			
SCADA (Supervisory Control and Data Acquisition)							x	x
Financial Accounting System (Great Plains)	x	x	x	x	x	x	x	x
Document Imaging (Stellent)	x	x	x	x	x	x	x	x
Team (Project Management/Correspondence)	x							
XC2 (Backflow Prevention)					x			
Automated Meter Reading (AMR)			x					
Billing (via HBWS)			x					
Customer Care & Billing - (New HBWS Billing Project A.K.A. Loihi)	x	x	x	x	x	x	x	x
AS/400 via County of Kauai (Payroll and Building Permits)		x			x			
Sharepoint Server	x	x	x	x	x	x	x	x
Operations Applications (Gasboy / Telogers / Schlage)							x	
Website Development (Internet/Intranet)								x
Website Access - Intranet/Internet	x	x	x	x	x	x	x	x
FTP Server	x			x		x		x
Training (In-house, Classroom setting, On-line virtual classroom)	x	x	x	x	x	x	x	x

X - Denotes Installed on Computerss in that Division, but may be used minimally

3.0 GEOGRAPHICAL INFORMATION SYSTEMS

To ensure that users will make good use of the GIS system, the Department will need to proactively collecting data and layer information. The Department has started making use of GPS (Global Position System) equipment will help the department collect the data layers and have an accurate reading on where the resources (tank, hydrants, pipe, etc) are located.

Initial steps would be to determine the type of layers to develop and the type of information to collect to make that layer meaningful. Some initial layers that are being captured include:

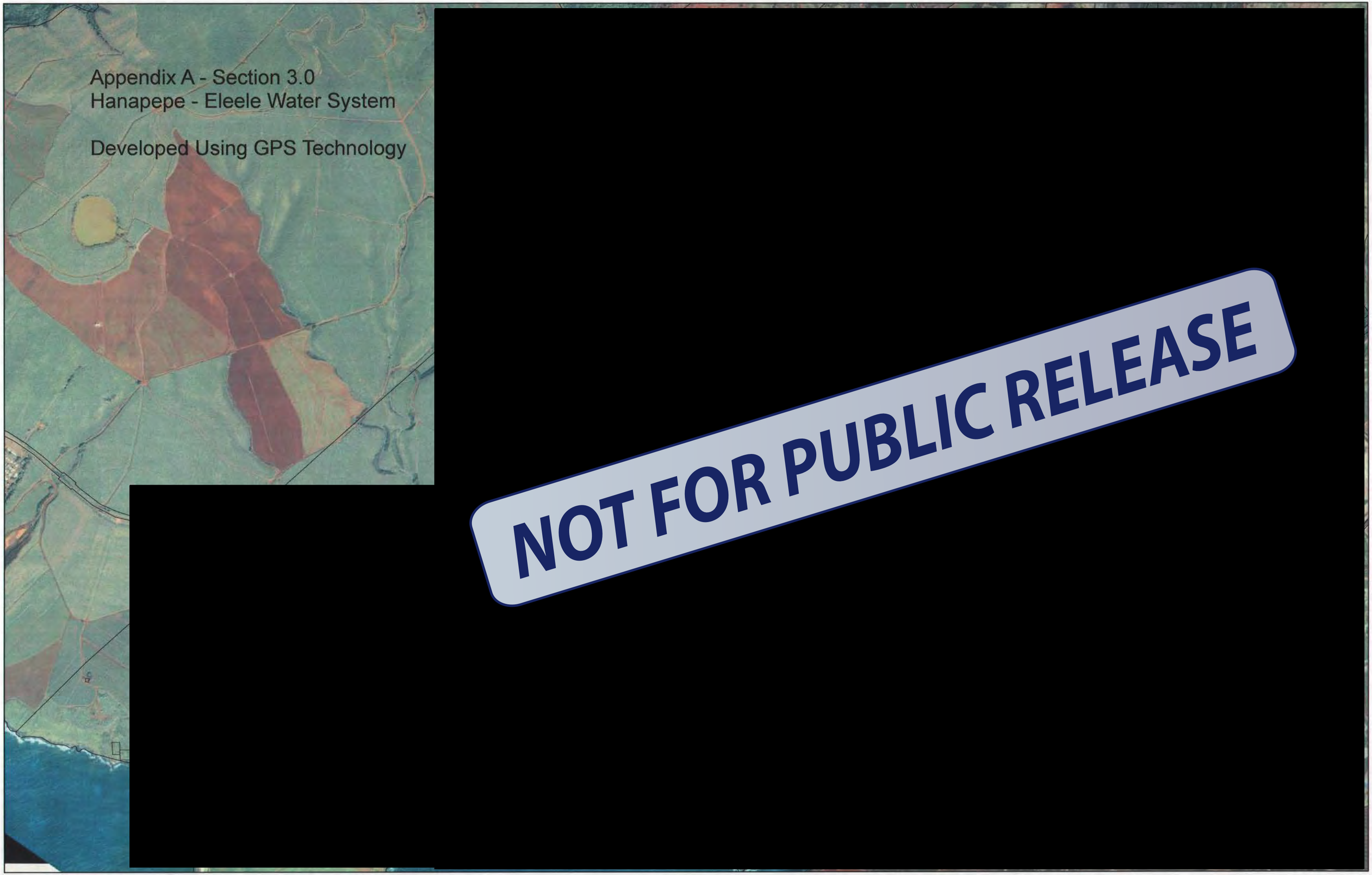
- Pipe
- Tanks
- Pumps
- Wells
- ARV/PRV/PSV
- Valves
- Hydrants
- Meters
- Backflow
- Booster Pumps
- Main Breaks

In some cases above, data is available and can be linked to the GIS system. However we need to ensure that the data is kept up to date, and in a timely manner.

The Department would use a variety of programs to view this GIS information, mainly ArcGIS and ArcView. These applications will give some end users the ability to add shapes/layers and update information.

The following three pages show examples on how the Department is currently using GIS technology. More specifically, these examples were all done by I.T. staff. Examples include the following:

1. Hanapepe-Eleele Water System that was developed using GPS technology.
2. Project Map to be used in conjuction with a Press Release as well as placed on Department website
3. Water Plan 2020 CIP Project


Appendix A - Section 3.0
Hanapepe - Eleele Water System
Developed Using GPS Technology
NOT FOR PUBLIC RELEASE

Pipeline Replacement Along

Kuamo'o and Wailua Roads, 'Ohana and Anolani Streets and Lehia Lane

Details:
Pipeline Affected Dates - March To July, 2012

NOT FOR PUBLIC RELEASE

Project Location

Water Plan 2020

Project Number: **PLH-9**

Project Description:

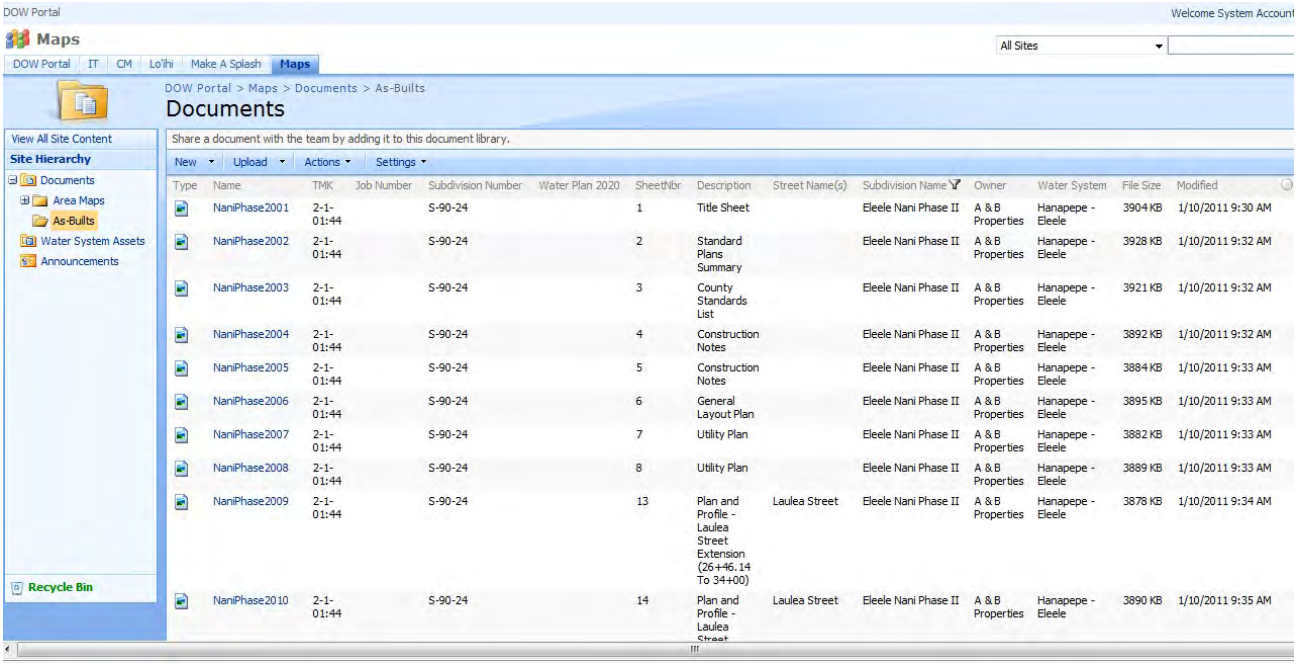
**Lihue Town 6" and 8"
Main Replacement (4,970')**

Legend

- Tanks
- Pumps
- Pipe
- New Facilities

3.1 SHAREPOINT

SharePoint is a collaboration tool that allows users to incorporate workflow and collaboration needs.
The Department hasn't fully utilized the use of SharePoint but efforts are being done to integrate into GIS and to the Operations Field Crews. Logically, information is broken into portals. The main portal that has received the most direct usage is the Maps portal. Maps are scanned and indexed so that they can be easily retrieved.



Type	Name	TMK	Job Number	Subdivision Number	Water Plan 2020	SheetNbr	Description	Street Name(s)	Subdivision Name	Owner	Water System	File Size	Modified
	NaniPhase2001	2-1-01:44		S-90-24		1	Title Sheet		Eleele Nani Phase II	A & B Properties	Hanapepe - Eleele	3904 KB	1/10/2011 9:30 AM
	NaniPhase2002	2-1-01:44		S-90-24		2	Standard Plans Summary		Eleele Nani Phase II	A & B Properties	Hanapepe - Eleele	3928 KB	1/10/2011 9:32 AM
	NaniPhase2003	2-1-01:44		S-90-24		3	County Standards List		Eleele Nani Phase II	A & B Properties	Hanapepe - Eleele	3921 KB	1/10/2011 9:32 AM
	NaniPhase2004	2-1-01:44		S-90-24		4	Construction Notes		Eleele Nani Phase II	A & B Properties	Hanapepe - Eleele	3892 KB	1/10/2011 9:32 AM
	NaniPhase2005	2-1-01:44		S-90-24		5	Construction Notes		Eleele Nani Phase II	A & B Properties	Hanapepe - Eleele	3884 KB	1/10/2011 9:33 AM
	NaniPhase2006	2-1-01:44		S-90-24		6	General Layout Plan		Eleele Nani Phase II	A & B Properties	Hanapepe - Eleele	3895 KB	1/10/2011 9:33 AM
	NaniPhase2007	2-1-01:44		S-90-24		7	Utility Plan		Eleele Nani Phase II	A & B Properties	Hanapepe - Eleele	3882 KB	1/10/2011 9:33 AM
	NaniPhase2008	2-1-01:44		S-90-24		8	Utility Plan		Eleele Nani Phase II	A & B Properties	Hanapepe - Eleele	3889 KB	1/10/2011 9:33 AM
	NaniPhase2009	2-1-01:44		S-90-24		13	Plan and Profile - Laulea Street Extension (26+46.14 To 34+00)	Laulea Street	Eleele Nani Phase II	A & B Properties	Hanapepe - Eleele	3878 KB	1/10/2011 9:34 AM
	NaniPhase2010	2-1-01:44		S-90-24		14	Plan and Profile - Laulea Street	Laulea Street	Eleele Nani Phase II	A & B Properties	Hanapepe - Eleele	3890 KB	1/10/2011 9:35 AM

Above you can see a documents that have been scanned in for Eleele Nani Phase II subdivision. Each page has a description and whatever other detail you wish the user to search on. If done correctly, users would be able to quickly pull up maps. Clicking on one of the links would display the as-built drawing, like the one below.

3.2 Stellent (Document Imaging System)

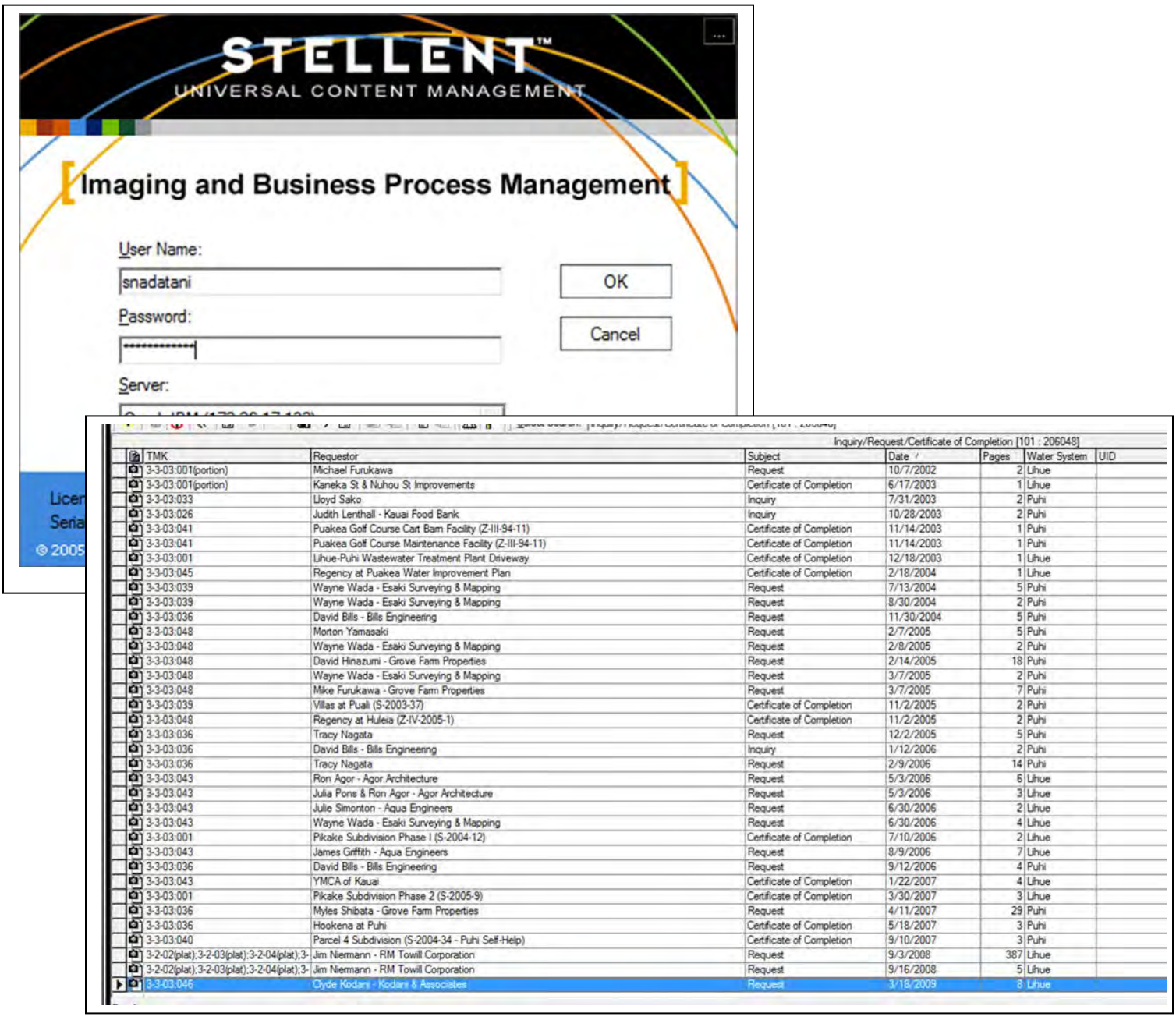
About the same time the Department implemented our Financial Application, we implemented a Document Imaging System. Because of our size, the Department chose a system called Optika Accorde. It later got renamed Stellent.

Several years later, computer giant Oracle purchased Stellent to be incorporated into their soon to be Enterprise Content Management System (ECM).

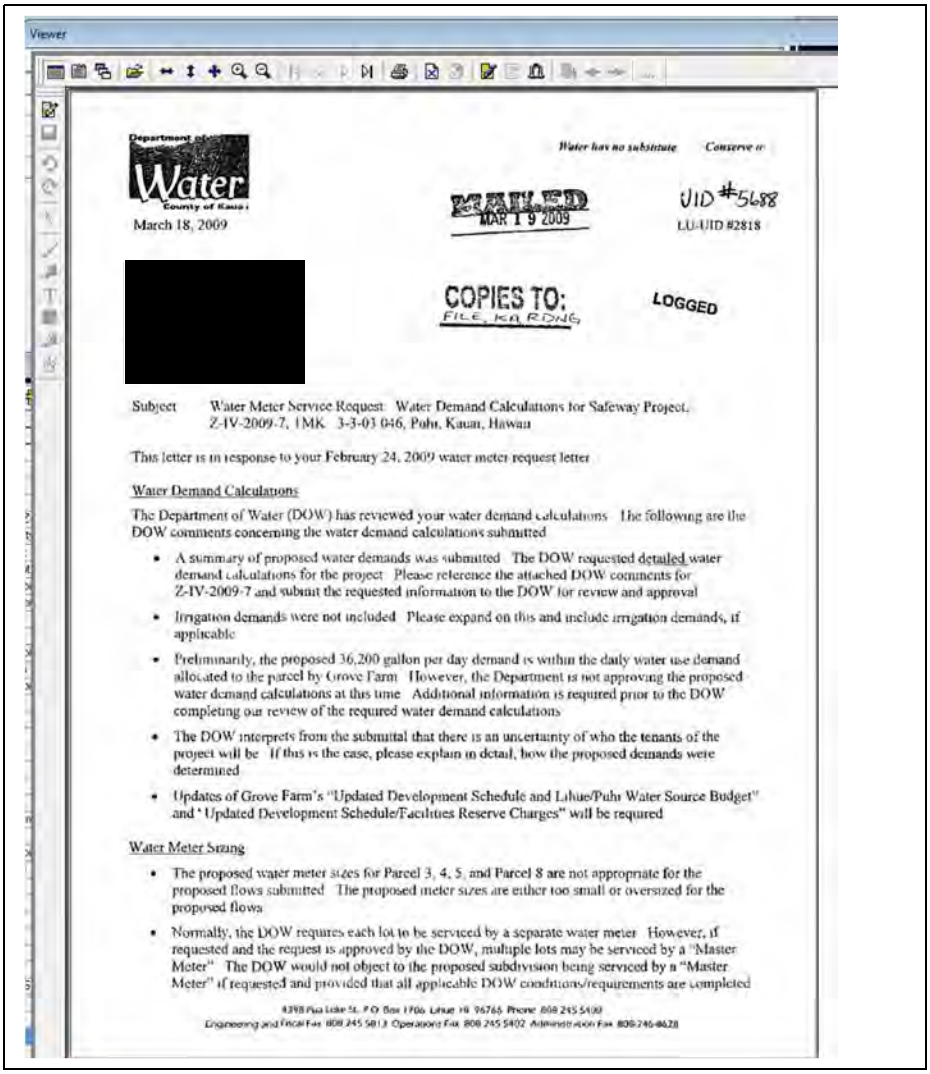
The system has served the Department very well, allowing end users to input index values, such as tmk, subdivision number, date (range of dates), or other values, to search a database of records.

A set of records matching the input values is returned. Clicking on one of the retrieved records will allow you to view the document.

The following shows some screen shots to give you an idea of how the program flows.



TMK	Requestor	Subject	Date	Pages	Water System	UID
3-3-03:001(portion)	Michael Furukawa	Request	10/7/2002	2	Lihue	
3-3-03:001(portion)	Kaneka St & Nuhou St Improvements	Certificate of Completion	6/17/2003	1	Lihue	
3-3-03:033	Lloyd Sako	Inquiry	7/31/2003	2	Puhi	
3-3-03:026	Judith Lenthall - Kauai Food Bank	Inquiry	10/28/2003	2	Puhi	
3-3-03:041	Puakea Golf Course Cart Barn Facility (Z-III-94-11)	Certificate of Completion	11/14/2003	1	Puhi	
3-3-03:041	Puakea Golf Course Maintenance Facility (Z-III-94-11)	Certificate of Completion	11/14/2003	1	Puhi	
3-3-03:001	Lihue-Puhi Wastewater Treatment Plant Driveway	Certificate of Completion	12/18/2003	1	Lihue	
3-3-03:045	Regency at Puakea Water Improvement Plan	Certificate of Completion	2/18/2004	1	Lihue	
3-3-03:039	Wayne Wada - Esaki Surveying & Mapping	Request	7/13/2004	5	Puhi	
3-3-03:039	Wayne Wada - Esaki Surveying & Mapping	Request	8/30/2004	2	Puhi	
3-3-03:036	David Bills - Bills Engineering	Request	11/30/2004	5	Puhi	
3-3-03:048	Morton Yamasaki	Request	2/7/2005	5	Puhi	
3-3-03:048	Wayne Wada - Esaki Surveying & Mapping	Request	2/8/2005	2	Puhi	
3-3-03:048	David Hinazumi - Grove Farm Properties	Request	2/14/2005	18	Puhi	
3-3-03:048	Wayne Wada - Esaki Surveying & Mapping	Request	3/7/2005	2	Puhi	
3-3-03:048	Mike Furukawa - Grove Farm Properties	Request	3/7/2005	7	Puhi	
3-3-03:039	Villas at Puali (S-2003-37)	Certificate of Completion	11/2/2005	2	Puhi	
3-3-03:048	Regency at Huleia (Z-IV-2005-1)	Certificate of Completion	11/2/2005	2	Puhi	
3-3-03:036	Tracy Nagata	Request	12/2/2005	5	Puhi	
3-3-03:036	David Bills - Bills Engineering	Inquiry	1/12/2006	2	Puhi	
3-3-03:036	Tracy Nagata	Request	2/9/2006	14	Puhi	
3-3-03:043	Ron Agor - Agor Architecture	Request	5/3/2006	6	Lihue	
3-3-03:043	Julia Pons & Ron Agor - Agor Architecture	Request	5/3/2006	3	Lihue	
3-3-03:043	Julie Simonton - Aqua Engineers	Request	6/30/2006	2	Lihue	
3-3-03:043	Wayne Wada - Esaki Surveying & Mapping	Request	6/30/2006	4	Lihue	
3-3-03:001	Pikake Subdivision Phase I (S-2004-12)	Certificate of Completion	7/10/2006	2	Lihue	
3-3-03:043	James Griffith - Aqua Engineers	Request	8/9/2006	7	Lihue	
3-3-03:036	David Bills - Bills Engineering	Request	9/12/2006	4	Puhi	
3-3-03:043	YMCA of Kauai	Certificate of Completion	1/22/2007	4	Lihue	
3-3-03:001	Pikake Subdivision Phase 2 (S-2005-9)	Certificate of Completion	3/30/2007	3	Lihue	
3-3-03:036	Myles Shibata - Grove Farm Properties	Request	4/11/2007	29	Puhi	
3-3-03:036	Hookena at Puhi	Certificate of Completion	5/18/2007	3	Puhi	
3-3-03:040	Parcel 4 Subdivision (S-2004-34 - Puhi Self-Help)	Certificate of Completion	9/10/2007	3	Puhi	
3-2-02(plat);3-2-03(plat);3-2-04(plat);3-	Jim Niemann - RM Towill Corporation	Request	9/3/2008	387	Lihue	
3-2-02(plat);3-2-03(plat);3-2-04(plat);3-	Jim Niemann - RM Towill Corporation	Request	9/16/2008	5	Lihue	
3-3-03:046	Clyde Kodani - Kodani & Associates	Request	3/18/2009	8	Lihue	



Viewer

Department of Water County of Kaua'i

Water has no substitute Conserve it

March 18, 2009

MAILED MAR 19 2009

UID #5688

LU-UID #2818

[redacted]

COPIES TO: FILE, KA RING

LOGGED

Subject Water Meter Service Request: Water Demand Calculations for Safeway Project, Z-IV-2009-7, TMK: 3-3-03 046, Puhi, Kauai, Hawaii

This letter is in response to your February 24, 2009 water meter request letter.

Water Demand Calculations

The Department of Water (DOW) has reviewed your water demand calculations. The following are the DOW comments concerning the water demand calculations submitted:

- A summary of proposed water demands was submitted. The DOW requested detailed water demand calculations for the project. Please reference the attached DOW comments for Z-IV-2009-7 and submit the requested information to the DOW for review and approval.
- Irrigation demands were not included. Please expand on this and include irrigation demands, if applicable.
- Preliminarily, the proposed 36,200 gallon per day demand is within the daily water use demand allocated to the parcel by Grove Farm. However, the Department is not approving the proposed water demand calculations at this time. Additional information is required prior to the DOW completing our review of the required water demand calculations.
- The DOW interprets from the submittal that there is an uncertainty of who the tenants of the project will be. If this is the case, please explain in detail, how the proposed demands were determined.
- Updates of Grove Farm's "Updated Development Schedule and Lihue/Puhi Water Source Budget" and "Updated Development Schedule/Facilities Reserve Charges" will be required.

Water Meter Sizing

- The proposed water meter sizes for Parcel 3, 4, 5, and Parcel 8 are not appropriate for the proposed flows submitted. The proposed meter sizes are either too small or oversized for the proposed flows.
- Normally, the DOW requires each lot to be serviced by a separate water meter. However, if requested and the request is approved by the DOW, multiple lots may be serviced by a "Master Meter". The DOW would not object to the proposed subdivision being serviced by a "Master Meter" if requested and provided that all applicable DOW conditions/requirements are completed.

4398 Pua Loke St. P.O. Box 1706 Lihue, HI 96766 Phone: 808 245 5400
Engineering and Fiscal Fax: 808 245 5813 Operations Fax: 808 245 5402 Administration Fax: 808 246-8628

To the approximate number of retrievable documents in our document imaging system and the type of documents you can retrieve are listed below:

- A/P Claim Voucher – 8939 Documents
- Agreement – 409 Documents
- Application for Service – 25,556 Documents
- BFP – 95 Documents
- Building Permit Application - 556 Documents
- CPR/Projects – 7186
- Inquiry/Request/Certification of Completion/ADU – 11007 Documents
- Land Use - 6082 Documents
- Office Timesheets – 13,796 Documents
- Project Folders – 0 Documents
- Subdivision – 33,025 Documents
- Weekly Timesheets – 12,970 Documents
- Work Order – 20,296 Documents

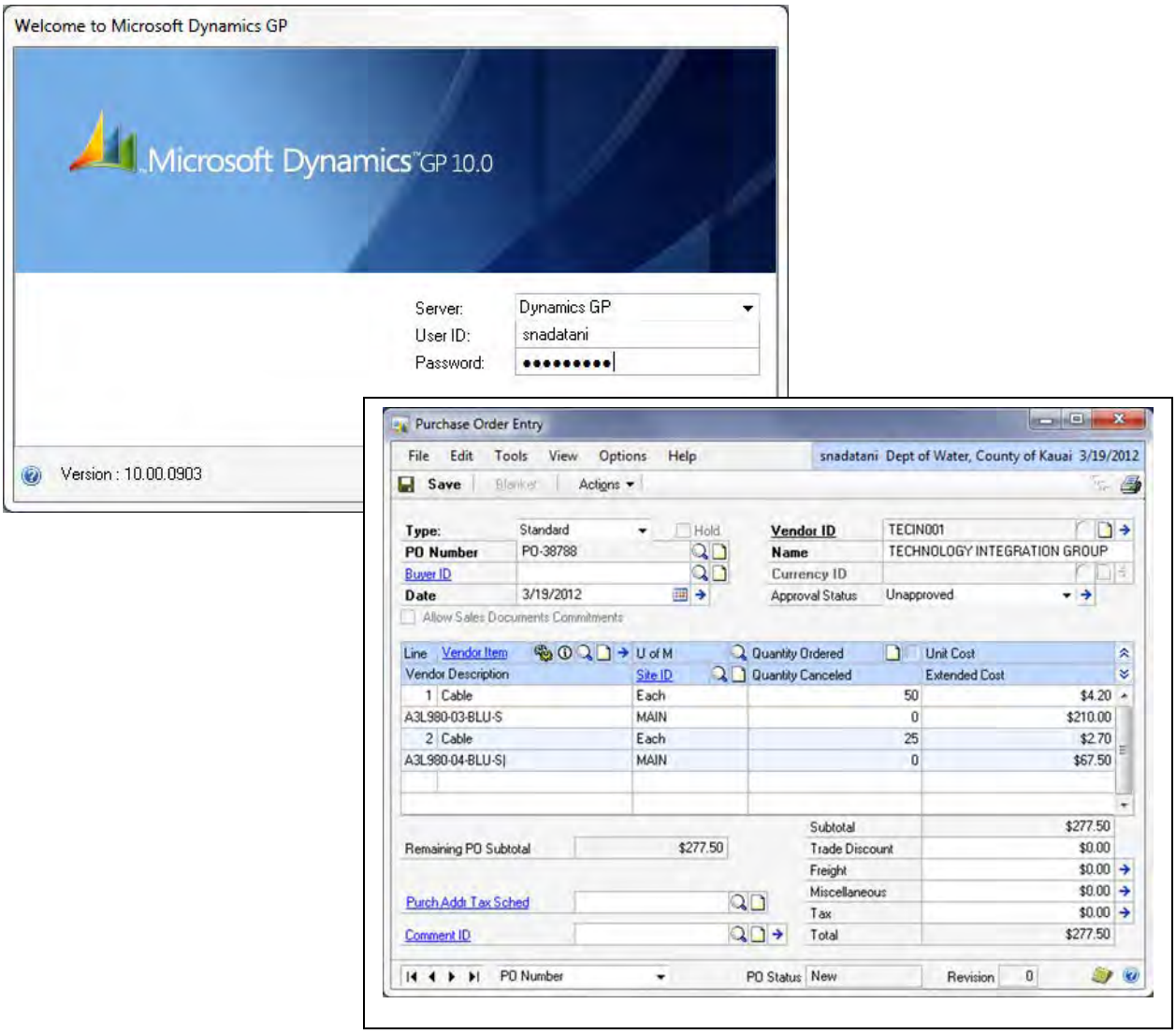
3.3 Microsoft Dynamics (formerly Great Plains)

Microsoft Dynamics is the Financial Application System used by the Department of Water. We currently are on version 10.0. Since Microsoft has taken over the application, it has developed into more of an ERP type of system.

Currently this application is used mainly by the Accounting section. The modules that have been implemented for the Accounting System are General Ledger, Accounts Payable, Fixed Assets, Budget, with modules such as Payroll never completed.

Since it is a Microsoft application, it is starting to be more integrated with the other Microsoft Office suite and SharePoint, which the Department could take full advantage of.

The following shows what some of the typical screen shots look like.

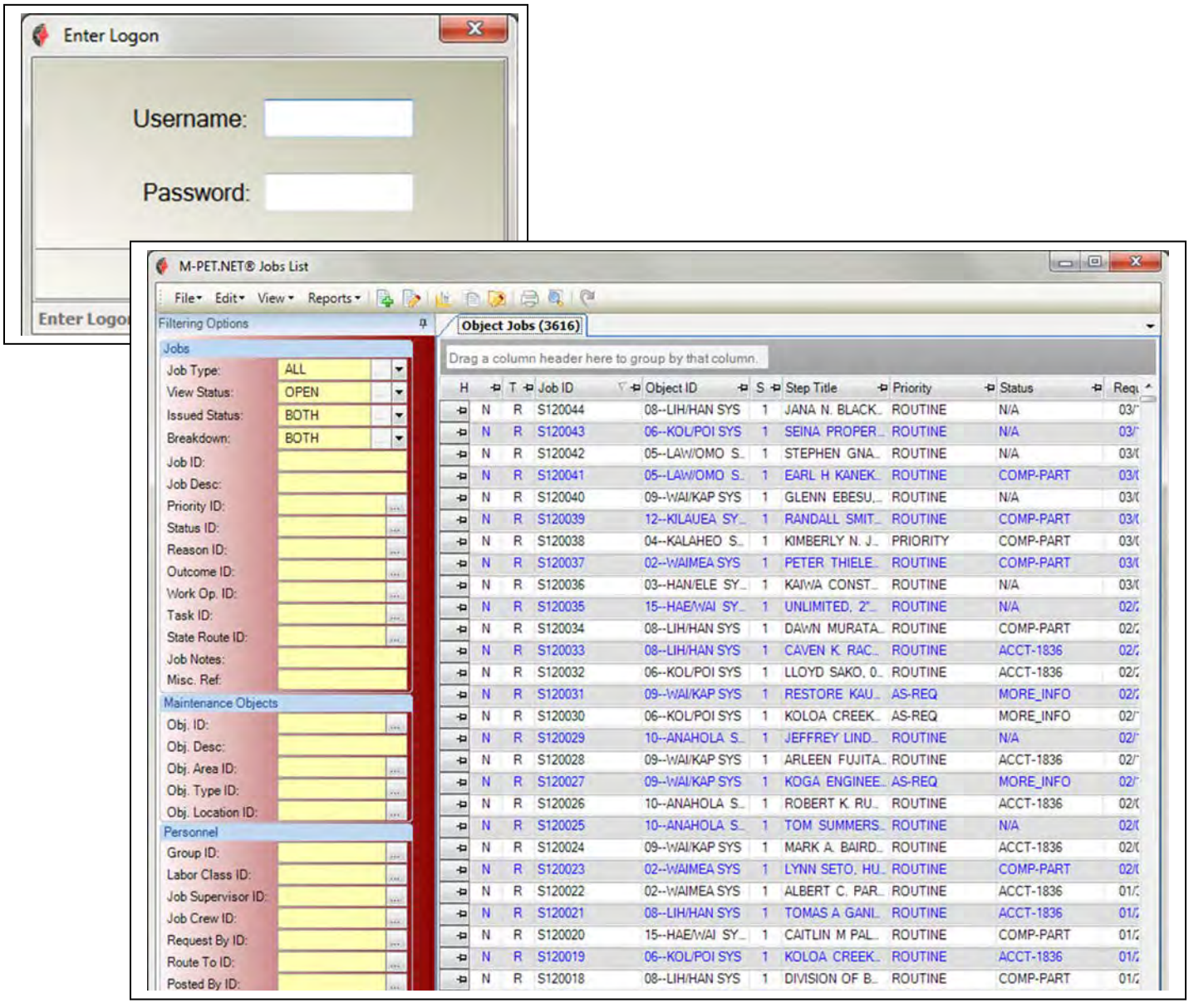


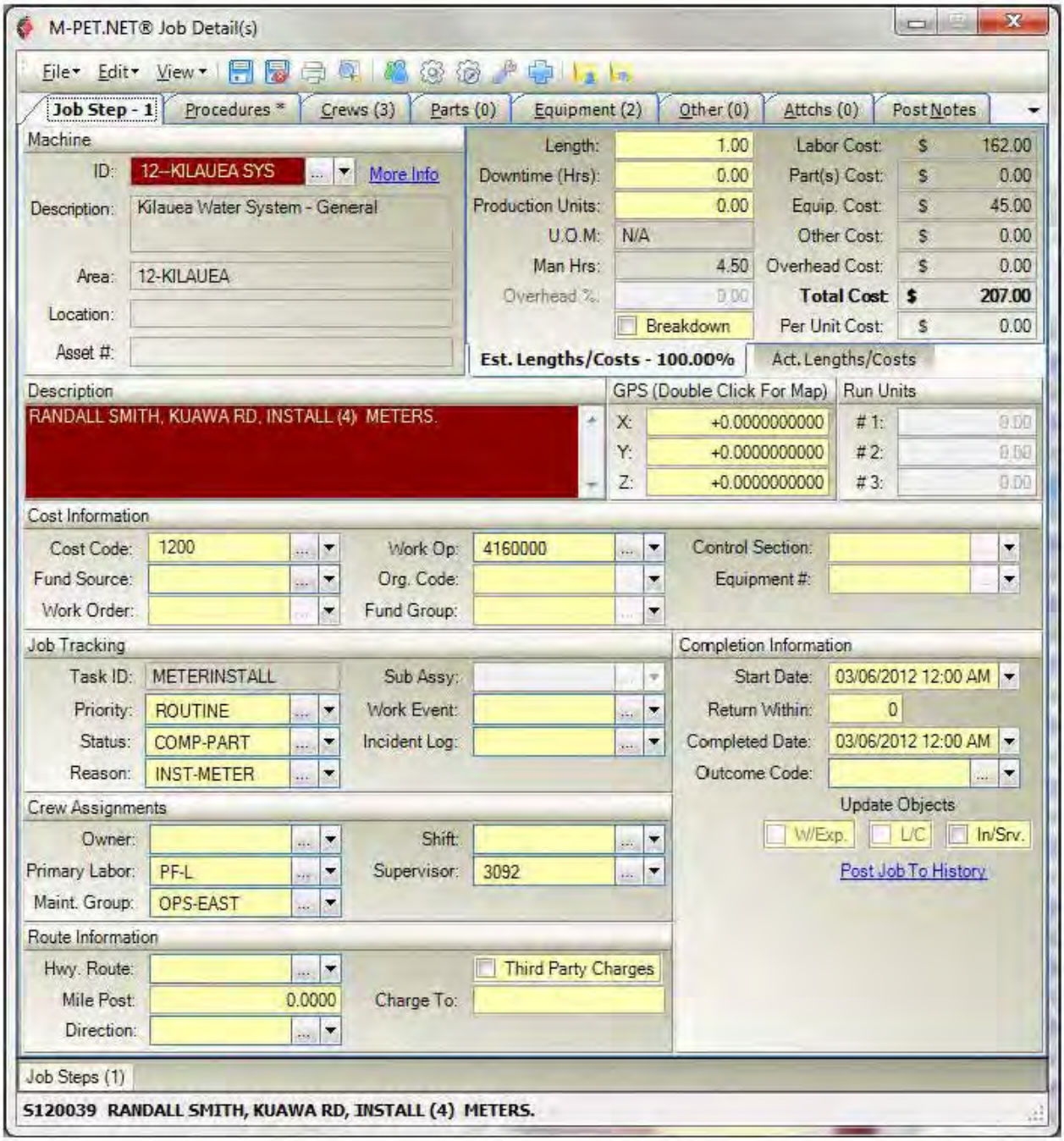
3.4 M-PET.Net

M-PET.NET is developed by Four Winds. The Department has utilized this program for over 10 years. The Department uses the M-PET.NET software system to track all maintenance activities performed by our operations and maintenance personnel. The M-PET.NET application provides management with a view into what work is being performed and provides supervisors with a planning and scheduling system to ensure work is being monitored and performed in a timely manner.

There is some key information in our M-PET.NET system that would be ideal for integration into our GIS system. Having a Maintenance Management System that could be integrated into our GIS is a major goal for the Department.

The following shows some screen shots to give you an idea of what the program looks like.




M-PET.NET® Job Detail(s)
File Edit View
Job Step - 1
Procedures *
Crews (3)
Parts (0)
Equipment (2)
Other (0)
Attchs (0)
Post Notes
Machine
ID: 12--KILAUEA SYS
More Info
Description: Kilauea Water System - General
Area: 12-KILAUEA
Location:
Asset #:
Length: 1.00
Downtime (Hrs): 0.00
Production Units: 0.00
U.O.M: N/A
Man Hrs: 4.50
Overhead %: 0.00
Breakdown
Labor Cost: $ 162.00
Part(s) Cost: $ 0.00
Equip. Cost: $ 45.00
Other Cost: $ 0.00
Overhead Cost: $ 0.00
Total Cost: $ 207.00
Per Unit Cost: $ 0.00
Est. Lengths/Costs - 100.00%
Act. Lengths/Costs
Description
RANDALL SMITH, KUAWA RD, INSTALL (4) METERS.
GPS (Double Click For Map)
X: +0.0000000000
Y: +0.0000000000
Z: +0.0000000000
Run Units
1: 0.00
2: 0.00
3: 0.00
Cost Information
Cost Code: 1200
Work Op: 4160000
Control Section:
Fund Source:
Org. Code:
Equipment #:
Work Order:
Fund Group:
Job Tracking
Task ID: METERINSTALL
Sub Assy:
Priority: ROUTINE
Work Event:
Status: COMP-PART
Incident Log:
Reason: INST-METER
Completion Information
Start Date: 03/06/2012 12:00 AM
Return Within: 0
Completed Date: 03/06/2012 12:00 AM
Outcome Code:
Update Objects
W/Exp. L/C In/Srv.
Post Job To History
Crew Assignments
Owner:
Shift:
Primary Labor: PF-L
Supervisor: 3092
Maint. Group: OPS-EAST
Route Information
Hwy. Route:
Third Party Charges
Mile Post: 0.0000
Charge To:
Direction:
Job Steps (1)
S120039 RANDALL SMITH, KUAWA RD, INSTALL (4) METERS.

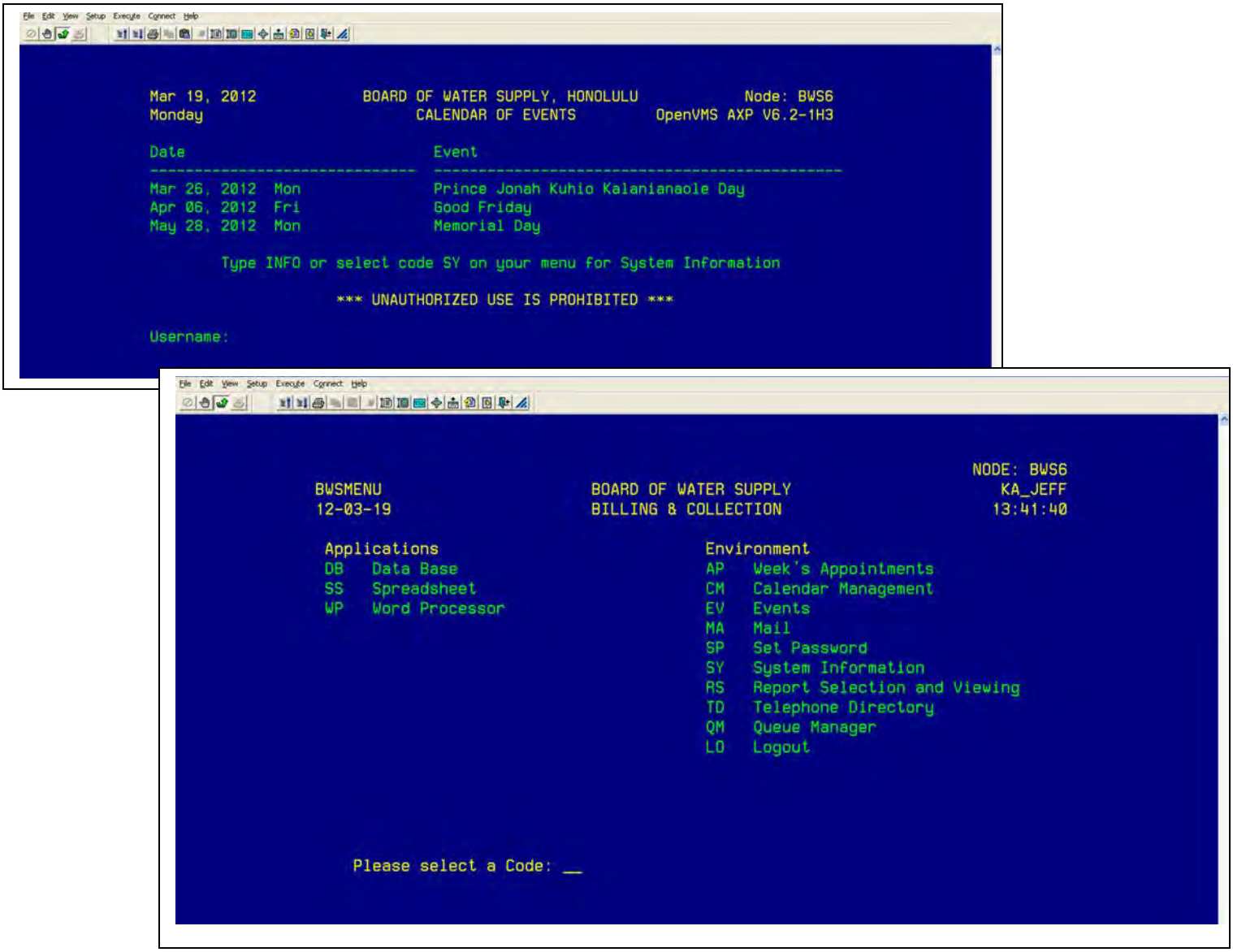
3.5 Billing (CAS and Future CC&B)

Currently the Honolulu Board of Water Supply (HBWS) generates our water bills for our customers. Although the Department is happy with the service we get from HBWS, we are not directly connected to their network and are not in control of the data.

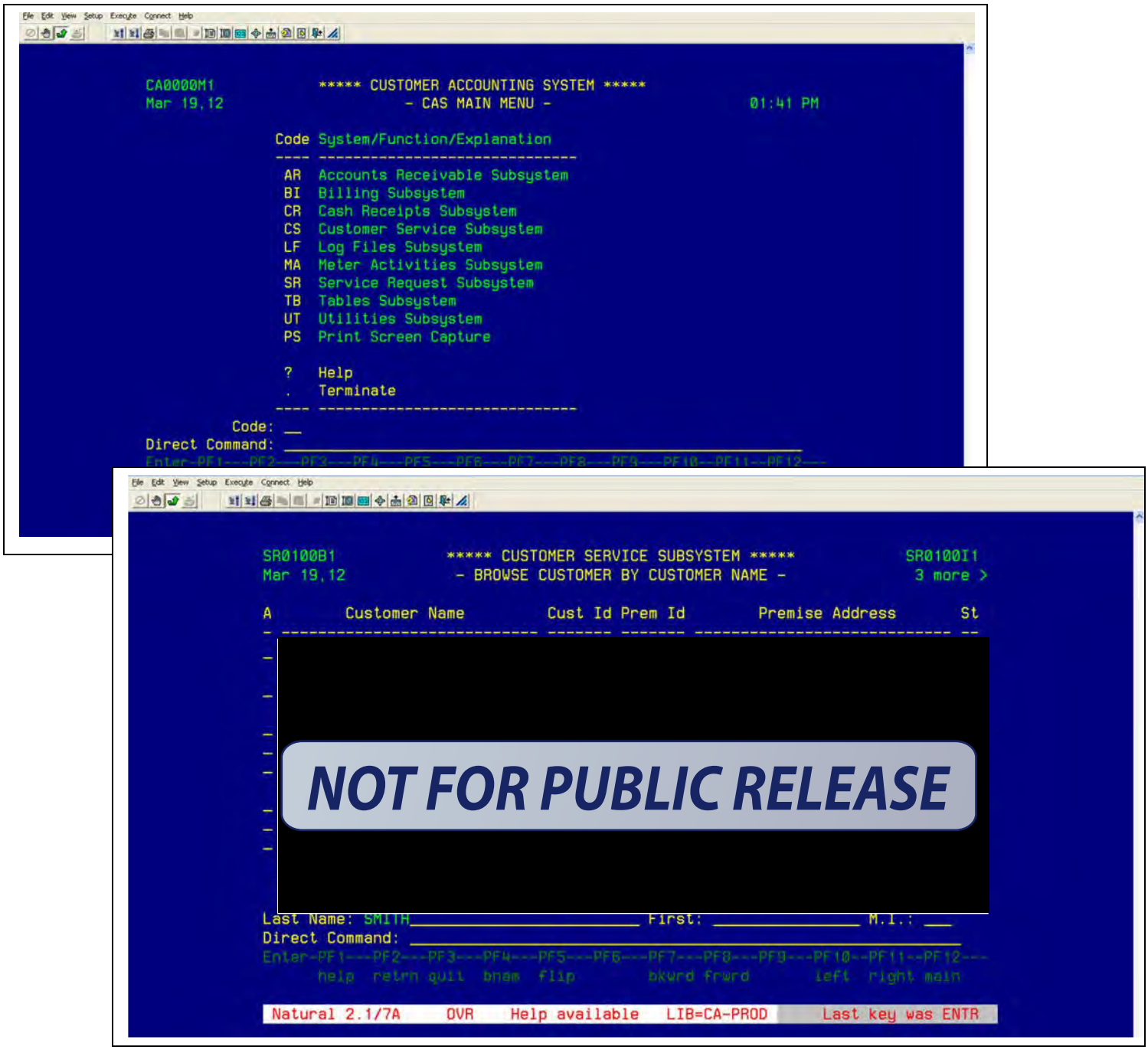
Our bills are generated on a bi-monthly basis. It is a mainframe based application that I believe was actually developed in-house by HBWS. We access this application through what is called a terminal emulation software. This software gives the impression of having a mainframe terminal.

The drawback to this application is that it is not Windows based.

The following screen shots show what CAS looks like:



As you can see, the program relies on entering and/or knowing codes to navigate from screen to screen.

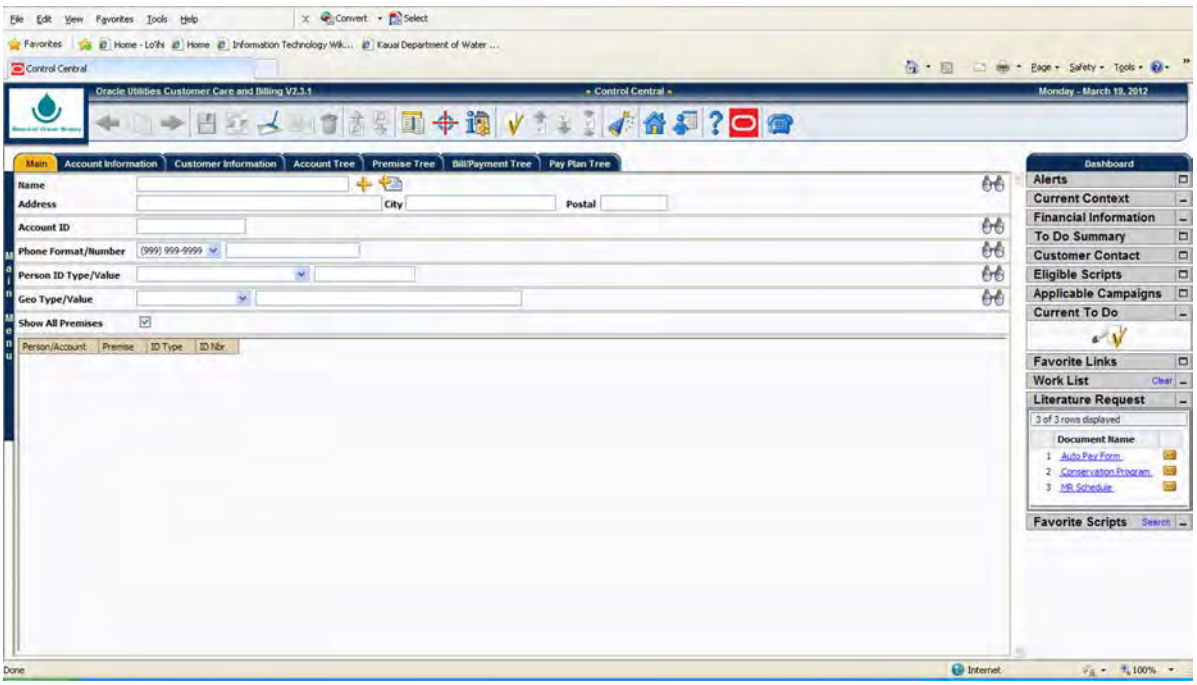


HBWS is currently close to implementing a new Billing System and plans to go live in July of 2012.

This new Billing System is being dubbed CC&B and stands for Customer Care and Billing. Each island has a person responsible for implementation on each island. Sandi Nadatani (I.T.) is the lead for Kauai.

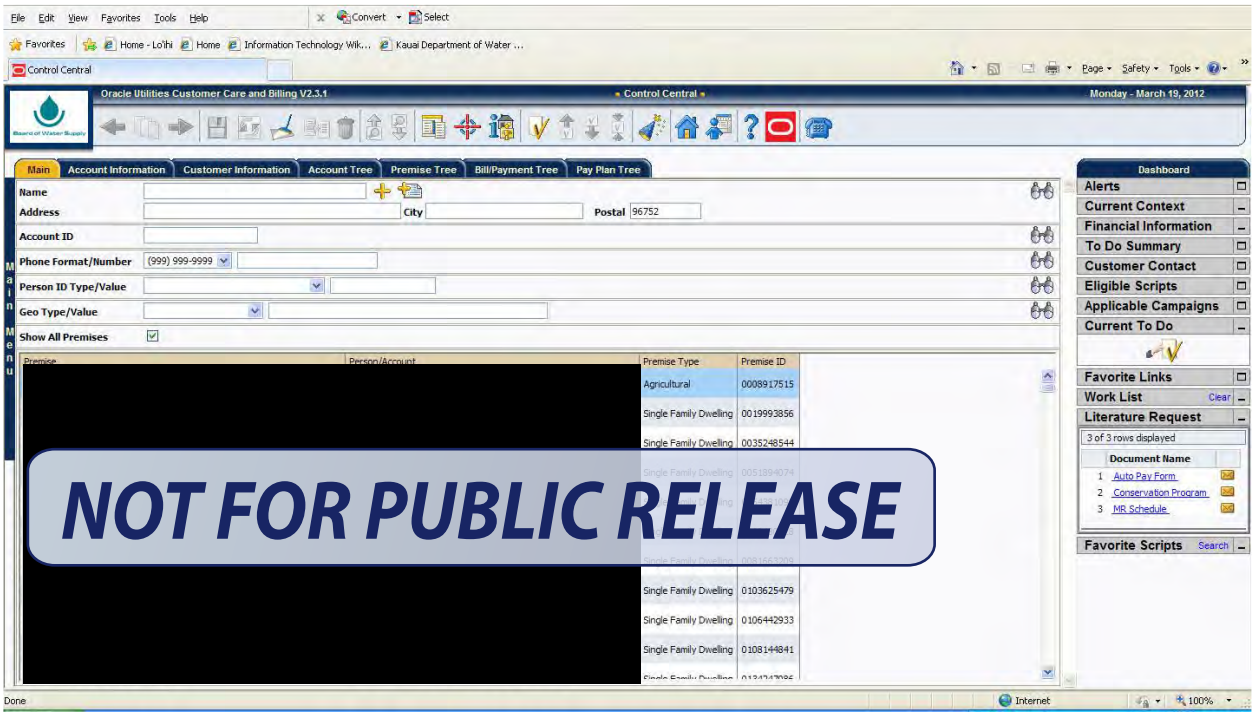
This new Billing System is web based so rather than needing a special terminal emulation software, we can access the new system with just a web browser program. This system is easier to learn and to navigate. One of the nice new features of this system is that it will allow us to tie in to our VoIP phone system and queue users on hold. Staff will know who is next in the queue, provided they enter a customer id or have a phone number that is listed in the system.

Though not live yet, the following screens shots are examples of what the Department will be using:

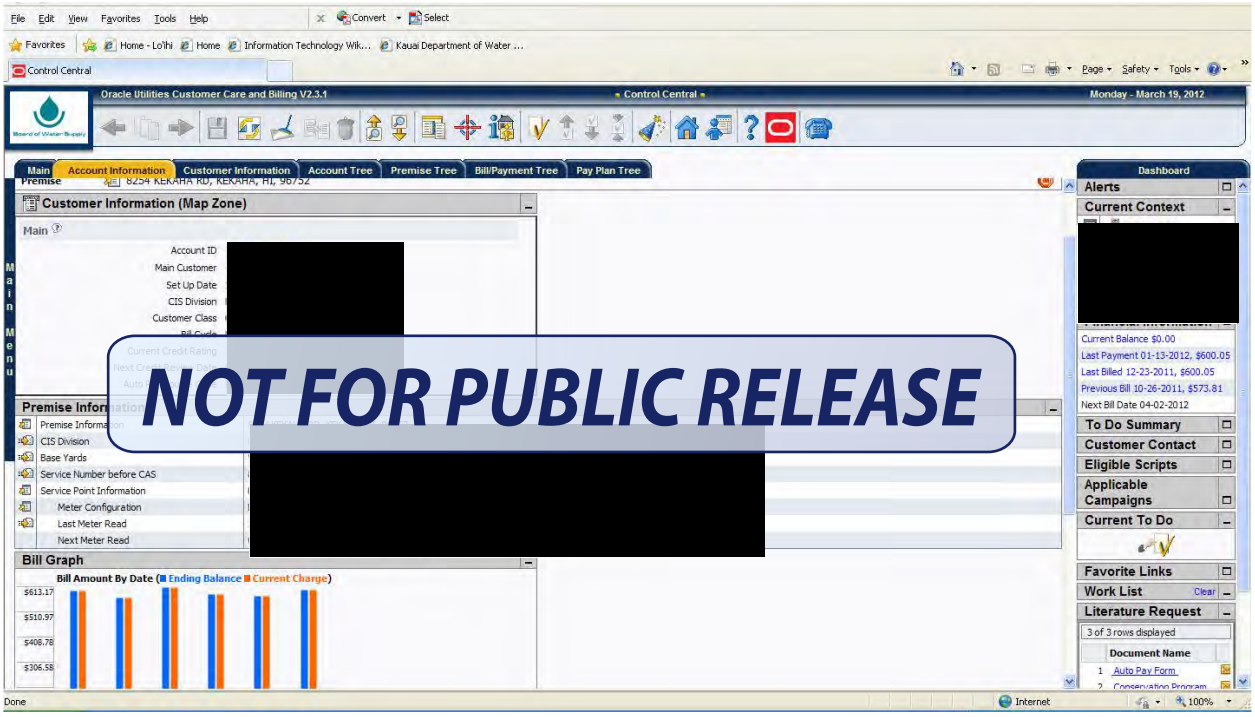


Control Center for CC&B

This screen a Postal Code search.



From the list above you click on one account/person and the following screen will populate.
From this screen you are able to see a lot of detail regarding this person account. Unlike CAS where you needed to know commands to switch screens. This program has a variety of different ways to move around and has many hyperlinks to different parts of this customers record.



Simply knowing the meaning of the “V” will allow users to navigate throughout this program.

The “V”

Person

Person/Business Name
Address/Phone(s)
ID Number
Misc. (E-mail address)
Customer Class

Account

Setup Date
Customer Class
Alerts
Bill Cycle
Balances
AutoPay
Bill Source/Copy Info
Person Relationship Type

Premise

Premise Address
Mad Validation
Characteristics
- City Limits
- Gross Parcel SF
- Deed Date
- Business Type
- Square Footage

APN
Alias Addresses
Map Coordinates
Premise Notes

Bill

Current Charges
Payments
Adjustments
Corrections
Bill Segments
Routing Details

Payment

Payment Details
Distribution Details
Tender Information

Service Agreement

SA Type
SA Status
Start/Stop Dates
Old Acct. #
Premise ID #
SA Balances
Rate Schedule
Allow Estimates

Service Points

SP Type
Source Status
Disconnect Location
Operation Area
Location Detail
Route Configuration
Frequency
Multi-Item
Asset History
Badge Number

Field Activities

Scheduled Date/Time
Priority
Status
Hold & Cancel Reasons
Dispatch Group
Field Order ID
Field Instructions & Comments
FA Steps

SA/SP

Start/Stop Time & Date
Field Activity Information

Board Committee Reports

Old Business

New Business

DEPARTMENT OF WATER

County of Kaua'i

"Water has no Substitute – Conserve It!"

MANAGER'S REPORT No.13-25

February 28, 2013

Re: Request Board Approval and Funding for Job No. 13-3, Water Plan 2020 Job No. PLH-44b, Lihue Mill Bridge Waterline, Lihue, Kauai, Hawaii

RECOMMENDATION: It is recommended that the Board approve funding for Job No. 13-3, in the amount of $ 633,500. This will allow the Department to complete a Utility Agreement with the State of Hawaii Department of Transportation so that waterline improvements can be completed in conjunction with the State of Hawaii Lihue Mill Bridge project.

FUNDING:

Waterworks Build America Project Funds Certified from Account.....	$ 21,847,038.41
Utility Agreement Amount	$ 603,320.00
Contingency (5%)	$ 30,180.00
Total Funding Requested	$ 633,500.00
Balance Remaining from Account	$ 21,213,538.41

BACKGROUND:

This project is included in the CIP Fund Balance Available for FY 2013 Project Priority List. The project was dollar funded and was identified as the "State DOT highway widening" in the Priority List. The State DOT project is expected to start construction soon and the project needs to be funded. This State project is being done as a "design-build" project by the contractor. The funds for this project will be obtained from the $3,000,000 that was budgeted for Job No. 11-01, Replace Grove Farm Tanks 1&2.

The State's Lihue Mill Bridge project is proposing to continue the widening of Kaumualii Highway that was done for the "Kaumualii Highway Widening, Vicinity of Anonui Street to Vicinity of Lihue Mill Bridge" project, to just past the existing Lihue Sugar Mill Bridge. Approximately 791 linear feet of the Department's existing 16-inch diameter waterline is proposed to be relocated by the State to construct a new bridge for the project. The Department of Water is proposing to upsize approximately 1,608 linear feet of existing 16-inch diameter waterline in this area to a 24-inch diameter waterline to provide better transmission capability. The 1,608 linear feet includes the 791 linear feet that the State is relocating, plus 817 linear feet to connect to the existing 24-inch diameter waterline that was installed with the "Kaumualii Highway Widening, Vicinity of Anonui Street to Vicinity of Lihue Mill Bridge" project.

The contractor is doing the relocation work for the State on a force account (time and materials). The final cost will not be known at this time. The contractor for the project has given an estimate cost to oversize this portion of the project as $146,264.00. The contractor has also

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given a cost of $457,056 to install 817 linear feet of 24-inch diameter waterline located within the other areas of the Lihue Mill Bridge project limits. The total estimated cost to the Department is $ 603,320.00. A contingency of 5% is requested in the event that the cost of the force account work is greater than the contractor's estimated cost or other unforeseen changes occur.

Respectfully submitted,

Keith Aoki
Civil Engineer V

Concurred:

David R. Craddick, P.E., C.E.M.
Manager and Chief Engineer

Attached: DOT Budget

KA:ein

Mgrrp/February 2013/13-25 Request Board Approval and Funding for Job No. 13-3, Water Plan 2020 Job No. PLH-44b, Lihue Mill Bridge Waterline, Lihue, Kauai, Hawai'i (2-28-13):ein

DEPARTMENT OF WATER
ANNUAL OPERATING AND CAPITAL IMPROVEMENT BUDGET
CIP ENCUMBRANCES & PROJECT PRIORITY LIST
FISCAL YEAR 2012 - 2013

BAB FUND	2011 - 2012 BUDGET	(CONTRACTED)	ADDITIONS (DELETIONS)	ENCUMBERED	PROPOSED NEW ADDITIONS	2012 - 2013 BUDGET
201-01: BAB - CAPITAL IMPROVEMENT PROJECTS						**$ 21,970,679**
1. ENCUMBRANCES:						
Job 02-11, M-02 Land Acquisition	$ -		$ 121,000	$ 121,000		$ 121,000
						$ -
						$ -
TOTAL ENCUMBRANCES	$ -	$ -	$ 121,000		$ -	$ 121,000

DEPARTMENT OF WATER
ANNUAL OPERATING AND CAPITAL IMPROVEMENT BUDGET
CIP ENCUMBRANCES & PROJECT PRIORITY LIST
FISCAL YEAR 2012 - 2013

BAB FUND	2011 - 2012 BUDGET	(CONTRACTED)	ADDITIONS (DELETIONS)	ENCUMBERED	PROPOSED NEW ADDITIONS	2012 - 2013 BUDGET
CIP FUND BALANCE AVAILABLE FOR FY 2013 PROJECT PRIORITY LIST						**$ 21,849,679**
2. PROJECT PRIORITY LIST						
Job 02-14, WK-08, Kapahi 1.0 MG Tank(est $8M)					$ 1	$ 1
K-01, Yamada Tank (Nursery Tank) and Connecting Pipeline (SRF, CASH, BAB)					$ 7,000,000	$ 7,000,000
PLH-39, DOW Baseyard Improvements Phase I (est $6M).					$ 4,000,000	$ 4,000,000
Job 02-06, WP 2020, WKK-15, Kilauea 1.0MG Tank (est 3M)					$ 4,000,000	$ 4,000,000
WK 39, Drill & Tess Kapaa Hmstds. Well # 4					$ 750,000	$ 750,000
HW 12, Drill & Test Wainiha Well # 4					$ 750,000	$ 750,000
WK K02, Drill & Test Kilauea Well # 3					$ 750,000	$ 750,000
Job 02-11, M-02, Moloaa 0.1 MG Tank (est $1.5M) (FRC partial)					$ 1,000,000	$ 1,000,000
Job 11-01, WP 2020, PLH-01A, Replace Grove Farm Tanks 1 & 2 (est $3M)					$ 3,000,000 $ (633,499)	$ 3,000,000 $ (633,499)
State DOT highway widening					$ 633,500	$ 633,500

DEPARTMENT OF WATER
ANNUAL OPERATING AND CAPITAL IMPROVEMENT BUDGET
CIP ENCUMBRANCES & PROJECT PRIORITY LIST
FISCAL YEAR 2012 - 2013

BAB FUND	2011 - 2012 BUDGET	(CONTRACTED)	ADDITIONS (DELETIONS)	ENCUMBERED	PROPOSED NEW ADDITIONS	2012 - 2013 BUDGET
Job 02-19, WK-12, Waipouli Main Replacement - Kuhio Hwy (est $3M)					$ 1	$ 1
Job 04-03, WK-30, Pipeline Replacement along Waipouli Road and Olohena Road (est $2M)					$ 1	$ 1
Job 10-01, WP 2020, ANI-01, Anini Pipeline (est $8M)					$ 1	$ 1
Job 11-04 WP 2020 #LO-08, LO-10 Omao -Lawai Pipeline (est $2M)	$ -				$ 1	$ 1
Job 11-06 WP 2020 #WK-01 Rehabilitate Moalepe Tunnel and Access Road (est $2M)					$ 1	$ 1
Job 11-07 WP 2020 HE-03 Hanapepe & Koloa Well MCC Imprvmnts (est $1.5M)					$ 1	$ 1
Job 06-01, KW-28, AMFAC Well (est $2M)					$ 1	$ 1
WK-28, Wailua Houselots Pipe (est 6M) (WU-5M))	$ -				$ 1	$ 1
WK-02, Akulikuli Tunnel (est. 5M)	$ -				$ 1	$ 1
TOTAL CAPITAL IMPROVEMENT PROJECTS:	$ -	$ -	$ -	$ -	$ 21,250,011	$ 21,250,011

DEPARTMENT OF WATER

County of Kaua'i

"Water has no Substitute – Conserve It!"

MANAGER'S REPORT No.13-26

February 28, 2013

Re: Manager's Response to Ms. Laverne Bessert's letter, dated December 19, 2012

RECOMMENDATION:

There is no action requested from the Board.

BACKGROUND:

The Department of Water is in receipt of Ms. Laverne Bessert's letter addressed to the Board dated December 19, 2012.

Ms. Bessert is requesting that the DOW wave a portion of her water bill due to financial hardship.

Based on the DOW's Rules and Regulations, Part 1 Section VII Declaratory Rulings of the Board, the DOW cannot authorize Ms. Bessert's request.

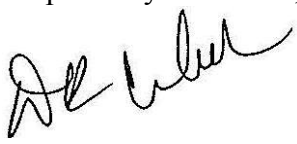
SECTION VII- DECLARATORY RULINGS OF THE BOARD

1. Petition.
   a. Any person may submit a petition under Section 91-8, Hawaii Revised Statutes, requesting a declaratory ruling of the Board as to the applicability of any statutory provision or of any rule.
   b. Notwithstanding the other provisions of this section, the Board may, on its own motion or upon request but without notice or hearing, issue a declaratory order to terminate a controversy or to remove uncertainty.

There is nothing more the staff can do under the rules since it doesn't fall under the criteria for "Adjustment of Bills." The DOW has offered a payment plan to accommodate Ms. Bessert to pay over a period of time.

Thank you for your attention to this matter.

Respectfully submitted,



David R. Craddick, P.E., C.E.M.
Manager and Chief Engineer

Attachment: Response letter mailed to Laverne Bessert (2-7-13)

DC:mjg

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Water has no substitute...Conserve It!

Department of Water
County of Kaua'i

February 7, 2013

Ms. LaVerne L. Bessert
4491 Rice Street, Suite 105
Lihue, HI 96766

Dear Ms. Bessert,

This letter is in response to your letter addressed to the Board dated December 19, 2012.

Your request "to wave a portion of your water bill due to financial hardship" was referred back to staff for proper action on the matter. Based on the Rules and Regulations of the Department of Water, your request for adjustment doesn't fall under the criteria for "Adjustment of Bills" and therefore cannot grant you any adjustment.

As an option, we can offer you a payment plan to pay over a period of time. Please see or call Mel Yamase at 808-245-5428 for assistance.

Very truly yours,

MARITES YANO
WATERWORKS CONTROLLER

c: Mel Yamase, Accountant IV
David Craddick, Manager & Chief Engineer
Randall Nishimura, Board of Water Supply Chair

4398 Pua Loke Street, P.O. Box 1706, Lihue, Kauai, Hawaii 96766
Phone (808) 245-5400 Fax (808) 246-8628 Email: DOW@kauaiwater.org www.kauaiwater.org

DEC 21 2013

December 19, 2012

Daryl Kaneshiro, Chairman
Water Dept. Board
Department of Water
4398 Pua Loke Street
Lihue, HI 96766

RE: Water Bill of $702.24 Account # 1014439-1001467

Dear Mr. Kaneshiro:

It is with heavy heart that I write this letter in reference to my latest enormous water bill of $702.24 that I received a couple weeks ago. I had a feeling that my one toilet in the master bedroom was becoming a problem and I was trying to get someone to look at it. However, with the lost of my husband on Sept. 17, 2012, I have had to take care and cope with countless other financial items. Needless to say after receiving this bill, I finally called a plumber and he was able to fix the problem. I have enclosed the plumber's bill. Please be aware also that receiving a bill bi-monthly did nothing to alert me that I had a major problem. If I had a monthly bill, I am sure I would have had it fixed before it grew to such a high amount as I am conservative also by nature. I am glad that a billing change will be made in the near future.

My question for you and the board is that is there any way that the Water Dept. could wave a portion of this bill due to my financial hardship? I have lost half of my husband's retirement income since his death and also my social security. Thus, I barely have enough funds to pay my mortgage let alone the rest of my household bills. I am presently trying to see if I can get a loan modification for my home to help me out, but I recently found out that I won't even be able to submit another application till January . I really would appreciate it if some consideration could be given to this matter in the very near future. Please also note that my previous bill was only $115.60 which was affordable. Taking this amount into consideration, I just mailed a payment today of $115.60 to the Water Dept. towards my outstanding bill.

Your kind attention to the above problem will be greatly appreciated.

Sincerely,
LaVerne L. Bessert
4491 Rice St., Ste. 105
Lihue, HI 96766
808-822-7002 (res)
808-245-3991 (off)

0242

DENNIS MARUGAME PLUMBER

3-3353 Kuhio Highway, Lihue, Hawaii 96766

(808) 245-5658

DATE 12-6-12

NAME Laverne Bessert

ADDRESS

CITY | PHONE

JOB LOCATION Ohelu (Wailua Homsteds)

JOB PHONE | ORDER TAKEN BY | STARTING DATE

DESCRIPTION OF WORK Three Kohler toilet repairs (new flappers) check toilet tank ballcocks for proper water levels, lavatory bathroom faucet drain repairs

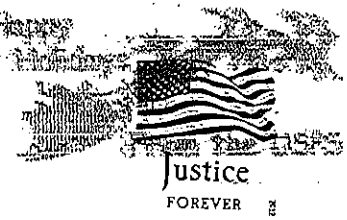
QTY.	MATERIAL	PRICE	AMOUNT
3	Kohler toilet flappers for one piece toilets		$45.00
	Labor 2.5 hrs		$150.00
	(Courtesy discount -		$50.00
			$100.00

TOTAL MATERIAL	$45.00
TOTAL LABOR	$100.00
	$145.00
4% TAX	$5.80
PAY THIS AMOUNT ⇨	$150.80

SIGNATURE | DATE COMPLETED

Thank You

HONOLULU HI
20 DEC 2012 PM 2 L



12 DEC 21 P12:45

Mr. Daryl Kaneshiro, Chr.
Board of Water Supply
Dept. of Water
4398 Pua Loke Street
Lihue, HI 96766

96766160075

DEPARTMENT OF WATER

County of Kaua'i

"Water has no Substitute – Conserve It!"

MANAGER'S REPORT No.13-27

February 28, 2013

Re: Manager's Response to Mr. Harold Matsunaga's letter, dated January 3, 2013

RECOMMENDATION:
There is no action requested from the Board.

BACKGROUND:
The Department of Water is in receipt of Mr. Matsunaga's letter addressed to the Board dated January 3, 2013.

Mr. Matsunaga is declaring that his October 5, 2012 bill in the amount of $351.12 and December 5, 2012 bill for $376.20 were registering incorrect data usage.

Mr. Matsunaga has asked to appear before the Board in the January 24th board which he was not able to attend. Since then, the Department has provided him with his meter reading profile which shows the usage as his bill states and has not been advised of any leaks that occurred on his property. Without substantial evidence of an underground leak, the Department cannot adjust his bill. All bills have been paid and up to date, otherwise we could have worked out a payment plan with Mr. Matsunaga.

Mr. Matsunaga's current bill for January is $98.62 which is substantially lower than his previous bills. Since then, Mr. Matsunaga has not requested further action from the Department.

Thank you for your attention to this matter.

Respectfully submitted,

David R. Craddick, P.E., C.E.M.
Manager and Chief Engineer

Attachment: Response letter mailed to Harold Matsunaga (2-12-13)

DC:mjg

Mgrrp/February 2013/13-27 Manager's Response to Mr. Harold Matsunaga's letter, dated January 3, 2013 (2-28-13):mjg

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Department of Water
County of Kaua'i

Water has no substitute…….Conserve it

February 12, 2013

Mr. Harold Matsunaga
3206 Fujii Street
Lihue, HI 96766

Dear Mr. Matsunaga,

This letter is in response to your letter addressed to the Kaua'i Board of Water dated January 3, 2013.

Your request attend the Board meeting on January 24, 2013 was received. Since you were not able to attend to testify, the Board has referred your dispute back to staff for proper action on the matter. Based on your notice of discrepancy with your bill, we had data gathered from your meter.

The bills you are disputing are your October 5 and December 5, 2012 bills. We have gathered the data from your meter and have attached it for your information. Your consumption from December 5th through January 25th has substantially decreased in January amounting to $90.96.

Please see or call Mel Yamase at (808) 245-5428 for assistance in understanding your profile spreadsheet or my Secretary, Mary-jane Garasi at (808) 245-5408 to schedule a meeting if further discussion is needed.

Mahalo Nui,

David R. Craddick, P.E., C.E.M.
Manager and Chief Engineer

Attachments: Profile Meter Read Spreadsheet & Graph

CC: Randall Nishimura, Board of Water Supply Chair
Mel Yamase, Accountant IV

DC:mjg

cc/Harold Matsunaga/Response Letter (2-12-13)/mjg

MEMORANDUM

TO: Chairman, Water Board & Committee DATE: January 3, 2013

FROM: Harold Matsunaga

13 JAN -7 P12:10

SUBJECT: Water Bill No. 1002709-1009675 Dispute

DEPT. OF WATER
COUNTY OF KAUAI

3206 Fujii Street, Lihue, Kauai, 96766

There is a problem with my water bill. The readings taken by your meter reader and my daily reading does not matchup. There is a huge difference. I have spoken to Mr. Mel Yamase about this problem personally and the problem has not been resolved. He suggest that I take this matter with the Water Board.

Therefore, I would like to appear at your next Board meeting to resolve this problem. My telephone number at home is 246-0368; Cell 651-6579.

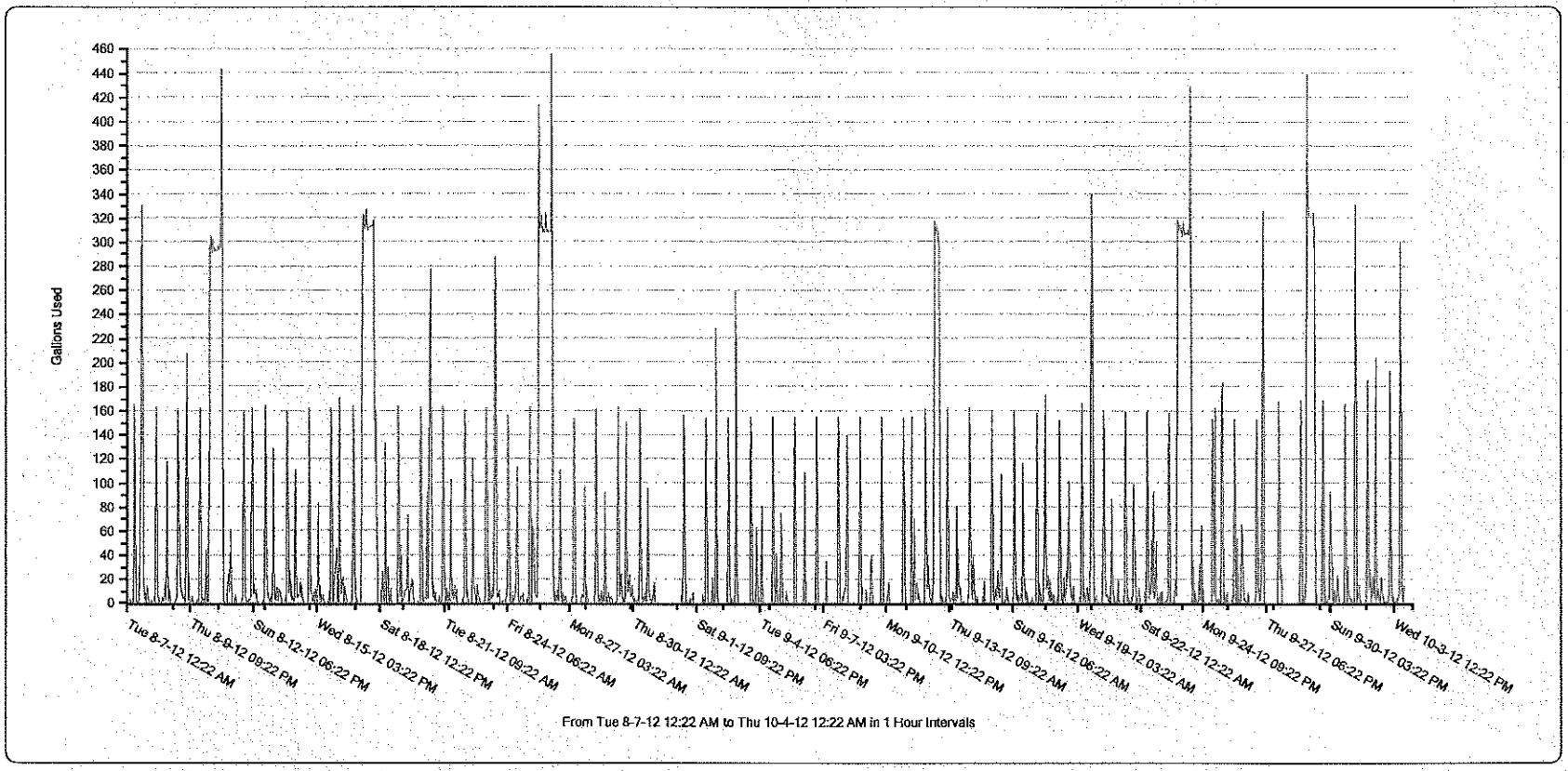
I would like to thank you in advance for your early response to my request.

Harold Matsunaga, Owner

Harold Matsunaga

3206 Fujii Street, Lihue, HI 96766

ORION Meter Reading Profile
Serial # 80773950



Profile Name: 80773950 20121221 1224

Cust ID..: 1009675
Cust Name: HAROLD MATSUNAGA
Bus Name.:

Prem ID..: 1002709
Prem Addr: 3206 FUJII ST
Prem Name:

Trans Date	Description	Total Consumption	Detail Amount	Balance
	Water Usage Charge	17	84.10	
	Power Adjustment Charge	42	13.02	
	Water Service Charge		17.76	
	Water Service Charge		9.20	
	TOTAL		256.83	256.83
08/27/2012	PAYMENT		-256.83	0.00
10/05/2012	BILLING			
	Water Usage Charge	52	306.20	
	Power Adjustment Charge	52	16.12	
	Water Service Charge		28.80	
	TOTAL		351.12	351.12
10/24/2012	PAYMENT		-351.12	0.00
12/05/2012	BILLING			
	Water Usage Charge	55	330.35	
	Power Adjustment Charge	55	17.05	
	Water Service Charge		28.80	
	TOTAL		376.20	376.20
12/24/2012	PAYMENT		-376.20	0.00

***** END OF DATA *****

Cust ID..: 1009675
Cust Name: HAROLD MATSUNAGA
Bus Name.:

Prem ID..: 1002709
Prem Addr: 3206 FUJII ST
Prem Name:

Trans Date	Description	Total Consumption	Detail Amount	Balance
11/04/2011	PAYMENT		-129.48	0.00
12/15/2011	BILLING			
	Water Usage Charge	28	94.40	
	Power Adjustment Charge	28	8.68	
	Water Service Charge		26.40	
	TOTAL		129.48	129.48
01/05/2012	PAYMENT		-129.48	0.00
02/14/2012	BILLING			
	Water Usage Charge	19	72.95	
	Water Usage Charge	8	25.60	
	Power Adjustment Charge	27	8.37	
	Water Service Charge		17.60	
	Water Service Charge		7.48	
	TOTAL		132.00	132.00
03/05/2012	PAYMENT		-132.00	0.00
04/12/2012	BILLING			
	Water Usage Charge	28	107.90	
	Power Adjustment Charge	28	8.68	
	Water Service Charge		24.00	
	TOTAL		140.58	140.58
05/01/2012	PAYMENT		-140.58	0.00
06/08/2012	BILLING			
	Water Usage Charge	35	155.85	
	Power Adjustment Charge	35	10.85	
	Water Service Charge		24.00	
	TOTAL		190.70	190.70
06/28/2012	PAYMENT		-190.70	0.00
08/07/2012	BILLING			
	Water Usage Charge	25	132.75	

Cust ID..: 1009675
Cust Name: HAROLD MATSUNAGA
Bus Name.:

Prem ID..: 1002709
Prem Addr: 3206 FUJII ST
Prem Name:

Trans Date	Description	Total Consumption	Detail Amount	Balance
	Water Usage Charge	26	86.40	
	Power Adjustment Charge	26	7.54	
	Water Service Charge		26.40	
	TOTAL		120.34	120.34
03/16/2011	PAYMENT		-120.34	0.00
04/26/2011	BILLING			
	Water Usage Charge	26	86.40	
	Power Adjustment Charge	26	7.54	
	Water Service Charge		26.40	
	TOTAL		120.34	120.34
05/13/2011	PAYMENT		-120.34	0.00
06/23/2011	BILLING			
	Water Usage Charge	27	90.40	
	Power Adjustment Charge	27	7.83	
	Water Service Charge		26.40	
	TOTAL		124.63	124.63
07/13/2011	PAYMENT		-124.63	0.00
08/22/2011	BILLING			
	Water Usage Charge	30	106.40	
	Power Adjustment Charge	26	8.06	
	Power Adjustment Charge	4	1.16	
	Water Service Charge		26.40	
	TOTAL		142.02	142.02
09/09/2011	PAYMENT		-142.02	0.00
10/18/2011	BILLING			
	Water Usage Charge	28	94.40	
	Power Adjustment Charge	28	8.68	
	Water Service Charge		26.40	
	TOTAL		129.48	129.48

Cust ID..: 1009675
Cust Name: HAROLD MATSUNAGA
Bus Name.:

Prem ID..: 1002709
Prem Addr: 3206 FUJII ST
Prem Name:

Trans Date	Description	Total Consumption	Detail Amount	Balance
05/24/2010	Archive Balance			0.00
07/06/2010	BILLING			
	Water Usage Charge	2		
	Water Usage Charge	24	80.80	
	Power Adjustment Charge	2	0.58	
	Power Adjustment Charge	24	8.16	
	Water Service Charge		2.20	
	Water Service Charge		18.99	
	TOTAL		110.73	110.73
07/23/2010	PAYMENT		-110.73	0.00
09/01/2010	BILLING			
	Water Usage Charge	30	106.40	
	Power Adjustment Charge	30	8.70	
	Water Service Charge		26.40	
	TOTAL		141.50	141.50
09/21/2010	PAYMENT		-141.50	0.00
10/27/2010	BILLING			
	Water Usage Charge	24	78.40	
	Power Adjustment Charge	24	6.96	
	Water Service Charge		26.40	
	TOTAL		111.76	111.76
11/17/2010	PAYMENT		-111.76	0.00
12/28/2010	BILLING			
	Water Usage Charge	28	94.40	
	Power Adjustment Charge	28	8.12	
	Water Service Charge		26.40	
	TOTAL		128.92	128.92
01/18/2011	PAYMENT		-128.92	0.00
02/25/2011	BILLING			

Prem-Cust recK-1002709-1009675 displayed successfully

```
AR0300T1          ***** ACCOUNTS RECEIVABLE SUBSYSTEM *****          AR0300I1
Jan 07,13           - DISPLAY CUSTOMER SUBSIDIARY LEDGER -            04:00 PM

Action (C,D,N,Q).....          Prem-ID: 1002709    Cust-ID: 1009675
Cust/Bus Name.: MATSUNAGA, HAROLD                    Old S/N: 88230810 0
Prem Addr/Name: 3206 FUJII ST                        Next Rd: 02/01/2013
Tot Amt Due:          0.00   Disp Bal.:              TPA Bal:
Tot Out Bal:          0.00   Begin Bal:              PD Bal.:
------ Credit Info ------  Wtr Serv Stat Rsn:  New Service
LP:       FN:       CS:      Pending Refund:    CUSTOMER ACTIVE - 10/18/2000
SS:       NS:       UN:
```

	Date	Description	Type	Amount	Balance
1					
6	08/07/2012	Billing	RE	256.83	256.83
5	08/27/2012	Cash Receipt	AB	-256.83	0.00
4	10/05/2012	Billing	RE	351.12	351.12
3	10/24/2012	Cash Receipt	AB	-351.12	0.00
2	12/05/2012	Billing	RE	376.20	376.20
1	12/24/2012	Cash Receipt	AB	-376.20	0.00

Direct Command: _____

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
736945	0	0	0	0	9/1/2012 0:22
736945	0	0	0	0	9/1/2012 1:22
736945	0	0	0	0	9/1/2012 2:22
736945	0	0	0	0	9/1/2012 3:22
736945	0	0	0	0	9/1/2012 4:22
736945	0	0	0	0	9/1/2012 5:22
736952	7	0	0	0	9/1/2012 6:22
736952	0	0	0	0	9/1/2012 7:22
737109	157	0	0	0	9/1/2012 8:22
737196	87	0	0	0	9/1/2012 9:22
737197	1	0	0	0	9/1/2012 10:22
737197	0	0	0	0	9/1/2012 11:22
737198	1	0	0	0	9/1/2012 12:22
737198	0	0	0	0	9/1/2012 13:22
737198	0	0	0	0	9/1/2012 14:22
737201	3	0	0	0	9/1/2012 15:22
737201	0	0	0	0	9/1/2012 16:22
737201	0	0	0	0	9/1/2012 17:22
737210	9	0	0	0	9/1/2012 18:22
737210	0	0	0	0	9/1/2012 19:22
737210	0	0	0	0	9/1/2012 20:22
737210	0	0	0	0	9/1/2012 21:22
737210	0	0	0	0	9/1/2012 22:22
737210	0	0	0	0	9/1/2012 23:22
737210	0	0	0	0	9/2/2012 0:22
737210	0	0	0	0	9/2/2012 1:22
737210	0	0	0	0	9/2/2012 2:22
737210	0	0	0	0	9/2/2012 3:22
737210	0	0	0	0	9/2/2012 4:22
737215	5	0	0	0	9/2/2012 5:22
737215	0	0	0	0	9/2/2012 6:22
737215	0	0	0	0	9/2/2012 7:22
737369	154	0	0	0	9/2/2012 8:22
737450	81	0	0	0	9/2/2012 9:22
737450	0	0	0	0	9/2/2012 10:22
737450	0	0	0	0	9/2/2012 11:22
737450	0	0	0	0	9/2/2012 12:22
737450	0	0	0	0	9/2/2012 13:22
737450	0	0	0	0	9/2/2012 14:22
737471	21	0	0	0	9/2/2012 15:22
737471	0	0	0	0	9/2/2012 16:22
737471	0	0	0	0	9/2/2012 17:22
737480	9	0	0	0	9/2/2012 18:22
737708	228	0	0	0	9/2/2012 19:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
737730	22	0	0	0	9/2/2012 20:22
737730	0	0	0	0	9/2/2012 21:22
737730	0	0	0	0	9/2/2012 22:22
737730	0	0	0	0	9/2/2012 23:22
737730	0	0	0	0	9/3/2012 0:22
737730	0	0	0	0	9/3/2012 1:22
737730	0	0	0	0	9/3/2012 2:22
737730	0	0	0	0	9/3/2012 3:22
737730	0	0	0	0	9/3/2012 4:22
737730	0	0	0	0	9/3/2012 5:22
737730	0	0	0	0	9/3/2012 6:22
737730	0	0	0	0	9/3/2012 7:22
737884	154	0	0	0	9/3/2012 8:22
737965	81	0	0	0	9/3/2012 9:22
737965	0	0	0	0	9/3/2012 10:22
737968	3	0	0	0	9/3/2012 11:22
737968	0	0	0	0	9/3/2012 12:22
737968	0	0	0	0	9/3/2012 13:22
737970	2	0	0	0	9/3/2012 14:22
737977	7	0	0	0	9/3/2012 15:22
738237	260	0	0	0	9/3/2012 16:22
738279	42	0	0	0	9/3/2012 17:22
738279	0	0	0	0	9/3/2012 18:22
738279	0	0	0	0	9/3/2012 19:22
738279	0	0	0	0	9/3/2012 20:22
738279	0	0	0	0	9/3/2012 21:22
738279	0	0	0	0	9/3/2012 22:22
738279	0	0	0	0	9/3/2012 23:22
738279	0	0	0	0	9/4/2012 0:22
738279	0	0	0	0	9/4/2012 1:22
738279	0	0	0	0	9/4/2012 2:22
738279	0	0	0	0	9/4/2012 3:22
738279	0	0	0	0	9/4/2012 4:22
738279	0	0	0	0	9/4/2012 5:22
738279	0	0	0	0	9/4/2012 6:22
738279	0	0	0	0	9/4/2012 7:22
738434	155	0	0	0	9/4/2012 8:22
738514	80	0	0	0	9/4/2012 9:22
738514	0	0	0	0	9/4/2012 10:22
738516	2	0	0	0	9/4/2012 11:22
738516	0	0	0	0	9/4/2012 12:22
738516	0	0	0	0	9/4/2012 13:22
738579	63	0	0	0	9/4/2012 14:22
738609	30	0	0	0	9/4/2012 15:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
738609	0	0	0	0	9/4/2012 16:22
738609	0	0	0	0	9/4/2012 17:22
738609	0	0	0	0	9/4/2012 18:22
738609	0	0	0	0	9/4/2012 19:22
738690	81	0	0	0	9/4/2012 20:22
738690	0	0	0	0	9/4/2012 21:22
738690	0	0	0	0	9/4/2012 22:22
738690	0	0	0	0	9/4/2012 23:22
738690	0	0	0	0	9/5/2012 0:22
738690	0	0	0	0	9/5/2012 1:22
738690	0	0	0	0	9/5/2012 2:22
738690	0	0	0	0	9/5/2012 3:22
738690	0	0	0	0	9/5/2012 4:22
738690	0	0	0	0	9/5/2012 5:22
738690	0	0	0	0	9/5/2012 6:22
738690	0	0	0	0	9/5/2012 7:22
738845	155	0	0	0	9/5/2012 8:22
738926	81	0	0	0	9/5/2012 9:22
738926	0	0	0	0	9/5/2012 10:22
738928	2	0	0	0	9/5/2012 11:22
738970	42	0	0	0	9/5/2012 12:22
738970	0	0	0	0	9/5/2012 13:22
738970	0	0	0	0	9/5/2012 14:22
738970	0	0	0	0	9/5/2012 15:22
738970	0	0	0	0	9/5/2012 16:22
739045	75	0	0	0	9/5/2012 17:22
739080	35	0	0	0	9/5/2012 18:22
739080	0	0	0	0	9/5/2012 19:22
739080	0	0	0	0	9/5/2012 20:22
739080	0	0	0	0	9/5/2012 21:22
739080	0	0	0	0	9/5/2012 22:22
739088	8	0	0	0	9/5/2012 23:22
739090	2	0	0	0	9/6/2012 0:22
739090	0	0	0	0	9/6/2012 1:22
739090	0	0	0	0	9/6/2012 2:22
739090	0	0	0	0	9/6/2012 3:22
739090	0	0	0	0	9/6/2012 4:22
739090	0	0	0	0	9/6/2012 5:22
739090	0	0	0	0	9/6/2012 6:22
739090	0	0	0	0	9/6/2012 7:22
739245	155	0	0	0	9/6/2012 8:22
739327	82	0	0	0	9/6/2012 9:22
739327	0	0	0	0	9/6/2012 10:22
739327	0	0	0	0	9/6/2012 11:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
739327	0	0	0	0	9/6/2012 12:22
739327	0	0	0	0	9/6/2012 13:22
739327	0	0	0	0	9/6/2012 14:22
739327	0	0	0	0	9/6/2012 15:22
739327	0	0	0	0	9/6/2012 16:22
739327	0	0	0	0	9/6/2012 17:22
739327	0	0	0	0	9/6/2012 18:22
739436	109	0	0	0	9/6/2012 19:22
739436	0	0	0	0	9/6/2012 20:22
739436	0	0	0	0	9/6/2012 21:22
739436	0	0	0	0	9/6/2012 22:22
739436	0	0	0	0	9/6/2012 23:22
739436	0	0	0	0	9/7/2012 0:22
739436	0	0	0	0	9/7/2012 1:22
739436	0	0	0	0	9/7/2012 2:22
739436	0	0	0	0	9/7/2012 3:22
739436	0	0	0	0	9/7/2012 4:22
739436	0	0	0	0	9/7/2012 5:22
739436	0	0	0	0	9/7/2012 6:22
739436	0	0	0	0	9/7/2012 7:22
739591	155	0	0	0	9/7/2012 8:22
739672	81	0	0	0	9/7/2012 9:22
739672	0	0	0	0	9/7/2012 10:22
739672	0	0	0	0	9/7/2012 11:22
739672	0	0	0	0	9/7/2012 12:22
739672	0	0	0	0	9/7/2012 13:22
739672	0	0	0	0	9/7/2012 14:22
739672	0	0	0	0	9/7/2012 15:22
739672	0	0	0	0	9/7/2012 16:22
739672	0	0	0	0	9/7/2012 17:22
739672	0	0	0	0	9/7/2012 18:22
739707	35	0	0	0	9/7/2012 19:22
739707	0	0	0	0	9/7/2012 20:22
739707	0	0	0	0	9/7/2012 21:22
739707	0	0	0	0	9/7/2012 22:22
739707	0	0	0	0	9/7/2012 23:22
739707	0	0	0	0	9/8/2012 0:22
739707	0	0	0	0	9/8/2012 1:22
739707	0	0	0	0	9/8/2012 2:22
739707	0	0	0	0	9/8/2012 3:22
739707	0	0	0	0	9/8/2012 4:22
739707	0	0	0	0	9/8/2012 5:22
739707	0	0	0	0	9/8/2012 6:22
739707	0	0	0	0	9/8/2012 7:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
739862	155	0	0	0	9/8/2012 8:22
739944	82	0	0	0	9/8/2012 9:22
739944	0	0	0	0	9/8/2012 10:22
739944	0	0	0	0	9/8/2012 11:22
739944	0	0	0	0	9/8/2012 12:22
739948	4	0	0	0	9/8/2012 13:22
739951	3	0	0	0	9/8/2012 14:22
739962	11	0	0	0	9/8/2012 15:22
739972	10	0	0	0	9/8/2012 16:22
740005	33	0	0	0	9/8/2012 17:22
740145	140	0	0	0	9/8/2012 18:22
740145	0	0	0	0	9/8/2012 19:22
740145	0	0	0	0	9/8/2012 20:22
740145	0	0	0	0	9/8/2012 21:22
740145	0	0	0	0	9/8/2012 22:22
740145	0	0	0	0	9/8/2012 23:22
740145	0	0	0	0	9/9/2012 0:22
740145	0	0	0	0	9/9/2012 1:22
740145	0	0	0	0	9/9/2012 2:22
740145	0	0	0	0	9/9/2012 3:22
740145	0	0	0	0	9/9/2012 4:22
740145	0	0	0	0	9/9/2012 5:22
740145	0	0	0	0	9/9/2012 6:22
740145	0	0	0	0	9/9/2012 7:22
740300	155	0	0	0	9/9/2012 8:22
740382	82	0	0	0	9/9/2012 9:22
740382	0	0	0	0	9/9/2012 10:22
740382	0	0	0	0	9/9/2012 11:22
740382	0	0	0	0	9/9/2012 12:22
740382	0	0	0	0	9/9/2012 13:22
740382	0	0	0	0	9/9/2012 14:22
740393	11	0	0	0	9/9/2012 15:22
740393	0	0	0	0	9/9/2012 16:22
740393	0	0	0	0	9/9/2012 17:22
740393	0	0	0	0	9/9/2012 18:22
740394	1	0	0	0	9/9/2012 19:22
740427	33	0	0	0	9/9/2012 20:22
740467	40	0	0	0	9/9/2012 21:22
740467	0	0	0	0	9/9/2012 22:22
740467	0	0	0	0	9/9/2012 23:22
740467	0	0	0	0	9/10/2012 0:22
740467	0	0	0	0	9/10/2012 1:22
740467	0	0	0	0	9/10/2012 2:22
740467	0	0	0	0	9/10/2012 3:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
740467	0	0	0	0	9/10/2012 4:22
740467	0	0	0	0	9/10/2012 5:22
740467	0	0	0	0	9/10/2012 6:22
740467	0	0	0	0	9/10/2012 7:22
740622	155	0	0	0	9/10/2012 8:22
740704	82	0	0	0	9/10/2012 9:22
740704	0	0	0	0	9/10/2012 10:22
740704	0	0	0	0	9/10/2012 11:22
740704	0	0	0	0	9/10/2012 12:22
740704	0	0	0	0	9/10/2012 13:22
740704	0	0	0	0	9/10/2012 14:22
740715	11	0	0	0	9/10/2012 15:22
740732	17	0	0	0	9/10/2012 16:22
740732	0	0	0	0	9/10/2012 17:22
740732	0	0	0	0	9/10/2012 18:22
740732	0	0	0	0	9/10/2012 19:22
740732	0	0	0	0	9/10/2012 20:22
740732	0	0	0	0	9/10/2012 21:22
740732	0	0	0	0	9/10/2012 22:22
740732	0	0	0	0	9/10/2012 23:22
740732	0	0	0	0	9/11/2012 0:22
740732	0	0	0	0	9/11/2012 1:22
740732	0	0	0	0	9/11/2012 2:22
740732	0	0	0	0	9/11/2012 3:22
740732	0	0	0	0	9/11/2012 4:22
740732	0	0	0	0	9/11/2012 5:22
740732	0	0	0	0	9/11/2012 6:22
740732	0	0	0	0	9/11/2012 7:22
740886	154	0	0	0	9/11/2012 8:22
740969	83	0	0	0	9/11/2012 9:22
740969	0	0	0	0	9/11/2012 10:22
740969	0	0	0	0	9/11/2012 11:22
740969	0	0	0	0	9/11/2012 12:22
740969	0	0	0	0	9/11/2012 13:22
740969	0	0	0	0	9/11/2012 14:22
740969	0	0	0	0	9/11/2012 15:22
740969	0	0	0	0	9/11/2012 16:22
741124	155	0	0	0	9/11/2012 17:22
741124	0	0	0	0	9/11/2012 18:22
741124	0	0	0	0	9/11/2012 19:22
741194	70	0	0	0	9/11/2012 20:22
741196	2	0	0	0	9/11/2012 21:22
741212	16	0	0	0	9/11/2012 22:22
741226	14	0	0	0	9/11/2012 23:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
741230	4	0	0	0	9/12/2012 0:22
741236	6	0	0	0	9/12/2012 1:22
741236	0	0	0	0	9/12/2012 2:22
741236	0	0	0	0	9/12/2012 3:22
741236	0	0	0	0	9/12/2012 4:22
741236	0	0	0	0	9/12/2012 5:22
741236	0	0	0	0	9/12/2012 6:22
741238	2	0	0	0	9/12/2012 7:22
741400	162	0	0	0	9/12/2012 8:22
741486	86	0	0	0	9/12/2012 9:22
741498	12	0	0	0	9/12/2012 10:22
741529	31	0	0	0	9/12/2012 11:22
741542	13	0	0	0	9/12/2012 12:22
741546	4	0	0	0	9/12/2012 13:22
741546	0	0	0	0	9/12/2012 14:22
741554	8	0	0	0	9/12/2012 15:22
741554	0	0	0	0	9/12/2012 16:22
741644	90	0	0	0	9/12/2012 17:22
741961	317	0	0	0	9/12/2012 18:22
742269	308	0	0	0	9/12/2012 19:22
742582	313	0	0	0	9/12/2012 20:22
742892	310	0	0	0	9/12/2012 21:22
743198	306	0	0	0	9/12/2012 22:22
743489	291	0	0	0	9/12/2012 23:22
743498	9	0	0	0	9/13/2012 0:22
743498	0	0	0	0	9/13/2012 1:22
743503	5	0	0	0	9/13/2012 2:22
743503	0	0	0	0	9/13/2012 3:22
743503	0	0	0	0	9/13/2012 4:22
743503	0	0	0	0	9/13/2012 5:22
743503	0	0	0	0	9/13/2012 6:22
743512	9	0	0	0	9/13/2012 7:22
743675	163	0	0	0	9/13/2012 8:22
743758	83	0	0	0	9/13/2012 9:22
743763	5	0	0	0	9/13/2012 10:22
743763	0	0	0	0	9/13/2012 11:22
743767	4	0	0	0	9/13/2012 12:22
743770	3	0	0	0	9/13/2012 13:22
743778	8	0	0	0	9/13/2012 14:22
743779	1	0	0	0	9/13/2012 15:22
743784	5	0	0	0	9/13/2012 16:22
743785	1	0	0	0	9/13/2012 17:22
743866	81	0	0	0	9/13/2012 18:22
743869	3	0	0	0	9/13/2012 19:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
743914	45	0	0	0	9/13/2012 20:22
743921	7	0	0	0	9/13/2012 21:22
743935	14	0	0	0	9/13/2012 22:22
743935	0	0	0	0	9/13/2012 23:22
743935	0	0	0	0	9/14/2012 0:22
743935	0	0	0	0	9/14/2012 1:22
743936	1	0	0	0	9/14/2012 2:22
743936	0	0	0	0	9/14/2012 3:22
743936	0	0	0	0	9/14/2012 4:22
743936	0	0	0	0	9/14/2012 5:22
743936	0	0	0	0	9/14/2012 6:22
743944	8	0	0	0	9/14/2012 7:22
744106	162	0	0	0	9/14/2012 8:22
744189	83	0	0	0	9/14/2012 9:22
744210	21	0	0	0	9/14/2012 10:22
744213	3	0	0	0	9/14/2012 11:22
744252	39	0	0	0	9/14/2012 12:22
744264	12	0	0	0	9/14/2012 13:22
744264	0	0	0	0	9/14/2012 14:22
744264	0	0	0	0	9/14/2012 15:22
744268	4	0	0	0	9/14/2012 16:22
744268	0	0	0	0	9/14/2012 17:22
744268	0	0	0	0	9/14/2012 18:22
744268	0	0	0	0	9/14/2012 19:22
744268	0	0	0	0	9/14/2012 20:22
744268	0	0	0	0	9/14/2012 21:22
744272	4	0	0	0	9/14/2012 22:22
744274	2	0	0	0	9/14/2012 23:22
744292	18	0	0	0	9/15/2012 0:22
744292	0	0	0	0	9/15/2012 1:22
744292	0	0	0	0	9/15/2012 2:22
744292	0	0	0	0	9/15/2012 3:22
744292	0	0	0	0	9/15/2012 4:22
744292	0	0	0	0	9/15/2012 5:22
744292	0	0	0	0	9/15/2012 6:22
744294	2	0	0	0	9/15/2012 7:22
744455	161	0	0	0	9/15/2012 8:22
744543	88	0	0	0	9/15/2012 9:22
744547	4	0	0	0	9/15/2012 10:22
744549	2	0	0	0	9/15/2012 11:22
744561	12	0	0	0	9/15/2012 12:22
744564	3	0	0	0	9/15/2012 13:22
744591	27	0	0	0	9/15/2012 14:22
744600	9	0	0	0	9/15/2012 15:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
744604	4	0	0	0	9/15/2012 16:22
744634	30	0	0	0	9/15/2012 17:22
744741	107	0	0	0	9/15/2012 18:22
744741	0	0	0	0	9/15/2012 19:22
744741	0	0	0	0	9/15/2012 20:22
744741	0	0	0	0	9/15/2012 21:22
744743	2	0	0	0	9/15/2012 22:22
744743	0	0	0	0	9/15/2012 23:22
744756	13	0	0	0	9/16/2012 0:22
744761	5	0	0	0	9/16/2012 1:22
744761	0	0	0	0	9/16/2012 2:22
744761	0	0	0	0	9/16/2012 3:22
744761	0	0	0	0	9/16/2012 4:22
744761	0	0	0	0	9/16/2012 5:22
744761	0	0	0	0	9/16/2012 6:22
744766	5	0	0	0	9/16/2012 7:22
744926	160	0	0	0	9/16/2012 8:22
745009	83	0	0	0	9/16/2012 9:22
745012	3	0	0	0	9/16/2012 10:22
745020	8	0	0	0	9/16/2012 11:22
745020	0	0	0	0	9/16/2012 12:22
745025	5	0	0	0	9/16/2012 13:22
745028	3	0	0	0	9/16/2012 14:22
745035	7	0	0	0	9/16/2012 15:22
745038	3	0	0	0	9/16/2012 16:22
745155	117	0	0	0	9/16/2012 17:22
745187	32	0	0	0	9/16/2012 18:22
745199	12	0	0	0	9/16/2012 19:22
745201	2	0	0	0	9/16/2012 20:22
745211	10	0	0	0	9/16/2012 21:22
745213	2	0	0	0	9/16/2012 22:22
745213	0	0	0	0	9/16/2012 23:22
745213	0	0	0	0	9/17/2012 0:22
745213	0	0	0	0	9/17/2012 1:22
745213	0	0	0	0	9/17/2012 2:22
745217	4	0	0	0	9/17/2012 3:22
745217	0	0	0	0	9/17/2012 4:22
745218	1	0	0	0	9/17/2012 5:22
745218	0	0	0	0	9/17/2012 6:22
745218	0	0	0	0	9/17/2012 7:22
745376	158	0	0	0	9/17/2012 8:22
745464	88	0	0	0	9/17/2012 9:22
745464	0	0	0	0	9/17/2012 10:22
745477	13	0	0	0	9/17/2012 11:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
745485	8	0	0	0	9/17/2012 12:22
745485	0	0	0	0	9/17/2012 13:22
745486	1	0	0	0	9/17/2012 14:22
745488	2	0	0	0	9/17/2012 15:22
745543	55	0	0	0	9/17/2012 16:22
745716	173	0	0	0	9/17/2012 17:22
745729	13	0	0	0	9/17/2012 18:22
745744	15	0	0	0	9/17/2012 19:22
745767	23	0	0	0	9/17/2012 20:22
745769	2	0	0	0	9/17/2012 21:22
745789	20	0	0	0	9/17/2012 22:22
745790	1	0	0	0	9/17/2012 23:22
745799	9	0	0	0	9/18/2012 0:22
745799	0	0	0	0	9/18/2012 1:22
745807	8	0	0	0	9/18/2012 2:22
745807	0	0	0	0	9/18/2012 3:22
745807	0	0	0	0	9/18/2012 4:22
745807	0	0	0	0	9/18/2012 5:22
745811	4	0	0	0	9/18/2012 6:22
745811	0	0	0	0	9/18/2012 7:22
745963	152	0	0	0	9/18/2012 8:22
746055	92	0	0	0	9/18/2012 9:22
746057	2	0	0	0	9/18/2012 10:22
746066	9	0	0	0	9/18/2012 11:22
746066	0	0	0	0	9/18/2012 12:22
746087	21	0	0	0	9/18/2012 13:22
746089	2	0	0	0	9/18/2012 14:22
746097	8	0	0	0	9/18/2012 15:22
746124	27	0	0	0	9/18/2012 16:22
746145	21	0	0	0	9/18/2012 17:22
746247	102	0	0	0	9/18/2012 18:22
746268	21	0	0	0	9/18/2012 19:22
746279	11	0	0	0	9/18/2012 20:22
746284	5	0	0	0	9/18/2012 21:22
746285	1	0	0	0	9/18/2012 22:22
746299	14	0	0	0	9/18/2012 23:22
746299	0	0	0	0	9/19/2012 0:22
746299	0	0	0	0	9/19/2012 1:22
746299	0	0	0	0	9/19/2012 2:22
746299	0	0	0	0	9/19/2012 3:22
746299	0	0	0	0	9/19/2012 4:22
746299	0	0	0	0	9/19/2012 5:22
746303	4	0	0	0	9/19/2012 6:22
746303	0	0	0	0	9/19/2012 7:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
746469	166	0	0	0	9/19/2012 8:22
746552	83	0	0	0	9/19/2012 9:22
746556	4	0	0	0	9/19/2012 10:22
746563	7	0	0	0	9/19/2012 11:22
746565	2	0	0	0	9/19/2012 12:22
746571	6	0	0	0	9/19/2012 13:22
746584	13	0	0	0	9/19/2012 14:22
746587	3	0	0	0	9/19/2012 15:22
746593	6	0	0	0	9/19/2012 16:22
746593	0	0	0	0	9/19/2012 17:22
746753	160	0	0	0	9/19/2012 18:22
747093	340	0	0	0	9/19/2012 19:22
747317	224	0	0	0	9/19/2012 20:22
747327	10	0	0	0	9/19/2012 21:22
747327	0	0	0	0	9/19/2012 22:22
747330	3	0	0	0	9/19/2012 23:22
747335	5	0	0	0	9/20/2012 0:22
747335	0	0	0	0	9/20/2012 1:22
747335	0	0	0	0	9/20/2012 2:22
747335	0	0	0	0	9/20/2012 3:22
747335	0	0	0	0	9/20/2012 4:22
747335	0	0	0	0	9/20/2012 5:22
747335	0	0	0	0	9/20/2012 6:22
747342	7	0	0	0	9/20/2012 7:22
747500	158	0	0	0	9/20/2012 8:22
747583	83	0	0	0	9/20/2012 9:22
747589	6	0	0	0	9/20/2012 10:22
747596	7	0	0	0	9/20/2012 11:22
747603	7	0	0	0	9/20/2012 12:22
747606	3	0	0	0	9/20/2012 13:22
747606	0	0	0	0	9/20/2012 14:22
747611	5	0	0	0	9/20/2012 15:22
747611	0	0	0	0	9/20/2012 16:22
747698	87	0	0	0	9/20/2012 17:22
747709	11	0	0	0	9/20/2012 18:22
747715	6	0	0	0	9/20/2012 19:22
747715	0	0	0	0	9/20/2012 20:22
747715	0	0	0	0	9/20/2012 21:22
747715	0	0	0	0	9/20/2012 22:22
747717	2	0	0	0	9/20/2012 23:22
747737	20	0	0	0	9/21/2012 0:22
747737	0	0	0	0	9/21/2012 1:22
747737	0	0	0	0	9/21/2012 2:22
747737	0	0	0	0	9/21/2012 3:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
747737	0	0	0	0	9/21/2012 4:22
747737	0	0	0	0	9/21/2012 5:22
747737	0	0	0	0	9/21/2012 6:22
747745	8	0	0	0	9/21/2012 7:22
747904	159	0	0	0	9/21/2012 8:22
747995	91	0	0	0	9/21/2012 9:22
747996	1	0	0	0	9/21/2012 10:22
748001	5	0	0	0	9/21/2012 11:22
748004	3	0	0	0	9/21/2012 12:22
748004	0	0	0	0	9/21/2012 13:22
748004	0	0	0	0	9/21/2012 14:22
748008	4	0	0	0	9/21/2012 15:22
748014	6	0	0	0	9/21/2012 16:22
748113	99	0	0	0	9/21/2012 17:22
748176	63	0	0	0	9/21/2012 18:22
748205	29	0	0	0	9/21/2012 19:22
748205	0	0	0	0	9/21/2012 20:22
748205	0	0	0	0	9/21/2012 21:22
748210	5	0	0	0	9/21/2012 22:22
748220	10	0	0	0	9/21/2012 23:22
748220	0	0	0	0	9/22/2012 0:22
748220	0	0	0	0	9/22/2012 1:22
748220	0	0	0	0	9/22/2012 2:22
748220	0	0	0	0	9/22/2012 3:22
748220	0	0	0	0	9/22/2012 4:22
748220	0	0	0	0	9/22/2012 5:22
748231	11	0	0	0	9/22/2012 6:22
748231	0	0	0	0	9/22/2012 7:22
748390	159	0	0	0	9/22/2012 8:22
748476	86	0	0	0	9/22/2012 9:22
748480	4	0	0	0	9/22/2012 10:22
748491	11	0	0	0	9/22/2012 11:22
748499	8	0	0	0	9/22/2012 12:22
748551	52	0	0	0	9/22/2012 13:22
748560	9	0	0	0	9/22/2012 14:22
748653	93	0	0	0	9/22/2012 15:22
748659	6	0	0	0	9/22/2012 16:22
748667	8	0	0	0	9/22/2012 17:22
748718	51	0	0	0	9/22/2012 18:22
748719	1	0	0	0	9/22/2012 19:22
748719	0	0	0	0	9/22/2012 20:22
748722	3	0	0	0	9/22/2012 21:22
748728	6	0	0	0	9/22/2012 22:22
748729	1	0	0	0	9/22/2012 23:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
748739	10	0	0	0	9/23/2012 0:22
748739	0	0	0	0	9/23/2012 1:22
748739	0	0	0	0	9/23/2012 2:22
748739	0	0	0	0	9/23/2012 3:22
748739	0	0	0	0	9/23/2012 4:22
748740	1	0	0	0	9/23/2012 5:22
748740	0	0	0	0	9/23/2012 6:22
748747	7	0	0	0	9/23/2012 7:22
748905	158	0	0	0	9/23/2012 8:22
748993	88	0	0	0	9/23/2012 9:22
748993	0	0	0	0	9/23/2012 10:22
748993	0	0	0	0	9/23/2012 11:22
748993	0	0	0	0	9/23/2012 12:22
748993	0	0	0	0	9/23/2012 13:22
748995	2	0	0	0	9/23/2012 14:22
749015	20	0	0	0	9/23/2012 15:22
749021	6	0	0	0	9/23/2012 16:22
749187	166	0	0	0	9/23/2012 17:22
749505	318	0	0	0	9/23/2012 18:22
749816	311	0	0	0	9/23/2012 19:22
750130	314	0	0	0	9/23/2012 20:22
750442	312	0	0	0	9/23/2012 21:22
750751	309	0	0	0	9/23/2012 22:22
751057	306	0	0	0	9/23/2012 23:22
751371	314	0	0	0	9/24/2012 0:22
751677	306	0	0	0	9/24/2012 1:22
751984	307	0	0	0	9/24/2012 2:22
752290	306	0	0	0	9/24/2012 3:22
752597	307	0	0	0	9/24/2012 4:22
752906	309	0	0	0	9/24/2012 5:22
753212	306	0	0	0	9/24/2012 6:22
753523	311	0	0	0	9/24/2012 7:22
753952	429	0	0	0	9/24/2012 8:22
754046	94	0	0	0	9/24/2012 9:22
754046	0	0	0	0	9/24/2012 10:22
754082	36	0	0	0	9/24/2012 11:22
754082	0	0	0	0	9/24/2012 12:22
754090	8	0	0	0	9/24/2012 13:22
754090	0	0	0	0	9/24/2012 14:22
754090	0	0	0	0	9/24/2012 15:22
754090	0	0	0	0	9/24/2012 16:22
754095	5	0	0	0	9/24/2012 17:22
754128	33	0	0	0	9/24/2012 18:22
754130	2	0	0	0	9/24/2012 19:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
754195	65	0	0	0	9/24/2012 20:22
754196	1	0	0	0	9/24/2012 21:22
754204	8	0	0	0	9/24/2012 22:22
754204	0	0	0	0	9/24/2012 23:22
754204	0	0	0	0	9/25/2012 0:22
754204	0	0	0	0	9/25/2012 1:22
754204	0	0	0	0	9/25/2012 2:22
754204	0	0	0	0	9/25/2012 3:22
754204	0	0	0	0	9/25/2012 4:22
754204	0	0	0	0	9/25/2012 5:22
754204	0	0	0	0	9/25/2012 6:22
754204	0	0	0	0	9/25/2012 7:22
754357	153	0	0	0	9/25/2012 8:22
754453	96	0	0	0	9/25/2012 9:22
754459	6	0	0	0	9/25/2012 10:22
754622	163	0	0	0	9/25/2012 11:22
754624	2	0	0	0	9/25/2012 12:22
754624	0	0	0	0	9/25/2012 13:22
754627	3	0	0	0	9/25/2012 14:22
754630	3	0	0	0	9/25/2012 15:22
754630	0	0	0	0	9/25/2012 16:22
754630	0	0	0	0	9/25/2012 17:22
754801	171	0	0	0	9/25/2012 18:22
754984	183	0	0	0	9/25/2012 19:22
755002	18	0	0	0	9/25/2012 20:22
755002	0	0	0	0	9/25/2012 21:22
755006	4	0	0	0	9/25/2012 22:22
755006	0	0	0	0	9/25/2012 23:22
755015	9	0	0	0	9/26/2012 0:22
755015	0	0	0	0	9/26/2012 1:22
755015	0	0	0	0	9/26/2012 2:22
755015	0	0	0	0	9/26/2012 3:22
755015	0	0	0	0	9/26/2012 4:22
755015	0	0	0	0	9/26/2012 5:22
755020	5	0	0	0	9/26/2012 6:22
755020	0	0	0	0	9/26/2012 7:22
755173	153	0	0	0	9/26/2012 8:22
755257	84	0	0	0	9/26/2012 9:22
755257	0	0	0	0	9/26/2012 10:22
755311	54	0	0	0	9/26/2012 11:22
755311	0	0	0	0	9/26/2012 12:22
755313	2	0	0	0	9/26/2012 13:22
755313	0	0	0	0	9/26/2012 14:22
755314	1	0	0	0	9/26/2012 15:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
755380	66	0	0	0	9/26/2012 16:22
755429	49	0	0	0	9/26/2012 17:22
755433	4	0	0	0	9/26/2012 18:22
755436	3	0	0	0	9/26/2012 19:22
755438	2	0	0	0	9/26/2012 20:22
755438	0	0	0	0	9/26/2012 21:22
755438	0	0	0	0	9/26/2012 22:22
755445	7	0	0	0	9/26/2012 23:22
755445	0	0	0	0	9/27/2012 0:22
755445	0	0	0	0	9/27/2012 1:22
755445	0	0	0	0	9/27/2012 2:22
755445	0	0	0	0	9/27/2012 3:22
755445	0	0	0	0	9/27/2012 4:22
755445	0	0	0	0	9/27/2012 5:22
755445	0	0	0	0	9/27/2012 6:22
755451	6	0	0	0	9/27/2012 7:22
755604	153	0	0	0	9/27/2012 8:22
755688	84	0	0	0	9/27/2012 9:22
755702	14	0	0	0	9/27/2012 10:22
755709	7	0	0	0	9/27/2012 11:22
755712	3	0	0	0	9/27/2012 12:22
755717	5	0	0	0	9/27/2012 13:22
755777	60	0	0	0	9/27/2012 14:22
756103	326	0	0	0	9/27/2012 15:22
756292	189	0	0	0	9/27/2012 16:22
756292	0	0	0	0	9/27/2012 17:22
756292	0	0	0	0	9/27/2012 18:22
756292	0	0	0	0	9/27/2012 19:22
756292	0	0	0	0	9/27/2012 20:22
756292	0	0	0	0	9/27/2012 21:22
756292	0	0	0	0	9/27/2012 22:22
756292	0	0	0	0	9/27/2012 23:22
756292	0	0	0	0	9/28/2012 0:22
756292	0	0	0	0	9/28/2012 1:22
756292	0	0	0	0	9/28/2012 2:22
756292	0	0	0	0	9/28/2012 3:22
756292	0	0	0	0	9/28/2012 4:22
756292	0	0	0	0	9/28/2012 5:22
756292	0	0	0	0	9/28/2012 6:22
756292	0	0	0	0	9/28/2012 7:22
756460	168	0	0	0	9/28/2012 8:22
756544	84	0	0	0	9/28/2012 9:22
756563	19	0	0	0	9/28/2012 10:22
756593	30	0	0	0	9/28/2012 11:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
756594	1	0	0	0	9/28/2012 12:22
756594	0	0	0	0	9/28/2012 13:22
756594	0	0	0	0	9/28/2012 14:22
756594	0	0	0	0	9/28/2012 15:22
756594	0	0	0	0	9/28/2012 16:22
756594	0	0	0	0	9/28/2012 17:22
756594	0	0	0	0	9/28/2012 18:22
756594	0	0	0	0	9/28/2012 19:22
756594	0	0	0	0	9/28/2012 20:22
756594	0	0	0	0	9/28/2012 21:22
756594	0	0	0	0	9/28/2012 22:22
756594	0	0	0	0	9/28/2012 23:22
756594	0	0	0	0	9/29/2012 0:22
756594	0	0	0	0	9/29/2012 1:22
756594	0	0	0	0	9/29/2012 2:22
756594	0	0	0	0	9/29/2012 3:22
756594	0	0	0	0	9/29/2012 4:22
756594	0	0	0	0	9/29/2012 5:22
756594	0	0	0	0	9/29/2012 6:22
756594	0	0	0	0	9/29/2012 7:22
756763	169	0	0	0	9/29/2012 8:22
756847	84	0	0	0	9/29/2012 9:22
756847	0	0	0	0	9/29/2012 10:22
756851	4	0	0	0	9/29/2012 11:22
756851	0	0	0	0	9/29/2012 12:22
756852	1	0	0	0	9/29/2012 13:22
756885	33	0	0	0	9/29/2012 14:22
757325	440	0	0	0	9/29/2012 15:22
757656	331	0	0	0	9/29/2012 16:22
757977	321	0	0	0	9/29/2012 17:22
758298	321	0	0	0	9/29/2012 18:22
758619	321	0	0	0	9/29/2012 19:22
758940	321	0	0	0	9/29/2012 20:22
759261	321	0	0	0	9/29/2012 21:22
759584	323	0	0	0	9/29/2012 22:22
759851	267	0	0	0	9/29/2012 23:22
759851	0	0	0	0	9/30/2012 0:22
759857	6	0	0	0	9/30/2012 1:22
759857	0	0	0	0	9/30/2012 2:22
759857	0	0	0	0	9/30/2012 3:22
759857	0	0	0	0	9/30/2012 4:22
759857	0	0	0	0	9/30/2012 5:22
759857	0	0	0	0	9/30/2012 6:22
759857	0	0	0	0	9/30/2012 7:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
760026	169	0	0	0	9/30/2012 8:22
760117	91	0	0	0	9/30/2012 9:22
760117	0	0	0	0	9/30/2012 10:22
760121	4	0	0	0	9/30/2012 11:22
760121	0	0	0	0	9/30/2012 12:22
760121	0	0	0	0	9/30/2012 13:22
760124	3	0	0	0	9/30/2012 14:22
760127	3	0	0	0	9/30/2012 15:22
760220	93	0	0	0	9/30/2012 16:22
760282	62	0	0	0	9/30/2012 17:22
760318	36	0	0	0	9/30/2012 18:22
760321	3	0	0	0	9/30/2012 19:22
760321	0	0	0	0	9/30/2012 20:22
760332	11	0	0	0	9/30/2012 21:22
760332	0	0	0	0	9/30/2012 22:22
760338	6	0	0	0	9/30/2012 23:22
760361	23	0	0	0	10/1/2012 0:22
760366	5	0	0	0	10/1/2012 1:22
760366	0	0	0	0	10/1/2012 2:22
760366	0	0	0	0	10/1/2012 3:22
760366	0	0	0	0	10/1/2012 4:22
760366	0	0	0	0	10/1/2012 5:22
760366	0	0	0	0	10/1/2012 6:22
760366	0	0	0	0	10/1/2012 7:22
760532	166	0	0	0	10/1/2012 8:22
760626	94	0	0	0	10/1/2012 9:22
760626	0	0	0	0	10/1/2012 10:22
760657	31	0	0	0	10/1/2012 11:22
760663	6	0	0	0	10/1/2012 12:22
760667	4	0	0	0	10/1/2012 13:22
760671	4	0	0	0	10/1/2012 14:22
760672	1	0	0	0	10/1/2012 15:22
760672	0	0	0	0	10/1/2012 16:22
760672	0	0	0	0	10/1/2012 17:22
760673	1	0	0	0	10/1/2012 18:22
761004	331	0	0	0	10/1/2012 19:22
761206	202	0	0	0	10/1/2012 20:22
761209	3	0	0	0	10/1/2012 21:22
761214	5	0	0	0	10/1/2012 22:22
761230	16	0	0	0	10/1/2012 23:22
761230	0	0	0	0	10/2/2012 0:22
761230	0	0	0	0	10/2/2012 1:22
761230	0	0	0	0	10/2/2012 2:22
761230	0	0	0	0	10/2/2012 3:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
761230	0	0	0	0	10/2/2012 4:22
761230	0	0	0	0	10/2/2012 5:22
761230	0	0	0	0	10/2/2012 6:22
761237	7	0	0	0	10/2/2012 7:22
761422	185	0	0	0	10/2/2012 8:22
761507	85	0	0	0	10/2/2012 9:22
761519	12	0	0	0	10/2/2012 10:22
761547	28	0	0	0	10/2/2012 11:22
761551	4	0	0	0	10/2/2012 12:22
761559	8	0	0	0	10/2/2012 13:22
761581	22	0	0	0	10/2/2012 14:22
761590	9	0	0	0	10/2/2012 15:22
761596	6	0	0	0	10/2/2012 16:22
761800	204	0	0	0	10/2/2012 17:22
761804	4	0	0	0	10/2/2012 18:22
761811	7	0	0	0	10/2/2012 19:22
761824	13	0	0	0	10/2/2012 20:22
761824	0	0	0	0	10/2/2012 21:22
761829	5	0	0	0	10/2/2012 22:22
761850	21	0	0	0	10/2/2012 23:22
761859	9	0	0	0	10/3/2012 0:22
761860	1	0	0	0	10/3/2012 1:22
761860	0	0	0	0	10/3/2012 2:22
761861	1	0	0	0	10/3/2012 3:22
761862	1	0	0	0	10/3/2012 4:22
761862	0	0	0	0	10/3/2012 5:22
761863	1	0	0	0	10/3/2012 6:22
761870	7	0	0	0	10/3/2012 7:22
762063	193	0	0	0	10/3/2012 8:22
762148	85	0	0	0	10/3/2012 9:22
762151	3	0	0	0	10/3/2012 10:22
762156	5	0	0	0	10/3/2012 11:22
762157	1	0	0	0	10/3/2012 12:22
762158	1	0	0	0	10/3/2012 13:22
762159	1	0	0	0	10/3/2012 14:22
762159	0	0	0	0	10/3/2012 15:22
762163	4	0	0	0	10/3/2012 16:22
762166	3	0	0	0	10/3/2012 17:22
762178	12	0	0	0	10/3/2012 18:22
762478	300	0	0	0	10/3/2012 19:22
762666	188	0	0	0	10/3/2012 20:22
762677	11	0	0	0	10/3/2012 21:22
762678	1	0	0	0	10/3/2012 22:22
762692	14	0	0	0	10/3/2012 23:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
762692	0	0	0	0	10/4/2012 0:22
762692	0	0	0	0	10/4/2012 1:22
762692	0	0	0	0	10/4/2012 2:22
762693	1	0	0	0	10/4/2012 3:22
762693	0	0	0	0	10/4/2012 4:22
762693	0	0	0	0	10/4/2012 5:22
762694	1	0	0	0	10/4/2012 6:22
762701	7	0	0	0	10/4/2012 7:22
762890	189	0	0	0	10/4/2012 8:22
762986	96	0	0	0	10/4/2012 9:22
762993	7	0	0	0	10/4/2012 10:22
762995	2	0	0	0	10/4/2012 11:22
762998	3	0	0	0	10/4/2012 12:22
762999	1	0	0	0	10/4/2012 13:22
763002	3	0	0	0	10/4/2012 14:22
763020	18	0	0	0	10/4/2012 15:22
763021	1	0	0	0	10/4/2012 16:22
763022	1	0	0	0	10/4/2012 17:22
763024	2	0	0	0	10/4/2012 18:22
763027	3	0	0	0	10/4/2012 19:22
763109	82	0	0	0	10/4/2012 20:22
763125	16	0	0	0	10/4/2012 21:22
763131	6	0	0	0	10/4/2012 22:22
763132	1	0	0	0	10/4/2012 23:22
763133	1	0	0	0	10/5/2012 0:22
763133	0	0	0	0	10/5/2012 1:22
763134	1	0	0	0	10/5/2012 2:22
763134	0	0	0	0	10/5/2012 3:22
763135	1	0	0	0	10/5/2012 4:22
763139	4	0	0	0	10/5/2012 5:22
763140	1	0	0	0	10/5/2012 6:22
763147	7	0	0	0	10/5/2012 7:22
763337	190	0	0	0	10/5/2012 8:22
763429	92	0	0	0	10/5/2012 9:22
763444	15	0	0	0	10/5/2012 10:22
763448	4	0	0	0	10/5/2012 11:22
763448	0	0	0	0	10/5/2012 12:22
763452	4	0	0	0	10/5/2012 13:22
763452	0	0	0	0	10/5/2012 14:22
763452	0	0	0	0	10/5/2012 15:22
763455	3	0	0	0	10/5/2012 16:22
763533	78	0	0	0	10/5/2012 17:22
763874	341	0	0	0	10/5/2012 18:22
764170	296	0	0	0	10/5/2012 19:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
764476	306	0	0	0	10/5/2012 20:22
764764	288	0	0	0	10/5/2012 21:22
765054	290	0	0	0	10/5/2012 22:22
765352	298	0	0	0	10/5/2012 23:22
765640	288	0	0	0	10/6/2012 0:22
765928	288	0	0	0	10/6/2012 1:22
766216	288	0	0	0	10/6/2012 2:22
766504	288	0	0	0	10/6/2012 3:22
766793	289	0	0	0	10/6/2012 4:22
767058	265	0	0	0	10/6/2012 5:22
767058	0	0	0	0	10/6/2012 6:22
767066	8	0	0	0	10/6/2012 7:22
767258	192	0	0	0	10/6/2012 8:22
767343	85	0	0	0	10/6/2012 9:22
767344	1	0	0	0	10/6/2012 10:22
767349	5	0	0	0	10/6/2012 11:22
767357	8	0	0	0	10/6/2012 12:22
767423	66	0	0	0	10/6/2012 13:22
767476	53	0	0	0	10/6/2012 14:22
767482	6	0	0	0	10/6/2012 15:22
767482	0	0	0	0	10/6/2012 16:22
767483	1	0	0	0	10/6/2012 17:22
767483	0	0	0	0	10/6/2012 18:22
767483	0	0	0	0	10/6/2012 19:22
767493	10	0	0	0	10/6/2012 20:22
767493	0	0	0	0	10/6/2012 21:22
767493	0	0	0	0	10/6/2012 22:22
767497	4	0	0	0	10/6/2012 23:22
767502	5	0	0	0	10/7/2012 0:22
767517	15	0	0	0	10/7/2012 1:22
767517	0	0	0	0	10/7/2012 2:22
767517	0	0	0	0	10/7/2012 3:22
767517	0	0	0	0	10/7/2012 4:22
767517	0	0	0	0	10/7/2012 5:22
767517	0	0	0	0	10/7/2012 6:22
767518	1	0	0	0	10/7/2012 7:22
767710	192	0	0	0	10/7/2012 8:22
767800	90	0	0	0	10/7/2012 9:22
767801	1	0	0	0	10/7/2012 10:22
767806	5	0	0	0	10/7/2012 11:22
767806	0	0	0	0	10/7/2012 12:22
767807	1	0	0	0	10/7/2012 13:22
767807	0	0	0	0	10/7/2012 14:22
767825	18	0	0	0	10/7/2012 15:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
767842	17	0	0	0	10/7/2012 16:22
767897	55	0	0	0	10/7/2012 17:22
767993	96	0	0	0	10/7/2012 18:22
768017	24	0	0	0	10/7/2012 19:22
768027	10	0	0	0	10/7/2012 20:22
768043	16	0	0	0	10/7/2012 21:22
768068	25	0	0	0	10/7/2012 22:22
768070	2	0	0	0	10/7/2012 23:22
768071	1	0	0	0	10/8/2012 0:22
768071	0	0	0	0	10/8/2012 1:22
768071	0	0	0	0	10/8/2012 2:22
768071	0	0	0	0	10/8/2012 3:22
768072	1	0	0	0	10/8/2012 4:22
768072	0	0	0	0	10/8/2012 5:22
768079	7	0	0	0	10/8/2012 6:22
768080	1	0	0	0	10/8/2012 7:22
768280	200	0	0	0	10/8/2012 8:22
768368	88	0	0	0	10/8/2012 9:22
768368	0	0	0	0	10/8/2012 10:22
768378	10	0	0	0	10/8/2012 11:22
768395	17	0	0	0	10/8/2012 12:22
768398	3	0	0	0	10/8/2012 13:22
768403	5	0	0	0	10/8/2012 14:22
768418	15	0	0	0	10/8/2012 15:22
768430	12	0	0	0	10/8/2012 16:22
768438	8	0	0	0	10/8/2012 17:22
768440	2	0	0	0	10/8/2012 18:22
768447	7	0	0	0	10/8/2012 19:22
768826	379	0	0	0	10/8/2012 20:22
769045	219	0	0	0	10/8/2012 21:22
769047	2	0	0	0	10/8/2012 22:22
769065	18	0	0	0	10/8/2012 23:22
769075	10	0	0	0	10/9/2012 0:22
769076	1	0	0	0	10/9/2012 1:22
769076	0	0	0	0	10/9/2012 2:22
769077	1	0	0	0	10/9/2012 3:22
769077	0	0	0	0	10/9/2012 4:22
769077	0	0	0	0	10/9/2012 5:22
769087	10	0	0	0	10/9/2012 6:22
769102	15	0	0	0	10/9/2012 7:22
769295	193	0	0	0	10/9/2012 8:22
769394	99	0	0	0	10/9/2012 9:22
769404	10	0	0	0	10/9/2012 10:22
769422	18	0	0	0	10/9/2012 11:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
769441	19	0	0	0	10/9/2012 12:22
769580	139	0	0	0	10/9/2012 13:22
769797	217	0	0	0	10/9/2012 14:22
769900	103	0	0	0	10/9/2012 15:22
769901	1	0	0	0	10/9/2012 16:22
769901	0	0	0	0	10/9/2012 17:22
769902	1	0	0	0	10/9/2012 18:22
769902	0	0	0	0	10/9/2012 19:22
769903	1	0	0	0	10/9/2012 20:22
769903	0	0	0	0	10/9/2012 21:22
769904	1	0	0	0	10/9/2012 22:22
769904	0	0	0	0	10/9/2012 23:22
769905	1	0	0	0	10/10/2012 0:22
769905	0	0	0	0	10/10/2012 1:22
769905	0	0	0	0	10/10/2012 2:22
769906	1	0	0	0	10/10/2012 3:22
769906	0	0	0	0	10/10/2012 4:22
769906	0	0	0	0	10/10/2012 5:22
769906	0	0	0	0	10/10/2012 6:22
769907	1	0	0	0	10/10/2012 7:22
770094	187	0	0	0	10/10/2012 8:22
770180	86	0	0	0	10/10/2012 9:22
770180	0	0	0	0	10/10/2012 10:22
770181	1	0	0	0	10/10/2012 11:22
770181	0	0	0	0	10/10/2012 12:22
770181	0	0	0	0	10/10/2012 13:22
770182	1	0	0	0	10/10/2012 14:22
770182	0	0	0	0	10/10/2012 15:22
770460	278	0	0	0	10/10/2012 16:22
770722	262	0	0	0	10/10/2012 17:22
770981	259	0	0	0	10/10/2012 18:22
771070	89	0	0	0	10/10/2012 19:22
771070	0	0	0	0	10/10/2012 20:22
771071	1	0	0	0	10/10/2012 21:22
771072	1	0	0	0	10/10/2012 22:22
771073	1	0	0	0	10/10/2012 23:22
771073	0	0	0	0	10/11/2012 0:22
771074	1	0	0	0	10/11/2012 1:22
771074	0	0	0	0	10/11/2012 2:22
771075	1	0	0	0	10/11/2012 3:22
771075	0	0	0	0	10/11/2012 4:22
771076	1	0	0	0	10/11/2012 5:22
771076	0	0	0	0	10/11/2012 6:22
771077	1	0	0	0	10/11/2012 7:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
771263	186	0	0	0	10/11/2012 8:22
771349	86	0	0	0	10/11/2012 9:22
771351	2	0	0	0	10/11/2012 10:22
771352	1	0	0	0	10/11/2012 11:22
771372	20	0	0	0	10/11/2012 12:22
771636	264	0	0	0	10/11/2012 13:22
771725	89	0	0	0	10/11/2012 14:22
771726	1	0	0	0	10/11/2012 15:22
771726	0	0	0	0	10/11/2012 16:22
771727	1	0	0	0	10/11/2012 17:22
771727	0	0	0	0	10/11/2012 18:22
771829	102	0	0	0	10/11/2012 19:22
771829	0	0	0	0	10/11/2012 20:22
771830	1	0	0	0	10/11/2012 21:22
771831	1	0	0	0	10/11/2012 22:22
771832	1	0	0	0	10/11/2012 23:22
771832	0	0	0	0	10/12/2012 0:22
771833	1	0	0	0	10/12/2012 1:22
771833	0	0	0	0	10/12/2012 2:22
771833	0	0	0	0	10/12/2012 3:22
771834	1	0	0	0	10/12/2012 4:22
771834	0	0	0	0	10/12/2012 5:22
771835	1	0	0	0	10/12/2012 6:22
771835	0	0	0	0	10/12/2012 7:22
772021	186	0	0	0	10/12/2012 8:22
772107	86	0	0	0	10/12/2012 9:22
772108	1	0	0	0	10/12/2012 10:22
772212	104	0	0	0	10/12/2012 11:22
772359	147	0	0	0	10/12/2012 12:22
772504	145	0	0	0	10/12/2012 13:22
772648	144	0	0	0	10/12/2012 14:22
772791	143	0	0	0	10/12/2012 15:22
772934	143	0	0	0	10/12/2012 16:22
773077	143	0	0	0	10/12/2012 17:22
773156	79	0	0	0	10/12/2012 18:22
773205	49	0	0	0	10/12/2012 19:22
773206	1	0	0	0	10/12/2012 20:22
773207	1	0	0	0	10/12/2012 21:22
773220	13	0	0	0	10/12/2012 22:22
773223	3	0	0	0	10/12/2012 23:22
773224	1	0	0	0	10/13/2012 0:22
773225	1	0	0	0	10/13/2012 1:22
773256	31	0	0	0	10/13/2012 2:22
773264	8	0	0	0	10/13/2012 3:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
773264	0	0	0	0	10/13/2012 4:22
773265	1	0	0	0	10/13/2012 5:22
773266	1	0	0	0	10/13/2012 6:22
773266	0	0	0	0	10/13/2012 7:22
773456	190	0	0	0	10/13/2012 8:22
773545	89	0	0	0	10/13/2012 9:22
773555	10	0	0	0	10/13/2012 10:22
773556	1	0	0	0	10/13/2012 11:22
773614	58	0	0	0	10/13/2012 12:22
773618	4	0	0	0	10/13/2012 13:22
773619	1	0	0	0	10/13/2012 14:22
773626	7	0	0	0	10/13/2012 15:22
773627	1	0	0	0	10/13/2012 16:22
773730	103	0	0	0	10/13/2012 17:22
773754	24	0	0	0	10/13/2012 18:22
773758	4	0	0	0	10/13/2012 19:22
773764	6	0	0	0	10/13/2012 20:22
773765	1	0	0	0	10/13/2012 21:22
773766	1	0	0	0	10/13/2012 22:22
773776	10	0	0	0	10/13/2012 23:22
773778	2	0	0	0	10/14/2012 0:22
773781	3	0	0	0	10/14/2012 1:22
773782	1	0	0	0	10/14/2012 2:22
773783	1	0	0	0	10/14/2012 3:22
773783	0	0	0	0	10/14/2012 4:22
773784	1	0	0	0	10/14/2012 5:22
773784	0	0	0	0	10/14/2012 6:22
773790	6	0	0	0	10/14/2012 7:22
773796	6	0	0	0	10/14/2012 8:22
773797	1	0	0	0	10/14/2012 9:22
773798	1	0	0	0	10/14/2012 10:22
774072	274	0	0	0	10/14/2012 11:22
774078	6	0	0	0	10/14/2012 12:22
774083	5	0	0	0	10/14/2012 13:22
774089	6	0	0	0	10/14/2012 14:22
774090	1	0	0	0	10/14/2012 15:22
774092	2	0	0	0	10/14/2012 16:22
774094	2	0	0	0	10/14/2012 17:22
774447	353	0	0	0	10/14/2012 18:22
774618	171	0	0	0	10/14/2012 19:22
774626	8	0	0	0	10/14/2012 20:22
774627	1	0	0	0	10/14/2012 21:22
774655	28	0	0	0	10/14/2012 22:22
774664	9	0	0	0	10/14/2012 23:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
774669	5	0	0	0	10/15/2012 0:22
774669	0	0	0	0	10/15/2012 1:22
774670	1	0	0	0	10/15/2012 2:22
774670	0	0	0	0	10/15/2012 3:22
774671	1	0	0	0	10/15/2012 4:22
774671	0	0	0	0	10/15/2012 5:22
774678	7	0	0	0	10/15/2012 6:22
774687	9	0	0	0	10/15/2012 7:22
774688	1	0	0	0	10/15/2012 8:22
774693	5	0	0	0	10/15/2012 9:22
774698	5	0	0	0	10/15/2012 10:22
774965	267	0	0	0	10/15/2012 11:22
774968	3	0	0	0	10/15/2012 12:22
774970	2	0	0	0	10/15/2012 13:22
774974	4	0	0	0	10/15/2012 14:22
774978	4	0	0	0	10/15/2012 15:22
774985	7	0	0	0	10/15/2012 16:22
775012	27	0	0	0	10/15/2012 17:22
775071	59	0	0	0	10/15/2012 18:22
775077	6	0	0	0	10/15/2012 19:22
775084	7	0	0	0	10/15/2012 20:22
775093	9	0	0	0	10/15/2012 21:22
775095	2	0	0	0	10/15/2012 22:22
775097	2	0	0	0	10/15/2012 23:22
775101	4	0	0	0	10/16/2012 0:22
775102	1	0	0	0	10/16/2012 1:22
775103	1	0	0	0	10/16/2012 2:22
775104	1	0	0	0	10/16/2012 3:22
775105	1	0	0	0	10/16/2012 4:22
775110	5	0	0	0	10/16/2012 5:22
775111	1	0	0	0	10/16/2012 6:22
775117	6	0	0	0	10/16/2012 7:22
775235	118	0	0	0	10/16/2012 8:22
775255	20	0	0	0	10/16/2012 9:22
775263	8	0	0	0	10/16/2012 10:22
775269	6	0	0	0	10/16/2012 11:22
775277	8	0	0	0	10/16/2012 12:22
775284	7	0	0	0	10/16/2012 13:22
775286	2	0	0	0	10/16/2012 14:22
775289	3	0	0	0	10/16/2012 15:22
775291	2	0	0	0	10/16/2012 16:22
775293	2	0	0	0	10/16/2012 17:22
775305	12	0	0	0	10/16/2012 18:22
775317	12	0	0	0	10/16/2012 19:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
775378	61	0	0	0	10/16/2012 20:22
775386	8	0	0	0	10/16/2012 21:22
775400	14	0	0	0	10/16/2012 22:22
775401	1	0	0	0	10/16/2012 23:22
775402	1	0	0	0	10/17/2012 0:22
775403	1	0	0	0	10/17/2012 1:22
775404	1	0	0	0	10/17/2012 2:22
775405	1	0	0	0	10/17/2012 3:22
775405	0	0	0	0	10/17/2012 4:22
775406	1	0	0	0	10/17/2012 5:22
775412	6	0	0	0	10/17/2012 6:22
775424	12	0	0	0	10/17/2012 7:22
775540	116	0	0	0	10/17/2012 8:22
775564	24	0	0	0	10/17/2012 9:22
775570	6	0	0	0	10/17/2012 10:22
775572	2	0	0	0	10/17/2012 11:22
775573	1	0	0	0	10/17/2012 12:22
775577	4	0	0	0	10/17/2012 13:22
775581	4	0	0	0	10/17/2012 14:22
775586	5	0	0	0	10/17/2012 15:22
775588	2	0	0	0	10/17/2012 16:22
775793	205	0	0	0	10/17/2012 17:22
775815	22	0	0	0	10/17/2012 18:22
775825	10	0	0	0	10/17/2012 19:22
775843	18	0	0	0	10/17/2012 20:22
775844	1	0	0	0	10/17/2012 21:22
775851	7	0	0	0	10/17/2012 22:22
775863	12	0	0	0	10/17/2012 23:22
775874	11	0	0	0	10/18/2012 0:22
775875	1	0	0	0	10/18/2012 1:22
775876	1	0	0	0	10/18/2012 2:22
775877	1	0	0	0	10/18/2012 3:22
775877	0	0	0	0	10/18/2012 4:22
775878	1	0	0	0	10/18/2012 5:22
775879	1	0	0	0	10/18/2012 6:22
775914	35	0	0	0	10/18/2012 7:22
776067	153	0	0	0	10/18/2012 8:22
776086	19	0	0	0	10/18/2012 9:22
776089	3	0	0	0	10/18/2012 10:22
776090	1	0	0	0	10/18/2012 11:22
776092	2	0	0	0	10/18/2012 12:22
776096	4	0	0	0	10/18/2012 13:22
776097	1	0	0	0	10/18/2012 14:22
776100	3	0	0	0	10/18/2012 15:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
776101	1	0	0	0	10/18/2012 16:22
776125	24	0	0	0	10/18/2012 17:22
776167	42	0	0	0	10/18/2012 18:22
776172	5	0	0	0	10/18/2012 19:22
776197	25	0	0	0	10/18/2012 20:22
776442	245	0	0	0	10/18/2012 21:22
776465	23	0	0	0	10/18/2012 22:22
776467	2	0	0	0	10/18/2012 23:22
776478	11	0	0	0	10/19/2012 0:22
776479	1	0	0	0	10/19/2012 1:22
776480	1	0	0	0	10/19/2012 2:22
776480	0	0	0	0	10/19/2012 3:22
776481	1	0	0	0	10/19/2012 4:22
776481	0	0	0	0	10/19/2012 5:22
776483	2	0	0	0	10/19/2012 6:22
776493	10	0	0	0	10/19/2012 7:22
776494	1	0	0	0	10/19/2012 8:22
776507	13	0	0	0	10/19/2012 9:22
776514	7	0	0	0	10/19/2012 10:22
776517	3	0	0	0	10/19/2012 11:22
776519	2	0	0	0	10/19/2012 12:22
776527	8	0	0	0	10/19/2012 13:22
776545	18	0	0	0	10/19/2012 14:22
776547	2	0	0	0	10/19/2012 15:22
776572	25	0	0	0	10/19/2012 16:22
776603	31	0	0	0	10/19/2012 17:22
776646	43	0	0	0	10/19/2012 18:22
776663	17	0	0	0	10/19/2012 19:22
776687	24	0	0	0	10/19/2012 20:22
776932	245	0	0	0	10/19/2012 21:22
776933	1	0	0	0	10/19/2012 22:22
776938	5	0	0	0	10/19/2012 23:22
776952	14	0	0	0	10/20/2012 0:22
776960	8	0	0	0	10/20/2012 1:22
776960	0	0	0	0	10/20/2012 2:22
776965	5	0	0	0	10/20/2012 3:22
776969	4	0	0	0	10/20/2012 4:22
776969	0	0	0	0	10/20/2012 5:22
776970	1	0	0	0	10/20/2012 6:22
776971	1	0	0	0	10/20/2012 7:22
776973	2	0	0	0	10/20/2012 8:22
776974	1	0	0	0	10/20/2012 9:22
776983	9	0	0	0	10/20/2012 10:22
776993	10	0	0	0	10/20/2012 11:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
776996	3	0	0	0	10/20/2012 12:22
777002	6	0	0	0	10/20/2012 13:22
777007	5	0	0	0	10/20/2012 14:22
777012	5	0	0	0	10/20/2012 15:22
777016	4	0	0	0	10/20/2012 16:22
777048	32	0	0	0	10/20/2012 17:22
777052	4	0	0	0	10/20/2012 18:22
777099	47	0	0	0	10/20/2012 19:22
777123	24	0	0	0	10/20/2012 20:22
777373	250	0	0	0	10/20/2012 21:22
777376	3	0	0	0	10/20/2012 22:22
777399	23	0	0	0	10/20/2012 23:22
777411	12	0	0	0	10/21/2012 0:22
777411	0	0	0	0	10/21/2012 1:22
777412	1	0	0	0	10/21/2012 2:22
777412	0	0	0	0	10/21/2012 3:22
777413	1	0	0	0	10/21/2012 4:22
777413	0	0	0	0	10/21/2012 5:22
777417	4	0	0	0	10/21/2012 6:22
777418	1	0	0	0	10/21/2012 7:22
777419	1	0	0	0	10/21/2012 8:22
777426	7	0	0	0	10/21/2012 9:22
777446	20	0	0	0	10/21/2012 10:22
777457	11	0	0	0	10/21/2012 11:22
777457	0	0	0	0	10/21/2012 12:22
777458	1	0	0	0	10/21/2012 13:22
777459	1	0	0	0	10/21/2012 14:22
777459	0	0	0	0	10/21/2012 15:22
777460	1	0	0	0	10/21/2012 16:22
777461	1	0	0	0	10/21/2012 17:22
777465	4	0	0	0	10/21/2012 18:22
777466	1	0	0	0	10/21/2012 19:22
777490	24	0	0	0	10/21/2012 20:22
777736	246	0	0	0	10/21/2012 21:22
777746	10	0	0	0	10/21/2012 22:22
777758	12	0	0	0	10/21/2012 23:22
777759	1	0	0	0	10/22/2012 0:22
777760	1	0	0	0	10/22/2012 1:22
777761	1	0	0	0	10/22/2012 2:22
777761	0	0	0	0	10/22/2012 3:22
777762	1	0	0	0	10/22/2012 4:22
777762	0	0	0	0	10/22/2012 5:22
777764	2	0	0	0	10/22/2012 6:22
777765	1	0	0	0	10/22/2012 7:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
777770	5	0	0	0	10/22/2012 8:22
777775	5	0	0	0	10/22/2012 9:22
777776	1	0	0	0	10/22/2012 10:22
777783	7	0	0	0	10/22/2012 11:22
777788	5	0	0	0	10/22/2012 12:22
777792	4	0	0	0	10/22/2012 13:22
777798	6	0	0	0	10/22/2012 14:22
777808	10	0	0	0	10/22/2012 15:22
777811	3	0	0	0	10/22/2012 16:22
777815	4	0	0	0	10/22/2012 17:22
778151	336	0	0	0	10/22/2012 18:22
778448	297	0	0	0	10/22/2012 19:22
778753	305	0	0	0	10/22/2012 20:22
779049	296	0	0	0	10/22/2012 21:22
779338	289	0	0	0	10/22/2012 22:22
779635	297	0	0	0	10/22/2012 23:22
779666	31	0	0	0	10/23/2012 0:22
779667	1	0	0	0	10/23/2012 1:22
779667	0	0	0	0	10/23/2012 2:22
779672	5	0	0	0	10/23/2012 3:22
779672	0	0	0	0	10/23/2012 4:22
779879	207	0	0	0	10/23/2012 5:22
779942	63	0	0	0	10/23/2012 6:22
779943	1	0	0	0	10/23/2012 7:22
779950	7	0	0	0	10/23/2012 8:22
779953	3	0	0	0	10/23/2012 9:22
779964	11	0	0	0	10/23/2012 10:22
779969	5	0	0	0	10/23/2012 11:22
779971	2	0	0	0	10/23/2012 12:22
779974	3	0	0	0	10/23/2012 13:22
779988	14	0	0	0	10/23/2012 14:22
779988	0	0	0	0	10/23/2012 15:22
779990	2	0	0	0	10/23/2012 16:22
779993	3	0	0	0	10/23/2012 17:22
780145	152	0	0	0	10/23/2012 18:22
780165	20	0	0	0	10/23/2012 19:22
780179	14	0	0	0	10/23/2012 20:22
780188	9	0	0	0	10/23/2012 21:22
780198	10	0	0	0	10/23/2012 22:22
780198	0	0	0	0	10/23/2012 23:22
780201	3	0	0	0	10/24/2012 0:22
780214	13	0	0	0	10/24/2012 1:22
780216	2	0	0	0	10/24/2012 2:22
780217	1	0	0	0	10/24/2012 3:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
780217	0	0	0	0	10/24/2012 4:22
780424	207	0	0	0	10/24/2012 5:22
780488	64	0	0	0	10/24/2012 6:22
780488	0	0	0	0	10/24/2012 7:22
780495	7	0	0	0	10/24/2012 8:22
780531	36	0	0	0	10/24/2012 9:22
780559	28	0	0	0	10/24/2012 10:22
780562	3	0	0	0	10/24/2012 11:22
780566	4	0	0	0	10/24/2012 12:22
780576	10	0	0	0	10/24/2012 13:22
780576	0	0	0	0	10/24/2012 14:22
780578	2	0	0	0	10/24/2012 15:22
780579	1	0	0	0	10/24/2012 16:22
780581	2	0	0	0	10/24/2012 17:22
780582	1	0	0	0	10/24/2012 18:22
780585	3	0	0	0	10/24/2012 19:22
780589	4	0	0	0	10/24/2012 20:22
780596	7	0	0	0	10/24/2012 21:22
780603	7	0	0	0	10/24/2012 22:22
780605	2	0	0	0	10/24/2012 23:22
780622	17	0	0	0	10/25/2012 0:22
780643	21	0	0	0	10/25/2012 1:22
780644	1	0	0	0	10/25/2012 2:22
780644	0	0	0	0	10/25/2012 3:22
780644	0	0	0	0	10/25/2012 4:22
780852	208	0	0	0	10/25/2012 5:22
780916	64	0	0	0	10/25/2012 6:22
780916	0	0	0	0	10/25/2012 7:22
780927	11	0	0	0	10/25/2012 8:22
780933	6	0	0	0	10/25/2012 9:22
780938	5	0	0	0	10/25/2012 10:22
780941	3	0	0	0	10/25/2012 11:22
780942	1	0	0	0	10/25/2012 12:22
780946	4	0	0	0	10/25/2012 13:22
780950	4	0	0	0	10/25/2012 14:22
781001	51	0	0	0	10/25/2012 15:22
781376	375	0	0	0	10/25/2012 16:22
781993	617	0	0	0	10/25/2012 17:22
782401	408	0	0	0	10/25/2012 18:22
782411	10	0	0	0	10/25/2012 19:22
782411	0	0	0	0	10/25/2012 20:22
782415	4	0	0	0	10/25/2012 21:22
782416	1	0	0	0	10/25/2012 22:22
782416	0	0	0	0	10/25/2012 23:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
782416	0	0	0	0	10/26/2012 0:22
782417	1	0	0	0	10/26/2012 1:22
782417	0	0	0	0	10/26/2012 2:22
782417	0	0	0	0	10/26/2012 3:22
782417	0	0	0	0	10/26/2012 4:22
782417	0	0	0	0	10/26/2012 5:22
782417	0	0	0	0	10/26/2012 6:22
782417	0	0	0	0	10/26/2012 7:22
782419	2	0	0	0	10/26/2012 8:22
782420	1	0	0	0	10/26/2012 9:22
782420	0	0	0	0	10/26/2012 10:22
782453	33	0	0	0	10/26/2012 11:22
782481	28	0	0	0	10/26/2012 12:22
782482	1	0	0	0	10/26/2012 13:22
782485	3	0	0	0	10/26/2012 14:22
782485	0	0	0	0	10/26/2012 15:22
782494	9	0	0	0	10/26/2012 16:22
782679	185	0	0	0	10/26/2012 17:22
782750	71	0	0	0	10/26/2012 18:22
782750	0	0	0	0	10/26/2012 19:22
782750	0	0	0	0	10/26/2012 20:22
782751	1	0	0	0	10/26/2012 21:22
782751	0	0	0	0	10/26/2012 22:22
782751	0	0	0	0	10/26/2012 23:22
782755	4	0	0	0	10/27/2012 0:22
782755	0	0	0	0	10/27/2012 1:22
782755	0	0	0	0	10/27/2012 2:22
782755	0	0	0	0	10/27/2012 3:22
782755	0	0	0	0	10/27/2012 4:22
782755	0	0	0	0	10/27/2012 5:22
782755	0	0	0	0	10/27/2012 6:22
782755	0	0	0	0	10/27/2012 7:22
782755	0	0	0	0	10/27/2012 8:22
782755	0	0	0	0	10/27/2012 9:22
782762	7	0	0	0	10/27/2012 10:22
782763	1	0	0	0	10/27/2012 11:22
782767	4	0	0	0	10/27/2012 12:22
782770	3	0	0	0	10/27/2012 13:22
782772	2	0	0	0	10/27/2012 14:22
782796	24	0	0	0	10/27/2012 15:22
782848	52	0	0	0	10/27/2012 16:22
783031	183	0	0	0	10/27/2012 17:22
783102	71	0	0	0	10/27/2012 18:22
783102	0	0	0	0	10/27/2012 19:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
783102	0	0	0	0	10/27/2012 20:22
783102	0	0	0	0	10/27/2012 21:22
783106	4	0	0	0	10/27/2012 22:22
783106	0	0	0	0	10/27/2012 23:22
783106	0	0	0	0	10/28/2012 0:22
783106	0	0	0	0	10/28/2012 1:22
783106	0	0	0	0	10/28/2012 2:22
783106	0	0	0	0	10/28/2012 3:22
783106	0	0	0	0	10/28/2012 4:22
783106	0	0	0	0	10/28/2012 5:22
783106	0	0	0	0	10/28/2012 6:22
783106	0	0	0	0	10/28/2012 7:22
783106	0	0	0	0	10/28/2012 8:22
783106	0	0	0	0	10/28/2012 9:22
783116	10	0	0	0	10/28/2012 10:22
783116	0	0	0	0	10/28/2012 11:22
783116	0	0	0	0	10/28/2012 12:22
783116	0	0	0	0	10/28/2012 13:22
783116	0	0	0	0	10/28/2012 14:22
783117	1	0	0	0	10/28/2012 15:22
783117	0	0	0	0	10/28/2012 16:22
783301	184	0	0	0	10/28/2012 17:22
783388	87	0	0	0	10/28/2012 18:22
783388	0	0	0	0	10/28/2012 19:22
783389	1	0	0	0	10/28/2012 20:22
783392	3	0	0	0	10/28/2012 21:22
783393	1	0	0	0	10/28/2012 22:22
783393	0	0	0	0	10/28/2012 23:22
783404	11	0	0	0	10/29/2012 0:22
783406	2	0	0	0	10/29/2012 1:22
783406	0	0	0	0	10/29/2012 2:22
783406	0	0	0	0	10/29/2012 3:22
783406	0	0	0	0	10/29/2012 4:22
783406	0	0	0	0	10/29/2012 5:22
783406	0	0	0	0	10/29/2012 6:22
783406	0	0	0	0	10/29/2012 7:22
783407	1	0	0	0	10/29/2012 8:22
783410	3	0	0	0	10/29/2012 9:22
783421	11	0	0	0	10/29/2012 10:22
783683	262	0	0	0	10/29/2012 11:22
783951	268	0	0	0	10/29/2012 12:22
784229	278	0	0	0	10/29/2012 13:22
784230	1	0	0	0	10/29/2012 14:22
784231	1	0	0	0	10/29/2012 15:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
784231	0	0	0	0	10/29/2012 16:22
784416	185	0	0	0	10/29/2012 17:22
784488	72	0	0	0	10/29/2012 18:22
784488	0	0	0	0	10/29/2012 19:22
784489	1	0	0	0	10/29/2012 20:22
784489	0	0	0	0	10/29/2012 21:22
784492	3	0	0	0	10/29/2012 22:22
784494	2	0	0	0	10/29/2012 23:22
784494	0	0	0	0	10/30/2012 0:22
784494	0	0	0	0	10/30/2012 1:22
784494	0	0	0	0	10/30/2012 2:22
784494	0	0	0	0	10/30/2012 3:22
784494	0	0	0	0	10/30/2012 4:22
784494	0	0	0	0	10/30/2012 5:22
784494	0	0	0	0	10/30/2012 6:22
784494	0	0	0	0	10/30/2012 7:22
784501	7	0	0	0	10/30/2012 8:22
784506	5	0	0	0	10/30/2012 9:22
784511	5	0	0	0	10/30/2012 10:22
784512	1	0	0	0	10/30/2012 11:22
784639	127	0	0	0	10/30/2012 12:22
784891	252	0	0	0	10/30/2012 13:22
785143	252	0	0	0	10/30/2012 14:22
785398	255	0	0	0	10/30/2012 15:22
785651	253	0	0	0	10/30/2012 16:22
785955	304	0	0	0	10/30/2012 17:22
786027	72	0	0	0	10/30/2012 18:22
786030	3	0	0	0	10/30/2012 19:22
786030	0	0	0	0	10/30/2012 20:22
786030	0	0	0	0	10/30/2012 21:22
786031	1	0	0	0	10/30/2012 22:22
786031	0	0	0	0	10/30/2012 23:22
786034	3	0	0	0	10/31/2012 0:22
786038	4	0	0	0	10/31/2012 1:22
786038	0	0	0	0	10/31/2012 2:22
786042	4	0	0	0	10/31/2012 3:22
786042	0	0	0	0	10/31/2012 4:22
786042	0	0	0	0	10/31/2012 5:22
786042	0	0	0	0	10/31/2012 6:22
786042	0	0	0	0	10/31/2012 7:22
786042	0	0	0	0	10/31/2012 8:22
786042	0	0	0	0	10/31/2012 9:22
786043	1	0	0	0	10/31/2012 10:22
786047	4	0	0	0	10/31/2012 11:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
786077	30	0	0	0	10/31/2012 12:22
786182	105	0	0	0	10/31/2012 13:22
786182	0	0	0	0	10/31/2012 14:22
786185	3	0	0	0	10/31/2012 15:22
786185	0	0	0	0	10/31/2012 16:22
786370	185	0	0	0	10/31/2012 17:22
786462	92	0	0	0	10/31/2012 18:22
786464	2	0	0	0	10/31/2012 19:22
786464	0	0	0	0	10/31/2012 20:22
786464	0	0	0	0	10/31/2012 21:22
786464	0	0	0	0	10/31/2012 22:22
786464	0	0	0	0	10/31/2012 23:22
786464	0	0	0	0	11/1/2012 0:22
786464	0	0	0	0	11/1/2012 1:22
786464	0	0	0	0	11/1/2012 2:22
786464	0	0	0	0	11/1/2012 3:22
786464	0	0	0	0	11/1/2012 4:22
786464	0	0	0	0	11/1/2012 5:22
786464	0	0	0	0	11/1/2012 6:22
786464	0	0	0	0	11/1/2012 7:22
786472	8	0	0	0	11/1/2012 8:22
786472	0	0	0	0	11/1/2012 9:22
786473	1	0	0	0	11/1/2012 10:22
786513	40	0	0	0	11/1/2012 11:22
786546	33	0	0	0	11/1/2012 12:22
786550	4	0	0	0	11/1/2012 13:22
786630	80	0	0	0	11/1/2012 14:22
786777	147	0	0	0	11/1/2012 15:22
786892	115	0	0	0	11/1/2012 16:22
787077	185	0	0	0	11/1/2012 17:22
787172	95	0	0	0	11/1/2012 18:22
787177	5	0	0	0	11/1/2012 19:22
787184	7	0	0	0	11/1/2012 20:22
787185	1	0	0	0	11/1/2012 21:22
787188	3	0	0	0	11/1/2012 22:22
787192	4	0	0	0	11/1/2012 23:22
787193	1	0	0	0	11/2/2012 0:22
787193	0	0	0	0	11/2/2012 1:22
787193	0	0	0	0	11/2/2012 2:22
787193	0	0	0	0	11/2/2012 3:22
787193	0	0	0	0	11/2/2012 4:22
787193	0	0	0	0	11/2/2012 5:22
787193	0	0	0	0	11/2/2012 6:22
787193	0	0	0	0	11/2/2012 7:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
787195	2	0	0	0	11/2/2012 8:22
787195	0	0	0	0	11/2/2012 9:22
787199	4	0	0	0	11/2/2012 10:22
787200	1	0	0	0	11/2/2012 11:22
787395	195	0	0	0	11/2/2012 12:22
787667	272	0	0	0	11/2/2012 13:22
787932	265	0	0	0	11/2/2012 14:22
788199	267	0	0	0	11/2/2012 15:22
788465	266	0	0	0	11/2/2012 16:22
788902	437	0	0	0	11/2/2012 17:22
789235	333	0	0	0	11/2/2012 18:22
789505	270	0	0	0	11/2/2012 19:22
789771	266	0	0	0	11/2/2012 20:22
790037	266	0	0	0	11/2/2012 21:22
790307	270	0	0	0	11/2/2012 22:22
790572	265	0	0	0	11/2/2012 23:22
790836	264	0	0	0	11/3/2012 0:22
791101	265	0	0	0	11/3/2012 1:22
791365	264	0	0	0	11/3/2012 2:22
791629	264	0	0	0	11/3/2012 3:22
791894	265	0	0	0	11/3/2012 4:22
792160	266	0	0	0	11/3/2012 5:22
792429	269	0	0	0	11/3/2012 6:22
792700	271	0	0	0	11/3/2012 7:22
792965	265	0	0	0	11/3/2012 8:22
793235	270	0	0	0	11/3/2012 9:22
793500	265	0	0	0	11/3/2012 10:22
793774	274	0	0	0	11/3/2012 11:22
794089	315	0	1	0	11/3/2012 12:22
794360	271	0	1	0	11/3/2012 13:22
794625	265	0	1	0	11/3/2012 14:22
794889	264	0	1	0	11/3/2012 15:22
795154	265	0	1	0	11/3/2012 16:22
795586	432	0	1	0	11/3/2012 17:22
795945	359	0	1	0	11/3/2012 18:22
796261	316	0	1	0	11/3/2012 19:22
796315	54	0	1	0	11/3/2012 20:22
796315	0	0	0	0	11/3/2012 21:22
796315	0	0	0	0	11/3/2012 22:22
796318	3	0	0	0	11/3/2012 23:22
796324	6	0	0	0	11/4/2012 0:22
796324	0	0	0	0	11/4/2012 1:22
796324	0	0	0	0	11/4/2012 2:22
796324	0	0	0	0	11/4/2012 3:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
796324	0	0	0	0	11/4/2012 4:22
796324	0	0	0	0	11/4/2012 5:22
796324	0	0	0	0	11/4/2012 6:22
796324	0	0	0	0	11/4/2012 7:22
796326	2	0	0	0	11/4/2012 8:22
796326	0	0	0	0	11/4/2012 9:22
796329	3	0	0	0	11/4/2012 10:22
796329	0	0	0	0	11/4/2012 11:22
796339	10	0	0	0	11/4/2012 12:22
796349	10	0	0	0	11/4/2012 13:22
796417	68	0	0	0	11/4/2012 14:22
796445	28	0	0	0	11/4/2012 15:22
796478	33	0	0	0	11/4/2012 16:22
796664	186	0	0	0	11/4/2012 17:22
796736	72	0	0	0	11/4/2012 18:22
796737	1	0	0	0	11/4/2012 19:22
796748	11	0	0	0	11/4/2012 20:22
796748	0	0	0	0	11/4/2012 21:22
796750	2	0	0	0	11/4/2012 22:22
796750	0	0	0	0	11/4/2012 23:22
796750	0	0	0	0	11/5/2012 0:22
796750	0	0	0	0	11/5/2012 1:22
796750	0	0	0	0	11/5/2012 2:22
796750	0	0	0	0	11/5/2012 3:22
796750	0	0	0	0	11/5/2012 4:22
796769	19	0	0	0	11/5/2012 5:22
796784	15	0	0	0	11/5/2012 6:22
796786	2	0	0	0	11/5/2012 7:22
796789	3	0	0	0	11/5/2012 8:22
796790	1	0	0	0	11/5/2012 9:22
796792	2	0	0	0	11/5/2012 10:22
796797	5	0	0	0	11/5/2012 11:22
796798	1	0	0	0	11/5/2012 12:22
796799	1	0	0	0	11/5/2012 13:22
796799	0	0	0	0	11/5/2012 14:22
796801	2	0	0	0	11/5/2012 15:22
796806	5	0	0	0	11/5/2012 16:22
796990	184	0	0	0	11/5/2012 17:22
797062	72	0	0	0	11/5/2012 18:22
797079	17	0	0	0	11/5/2012 19:22
797079	0	0	0	0	11/5/2012 20:22
797081	2	0	0	0	11/5/2012 21:22
797084	3	0	0	0	11/5/2012 22:22
797092	8	0	0	0	11/5/2012 23:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
797092	0	0	0	0	11/6/2012 0:22
797092	0	0	0	0	11/6/2012 1:22
797092	0	0	0	0	11/6/2012 2:22
797092	0	0	0	0	11/6/2012 3:22
797092	0	0	0	0	11/6/2012 4:22
797092	0	0	0	0	11/6/2012 5:22
797092	0	0	0	0	11/6/2012 6:22
797097	5	0	0	0	11/6/2012 7:22
797097	0	0	0	0	11/6/2012 8:22
797127	30	0	0	0	11/6/2012 9:22
797155	28	0	0	0	11/6/2012 10:22
797155	0	0	0	0	11/6/2012 11:22
797155	0	0	0	0	11/6/2012 12:22
797155	0	0	0	0	11/6/2012 13:22
797156	1	0	0	0	11/6/2012 14:22
797156	0	0	0	0	11/6/2012 15:22
797156	0	0	0	0	11/6/2012 16:22
797341	185	0	0	0	11/6/2012 17:22
797416	75	0	0	0	11/6/2012 18:22
797416	0	0	0	0	11/6/2012 19:22
797416	0	0	0	0	11/6/2012 20:22
797417	1	0	0	0	11/6/2012 21:22
797417	0	0	0	0	11/6/2012 22:22
797418	1	0	0	0	11/6/2012 23:22
797428	10	0	0	0	11/7/2012 0:22
797428	0	0	0	0	11/7/2012 1:22
797428	0	0	0	0	11/7/2012 2:22
797428	0	0	0	0	11/7/2012 3:22
797428	0	0	0	0	11/7/2012 4:22
797428	0	0	0	0	11/7/2012 5:22
797429	1	0	0	0	11/7/2012 6:22
797429	0	0	0	0	11/7/2012 7:22
797435	6	0	0	0	11/7/2012 8:22
797435	0	0	0	0	11/7/2012 9:22
797436	1	0	0	0	11/7/2012 10:22
797595	159	0	0	0	11/7/2012 11:22
797774	179	0	0	0	11/7/2012 12:22
797950	176	0	0	0	11/7/2012 13:22
797976	26	0	0	0	11/7/2012 14:22
797976	0	0	0	0	11/7/2012 15:22
797981	5	0	0	0	11/7/2012 16:22
798178	197	0	0	0	11/7/2012 17:22
798258	80	0	0	0	11/7/2012 18:22
798266	8	0	0	0	11/7/2012 19:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
798276	10	0	0	0	11/7/2012 20:22
798289	13	0	0	0	11/7/2012 21:22
798294	5	0	0	0	11/7/2012 22:22
798302	8	0	0	0	11/7/2012 23:22
798316	14	0	0	0	11/8/2012 0:22
798326	10	0	0	0	11/8/2012 1:22
798326	0	0	0	0	11/8/2012 2:22
798327	1	0	0	0	11/8/2012 3:22
798327	0	0	0	0	11/8/2012 4:22
798327	0	0	0	0	11/8/2012 5:22
798331	4	0	0	0	11/8/2012 6:22
798331	0	0	0	0	11/8/2012 7:22
798336	5	0	0	0	11/8/2012 8:22
798336	0	0	0	0	11/8/2012 9:22
798345	9	0	0	0	11/8/2012 10:22
798351	6	0	0	0	11/8/2012 11:22
798411	60	0	0	0	11/8/2012 12:22
798413	2	0	0	0	11/8/2012 13:22
798417	4	0	0	0	11/8/2012 14:22
798421	4	0	0	0	11/8/2012 15:22
798425	4	0	0	0	11/8/2012 16:22
798745	320	0	0	0	11/8/2012 17:22
799075	330	0	0	0	11/8/2012 18:22
799441	366	0	0	0	11/8/2012 19:22
799821	380	0	0	0	11/8/2012 20:22
800226	405	0	0	0	11/8/2012 21:22
800610	384	0	0	0	11/8/2012 22:22
800961	351	0	0	0	11/8/2012 23:22
801305	344	0	0	0	11/9/2012 0:22
801648	343	0	0	0	11/9/2012 1:22
801990	342	0	0	0	11/9/2012 2:22
802350	360	0	0	0	11/9/2012 3:22
802724	374	0	0	0	11/9/2012 4:22
803109	385	0	0	0	11/9/2012 5:22
803496	387	0	0	0	11/9/2012 6:22
803851	355	0	0	0	11/9/2012 7:22
804208	357	0	0	0	11/9/2012 8:22
804553	345	0	0	0	11/9/2012 9:22
804895	342	0	0	0	11/9/2012 10:22
805258	363	0	0	0	11/9/2012 11:22
805633	375	0	0	0	11/9/2012 12:22
806020	387	0	0	0	11/9/2012 13:22
806422	402	0	0	0	11/9/2012 14:22
806776	354	0	1	0	11/9/2012 15:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
807123	347	0	1	0	11/9/2012 16:22
807406	283	0	1	0	11/9/2012 17:22
807470	64	0	1	0	11/9/2012 18:22
807473	3	0	1	0	11/9/2012 19:22
807479	6	0	1	0	11/9/2012 20:22
807480	1	0	1	0	11/9/2012 21:22
807491	11	0	1	0	11/9/2012 22:22
807492	1	0	1	0	11/9/2012 23:22
807492	0	0	0	0	11/10/2012 0:22
807492	0	0	0	0	11/10/2012 1:22
807492	0	0	0	0	11/10/2012 2:22
807492	0	0	0	0	11/10/2012 3:22
807492	0	0	0	0	11/10/2012 4:22
807492	0	0	0	0	11/10/2012 5:22
807493	1	0	0	0	11/10/2012 6:22
807497	4	0	0	0	11/10/2012 7:22
807501	4	0	0	0	11/10/2012 8:22
807506	5	0	0	0	11/10/2012 9:22
807506	0	0	0	0	11/10/2012 10:22
807510	4	0	0	0	11/10/2012 11:22
807510	0	0	0	0	11/10/2012 12:22
807510	0	0	0	0	11/10/2012 13:22
807517	7	0	0	0	11/10/2012 14:22
807519	2	0	0	0	11/10/2012 15:22
807521	2	0	0	0	11/10/2012 16:22
807525	4	0	0	0	11/10/2012 17:22
807729	204	0	0	0	11/10/2012 18:22
807732	3	0	0	0	11/10/2012 19:22
807733	1	0	0	0	11/10/2012 20:22
807736	3	0	0	0	11/10/2012 21:22
807736	0	0	0	0	11/10/2012 22:22
807742	6	0	0	0	11/10/2012 23:22
807756	14	0	0	0	11/11/2012 0:22
807765	9	0	0	0	11/11/2012 1:22
807765	0	0	0	0	11/11/2012 2:22
807765	0	0	0	0	11/11/2012 3:22
807766	1	0	0	0	11/11/2012 4:22
807766	0	0	0	0	11/11/2012 5:22
807770	4	0	0	0	11/11/2012 6:22
807776	6	0	0	0	11/11/2012 7:22
807781	5	0	0	0	11/11/2012 8:22
807782	1	0	0	0	11/11/2012 9:22
807798	16	0	0	0	11/11/2012 10:22
807807	9	0	0	0	11/11/2012 11:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
807811	4	0	0	0	11/11/2012 12:22
807816	5	0	0	0	11/11/2012 13:22
807820	4	0	0	0	11/11/2012 14:22
807825	5	0	0	0	11/11/2012 15:22
807833	8	0	0	0	11/11/2012 16:22
807942	109	0	0	0	11/11/2012 17:22
808186	244	0	0	0	11/11/2012 18:22
808192	6	0	0	0	11/11/2012 19:22
808192	0	0	0	0	11/11/2012 20:22
808193	1	0	0	0	11/11/2012 21:22
808198	5	0	0	0	11/11/2012 22:22
808199	1	0	0	0	11/11/2012 23:22
808203	4	0	0	0	11/12/2012 0:22
808203	0	0	0	0	11/12/2012 1:22
808204	1	0	0	0	11/12/2012 2:22
808204	0	0	0	0	11/12/2012 3:22
808204	0	0	0	0	11/12/2012 4:22
808205	1	0	0	0	11/12/2012 5:22
808209	4	0	0	0	11/12/2012 6:22
808211	2	0	0	0	11/12/2012 7:22
808215	4	0	0	0	11/12/2012 8:22
808226	11	0	0	0	11/12/2012 9:22
808249	23	0	0	0	11/12/2012 10:22
808254	5	0	0	0	11/12/2012 11:22
808254	0	0	0	0	11/12/2012 12:22
808255	1	0	0	0	11/12/2012 13:22
808255	0	0	0	0	11/12/2012 14:22
808256	1	0	0	0	11/12/2012 15:22
808276	20	0	0	0	11/12/2012 16:22
808393	117	0	0	0	11/12/2012 17:22
808602	209	0	0	0	11/12/2012 18:22
808615	13	0	0	0	11/12/2012 19:22
808622	7	0	0	0	11/12/2012 20:22
808666	44	0	0	0	11/12/2012 21:22
808689	23	0	0	0	11/12/2012 22:22
808690	1	0	0	0	11/12/2012 23:22
808690	0	0	0	0	11/13/2012 0:22
808690	0	0	0	0	11/13/2012 1:22
808690	0	0	0	0	11/13/2012 2:22
808691	1	0	0	0	11/13/2012 3:22
808691	0	0	0	0	11/13/2012 4:22
808695	4	0	0	0	11/13/2012 5:22
808695	0	0	0	0	11/13/2012 6:22
808697	2	0	0	0	11/13/2012 7:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
808706	9	0	0	0	11/13/2012 8:22
808720	14	0	0	0	11/13/2012 9:22
808731	11	0	0	0	11/13/2012 10:22
808733	2	0	0	0	11/13/2012 11:22
808733	0	0	0	0	11/13/2012 12:22
808734	1	0	0	0	11/13/2012 13:22
808742	8	0	0	0	11/13/2012 14:22
808742	0	0	0	0	11/13/2012 15:22
808742	0	0	0	0	11/13/2012 16:22
808745	3	0	0	0	11/13/2012 17:22
808944	199	0	0	0	11/13/2012 18:22
808966	22	0	0	0	11/13/2012 19:22
808981	15	0	0	0	11/13/2012 20:22
808994	13	0	0	0	11/13/2012 21:22
808996	2	0	0	0	11/13/2012 22:22
808997	1	0	0	0	11/13/2012 23:22
809011	14	0	0	0	11/14/2012 0:22
809020	9	0	0	0	11/14/2012 1:22
809020	0	0	0	0	11/14/2012 2:22
809020	0	0	0	0	11/14/2012 3:22
809020	0	0	0	0	11/14/2012 4:22
809021	1	0	0	0	11/14/2012 5:22
809021	0	0	0	0	11/14/2012 6:22
809026	5	0	0	0	11/14/2012 7:22
809031	5	0	0	0	11/14/2012 8:22
809032	1	0	0	0	11/14/2012 9:22
809038	6	0	0	0	11/14/2012 10:22
809038	0	0	0	0	11/14/2012 11:22
809038	0	0	0	0	11/14/2012 12:22
809046	8	0	0	0	11/14/2012 13:22
809071	25	0	0	0	11/14/2012 14:22
809078	7	0	0	0	11/14/2012 15:22
809084	6	0	0	0	11/14/2012 16:22
809116	32	0	0	0	11/14/2012 17:22
809317	201	0	0	0	11/14/2012 18:22
809321	4	0	0	0	11/14/2012 19:22
809326	5	0	0	0	11/14/2012 20:22
809333	7	0	0	0	11/14/2012 21:22
809337	4	0	0	0	11/14/2012 22:22
809342	5	0	0	0	11/14/2012 23:22
809343	1	0	0	0	11/15/2012 0:22
809343	0	0	0	0	11/15/2012 1:22
809343	0	0	0	0	11/15/2012 2:22
809343	0	0	0	0	11/15/2012 3:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
809344	1	0	0	0	11/15/2012 4:22
809344	0	0	0	0	11/15/2012 5:22
809344	0	0	0	0	11/15/2012 6:22
809349	5	0	0	0	11/15/2012 7:22
809354	5	0	0	0	11/15/2012 8:22
809356	2	0	0	0	11/15/2012 9:22
809368	12	0	0	0	11/15/2012 10:22
809372	4	0	0	0	11/15/2012 11:22
809374	2	0	0	0	11/15/2012 12:22
809376	2	0	0	0	11/15/2012 13:22
809378	2	0	0	0	11/15/2012 14:22
809380	2	0	0	0	11/15/2012 15:22
809380	0	0	0	0	11/15/2012 16:22
809419	39	0	0	0	11/15/2012 17:22
809630	211	0	0	0	11/15/2012 18:22
809637	7	0	0	0	11/15/2012 19:22
809637	0	0	0	0	11/15/2012 20:22
809640	3	0	0	0	11/15/2012 21:22
809650	10	0	0	0	11/15/2012 22:22
809654	4	0	0	0	11/15/2012 23:22
809655	1	0	0	0	11/16/2012 0:22
809655	0	0	0	0	11/16/2012 1:22
809655	0	0	0	0	11/16/2012 2:22
809655	0	0	0	0	11/16/2012 3:22
809659	4	0	0	0	11/16/2012 4:22
809659	0	0	0	0	11/16/2012 5:22
809659	0	0	0	0	11/16/2012 6:22
809659	0	0	0	0	11/16/2012 7:22
809664	5	0	0	0	11/16/2012 8:22
809670	6	0	0	0	11/16/2012 9:22
809675	5	0	0	0	11/16/2012 10:22
809676	1	0	0	0	11/16/2012 11:22
809678	2	0	0	0	11/16/2012 12:22
809682	4	0	0	0	11/16/2012 13:22
809684	2	0	0	0	11/16/2012 14:22
809732	48	0	0	0	11/16/2012 15:22
809754	22	0	0	0	11/16/2012 16:22
809754	0	0	0	0	11/16/2012 17:22
809929	175	0	0	0	11/16/2012 18:22
809929	0	0	0	0	11/16/2012 19:22
809929	0	0	0	0	11/16/2012 20:22
809930	1	0	0	0	11/16/2012 21:22
809930	0	0	0	0	11/16/2012 22:22
809930	0	0	0	0	11/16/2012 23:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
809937	7	0	0	0	11/17/2012 0:22
809947	10	0	0	0	11/17/2012 1:22
809947	0	0	0	0	11/17/2012 2:22
809947	0	0	0	0	11/17/2012 3:22
809947	0	0	0	0	11/17/2012 4:22
809947	0	0	0	0	11/17/2012 5:22
809948	1	0	0	0	11/17/2012 6:22
809953	5	0	0	0	11/17/2012 7:22
809954	1	0	0	0	11/17/2012 8:22
809955	1	0	0	0	11/17/2012 9:22
809968	13	0	0	0	11/17/2012 10:22
809968	0	0	0	0	11/17/2012 11:22
809968	0	0	0	0	11/17/2012 12:22
809968	0	0	0	0	11/17/2012 13:22
810041	73	0	0	0	11/17/2012 14:22
810047	6	0	0	0	11/17/2012 15:22
810051	4	0	0	0	11/17/2012 16:22
810051	0	0	0	0	11/17/2012 17:22
810228	177	0	0	0	11/17/2012 18:22
810233	5	0	0	0	11/17/2012 19:22
810235	2	0	0	0	11/17/2012 20:22
810240	5	0	0	0	11/17/2012 21:22
810247	7	0	0	0	11/17/2012 22:22
810263	16	0	0	0	11/17/2012 23:22
810263	0	0	0	0	11/18/2012 0:22
810264	1	0	0	0	11/18/2012 1:22
810267	3	0	0	0	11/18/2012 2:22
810268	1	0	0	0	11/18/2012 3:22
810268	0	0	0	0	11/18/2012 4:22
810268	0	0	0	0	11/18/2012 5:22
810268	0	0	0	0	11/18/2012 6:22
810274	6	0	0	0	11/18/2012 7:22
810276	2	0	0	0	11/18/2012 8:22
810283	7	0	0	0	11/18/2012 9:22
810283	0	0	0	0	11/18/2012 10:22
810321	38	0	0	0	11/18/2012 11:22
810343	22	0	0	0	11/18/2012 12:22
810365	22	0	0	0	11/18/2012 13:22
810365	0	0	0	0	11/18/2012 14:22
810387	22	0	0	0	11/18/2012 15:22
810394	7	0	0	0	11/18/2012 16:22
810461	67	0	0	0	11/18/2012 17:22
810661	200	0	0	0	11/18/2012 18:22
810703	42	0	0	0	11/18/2012 19:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
810731	28	0	0	0	11/18/2012 20:22
810737	6	0	0	0	11/18/2012 21:22
810738	1	0	0	0	11/18/2012 22:22
810751	13	0	0	0	11/18/2012 23:22
810752	1	0	0	0	11/19/2012 0:22
810752	0	0	0	0	11/19/2012 1:22
810752	0	0	0	0	11/19/2012 2:22
810752	0	0	0	0	11/19/2012 3:22
810752	0	0	0	0	11/19/2012 4:22
810752	0	0	0	0	11/19/2012 5:22
810752	0	0	0	0	11/19/2012 6:22
810758	6	0	0	0	11/19/2012 7:22
810763	5	0	0	0	11/19/2012 8:22
810764	1	0	0	0	11/19/2012 9:22
810776	12	0	0	0	11/19/2012 10:22
810777	1	0	0	0	11/19/2012 11:22
810818	41	0	0	0	11/19/2012 12:22
810844	26	0	0	0	11/19/2012 13:22
810845	1	0	0	0	11/19/2012 14:22
810847	2	0	0	0	11/19/2012 15:22
810850	3	0	0	0	11/19/2012 16:22
810850	0	0	0	0	11/19/2012 17:22
810966	116	0	0	0	11/19/2012 18:22
810998	32	0	0	0	11/19/2012 19:22
811273	275	0	0	0	11/19/2012 20:22
811286	13	0	0	0	11/19/2012 21:22
811287	1	0	0	0	11/19/2012 22:22
811287	0	0	0	0	11/19/2012 23:22
811288	1	0	0	0	11/20/2012 0:22
811288	0	0	0	0	11/20/2012 1:22
811288	0	0	0	0	11/20/2012 2:22
811288	0	0	0	0	11/20/2012 3:22
811288	0	0	0	0	11/20/2012 4:22
811288	0	0	0	0	11/20/2012 5:22
811293	5	0	0	0	11/20/2012 6:22
811299	6	0	0	0	11/20/2012 7:22
811306	7	0	0	0	11/20/2012 8:22
811306	0	0	0	0	11/20/2012 9:22
811314	8	0	0	0	11/20/2012 10:22
811321	7	0	0	0	11/20/2012 11:22
811326	5	0	0	0	11/20/2012 12:22
811364	38	0	0	0	11/20/2012 13:22
811366	2	0	0	0	11/20/2012 14:22
811368	2	0	0	0	11/20/2012 15:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read In	Reading Date/Time
811389	21	0	0	0	11/20/2012 16:22
811399	10	0	0	0	11/20/2012 17:22
811439	40	0	0	0	11/20/2012 18:22
811446	7	0	0	0	11/20/2012 19:22
811714	268	0	0	0	11/20/2012 20:22
811715	1	0	0	0	11/20/2012 21:22
811715	0	0	0	0	11/20/2012 22:22
811716	1	0	0	0	11/20/2012 23:22
811740	24	0	0	0	11/21/2012 0:22
811741	1	0	0	0	11/21/2012 1:22
811741	0	0	0	0	11/21/2012 2:22
811742	1	0	0	0	11/21/2012 3:22
811742	0	0	0	0	11/21/2012 4:22
811742	0	0	0	0	11/21/2012 5:22
811743	1	0	0	0	11/21/2012 6:22
811750	7	0	0	0	11/21/2012 7:22
811754	4	0	0	0	11/21/2012 8:22
811761	7	0	0	0	11/21/2012 9:22
811765	4	0	0	0	11/21/2012 10:22
811766	1	0	0	0	11/21/2012 11:22
811772	6	0	0	0	11/21/2012 12:22
811773	1	0	0	0	11/21/2012 13:22
811781	8	0	0	0	11/21/2012 14:22
811820	39	0	0	0	11/21/2012 15:22
811821	1	0	0	0	11/21/2012 16:22
811860	39	0	0	0	11/21/2012 17:22
811932	72	0	0	0	11/21/2012 18:22
811936	4	0	0	0	11/21/2012 19:22
812199	263	0	0	0	11/21/2012 20:22
812227	28	0	0	0	11/21/2012 21:22
812235	8	0	0	0	11/21/2012 22:22
812265	30	0	0	0	11/21/2012 23:22
812289	24	0	0	0	11/22/2012 0:22
812306	17	0	0	0	11/22/2012 1:22
812306	0	0	0	0	11/22/2012 2:22
812306	0	0	0	0	11/22/2012 3:22
812309	3	0	0	0	11/22/2012 4:22
812311	2	0	0	0	11/22/2012 5:22
812311	0	0	0	0	11/22/2012 6:22
812313	2	0	0	0	11/22/2012 7:22
812319	6	0	0	0	11/22/2012 8:22
812359	40	0	0	0	11/22/2012 9:22
812371	12	0	0	0	11/22/2012 10:22
812388	17	0	0	0	11/22/2012 11:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
812406	18	0	0	0	11/22/2012 12:22
812409	3	0	0	0	11/22/2012 13:22
812421	12	0	0	0	11/22/2012 14:22
812444	23	0	0	0	11/22/2012 15:22
812452	8	0	0	0	11/22/2012 16:22
812555	103	0	0	0	11/22/2012 17:22
812589	34	0	0	0	11/22/2012 18:22
812604	15	0	0	0	11/22/2012 19:22
812870	266	0	0	0	11/22/2012 20:22
812886	16	0	0	0	11/22/2012 21:22
812937	51	0	0	0	11/22/2012 22:22
812949	12	0	0	0	11/22/2012 23:22
812969	20	0	0	0	11/23/2012 0:22
813000	31	0	0	0	11/23/2012 1:22
813002	2	0	0	0	11/23/2012 2:22
813002	0	0	0	0	11/23/2012 3:22
813004	2	0	0	0	11/23/2012 4:22
813010	6	0	0	0	11/23/2012 5:22
813010	0	0	0	0	11/23/2012 6:22
813010	0	0	0	0	11/23/2012 7:22
813017	7	0	0	0	11/23/2012 8:22
813056	39	0	0	0	11/23/2012 9:22
813079	23	0	0	0	11/23/2012 10:22
813081	2	0	0	0	11/23/2012 11:22
813106	25	0	0	0	11/23/2012 12:22
813130	24	0	0	0	11/23/2012 13:22
813158	28	0	0	0	11/23/2012 14:22
813167	9	0	0	0	11/23/2012 15:22
813197	30	0	0	0	11/23/2012 16:22
813211	14	0	0	0	11/23/2012 17:22
813236	25	0	0	0	11/23/2012 18:22
813245	9	0	0	0	11/23/2012 19:22
813502	257	0	0	0	11/23/2012 20:22
813502	0	0	0	0	11/23/2012 21:22
813514	12	0	0	0	11/23/2012 22:22
813514	0	0	0	0	11/23/2012 23:22
813525	11	0	0	0	11/24/2012 0:22
813563	38	0	0	0	11/24/2012 1:22
813563	0	0	0	0	11/24/2012 2:22
813565	2	0	0	0	11/24/2012 3:22
813565	0	0	0	0	11/24/2012 4:22
813567	2	0	0	0	11/24/2012 5:22
813567	0	0	0	0	11/24/2012 6:22
813569	2	0	0	0	11/24/2012 7:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
813608	39	0	0	0	11/24/2012 8:22
813624	16	0	0	0	11/24/2012 9:22
813643	19	0	0	0	11/24/2012 10:22
813649	6	0	0	0	11/24/2012 11:22
813651	2	0	0	0	11/24/2012 12:22
813652	1	0	0	0	11/24/2012 13:22
813652	0	0	0	0	11/24/2012 14:22
813652	0	0	0	0	11/24/2012 15:22
813652	0	0	0	0	11/24/2012 16:22
813675	23	0	0	0	11/24/2012 17:22
813711	36	0	0	0	11/24/2012 18:22
813716	5	0	0	0	11/24/2012 19:22
813973	257	0	0	0	11/24/2012 20:22
813973	0	0	0	0	11/24/2012 21:22
813973	0	0	0	0	11/24/2012 22:22
813973	0	0	0	0	11/24/2012 23:22
813973	0	0	0	0	11/25/2012 0:22
813973	0	0	0	0	11/25/2012 1:22
813973	0	0	0	0	11/25/2012 2:22
813973	0	0	0	0	11/25/2012 3:22
813973	0	0	0	0	11/25/2012 4:22
813973	0	0	0	0	11/25/2012 5:22
813973	0	0	0	0	11/25/2012 6:22
813973	0	0	0	0	11/25/2012 7:22
813973	0	0	0	0	11/25/2012 8:22
813973	0	0	0	0	11/25/2012 9:22
813973	0	0	0	0	11/25/2012 10:22
813975	2	0	0	0	11/25/2012 11:22
813990	15	0	0	0	11/25/2012 12:22
814001	11	0	0	0	11/25/2012 13:22
814001	0	0	0	0	11/25/2012 14:22
814001	0	0	0	0	11/25/2012 15:22
814008	7	0	0	0	11/25/2012 16:22
814008	0	0	0	0	11/25/2012 17:22
814011	3	0	0	0	11/25/2012 18:22
814061	50	0	0	0	11/25/2012 19:22
814349	288	0	0	0	11/25/2012 20:22
814368	19	0	0	0	11/25/2012 21:22
814379	11	0	0	0	11/25/2012 22:22
814406	27	0	0	0	11/25/2012 23:22
814420	14	0	0	0	11/26/2012 0:22
814420	0	0	0	0	11/26/2012 1:22
814422	2	0	0	0	11/26/2012 2:22
814423	1	0	0	0	11/26/2012 3:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
814424	1	0	0	0	11/26/2012 4:22
814426	2	0	0	0	11/26/2012 5:22
814428	2	0	0	0	11/26/2012 6:22
814436	8	0	0	0	11/26/2012 7:22
814495	59	0	0	0	11/26/2012 8:22
814516	21	0	0	0	11/26/2012 9:22
814528	12	0	0	0	11/26/2012 10:22
814541	13	0	0	0	11/26/2012 11:22
814543	2	0	0	0	11/26/2012 12:22
814544	1	0	0	0	11/26/2012 13:22
814545	1	0	0	0	11/26/2012 14:22
814552	7	0	0	0	11/26/2012 15:22
814575	23	0	0	0	11/26/2012 16:22
814763	188	0	0	0	11/26/2012 17:22
814864	101	0	0	0	11/26/2012 18:22
814864	0	0	0	0	11/26/2012 19:22
814880	16	0	0	0	11/26/2012 20:22
814880	0	0	0	0	11/26/2012 21:22
814895	15	0	0	0	11/26/2012 22:22
814907	12	0	0	0	11/26/2012 23:22
814910	3	0	0	0	11/27/2012 0:22
814910	0	0	0	0	11/27/2012 1:22
814910	0	0	0	0	11/27/2012 2:22
814910	0	0	0	0	11/27/2012 3:22
814910	0	0	0	0	11/27/2012 4:22
814910	0	0	0	0	11/27/2012 5:22
814910	0	0	0	0	11/27/2012 6:22
814910	0	0	0	0	11/27/2012 7:22
814916	6	0	0	0	11/27/2012 8:22
814920	4	0	0	0	11/27/2012 9:22
814950	30	0	0	0	11/27/2012 10:22
814978	28	0	0	0	11/27/2012 11:22
814980	2	0	0	0	11/27/2012 12:22
814980	0	0	0	0	11/27/2012 13:22
814980	0	0	0	0	11/27/2012 14:22
814983	3	0	0	0	11/27/2012 15:22
814984	1	0	0	0	11/27/2012 16:22
815152	168	0	0	0	11/27/2012 17:22
815304	152	0	0	0	11/27/2012 18:22
815308	4	0	0	0	11/27/2012 19:22
815312	4	0	0	0	11/27/2012 20:22
815314	2	0	0	0	11/27/2012 21:22
815320	6	0	0	0	11/27/2012 22:22
815332	12	0	0	0	11/27/2012 23:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
815332	0	0	0	0	11/28/2012 0:22
815336	4	0	0	0	11/28/2012 1:22
815336	0	0	0	0	11/28/2012 2:22
815336	0	0	0	0	11/28/2012 3:22
815336	0	0	0	0	11/28/2012 4:22
815336	0	0	0	0	11/28/2012 5:22
815336	0	0	0	0	11/28/2012 6:22
815336	0	0	0	0	11/28/2012 7:22
815343	7	0	0	0	11/28/2012 8:22
815349	6	0	0	0	11/28/2012 9:22
815355	6	0	0	0	11/28/2012 10:22
815355	0	0	0	0	11/28/2012 11:22
815355	0	0	0	0	11/28/2012 12:22
815364	9	0	0	0	11/28/2012 13:22
815371	7	0	0	0	11/28/2012 14:22
815392	21	0	0	0	11/28/2012 15:22
815392	0	0	0	0	11/28/2012 16:22
815562	170	0	0	0	11/28/2012 17:22
815793	231	0	0	0	11/28/2012 18:22
815798	5	0	0	0	11/28/2012 19:22
815808	10	0	0	0	11/28/2012 20:22
815813	5	0	0	0	11/28/2012 21:22
815816	3	0	0	0	11/28/2012 22:22
815839	23	0	0	0	11/28/2012 23:22
815847	8	0	0	0	11/29/2012 0:22
815849	2	0	0	0	11/29/2012 1:22
815854	5	0	0	0	11/29/2012 2:22
815854	0	0	0	0	11/29/2012 3:22
815855	1	0	0	0	11/29/2012 4:22
815856	1	0	0	0	11/29/2012 5:22
815857	1	0	0	0	11/29/2012 6:22
815859	2	0	0	0	11/29/2012 7:22
815865	6	0	0	0	11/29/2012 8:22
815872	7	0	0	0	11/29/2012 9:22
815881	9	0	0	0	11/29/2012 10:22
815887	6	0	0	0	11/29/2012 11:22
815893	6	0	0	0	11/29/2012 12:22
815903	10	0	0	0	11/29/2012 13:22
815905	2	0	0	0	11/29/2012 14:22
815906	1	0	0	0	11/29/2012 15:22
815913	7	0	0	0	11/29/2012 16:22
816079	166	0	0	0	11/29/2012 17:22
816206	127	0	0	0	11/29/2012 18:22
816216	10	0	0	0	11/29/2012 19:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
816218	2	0	0	0	11/29/2012 20:22
816218	0	0	0	0	11/29/2012 21:22
816236	18	0	0	0	11/29/2012 22:22
816242	6	0	0	0	11/29/2012 23:22
816253	11	0	0	0	11/30/2012 0:22
816253	0	0	0	0	11/30/2012 1:22
816253	0	0	0	0	11/30/2012 2:22
816253	0	0	0	0	11/30/2012 3:22
816253	0	0	0	0	11/30/2012 4:22
816253	0	0	0	0	11/30/2012 5:22
816253	0	0	0	0	11/30/2012 6:22
816258	5	0	0	0	11/30/2012 7:22
816267	9	0	0	0	11/30/2012 8:22
816274	7	0	0	0	11/30/2012 9:22
816274	0	0	0	0	11/30/2012 10:22
816303	29	0	0	0	11/30/2012 11:22
816325	22	0	0	0	11/30/2012 12:22
816325	0	0	0	0	11/30/2012 13:22
816331	6	0	0	0	11/30/2012 14:22
816335	4	0	0	0	11/30/2012 15:22
816338	3	0	0	0	11/30/2012 16:22
816503	165	0	0	0	11/30/2012 17:22
816632	129	0	0	0	11/30/2012 18:22
816647	15	0	0	0	11/30/2012 19:22
816648	1	0	0	0	11/30/2012 20:22
816648	0	0	0	0	11/30/2012 21:22
816655	7	0	0	0	11/30/2012 22:22
816663	8	0	0	0	11/30/2012 23:22
816663	0	0	0	0	12/1/2012 0:22
816663	0	0	0	0	12/1/2012 1:22
816663	0	0	0	0	12/1/2012 2:22
816663	0	0	0	0	12/1/2012 3:22
816663	0	0	0	0	12/1/2012 4:22
816663	0	0	0	0	12/1/2012 5:22
816663	0	0	0	0	12/1/2012 6:22
816666	3	0	0	0	12/1/2012 7:22
816671	5	0	0	0	12/1/2012 8:22
816671	0	0	0	0	12/1/2012 9:22
816684	13	0	0	0	12/1/2012 10:22
816692	8	0	0	0	12/1/2012 11:22
816701	9	0	0	0	12/1/2012 12:22
816709	8	0	0	0	12/1/2012 13:22
816724	15	0	0	0	12/1/2012 14:22
816750	26	0	0	0	12/1/2012 15:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
816762	12	0	0	0	12/1/2012 16:22
817064	302	0	0	0	12/1/2012 17:22
817173	109	0	0	0	12/1/2012 18:22
817179	6	0	0	0	12/1/2012 19:22
817179	0	0	0	0	12/1/2012 20:22
817179	0	0	0	0	12/1/2012 21:22
817179	0	0	0	0	12/1/2012 22:22
817179	0	0	0	0	12/1/2012 23:22
817179	0	0	0	0	12/2/2012 0:22
817189	10	0	0	0	12/2/2012 1:22
817189	0	0	0	0	12/2/2012 2:22
817189	0	0	0	0	12/2/2012 3:22
817189	0	0	0	0	12/2/2012 4:22
817189	0	0	0	0	12/2/2012 5:22
817189	0	0	0	0	12/2/2012 6:22
817190	1	0	0	0	12/2/2012 7:22
817190	0	0	0	0	12/2/2012 8:22
817204	14	0	0	0	12/2/2012 9:22
817204	0	0	0	0	12/2/2012 10:22
817204	0	0	0	0	12/2/2012 11:22
817209	5	0	0	0	12/2/2012 12:22
817238	29	0	0	0	12/2/2012 13:22
817246	8	0	0	0	12/2/2012 14:22
817247	1	0	0	0	12/2/2012 15:22
817258	11	0	0	0	12/2/2012 16:22
817428	170	0	0	0	12/2/2012 17:22
817549	121	0	0	0	12/2/2012 18:22
817553	4	0	0	0	12/2/2012 19:22
817553	0	0	0	0	12/2/2012 20:22
817553	0	0	0	0	12/2/2012 21:22
817553	0	0	0	0	12/2/2012 22:22
817553	0	0	0	0	12/2/2012 23:22
817557	4	0	0	0	12/3/2012 0:22
817563	6	0	0	0	12/3/2012 1:22
817563	0	0	0	0	12/3/2012 2:22
817563	0	0	0	0	12/3/2012 3:22
817563	0	0	0	0	12/3/2012 4:22
817563	0	0	0	0	12/3/2012 5:22
817563	0	0	0	0	12/3/2012 6:22
817563	0	0	0	0	12/3/2012 7:22
817568	5	0	0	0	12/3/2012 8:22
817572	4	0	0	0	12/3/2012 9:22
817578	6	0	0	0	12/3/2012 10:22
817587	9	0	0	0	12/3/2012 11:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
817587	0	0	0	0	12/3/2012 12:22
817587	0	0	0	0	12/3/2012 13:22
817589	2	0	0	0	12/3/2012 14:22
817594	5	0	0	0	12/3/2012 15:22
817595	1	0	0	0	12/3/2012 16:22
817805	210	0	0	0	12/3/2012 17:22
817911	106	0	0	0	12/3/2012 18:22
817916	5	0	0	0	12/3/2012 19:22
817925	9	0	0	0	12/3/2012 20:22
817925	0	0	0	0	12/3/2012 21:22
817947	22	0	0	0	12/3/2012 22:22
817948	1	0	0	0	12/3/2012 23:22
817948	0	0	0	0	12/4/2012 0:22
817948	0	0	0	0	12/4/2012 1:22
817948	0	0	0	0	12/4/2012 2:22
817948	0	0	0	0	12/4/2012 3:22
817948	0	0	0	0	12/4/2012 4:22
817948	0	0	0	0	12/4/2012 5:22
817948	0	0	0	0	12/4/2012 6:22
817948	0	0	0	0	12/4/2012 7:22
817954	6	0	0	0	12/4/2012 8:22
817962	8	0	0	0	12/4/2012 9:22
817963	1	0	0	0	12/4/2012 10:22
817963	0	0	0	0	12/4/2012 11:22
817963	0	0	0	0	12/4/2012 12:22
817963	0	0	0	0	12/4/2012 13:22
817972	9	0	0	0	12/4/2012 14:22
817988	16	0	0	0	12/4/2012 15:22
818003	15	0	0	0	12/4/2012 16:22
818169	166	0	0	0	12/4/2012 17:22
818279	110	0	0	0	12/4/2012 18:22
818279	0	0	0	0	12/4/2012 19:22
818279	0	0	0	0	12/4/2012 20:22
818285	6	0	0	0	12/4/2012 21:22
818292	7	0	0	0	12/4/2012 22:22
818297	5	0	0	0	12/4/2012 23:22
818298	1	0	0	0	12/5/2012 0:22
818298	0	0	0	0	12/5/2012 1:22
818298	0	0	0	0	12/5/2012 2:22
818298	0	0	0	0	12/5/2012 3:22
818298	0	0	0	0	12/5/2012 4:22
818298	0	0	0	0	12/5/2012 5:22
818299	1	0	0	0	12/5/2012 6:22
818299	0	0	0	0	12/5/2012 7:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
818300	1	0	0	0	12/5/2012 8:22
818304	4	0	0	0	12/5/2012 9:22
818312	8	0	0	0	12/5/2012 10:22
818324	12	0	0	0	12/5/2012 11:22
818326	2	0	0	0	12/5/2012 12:22
818329	3	0	0	0	12/5/2012 13:22
818331	2	0	0	0	12/5/2012 14:22
818341	10	0	0	0	12/5/2012 15:22
818342	1	0	0	0	12/5/2012 16:22
818524	182	0	0	0	12/5/2012 17:22
818623	99	0	0	0	12/5/2012 18:22
818625	2	0	0	0	12/5/2012 19:22
818646	21	0	0	0	12/5/2012 20:22
818663	17	0	0	0	12/5/2012 21:22
818676	13	0	0	0	12/5/2012 22:22
818692	16	0	0	0	12/5/2012 23:22
818702	10	0	0	0	12/6/2012 0:22
818704	2	0	0	0	12/6/2012 1:22
818704	0	0	0	0	12/6/2012 2:22
818706	2	0	0	0	12/6/2012 3:22
818706	0	0	0	0	12/6/2012 4:22
818706	0	0	0	0	12/6/2012 5:22
818706	0	0	0	0	12/6/2012 6:22
818706	0	0	0	0	12/6/2012 7:22
818737	31	0	0	0	12/6/2012 8:22
818778	41	0	0	0	12/6/2012 9:22
818787	9	0	0	0	12/6/2012 10:22
818793	6	0	0	0	12/6/2012 11:22
818801	8	0	0	0	12/6/2012 12:22
818805	4	0	0	0	12/6/2012 13:22
818807	2	0	0	0	12/6/2012 14:22
818817	10	0	0	0	12/6/2012 15:22
818818	1	0	0	0	12/6/2012 16:22
818984	166	0	0	0	12/6/2012 17:22
819151	167	0	0	0	12/6/2012 18:22
819173	22	0	0	0	12/6/2012 19:22
819195	22	0	0	0	12/6/2012 20:22
819217	22	0	0	0	12/6/2012 21:22
819243	26	0	0	0	12/6/2012 22:22
819250	7	0	0	0	12/6/2012 23:22
819262	12	0	0	0	12/7/2012 0:22
819266	4	0	0	0	12/7/2012 1:22
819268	2	0	0	0	12/7/2012 2:22
819268	0	0	0	0	12/7/2012 3:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
819270	2	0	0	0	12/7/2012 4:22
819270	0	0	0	0	12/7/2012 5:22
819270	0	0	0	0	12/7/2012 6:22
819298	28	0	0	0	12/7/2012 7:22
819305	7	0	0	0	12/7/2012 8:22
819310	5	0	0	0	12/7/2012 9:22
819319	9	0	0	0	12/7/2012 10:22
819322	3	0	0	0	12/7/2012 11:22
819326	4	0	0	0	12/7/2012 12:22
819332	6	0	0	0	12/7/2012 13:22
819356	24	0	0	0	12/7/2012 14:22
819360	4	0	0	0	12/7/2012 15:22
819367	7	0	0	0	12/7/2012 16:22
819546	179	0	0	0	12/7/2012 17:22
819652	106	0	0	0	12/7/2012 18:22
819660	8	0	0	0	12/7/2012 19:22
819660	0	0	0	0	12/7/2012 20:22
819688	28	0	0	0	12/7/2012 21:22
819696	8	0	0	0	12/7/2012 22:22
819702	6	0	0	0	12/7/2012 23:22
819713	11	0	0	0	12/8/2012 0:22
819723	10	0	0	0	12/8/2012 1:22
819727	4	0	0	0	12/8/2012 2:22
819727	0	0	0	0	12/8/2012 3:22
819727	0	0	0	0	12/8/2012 4:22
819728	1	0	0	0	12/8/2012 5:22
819729	1	0	0	0	12/8/2012 6:22
819759	30	0	0	0	12/8/2012 7:22
819775	16	0	0	0	12/8/2012 8:22
819779	4	0	0	0	12/8/2012 9:22
819786	7	0	0	0	12/8/2012 10:22
819818	32	0	0	0	12/8/2012 11:22
819856	38	0	0	0	12/8/2012 12:22
819891	35	0	0	0	12/8/2012 13:22
819905	14	0	0	0	12/8/2012 14:22
819936	31	0	0	0	12/8/2012 15:22
819938	2	0	0	0	12/8/2012 16:22
820105	167	0	0	0	12/8/2012 17:22
820210	105	0	0	0	12/8/2012 18:22
820215	5	0	0	0	12/8/2012 19:22
820223	8	0	0	0	12/8/2012 20:22
820223	0	0	0	0	12/8/2012 21:22
820223	0	0	0	0	12/8/2012 22:22
820225	2	0	0	0	12/8/2012 23:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read I	Reading Date/Time
820225	0	0	0	0	12/9/2012 0:22
820227	2	0	0	0	12/9/2012 1:22
820227	0	0	0	0	12/9/2012 2:22
820228	1	0	0	0	12/9/2012 3:22
820228	0	0	0	0	12/9/2012 4:22
820228	0	0	0	0	12/9/2012 5:22
820228	0	0	0	0	12/9/2012 6:22
820228	0	0	0	0	12/9/2012 7:22
820230	2	0	0	0	12/9/2012 8:22
820239	9	0	0	0	12/9/2012 9:22
820267	28	0	0	0	12/9/2012 10:22
820267	0	0	0	0	12/9/2012 11:22
820269	2	0	0	0	12/9/2012 12:22
820269	0	0	0	0	12/9/2012 13:22
820269	0	0	0	0	12/9/2012 14:22
820273	4	0	0	0	12/9/2012 15:22
820274	1	0	0	0	12/9/2012 16:22
820438	164	0	0	0	12/9/2012 17:22
820539	101	0	0	0	12/9/2012 18:22
820539	0	0	0	0	12/9/2012 19:22
820540	1	0	0	0	12/9/2012 20:22
820550	10	0	0	0	12/9/2012 21:22
820552	2	0	0	0	12/9/2012 22:22
820569	17	0	0	0	12/9/2012 23:22
820578	9	0	0	0	12/10/2012 0:22
820579	1	0	0	0	12/10/2012 1:22
820579	0	0	0	0	12/10/2012 2:22
820579	0	0	0	0	12/10/2012 3:22
820579	0	0	0	0	12/10/2012 4:22
820579	0	0	0	0	12/10/2012 5:22
820579	0	0	0	0	12/10/2012 6:22
820579	0	0	0	0	12/10/2012 7:22
820585	6	0	0	0	12/10/2012 8:22
820590	5	0	0	0	12/10/2012 9:22
820590	0	0	0	0	12/10/2012 10:22
820614	24	0	0	0	12/10/2012 11:22
820615	1	0	0	0	12/10/2012 12:22
820618	3	0	0	0	12/10/2012 13:22
820625	7	0	0	0	12/10/2012 14:22
820625	0	0	0	0	12/10/2012 15:22
820627	2	0	0	0	12/10/2012 16:22
820809	182	0	0	0	12/10/2012 17:22
820936	127	0	0	0	12/10/2012 18:22
820939	3	0	0	0	12/10/2012 19:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
820942	3	0	0	0	12/10/2012 20:22
820947	5	0	0	0	12/10/2012 21:22
820951	4	0	0	0	12/10/2012 22:22
820962	11	0	0	0	12/10/2012 23:22
820964	2	0	0	0	12/11/2012 0:22
820964	0	0	0	0	12/11/2012 1:22
820964	0	0	0	0	12/11/2012 2:22
820964	0	0	0	0	12/11/2012 3:22
820964	0	0	0	0	12/11/2012 4:22
820965	1	0	0	0	12/11/2012 5:22
820965	0	0	0	0	12/11/2012 6:22
820965	0	0	0	0	12/11/2012 7:22
820965	0	0	0	0	12/11/2012 8:22
820971	6	0	0	0	12/11/2012 9:22
820980	9	0	0	0	12/11/2012 10:22
820982	2	0	0	0	12/11/2012 11:22
820988	6	0	0	0	12/11/2012 12:22
820992	4	0	0	0	12/11/2012 13:22
820992	0	0	0	0	12/11/2012 14:22
820998	6	0	0	0	12/11/2012 15:22
821000	2	0	0	0	12/11/2012 16:22
821170	170	0	0	0	12/11/2012 17:22
821190	20	0	0	0	12/11/2012 18:22
821194	4	0	0	0	12/11/2012 19:22
821216	22	0	0	0	12/11/2012 20:22
821216	0	0	0	0	12/11/2012 21:22
821224	8	0	0	0	12/11/2012 22:22
821224	0	0	0	0	12/11/2012 23:22
821225	1	0	0	0	12/12/2012 0:22
821225	0	0	0	0	12/12/2012 1:22
821225	0	0	0	0	12/12/2012 2:22
821225	0	0	0	0	12/12/2012 3:22
821226	1	0	0	0	12/12/2012 4:22
821226	0	0	0	0	12/12/2012 5:22
821226	0	0	0	0	12/12/2012 6:22
821226	0	0	0	0	12/12/2012 7:22
821226	0	0	0	0	12/12/2012 8:22
821231	5	0	0	0	12/12/2012 9:22
821238	7	0	0	0	12/12/2012 10:22
821238	0	0	0	0	12/12/2012 11:22
821238	0	0	0	0	12/12/2012 12:22
821266	28	0	0	0	12/12/2012 13:22
821303	37	0	0	0	12/12/2012 14:22
821312	9	0	0	0	12/12/2012 15:22

S/N	Logging Int	Technology	Technology	Register Ty	Register Type Desc
80773950	60	0	Transmitte	1	RTR
Reading	Consumpti	Tamper Inc	Leak Indica	Bad Read Ir	Reading Date/Time
821313	1	0	0	0	12/12/2012 16:22
821475	162	0	0	0	12/12/2012 17:22
821475	0	0	0	0	12/12/2012 18:22
821476	1	0	0	0	12/12/2012 19:22
821476	0	0	0	0	12/12/2012 20:22
821476	0	0	0	0	12/12/2012 21:22
821476	0	0	0	0	12/12/2012 22:22
821489	13	0	0	0	12/12/2012 23:22
821495	6	0	0	0	12/13/2012 0:22
821495	0	0	0	0	12/13/2012 1:22
821495	0	0	0	0	12/13/2012 2:22
821495	0	0	0	0	12/13/2012 3:22
821495	0	0	0	0	12/13/2012 4:22
821495	0	0	0	0	12/13/2012 5:22
821495	0	0	0	0	12/13/2012 6:22
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821517	7	0	0	0	12/13/2012 12:22
821544	27	0	0	0	12/13/2012 13:22
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821588	16	0	0	0	12/13/2012 15:22
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821966	0	0	0	0	12/15/2012 14:22
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822023	37	0	0	0	12/15/2012 16:22
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822605	0	0	0	0	12/17/2012 20:22
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822629	11	0	0	0	12/17/2012 23:22
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822659	2	0	0	0	12/18/2012 8:22
822661	2	0	0	0	12/18/2012 9:22
822665	4	0	0	0	12/18/2012 10:22
822669	4	0	0	0	12/18/2012 11:22
822678	9	0	0	0	12/18/2012 12:22
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822706	21	0	0	0	12/18/2012 14:22
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822913	8	0	0	0	12/18/2012 21:22
822922	9	0	0	0	12/18/2012 22:22
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822948	0	0	0	0	12/19/2012 4:22
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823217	0	0	0	0	12/20/2012 3:22
823217	0	0	0	0	12/20/2012 4:22
823218	1	0	0	0	12/20/2012 5:22
823218	0	0	0	0	12/20/2012 6:22
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823228	6	0	0	0	12/20/2012 9:22
823232	4	0	0	0	12/20/2012 10:22
823232	0	0	0	0	12/20/2012 11:22
823238	6	0	0	0	12/20/2012 12:22
823253	15	0	0	0	12/20/2012 13:22
823259	6	0	0	0	12/20/2012 14:22
823264	5	0	0	0	12/20/2012 15:22
823267	3	0	0	0	12/20/2012 16:22
823417	150	0	0	0	12/20/2012 17:22
823424	7	0	0	0	12/20/2012 18:22
823444	20	0	0	0	12/20/2012 19:22
823457	13	0	0	0	12/20/2012 20:22
823466	9	0	0	0	12/20/2012 21:22
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823495	4	0	0	0	12/21/2012 1:22
823495	0	0	0	0	12/21/2012 2:22
823497	2	0	0	0	12/21/2012 3:22
823497	0	0	0	0	12/21/2012 4:22
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823497	0	0	0	0	12/21/2012 6:22
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823532	30	0	0	0	12/21/2012 8:22
823538	6	0	0	0	12/21/2012 9:22
823551	13	0	0	0	12/21/2012 10:22
823560	9	0	0	0	12/21/2012 11:22
823575	15	0	0	0	12/21/2012 12:22

DEPARTMENT OF WATER

County of Kaua'i

"Water has no Substitute – Conserve It!"

MANAGER'S REPORT No.13-28

February 28, 2013

Re: Adoption Request of Amended Resolution No. 12-3 *(11/11),* Pertaining to State Revolving Fund (SRF) Funding for Job No. 02-15, WK-28,Wailua Houselots Main Replacement, Phase I

BACKGROUND:

It is requested that the Board amend approve Resolution No. 12-3 *(11/11),* Pertaining to State Revolving Fund (SRF) Funding for Job No. 02-15, WK-28, Wailua Houselots Main Replacement, Phase I.

This was originally sent to the Board on November 23, 2011 for $6 million. Since that time due to efforts from the project management group we have gotten a grant for $750 K the loan agreement should include the total loan plus grant.

That is what the attached resolution does.

Thank you for your attention to this matter.

Respectfully submitted,

David R. Craddick, P.E. C.E.M.,
Manager and Chief Engineer

Attachment: Amended Resolution No. 12-3 *(2-28-13)*
Resolution No. 12-3 *(Adopted 11-23-11)*

DC:mjg

Mgrrp/Amended Res. No. 12-5 *(11/11)*(02-28-13):mjg

---4398 Pua Loke Street, Lihu'e, Kaua'i, Hawai'i or P. O. Box 1706, Lihu'e, HI 96766-5706---
Phone No. (808) 245-5400 – Administration FAX No. (808) 246-8628 – Engineering/Fiscal/Shop FAX No. (808) 245-5813

AMENDED RESOLUTION NO. 12-3

Original (11-23-2011) Amended (02-28-2013)

APPROVING THE RECEIPT AND EXPENDITURE OF MONIES FOR:

DW413-0008 Job No. 02-15, WK-28, Wailua Houselots Main Replacement, Phase I;

FUNDED BY THE DRINKING WATER STATE REVOLVING FUND (DWSRF); AND AUTHORIZING THE MANAGER AND CHIEF ENGINEER TO REDUCE, REPLACE, ALLOCATE UP TO $6,671,000.00, THE AMOUNT CURRENTLY ENCUMBERED BY CONTRACT AND PROJECTED FOR FUTURE CONSTRUCTION, PLUS CHANGE ORDER AMENDMENTS IN THE FORM OF LOAN AGREEMENTS BETWEEN THE STATE OF HAWAII (State) AND BOARD OF WATER SUPPLY, COUNTY OF KAUAI (Board)

WHEREAS, Hawaii Revised Statutes Sections 340E-31 through 340E-41 establish a drinking water treatment revolving loan fund, also known as the Drinking Water State Revolving Fund, for the purpose of protecting and improving drinking water quality by financing eligible projects consistent with applicable federal and state laws; and

WHEREAS, the State Department of Health may execute a loan for each of the Projects; and

WHEREAS, the Department of Water, County of Kauai (DOW) capital budgets for Fiscal Years ended June 30, 2013, appropriated monies for contracts for construction of the following projects: Project No. JobNo. PLH-03, Kahili Horizontal Directional Drilled Well, more generally known as Job No. 02-15, WK-28, Wailua Houselots Main Replacement, Phase I, more generally known as **DW413-0008 Job No. 02-15, WK-28, Wailua Houselots Main Replacement, Phase I**; in the amount of $6,671,000.00 and DOW has encumbered monies for the projects listed above; and

WHEREAS, under Article XVII of the Kauai County Charter, expressly and by implication, the Board is the governing body of the DOW and the Board warrants that it has the full authority to manage, control, and operate the waterworks of the County of Kauai, and all waterworks finances property; and

WHEREAS, the Board and DOW also have broad authorities over County waterworks and facilities under the authorities granted to Counties and their Boards of Water Supply by Hawaii Revised Statutes Sections 46-1.5 (19) and (23), and Chapter 54; and to the extent that such statues are not superseded by the County Charter's provisions; and

WHEREAS, the Board, to the extent permitted by law, may request and consent to the pledge of revenues for the construction and acquiring of capital improvements, and the Board warrants that it has such authority for these Projects; and

WHEREAS, for the purpose of this Amended Resolution, any loan from the DWSRF shall constitute an obligation of the DOW; therefore,

AMENDED RESOLUTION NO. 12-3

Original (11-23-2011) Amended (02-28-2013)

BE IT RESOLVED by the Kauai County Board of Water Supply, State of Hawaii:

1. That the Manager and Chief Engineer of DOW is hereby authorized to reduce or replace up to **$6,671,000.00** in funds advanced by the DOW to undertake the following projects: Project 02-15, WK-28, **DW413-0008 Wailua Houselots Main Replacement, Phase I**; in the form of loan agreements between the State and the Board, and

2. That the receipt and expenditure of loan monies from the DWSRF for the Project is hereby approved; and

3. That the monies received as loans be used to reduce or replace funds advanced by the DOW to undertake the Projects; and

4. That the monies received as loans and the resulting debt service be included as a part of DOW debt service with annual payments budgeted according to the debt service schedule to be provided by the State; and

5. That the funds borrowed by the DOW are to be held to the same accounting standards as funds borrowed through the issuance of bonds; and

6. That the Board and DOW further pledge sufficient DOW revenue to provide security for repayment of the loan, plus interest, pursuant to the loan agreement; and

7. That the Board and DOW pledge it shall exercise their revenue bond, revenue, assessment, and other authority as needed, to the extent allowed by law, to pay the semiannual repayments and any loan fees under these loan agreements. As needed, the Board and DOW shall establish, increase and collect such fees, assessments, and revenues and make such adjustments to raise funds sufficient to repay the loans and pay any loan fees under these loan agreements, as permitted by law; and

BE IT FURTHER RESOLVED that this Amended Resolution shall take effect upon the adoption thereof, and that the Secretary be directed to provide certified copies of this Resolution to the Manager and Chief Engineer of the DOW, Controller of DOW, Kauai County Mayor, and the Director of the State Department of Health.

Approved as to Form and Legality:

_____

Andrea Suzuki
Deputy County Attorney,
County of Kauai

BOARD OF WATER SUPPLY

_____

Randall Nishimura, Chairperson
4398 Pua Loke Street
Lihue, Hawaii 96766

AMENDED RESOLUTION NO. 12-3

Original (11-23-2011) Amended (02-28-2013)

CERTIFICATION OF ADOPTION

DW413-0008 Job No. 02-15, WK28, Wailua Houselots Main Replacement, Phase I;

FUNDED BY THE DRINKING WATER STATE REVOLVING FUND (DWSRF); AND AUTHORIZING THE MANAGER AND CHIEF ENGINEER TO REDUCE, REPLACE, ALLOCATE UP TO $6,671,000.00, THE AMOUNT CURRENTLY ENCUMBERED BY CONTRACT AND PROJECTED FOR FUTURE CONSTRUCTION, PLUS CHANGE ORDER AMENDMENTS IN THE FORM OF LOAN AGREEMENTS BETWEEN THE STATE OF HAWAII (State) AND BOARD OF WATER SUPPLY, COUNTY OF KAUAI (Board)

It is hereby certified that the foregoing amended resolution was adopted by the Kauai County Board of Water Supply, State of Hawaii, at its meeting held February 28, 2013, by the following vote:

APPROVED: Total:

DISAPPROVED: Total:

ABSENT: Total:

TOTAL:

CERTIFICATION
Amended Resolution No. 12-3 (02/13)

The undersign hereby certifies that the foregoing Amended Resolution is a true and correct copy of Resolution No. 12-3, adopted at the meeting of the Kauai Board of Water Supply, duly held on the 28th day of February, 2012.

David R. Craddick, Manager & Chief Engineer
Department of Water

RESOLUTION NO. 12-3

(2011-12)

Resolution No. 12-3, SRF Funding (11-23-11 Board Meeting)

APPROVING THE RECEIPT AND EXPENDITURE OF MONIES FOR:
DW400-0004 Job No. PLH-03, Kahili Horizontal Directional Drilled Well;
DW413-0008 Job No. 02-15, WK-28, Wailua Houselots Main Replacement, Phase I;

FUNDED BY THE DRINKING WATER STATE REVOLVING FUND (DWSRF); AND AUTHORIZING THE MANAGER AND CHIEF ENGINEER TO REDUCE, REPLACE, ALLOCATE UP TO $6,000,000.00, THE AMOUNT CURRENTLY ENCUMBERED BY CONTRACT AND PROJECTED FOR FUTURE CONSTRUCTION, PLUS CHANGE ORDER AMENDMENTS IN THE FORM OF LOAN AGREEMENTS BETWEEN THE STATE OF HAWAII (State) AND BOARD OF WATER SUPPLY, COUNTY OF KAUAI (Board)

WHEREAS, Hawaii Revised Statutes Sections 340E-31 through 340E-41 establish a drinking water treatment revolving loan fund, also known as the Drinking Water State Revolving Fund, for the purpose of protecting and improving drinking water quality by financing eligible projects consistent with applicable federal and state laws; and

WHEREAS, the State Department of Health may execute a loan for each of the Projects; and

WHEREAS, the Department of Water, County of Kauai (DOW) capital budgets for Fiscal Years ended June 30, 2012, appropriated monies for contracts for construction of the following projects: Project No. JobNo. PLH-03, Kahili Horizontal Directional Drilled Well, more generally known as DW400-0004 Job No. PLH-03, Kahili Horizontal Directional Drilled Well; Job No. 02-15, WK-28, Wailua Houselots Main Replacement, Phase I, more generally known as DW413-0008 Job No. 02-15, WK-28, Wailua Houselots Main Replacement, Phase I; in the amount of $6,000,000.00 and DOW has encumbered monies for the projects listed above; and

WHEREAS, under Article XVII of the Kauai County Charter, expressly and by implication, the Board is the governing body of the DOW and the Board warrants that it has the full authority to manage, control, and operate the waterworks of the County of Kauai, and all waterworks finances property; and

WHEREAS, the Board and DOW also have broad authorities over County waterworks and facilities under the authorities granted to Counties and their Boards of Water Supply by Hawaii Revised Statutes Sections 46-1.5 (19) and (23), and Chapter 54; and to the extent that such statues are not superseded by the County Charter's provisions; and

WHEREAS, the Board, to the extent permitted by law, may request and consent to the pledge of revenues for the construction and acquiring of capital improvements, and the Board warrants that it has such authority for these Projects; and

RESOLUTION NO. 12-3

(2011-12)

Resolution No. 12-3, SRF Funding (11-23-11 Board Meeting)

WHEREAS, for the purpose of this Resolution, any loan from the DWSRF shall constitute an obligation of the DOW; therefore,

BE IT RESOLVED by the Kauai County Board of Water Supply, State of Hawaii:

1. That the Board Chair is authorized to enter into loan agreements with the State of Hawaii for the projects mentioned in paragraph 2 below, and

2. That the Manager and Chief Engineer of DOW is hereby authorized to reduce or replace up to $6,000,000.00 in funds advanced by the DOW to undertake the following projects: Project PLH-03, **DW400-00047, Kahili Horizontal Directional Drilled Well**; Project 02-15, WK-28, **DW413-0008 Wailua Houselots Main Replacement, Phase I**; in the form of loan agreements between the State and the Board, and

3. That the receipt and expenditure of loan monies from the DWSRF for the Project is hereby approved; and

4. That the monies received as loans be used to reduce or replace funds advanced by the DOW to undertake the Projects; and

5. That the monies received as loans and the resulting debt service be included as a part of DOW debt service with annual payments budgeted according to the debt service schedule to be provided by the State; and

6. That the funds borrowed by the DOW are to be held to the same accounting standards as funds borrowed through the issuance of bonds; and

7. That the Board and DOW further pledge sufficient DOW revenue to provide security for repayment of the loan, plus interest, pursuant to the loan agreement; and

8. That the Board and DOW pledge it shall exercise their revenue bond, revenue, assessment, and other authority as needed, to the extent allowed by law, to pay the semiannual repayments and any loan fees under these loan agreements. As needed, the Board and DOW shall establish, increase and collect such fees, assessments, and revenues and make such adjustments to raise funds sufficient to repay the loans and pay any loan fees under these loan agreements, as permitted by law; and

9. That the Board shall defend, indemnify, and save harmless the State of Hawai'i, the DIRECTOR, and their officers, employees, and agents from and against any and all actions, claims, suits, damages, and costs arising out of or resulting from the acts or omissions of the BOARD or the BOARD's officers, employees, agents, contractors, or subcontractors occurring during or in connection with the performance f the BOARD's services under this Agreement,

RESOLUTION NO. 12-3

(2011-12)

Resolution No. 12-3, SRF Funding (11-23-11 Board Meeting)

CERTIFICATION OF ADOPTION

RESOLUTION NO . 12-3,
DW400-0004 Job No. PLH-03, Kahili Horizontal Directional Drilled Well;
DW413-0008 Job No. 02-15, WK28, Wailua Houselots Main Replacement, Phase I;

FUNDED BY THE DRINKING WATER STATE REVOLVING FUND (DWSRF); AND AUTHORIZING THE MANAGER AND CHIEF ENGINEER TO REDUCE, REPLACE, ALLOCATE UP TO $6,000,000.00, THE AMOUNT CURRENTLY ENCUMBERED BY CONTRACT AND PROJECTED FOR FUTURE CONSTRUCTION, PLUS CHANGE ORDER AMENDMENTS IN THE FORM OF LOAN AGREEMENTS BETWEEN THE STATE OF HAWAII (State) AND BOARD OF WATER SUPPLY, COUNTY OF KAUAI (Board)

It is hereby certified that the foregoing resolution was adopted by the Kauai County Board of Water Supply, State of Hawaii, at its meeting held November 23, 2011, by the following vote:

APPROVED: Roy Oyama, Daryl Kaneshiro, Larry Dill, Raymond McCormick, Randall Nishimura — Total: 5

DISAPPROVED: — Total: 0

ABSENT: Michael Dahilig, Clyde Nakaya — Total: 2

TOTAL: 5

CERTIFICATION

The undersign hereby certifies that the foregoing Resolution is a true and correct copy of Resolution No. 12-3, adopted at the meeting of the Kauai Board of Water Supply, duly held on the 23rd day of November, 2011.

David R. Craddick, P.E., Manager & Chief Engineer
Department of Water

ADM. SERV. OFFICE
LOG NO. 13-054

Exhibit "E"
-4-

unless the action or claim involves an act or omission solely of the State or the DIRECTOR, their officers, employees, or agents; and

10. BE IT FURTHER RESOLVED that this Resolution shall take effect upon the adoption thereof, and that the Secretary be directed to provide certified copies of this Resolution to the Manager and Chief Engineer of the DOW, Controller of DOW, Kauai County Mayor, and the Director of the State Department of Health.

Approved as to Form and Legality:

Deputy County Attorney,
County of Kauai

BOARD OF WATER SUPPLY

Roy Oyama, Chairperson
4398 Pua Loke Street
Lihue, Hawaii 96766

DEPARTMENT OF WATER

County of Kaua'i

"Water has no Substitute – Conserve It!"

MANAGER'S REPORT No. 13-29:

February 28, 2013

Re: FY 13/14 Goals / Annual Evaluation for the Manager and Chief Engineer

BACKGROUND:

The Personnel Department clarified that 5-8-07 is the most current memorandum to process the performance evaluations for executive appointees. The deadline for the Manager's Evaluation for this fiscal year should be closed and submitted by June 30th and so forth for every fiscal year.

On October 25, 2012 Board Meeting, the Board was presented a Manager's Goals packet that provided the status of each goal the Board has made for the Manager. The Board moved to receive to incorporate these goals into future goals. I am asking that the Board provide a clearer detail of their Goals to the Manager to set for fiscal year July 2013 through June 2014, so that we may track them and provide the Board with an updated status every quarter.

The Manager's Evaluation form remains the same and I am requesting a list of my respected affiliates to provide feedback for my evaluation. I have not had an evaluation since September of 2011. The evaluation submitted this June will be based on my performance from July 2012 through June 2013.

Thank you for your attention to this matter.

Respectfully submitted,

David R. Craddick, P.E., C.E.M.
Manager and Chief Engineer

Attachment: Manager's Goals
Performance Evaluation for Executive Appointees (5-08-07)
Approved Regular Board Meeting Minutes (10-25-12)

DC:mjg

Mgrrpt/February 2013/13-29 FY 13/14 Goals for the Manager/Annual Evaluation (2-28-13)/mjg

Goals for the Manager and Chief Engineer

FY 2012-2013

GOALS FOR THE MANAGER YEAR 2011-2012

Item #	Goal	Status As of October 2011	Deadline	Measure	Status As of June 2012
1	**Bond Float and Water Plan 2020**				
	1. Encumber $39 million in BAB		Dec-11	Yes or No (1 OR 2) Quantity vs Quality	COMPLETED $39 M Encumbered
2	**Personnel and Accounting**				
	Improve employee morale, employee survey	Last KDOW employee satisfaction survey was on June 2011	June 2012, new survey and new numbers	Yes or No	COMPLETED New numbers for KDOW employee survey as of August 31, 2012
3	**Standards**				
	Source Water Protection Plan	Ms. Shiramizu is working on grant funding application	Jun-12	2 year plan by Ms. Shiramizu **Months 1-6:** Expand the Potential Contamination Activities (PCA) inventory to include the entire island. Simultaneously begin preparing the source water/wellhead protection plan for all water systems. **Months 7-12:** Complete plans for each water system including plan implementation strategy and draft incentive and wellhead protection easement programs. **Months 13-18:** Finalize incentive and wellhead protection programs (which should include public education activities, training, advertising and approved outreach), & begin implementing.	COMPLETED
4	**Facilities**				

GOALS FOR THE MANAGER YEAR 2011-2012

Item #	Goal	Status As of October 2011	Deadline	Measure	Status As of June 2012
5	**Inter Agency Coordination**				
	Inter agency coordination between DOW, Planning and DPW for Mayor's Holo Holo 2020 Plan	Participation by the Manager. Check to see if Mayor's Holo Holo 2020 Plan may be able to sync with DOW's 2020 Plan	December 2011 & May 2012	Report Semi Annually based on web postings of what projects are synced with the Mayor's Holo Holo 2020 Plan	No report given to board in December 2011 or May 2012
6	**Performance Indicators**				
	1. Organizational Best Practices 2. Customer Service Complaints/Active Account 3. Technical Quality Complaints/Active Account 4. Customer Service Cost per Active Account 5. Unaccounted for Water Loss 6. Water Treatment Cost/MG produced	Established within the Department of Water.	Items 2-6 establish-ment due 9/30/2011.	Chart should include a 75% median compared to other utilities in the U.S. and a 25% median compared to other utilities in the U.S.	COMPLETED New survey done by the Department on the July 27th monthly employee meeting.

GOALS FOR THE MANAGER YEAR 2011-2012

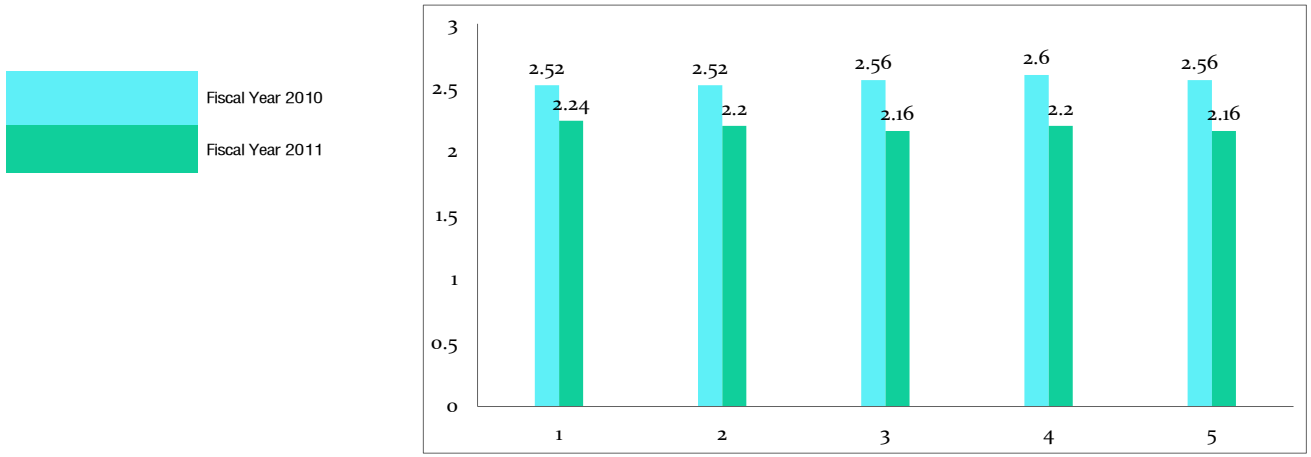
Item #	Goal	Status As of October 2011	Deadline	Measure	Status As of June 2012
Goals from Staff					
1	**Operations**				
	Continue to support and implement the re-organization of the operations division	Deputy Manager William Eddy working on filling: 1. Telecom Tech/Scada Mgr. 2. Water Plant Operator II (Working Supervisor)	Jun-12	Filling by Department's Personnel to be used as a measure. Include an organizational chart to represent what is currently being done and provide in the Board Book.	COMPLETED December 19, 2011 these positions were submitted to DPS & as of August 8, 2012 DPS is reviewing and requesting confirmation that it is funded in the DOW budget.
2	**Engineering**				
	Provide additional temporary storage space for files (approximately 10'x 3' area) until new permanent facilities (new office building) are built	Need to arrange for leak-proofing of containers	30-Jun-11		COMPLETED
3	**Special Projects**				
	Due to recent and anticipated staff departure and retirement within the Department, priority to evaluate and reorganize the current engineering activities and staff structure for the future operations related to the design and construction of projects within the Department of Water, which include Water Plan 2020 as well as privately funded projects. In doing so, make it a priority to attract and retain qualified staff during the reorganization process.	Allocation of EM5 to Project Manager is pending per DPS review.	Dec-11 Dec-11	Reorganization Approval of reallocations requested by DPS Retain (creation of positions)	COMPLETED The Engineering Department has been approved with a new Table of Organization effective August 16, 2012 creating three (3) divisions: Engineering, Construction Management, and Water Resources & Planning remained the same. There is also a seperate Water Quality Division

GOALS FOR THE MANAGER YEAR 2011-2012

Item #	Goal	Status As of October 2011	Deadline	Measure	Status As of June 2012
Goals from Staff					
4	**Water Resources and Planning**				
5	**Fiscal**				

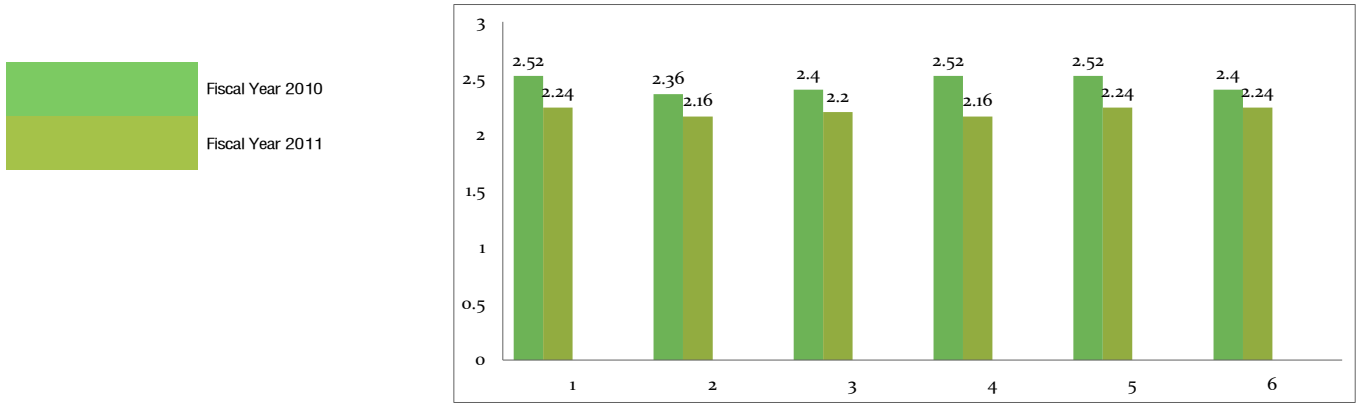
KDOW EMPLOYEE SATISFACTION SURVEY

FY 2010-2011 Comparison	Number of Responses per Column in Employee Satisfaction Surveys Received																					
	FY 2010	FY 2011	% Change from FY 2010	5	FY 2010	FY 2011	% Change from FY	4	FY 2010	FY 2011	% Change from FY 2010	3	FY 2010	FY 2011	% Change from FY 2010	2	FY 2010	FY 2011	% Change from FY 2010	1	Avg FY 10	Avg FY 11
KDOW Leadership	Strongly Agree				Agree				Neither				Disagree				Strongly Disagree					
1 KDOW is a leader in the industry.	5	5	0.00%		18	21	17%	↑	25	18	-28%	↓	10	5	-50%	↓	5	7	40%	↑	2.52	2.24
2 KDOW is a strong competitor in key growth areas.	4	7	42.86%	↑	21	26	24%	↑	22	14	-36%	↓	10	4	-60%	↓	6	4	-33%	↓	2.52	2.2
3 KDOW leadership has a clear vision of the future.	4	6	33.33%	↑	21	22	5%	↑	17	13	-24%	↓	12	6	-50%	↓	10	7	-30%	↓	2.56	2.16
4 KDOW leadership has made changes which are positive for the company.	4	7	42.86%	↑	8	28	250%	↑	25	10	-60%	↓	15	5	-67%	↓	13	5	-62%	↓	2.6	2.2
5 KDOW leadership has made changes which are positive for me.	2	4	50.00%	↑	11	16	45%	↑	20	13	-35%	↓	18	7	-61%	↓	13	14	8%	↑	2.56	2.16



KDOW EMPLOYEE SATISFACTION SURVEY

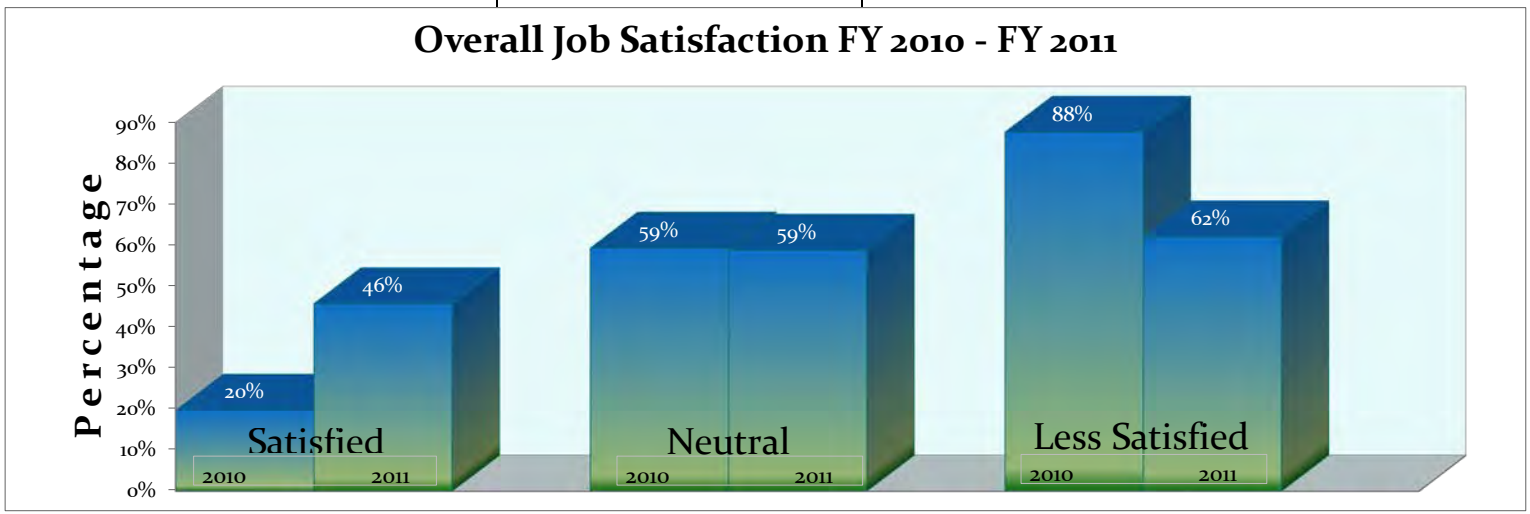
FY 2010-2011 Comparison		Number of Responses per Column in Employee Satisfaction Surveys Received																			
		FY 2010	FY 2011	% Change from FY 2010	5	FY 2010	FY 2011	% Change from FY	4	FY 2010	FY 2011	% Change from FY 2010	3	FY 2010	FY 2011	% Change from FY 2010	2	FY 2010	FY 2011	% Change from FY 2010	1	Avg FY 10	Avg FY 11
Your Job Satisfaction		Very Satisfied			5	Satisfied			4	Neither			3	Dissatisfied			2	Strongly Dissatisfied			1		
1	That you receive appropriate recognition for your contributions?	3	7	133%	⬆	17	12	-29%	⬇	17	12	-29%	⬇	12	10	-17%	⬇	14	15	7%	⬆	2.52	2.24
2	That your work gives you a sense of personal accomplishment?	7	10	43%	⬆	27	25	-7%	⬇	17	7	-59%	⬇	7	5	-29%	⬇	1	7	600%	⬆	2.36	2.16
3	With your direct supervisor?	8	18	125%	⬆	29	19	-34%	⬇	13	8	-38%	⬇	6	3	-50%	⬇	4	7	75%	⬆	2.4	2.2
4	With your overall job security?	17	11	-35%	⬇	21	24	14%	⬆	14	7	-50%	⬇	6	8	33%	⬆	5	4	-20%	⬇	2.52	2.16
5	With the company as a place to work?	10	5	-50%	⬇	13	23	77%	⬆	21	9	-57%	⬇	6	4	-33%	⬇	13	15	15%	⬆	2.52	2.24
6	With your job overall?	6	8	33%	⬆	22	24	9%	⬆	16	11	-31%	⬇	12	6	-50%	⬇	4	7	75%	⬆	2.4	2.24



KDOW EMPLOYEE SATISFACTION SURVEY

FY 2010-2011 Comparison	Number of Responses per Column in Employee Satisfaction Surveys Received																					
	FY 2010	FY 2011	% Change from FY 2010	5	FY 2010	FY 2011	% Change from FY	4	FY 2010	FY 2011	% Change from FY 2010	3	FY 2010	FY 2011	% Change from FY 2010	2	FY 2010	FY 2011	% Change from FY 2010	1	Avg FY 10	Avg FY 11
	Much More Satisfied				Somewhat More Satisfied				Same level of satisfaction as last year				Somewhat less satisfied				Much less satisfied					
Compared with a year ago, how would you describe your overall job satisfaction today?	2	5	150%	↑	5	9	80%	↑	21	18	-14%	↓	14	5	-64%	↓	17	14	-18%	↓	2.36	2.04

	Satisfied		Neutral			Less Satisfied	
	FY 2010	FY 2011	FY 2010	FY 2011		FY 2010	FY 2011
FY 2010 - 59 Employee Survey Participants	20%	46%	59%	59%	same	88%	62%
FY 2011 - 51 Employee Survey Participants							



David Craddick
Manager and Chief Engineer
Kaua'i Board of Water Supply
4398 Pua Loke Street
Ph: (808) 245-5407 Fax: (808)245-8628

Opened
11/17/2009 7:47 AM
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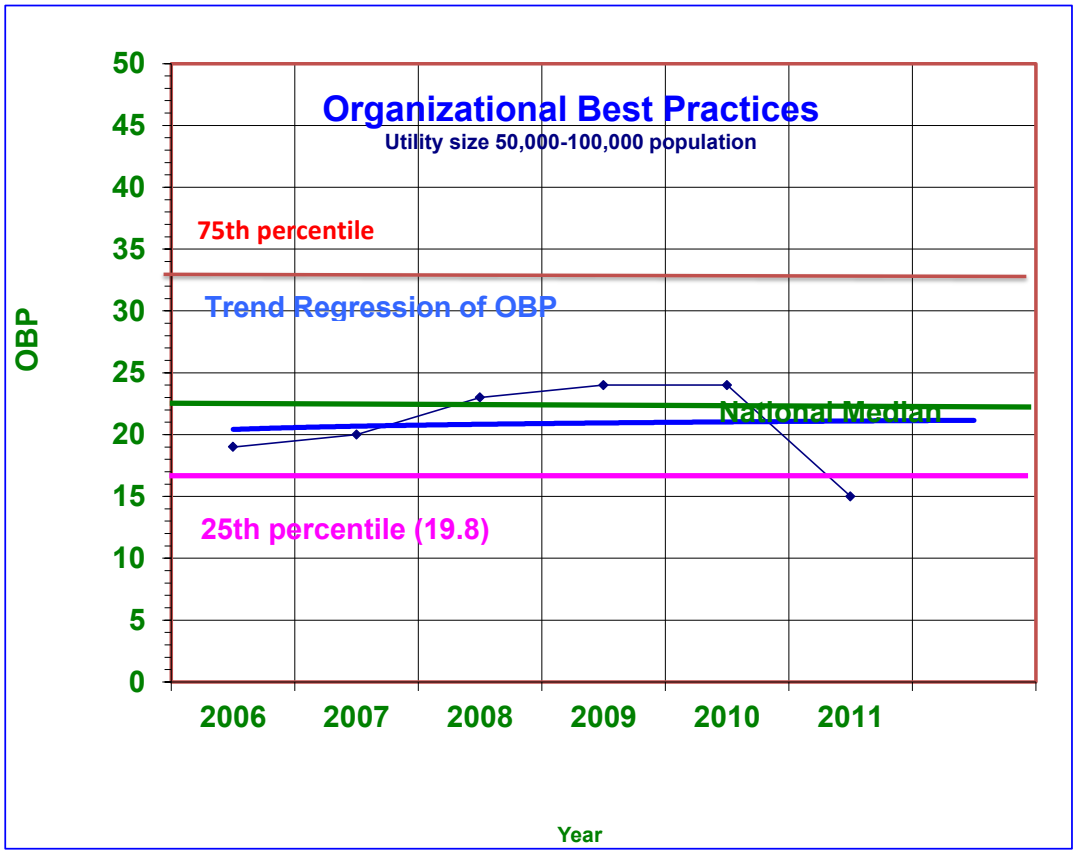
File Name : C:\dox\KDOW\Performance Indicators\Organizational Best Practices.XLS
Subject: Performance Indica
Project: OBP

Performance Indicator - KDOW
Organizational Best Practices

Formula: Sum of Strategic Planning, Long-Term Finacial Planning, Risk Management Planning, Optimized Asset Management, Performance Measure, Customer Involvement, Continuous Improvement.
(1 not practiced, 2 occasionally, 3 implemented but room for substaintial improvement, 4 implemented but room for improvement -5 Fully implemented)

Year	Strategic	LT Financial	Risk Mang	Opt Asset Mang	Performance Meas.	Customer Invol	Continuous Imp	OBP
2006	5	2	3	2	3	2	2	19.0
2007	5	2	3	2	2	3	3	20.0
2008	5	3	3	3	3	3	3	23.0
2009	5	4	3	3	3	3	3	24.0
2010	4	5	2	3	3	4	3	24.0
2011	2	3	2	2	2	2	2	15.0



Carl Arume/Bill Eddy/Mel
Microbiologist IV / Deputy Manager/Customer ServiceAccou
Kaua'i Board of Water Supply
4398 Pua Loke Street
Ph: (808) 245-5408 Fax: (808)245-8628

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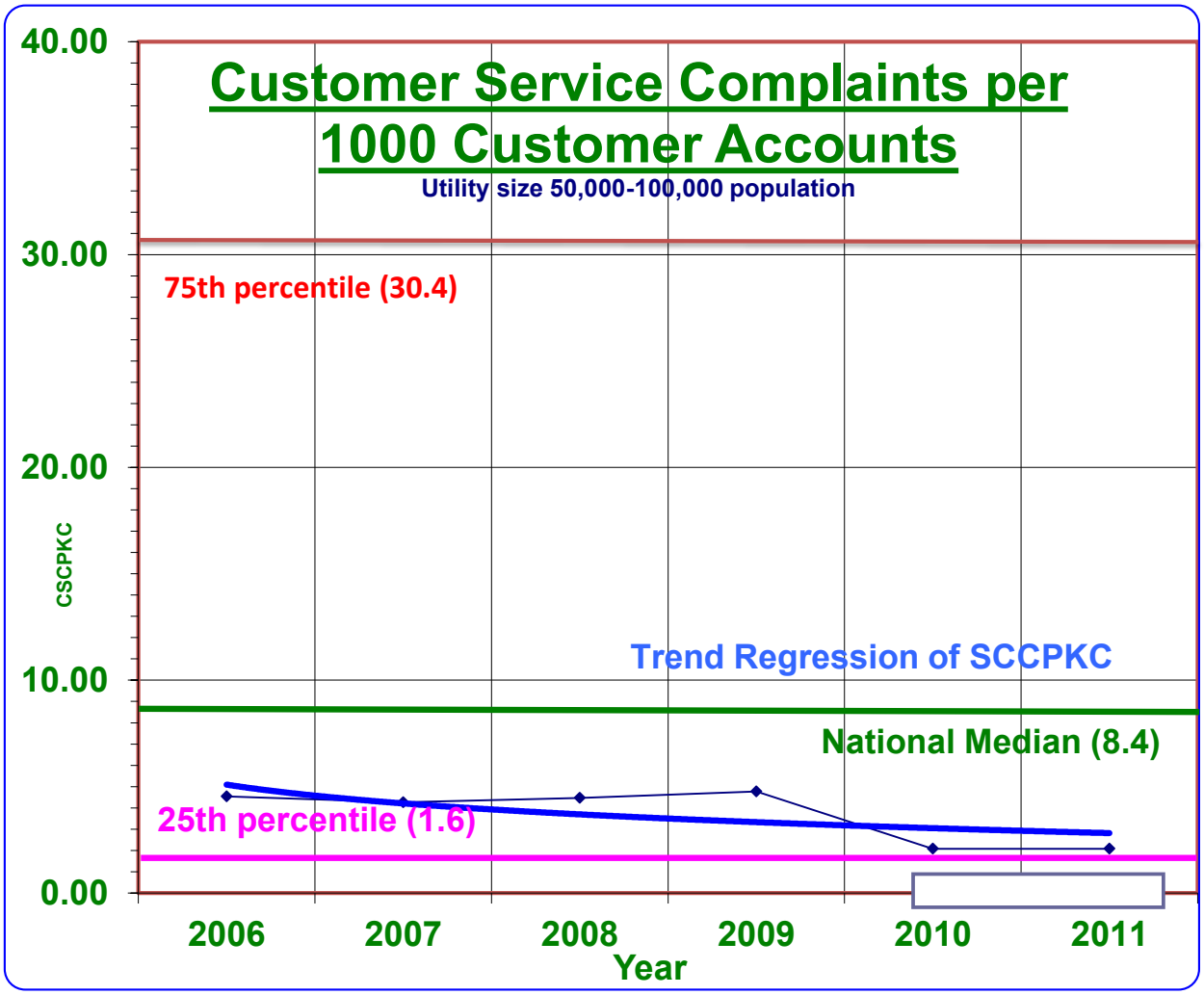
File Name :
C:\dox\KDOW\Performance Indicators\Customer Service Complaints per 1000 Customers.XLS
Subject: Performance Indi
Project: CSCP1000C

Performance Indicator - KDOW
Customer Service complaints per 1000 customers

Formula: $\frac{1000 * \text{Custom}}{\text{number of customers}}$

Year	# Customers	# Customer Service Compl	CSCPKC
2006	19837	90	4.54
2007	19961	85	4.26
2008	20160	90	4.46
2009	19937	95	4.77
2010	21148	44	2.08
2011	21148	44	2.08



Carl Arume/Bill/Mel
Microbiologist IV/Deputy Manager/Cust. Service Acc. IV
Kaua'i Board of Water Supply
4398 Pua Loke Street
Ph: (808) 245-5408 Fax: (808)245-8628

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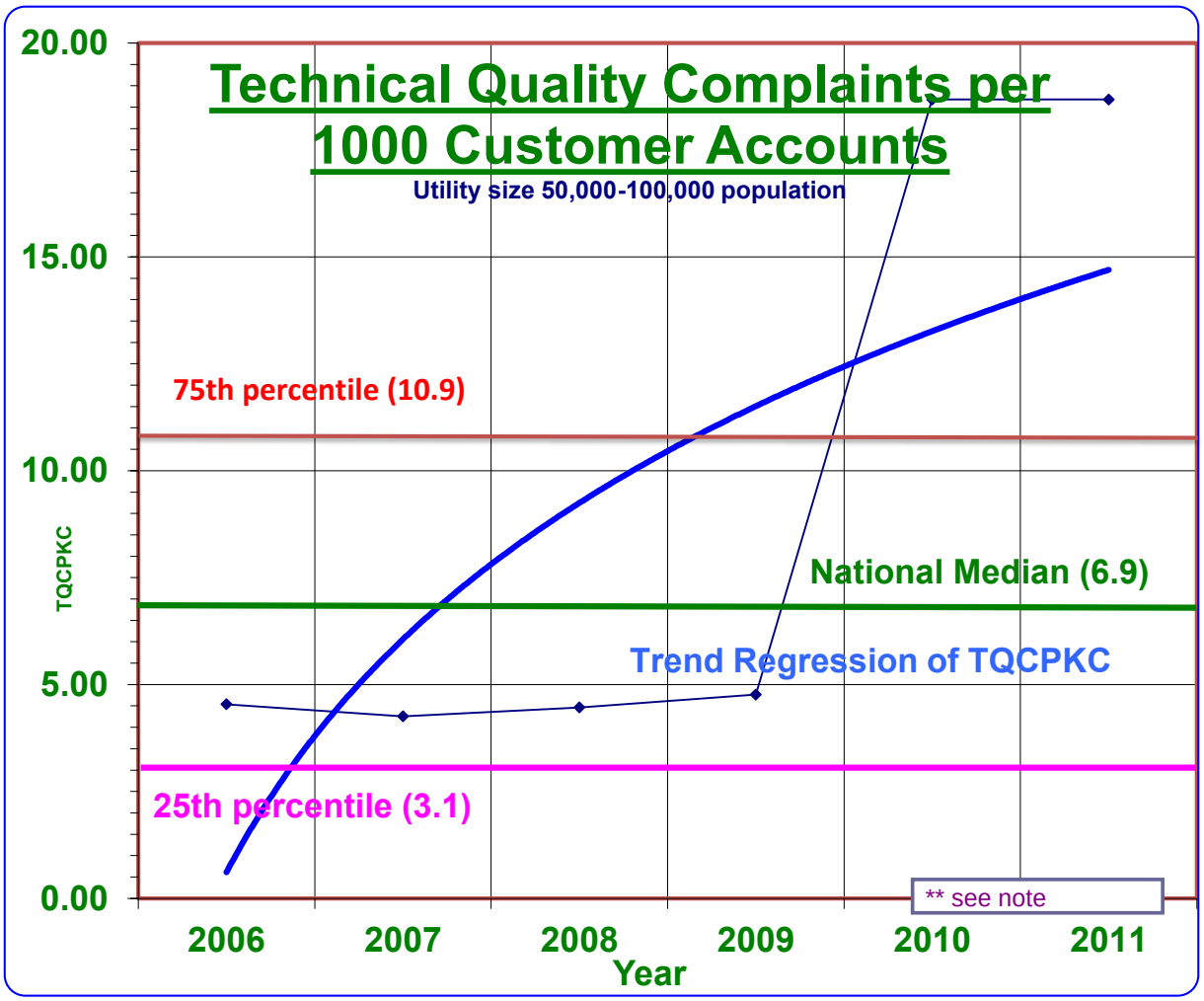
Subject: Performance Indicators
Project: TQCP1000C

Performance Indicator - KDOW
Technical Quality complaints per 1000 customers
Technical Quality is related to core service, water quality, taste, odor, appearance, disruption or pressure

Formula: $\frac{1000 * \text{Technical Quality Complaints}}{\text{number of customers}}$

Year	# Customers	# Technical Qu	TQCPKC
2006	19837	90	4.54
2007	19961	85	4.26
2008	20160	90	4.46
2009	19937	95	4.77
2010	21148	395	18.68
2011	21148	395	18.68



** Due to the high number of projects under construction there have been an unusual number of service disruptions

Mel/Paul
Customer Service Accountant
Kaua'i Board of Water Supply
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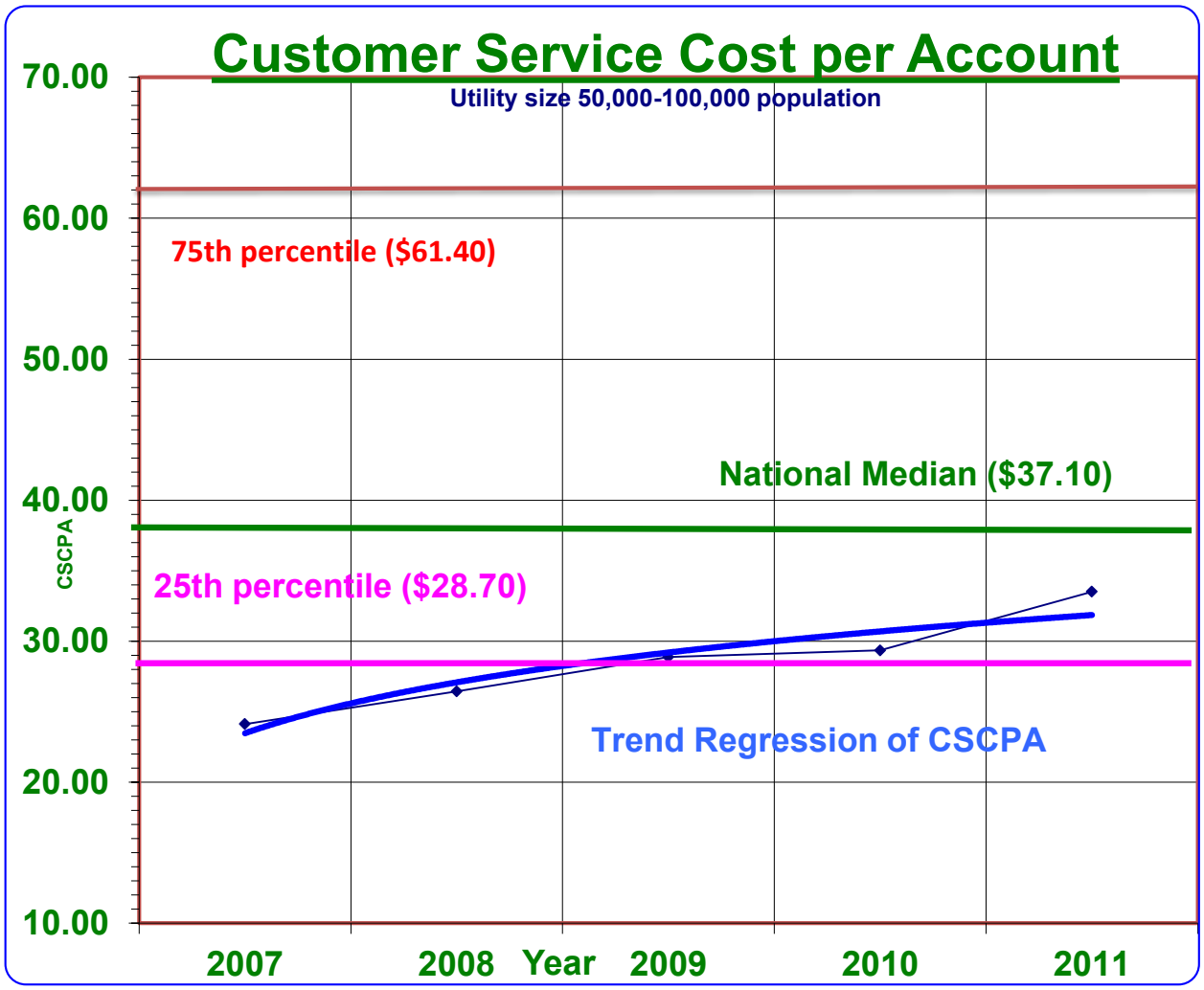
File Name :
C:\dox\KDOW\Performance Indicators\14 Customer Service Cost per Account.XLS
Subject: Performance Indic
Project: CSCPA

Performance Indicator - KDOW
Customer Service Cost per Account

Formula: $\frac{\text{Customer service cost}}{\text{number of customers}}$

Year	# Customers	Customer Serv	CSCPC
2007	19961	$ 481,714	$ 24.13
2008	20160	$ 533,177	$ 26.45
2009	19937	$ 575,875	$ 28.88
2010	19761	$ 580,000	$ 29.35
2011	21148	$ 708,748	$ 33.51



Department of Water County of Kaua'i

Bill Eddy
Deputy Manager
Kaua'i Board of Water Supply
4398 Pua Loke Street
Ph: (808) 245-5408 Fax: (808)245-8628

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File Name : C:\dox\KDOW\Performance Indicators\Water System Loss.XLS

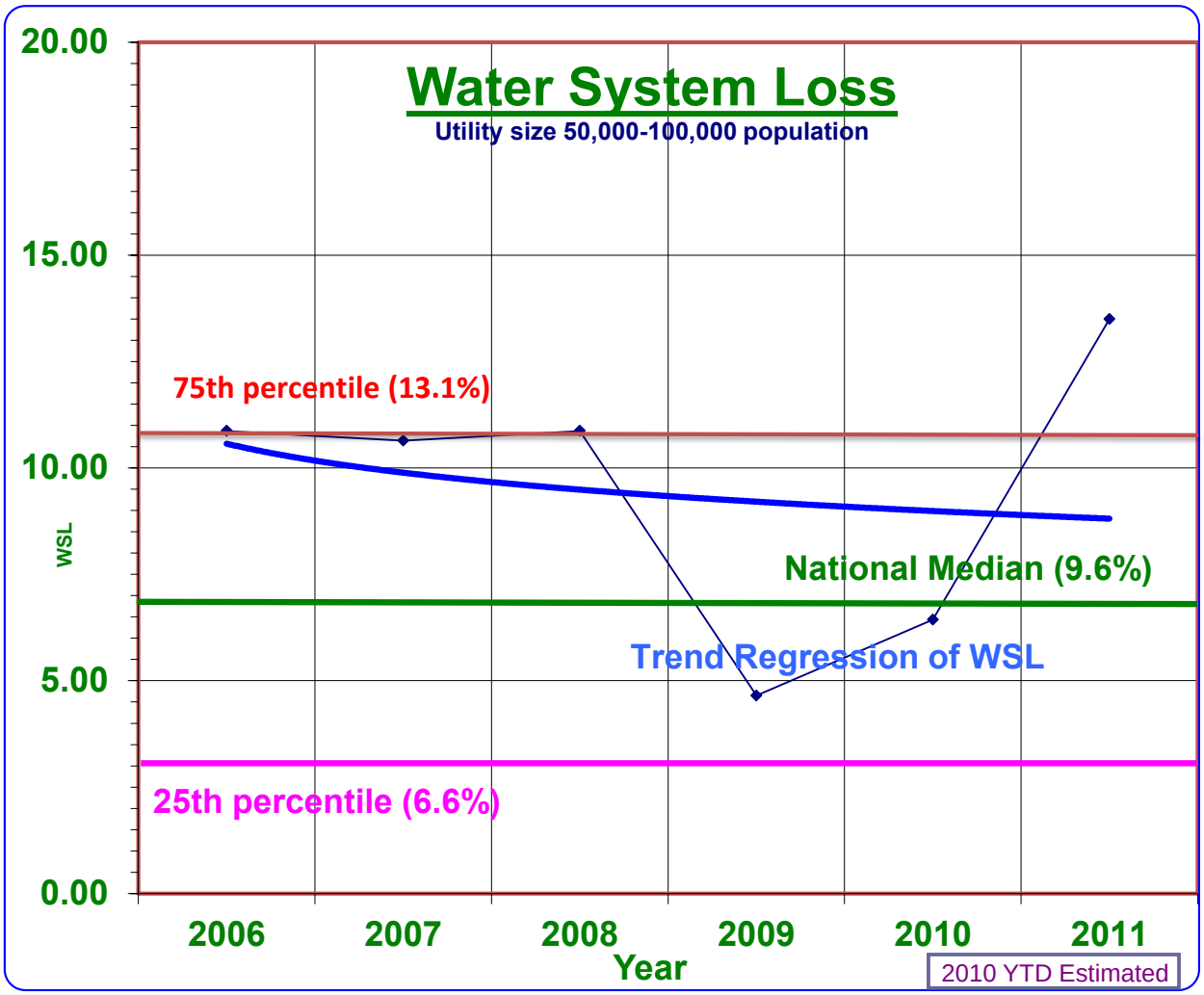
Subject: Performance Indic
Project: WSL

Performance Indicator - KDOW
Water system Loss

Formula: $\frac{100*\text{Total MG}}{\text{Total MG produced and purchased}}$

Year	Water Produce and Purchased	Water Billed and Approved	WSL
2006	4600	4100	10.87
2007	4700	4200	10.64
2008	4600	4100	10.87
2009	4300	4100	4.65
2010	4928	4611	6.43
2011	4928	4263	13.49

NOTE: 2010 data are estimated based on YTD information



Qualserve
Performance Indicators for Water and Wastewater Utilities Benchmarking Survey

Performance Indicators for Water & Wastewater Utilities - 2011v2

Please return your completed survey by

September 30,2012

Please return completed survey to Kami Johle Butt at kbutt@awwa.org

If you have technical or logistical questions, please contact John Anderson at 303-734-3427or janderson@awwa.org

Required Information

Name	William Eddy, PE
Title	Deputy Manager-Engineer
Address	P.O. Box 1706
City	Lihue
State / Province	HI
Zip	96766
Utility Company	County of Kauai, Department of Water
Phone	808-245-5405
Fax	
E-mail	weddy@kauaiwater.org
Date	6/18/2012

Introduction and Background

The primary objective of this initiative is to assess the performance of water and wastewater utilities using a variety of high-level measures. These measures are designed to help participating organizations improve their operational efficiency and effectiveness. Utility managers will use this information to determine where his/her utility's performance resides within the industry peer group. High-level indicators were selected as the starting point for the system because they are more likely to be recognizable and applicable at large numbers of utilities. This survey represents the result of the efforts of various organizations and individuals. AWWA/AWWARF staff brought together representatives from various organizations to develop performance indicators. During two workshops, these individuals set out to build on what others have already researched, developed and communicated, and to do it in a way that might draw continuing support from utilities that will both provide and use performance indicator data. A narrower project scope was proposed as a start so participating utilities will have opportunities to decide which indicators have the most meaning to them, and those administering the proposed measurement system can learn how to build, finance, manage and sustain an effective data delivery system. Developing a more detailed measurement system is planned in for future periods, including the addition of lower-level indicators. Twenty-two performance indicators were selected for this project. The QualServe business systems were chosen as an organizing framework to guide the design effort so the initial performance indicators database would be familiar to the many utilities participating in other elements of that program. During 2008 twelve more performance indicators were added to bring the total to 34 (see listing below).

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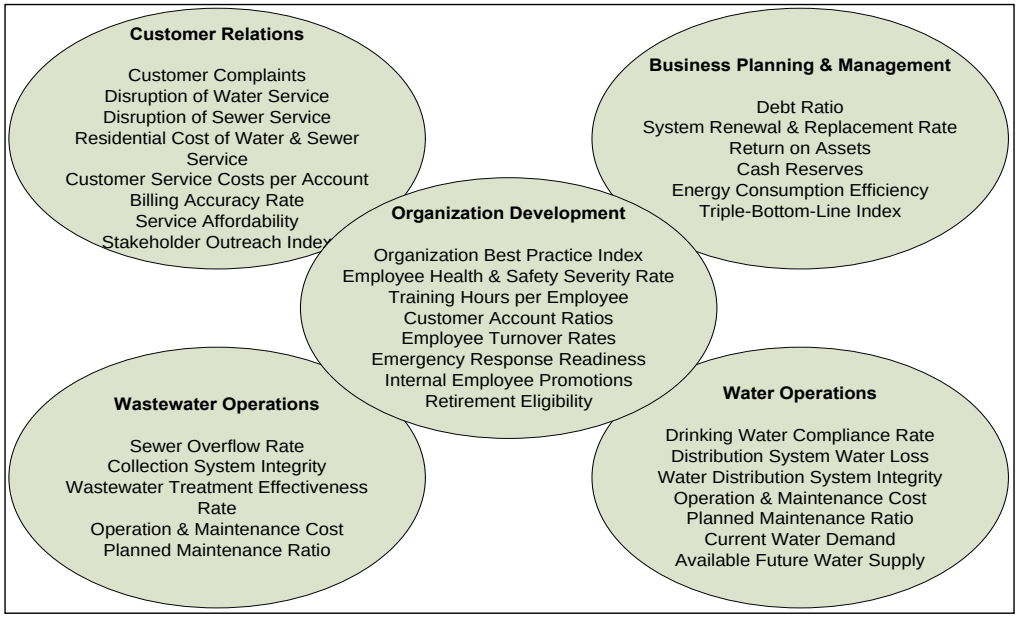
Qualserve
Performance Indicators for Water and Wastewater Utilities Benchmarking Survey

Performance Indicators Categorized using the QualServe Business Model



Note: It is proposed that one year of data be the basis for each indicator. Due to differences among individual utility fiscal years and data systems, utilities should provide data for their most recently completed fiscal or calendar year. Profile information can include the start and end months for that data.

SURVEY FORM NAVIGATION

Table of Contents

1. Instructions

2. Utility Profile Information

3. Organizational Development

4. Customer Relations

5. Business Planning & Management

6. Water Operations

7. Wastewater Operations

8. Summary

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Qualserve
Performance Indicators for Water and Wastewater Utilities Benchmarking Survey

PERFORMANCE INDICATORS

By providing data, your company will receive comparative information for the following indicators or metrics:

Organizational Development

- Organizational Best Practice Index:
  - Strategic Planning
  - Long-term Financial Planning
  - Risk Management Planning
  - Optimized Asset Management
  - Performance Measurement
  - Customer Involvement
  - Continuous Improvement
- Employee Health & Safety Severity Rate
- Training Hours per Employee
- Customer Accounts per Employee (Water)
- Customer Accounts per Employee (Wastewater)
- MGD Water Delivered per Employee
- MGD Wastewater Processed per Employee
- Employee Turnover Rates
- Emergency Response Readiness
- Internal Employee Promotions
- Retirement Eligibility

Customer Relations

- Customer Service Complaints per 1000 Customers
- Technical Quality Complaints per 1000 Customers
- Disruption of Water Service Rate:
  - Planned (less than 4 hours)
  - Planned (between 4 and 12 hours)
  - Planned (greater than 12 hours)
  - Unplanned (less than 4 hours)
  - Unplanned (between 4 and 12 hours)
  - Unplanned (greater than 12 hours)
- Disruption of Sewer Service
  - Planned (less than 4 hours)
  - Planned (between 4 and 12 hours)
  - Planned (greater than 12 hours)
  - Unplanned (less than 4 hours)
  - Unplanned (between 4 and 12 hours)
  - Unplanned (greater than 12 hours)
- Residential Cost of Water/Sewer Service:
  - Monthly residential water using 7500 gallons per month
  - Average residential water bill amount for one month of service
  - Monthly residential sewer using 7500 gallons per month
  - Average residential sewer bill amount for one month of service
  - Multi-service, monthly bill - combined service using 7500 gallons per month
  - Multi-service, average residential combined bill for one month of service
- Customer Service Cost per Account
- Billing Accuracy Rate
- Service Affordability
- Stakeholder Outreach Index

Business Operations

- Debt Ratio
- System Renewal / Replacement Rate:
  - Water pipeline
  - Water treatment facility and pumping
  - Wastewater pipelines and collections
  - Wastewater treatment facility and pumping
- Return on Assets
- Cash Reserves
- Energy Consumption Efficiency
- Triple Bottom Line Index

Water Operations

- Drinking Water Compliance Rate
- Distribution System Water Loss
- Water Distribution System Integrity
- Operations & Maintenance Cost Ratios:
  - O&M cost per account
  - O&M cost per MG processed
  - Direct cost of treatment per MG
- Planned Maintenance Ratios:
  - Planned maintenance ratio (hours)
  - Planned maintenance ratio (cost)
- Current Water Demand
- Available Water Supply

Wastewater Operations

- Sewer Overflow Rate
- Collection System Integrity
- Wastewater Treatment Effectiveness Rate
- Operations & Maintenance Cost Ratios:
  - O&M cost per account
  - O&M cost per MG processed
  - Direct cost of treatment per MG
- Planned Maintenance Ratios:
  - Planned maintenance ratio (hours)
  - Planned maintenance ratio (cost)

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Qualserve
Performance Indicators for Water and Wastewater Utilities Benchmarking Survey

Instructions

1. Survey definitions should be carefully reviewed prior to providing your response. Please refer to the Benchmarking Performance Indicators Reference Document for further clarification. Input cells are shaded in blue. Please direct survey inquiries to John Anderson at 303-734-3427 or janderson@awwa.org.
2. Please return your completed survey to John Anderson via email. Just save and e-mail this file with your completed survey responses to janderson@awwa.org. You will receive an e-mail confirming your submission.
3. Please provide all answers for the most recent fiscal or calendar year. All currency answers should be provided in U.S. dollars.
4. Please answer all questions as accurately as possible. For those questions where you do not know the exact answer, please provide a reasonable approximation.
5. Please restrict your text answers to no more than a paragraph (4 - 5 sentences).
6. In exchange for participating, your organization will receive a individualized, summary report showing how its performance compares to the aggregated results of the other participants.
7. We suggest that multiple individuals be involved in data collection for your utility. The data will likely originate from different groups within your organization. One person will be responsible for submitting the survey for his/her utility.

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Utility Profile Information

The following profile information will be used to characterize the performance indicator data that will lead to more meaningful comparisions. The profile information useful for the recommended indictors is requested below.

For the purpose of sharing paractices/processes and networking with your peer group, utilities have requested that the Benchmarking Program provide contact information to the other partcipating utilities.

Would you like to share your contact information (organization, name, phone and email) with the other participating utilities?

For "Yes", please place an "X" in the box to the right	

1. What is your corporate structure? Please select only one.

A - Public: (part of local governance - city, county, etc., non-enterprise)	
B - Public: (part of local governance - city, county, etc., enterprise fund)	X
C - Public: (independent governance)	
D - Investor-owned (private or publicly traded stock)	
Other, please specify:	

2. What is your utility's form of Governance?

A - Board of Directors or Commissioners	X
B -City or County Government	
Other, please specify:	

3. What utility memberships does your organization maintain? (Please place an "x" for all that apply)

AWWA	x
Water Research Foundation (awwaRF)	x
WEF	
AMSA	
AMWA	
NAWC	
WERF	

4. List other associations not listed above.

	NRWA

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5. Please indicate your utility's interest in participating in future metrics and process benchmarking activities with other utilities to establish industry-wide performance indicators.

High

6. a. Does your utility have taxing authority?

No

b. Is your utility contract operated?

No

c. Does your utility have fee setting authority?

Yes

7. Please indicate the end date for the 12-month period for the data you will be submitting in this survey. (e.g., 6/30/09).

06/30/11

8. a. Please indicate which operation description best describes your organization.

Water only

b. Please indicate which of the following services are provided by your utility? (Please place an "x" for all that apply)

Raw Water Transmission	
Potable Water Treatment and Transmission	X
Potable Water Distribution	X
Wastewater Collection (Combined Sewers)	
Wastewater Collection (Separated Sewers)	
Waste Water Treatment	
Stormwater Collection	
Stormwater Treatment	
Reclaimed Water Treatment	
Reclaimed/Irrigation Water Distribution	
Electric Generation	
Electric Distribution	
Natural Gas Distribution	
Solid Waste Collection	
Solid Waste Transfer/Disposal	
Other, please specify:	

c. Please provide your best estimate for the following items that are relevant to the services offered by your utility. Please use numbers for the most recent fiscal year.

Total number of active customer accounts during the reporting period

Definition: Active Customer Account means all customer accounts of all classes that were billed for some or all of the reporting period. A single account may include service through more than one water and sewer service. Note: Enter a number or leave blank.

21,148

Total number of population served

Definition: Refers to the total number of people served by all service accounts. Please select from the following five ranges, which best represents your size of population served.

50,001 - 100,000

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Wholesale customer accounts

Definition: Refers to the service sold to a customer at one or more major points of delivery for resale within the wholesale customer's service area.

Potable Water Service	
Wastewater Collection	
Wastewater Treatment	

Wholesale Population Served

Definition: Refers to the total number of people served by all wholesale accounts.

Potable Water Service	
Wastewater Collection	
Wastewater Treatment	

Residential Customer Accounts

Definition: Refers to single family and multifamily customers. Customer Accounts refer to the total number of customer accounts that are active for all or some of the reporting period.

Potable Water Service	
Wastewater Collection	
Wastewater Treatment	

Institutional/Commercial/Industrial (ICI) Customer Accounts

Definition: ICI users include hotels/motels, schools, restaurants, laundromats, car washes, office buildings, hospital/medical office, food stores, auto shops, cooling and heating, industrial processing, washing, and water as an ingredient. Customer Accounts refer to the total number of customer accounts that are active for all or some of the reporting period.

Potable Water Service	
Wastewater Collection	
Wastewater Treatment	

Retail Population Served

Definition: The ultimate consumer(s) of water and these include residential, commercial, institutional, and industrial customers. These do not include wholesalers. Population served is the total number of people and/or users of the service. This number is not general population of the service area.

Potable Water Service	
Wastewater Collection	
Wastewater Treatment	

System Capacity (MGD)

Definition: Refers to the maximum amount of water and/or wastewater your system can treat, store or collect in a day.

Potable Water Service	23.8
Wastewater Collection	
Wastewater Treatment	

Average Daily Use/Demand (MGD)

Definition: Refers to the estimated average daily use or demand on a system.

Potable Water Service	11.7
Wastewater Collection	
Wastewater Treatment	

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Qualserve
Performance Indicators for Water and Wastewater Utilities Benchmarking Survey

What is your source of water

Please provide percentage of water received per source

Surface Water	0
Ground Water	87
Purchased Water	13
Other	

What is the elevation difference in the topography of your service area in feet.

Greater than 1,000

What is the length of the distribution or collection system in your service area (in miles)

Water	400.0
Wastewater	

What type of treatment is used for water

Place an X in the box next to the treatment you use

Pre-Treatment	Screening	
	Chemical Pre-Treatment	
	Presedimentation	
	Microstraining	
	Preoxidation	
Main Treatment	Aeration	
	Coagulation/Flocculation	
	Sedimentation	
	Softening	
	Filtration	
	Stabilization	
	Fluoridation	
	Absorption	
	Disinfection	X

If energy is produced internally at your utility, what method is used

Please provide percentage of water received per source

Hydroelectric	
Biogas Generation	
Heat Recovery	
Other	

9. **What percentage of your utility's future capital improvement programs will be financed with debt?**

60.0

10. **What is your utility's typical time horizon for capital improvement programs in years (e.g., 3 years, 5 years, etc.)?**

5 to 10

11. **What percentage of your employees are represented by labor bargaining units?**

95.0

12. **What year did your utility first provide water service? ie: 2004**

1960

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13. What year did your utility first provide wastewater service? ie: 2004

14. What is your utility's current Corporate Bond Rating? AA or Aa

Organizational Development

Organizational Best Practices Index (Organizational Development)

For each of the management practices listed below, please indicate a score using the following scale:
This activity is fully implemented at our utility (5 Points)
This activity is largely implemented, but there is room for improvement (4 Points)
This activity is implemented, but there is room for substantial improvement (3 Points)
This activity is implemented, but only occasionally or without uniformity (2 Points)
This activity is not practiced at our utility (1 Point)

	(Scale 1 - 5)
15. Strategic Planning:	2
16. Long-term Financial Planning:	3
17. Risk Management Planning:	2
18. Performance Measurement System:	2
19. Optimized Asset Management Program:	2
20. Customer Involvement Program:	2
21. Continuous Improvement Program:	2

Employee Health & Safety Severity Rate (Organizational Development)

For each item below, please provide your response.

22. Total work days away from work

Definition:
· Total workdays away from work are obtained directly from OSHA Form 300A item K (http://www.osha.gov/pls/publications/publication or state counterpart) Summary of Work-Related Injuries and illnesses.

16

23. Total hours worked by all employees

Definition:
· Total hours worked by all employees is the sum of hours actually worked by full-time, part-time, temporary and seasonal employees of the utility.

134,775

Training Hours per Employee (Organizational Development)

24. Sum of all qualified Formal training hours completed by all employees

· Employees are all full time, part-time, temporary, and seasonal employees of the utility. Contractors not included.
· Formal Training meets at least one of the following descriptions:
  · A professionally-developed program or session with a fixed agenda that is offered on or off site during compensated employee, working hours of the emplopyee,
  · The classroom and study portions of a formal apprenticeship program completed during working hours.
  · A compensated training or related educational program, including an apprenticeship program, completed by an

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employee during non-work hours.

For the purposes of this definition, training is not limited to events where continuing education credits are awarded. Formal training includes technical training, certification training, apprenticeship training, employee skills and development training, professional seminars, attendance at professional

2,282

25. Total number of full time equivalents (FTEs) employees

Definition:

· A full-time equivalent (FTE) is the allocation of employee time equal to 2080 hours per year. Use of this term allows data to be normalized around a common measure. Part-time, temporary, and seasonal employees are converted to FTEs based on the total number of compensated hours.

78.0

Customer Accounts per Employee
MGD Water Delivered per Employee
MGD Wastewater Processed per Employee (Organizational Development)

For each item below, please provide your response.

26. Number of active WATER accounts

Definition:

· Active Water Account means all customer accounts that were billed for some or all of the reporting period. A single account may include service through more than one water service connection.

21,148

27. Number of active WASTEWATER accounts

Definition:

· Active Wastewater Account means all customer accounts that were billed for some or all of the reporting period. A single account may include service through more than one sewer service connection.

28. Average daily volume of WATER distributed (in MGD)

Definition:

· Average daily volumes distributed are calculated by dividing the total volume of water distributed during the reporting period by 365. Distributed water is the total volume of water entering the distribution system from all sources, including treatment facilities, well fields, individual wells, and purchased water connections.

13.5

29. Average daily volume of WASTEWATER processed (in MGD)

Definition:

· Average daily volumes processed are calculated by dividing the total volume of wastewater processed during the reporting period by 365

30. Number of FTEs supporting WATER service (include all supporting functions)

Definition:

· A full-time equivalent (FTE) is the allocation of employee time equal to 2080 hours per year. Use of this term allows data to be normalized around a common measure. Part-time, temporary, and seasonal employees are converted to FTEs based on the total number of compensated hours. Employee time from contracts supporting utility operations and maintenance are applied in the same way. Employee time from engineering and construction of new facilities are not counted in these indicators.

78.0

31. Number of FTEs supporting WASTEWATER service (include all supporting functions)

Definition: See FTE definition above.

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Employee Turnover Rates (%)

For each item below, please provide your response.

32. **Number of regular employee departures**

Definition:

· Number of regular employee departures includes the number of regular employees who terminated from employement through voluntary, involuntary, or retirement reasons during the reporting fiscal year period.

3

33. **Average Number of regular employees**

Definition:

· Regular employees are those employees who worked more than 1000 hours for the most recent annual basis of reporting. Average number of regular employees is the sum of the number of regular employees at the end/beginning of each month for the total of a 12-month fiscal year divided by 12.

78

Emergency Response Readiness (Training Hours per Employee)

For each item below, please provide your response.

34. **Total number of training hours for all employees on emergency response readiness training**

Definition:

· Training hours on emergency response readiness training includes formal training by employees for emergency emergency response, based on all utility-defined emergency response plans (includes all training for utility-defined emergency response plans). The sum of all qualified formal training on emergency response includes all employees for the most recent fiscal year reporting period

120.0

35. **Total employee hours worked during the reporting period**

Definition:

· The total employee hours worked for the same reporting period includes full-time, part-time, temporary, and sesonal employees of the utility.

134,775.0

Internal Employee Promotions (%)

For each item below, please provide your response.

36. **Number of internal promotions**

Definition:

· Promotions are based on employees who transfer to a classification that involves an increase in responsibility, not just pay increases. The number of internal promotions is based on current regular or part-time employees during the reporting fiscal year, who were promoted to "fill" positions.

2

37. **Total number of positions filled**

Definition:

· The total number of positions filled is based on positions that were opened or "posted" and filled during the reporting fiscal year. If a promotion was made without an "opening" or "posted" position, it will be included as a promotion if the position remains as a "regular (full-time) position.

13

Retirement Eligibility(%)

For each item below, please provide your response.

38. **Number of regular employees eligible for retirement within five years**

Definition:

· Retirement eligibility for each employee is based on known eligibility from age and employment history, according to a utility's retirement program and policies. Regular employees are those employees who worked more than 1000 hours for the most recent annual basis of reporting.

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14

39. Average Number of regular employees

Definition:

· Regular employees are those employees who worked more than 1000 hours for the most recent annual basis of reporting. Average number of regular employees is the sum of the number of regular employees at the end/beginning of each month for the total of a 12-month fiscal year divided by 12.

78

Customer Relations

Customer Service Complaints

Technical Quality Complaints (Customer Relations)

For each item below, please provide your response..

40. Number of active customer accounts during the reporting period

Definition:

· Active Customer Account means all customer accounts of all classes that were billed for some or all of the reporting period. A single account may include service through more than one water or sewer service connection.

21,148

41. Number of customer service associated complaints received by the utility during the reporting period

Definitions:

· A complaint is an expression of dissatisfaction conveyed to a utility employee acting in his/her official capacity. Complaints may be communicated orally or in writing. To clarify, a complaint is a request for action whereas an inquiry is a request for information.

· Customer refers to an individual service agreement for water or sewer service at a single property, regardless of size or billing category. An individual may own more than one property and be counted as a customer more than once. For example, an individual has three properties and each property has a meter. This utility would count this as three accounts.

· Customer service complaints, in the context of these indicators, refers to relationship factors.

44

42. Number of technical quality of service complaints received by the utility during the reporting period

Definitions:

· A complaint is an expression of dissatisfaction conveyed to a utility employee acting in his/her official capacity. Complaints may be communicated orally or in writing. To clarify, a complaint is a request for action whereas an inquiry is a request for information.

· Customer refers to an individual service agreement for water or sewer service at a single property, regardless of size or billing category. An individual may own more than one property and be counted as a customer more than once. For example, an individual has three properties and each property has a meter. This utility would count this as three accounts.

· Technical quality of service complaints are directly related to core services of the utility. They include complaints associated with water quality, taste, odor, appearance and pressure, sewage back-ups and overflows, disruptions of water or sewer service, disruptions of traffic, and facilities upkeep.

395

Disruption of Water Service (Customer Relations)

For each item below, please provide your response.

43. Planned Water Service Disruptions or the number of CUSTOMERS experiencing disruption for the following durations (less then 4 hours, 4-12 hours and greater than 12 hours)

Definitions:

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· Active customer account means all customer accounts that were billed for some or all of the reporting period. A single account may include service through more than one water service connection.
· Disruption of (water) service means any and all conditions within facilities or the distribution system under control of the utility whereby a customer loses full water service or has normal delivery pressure reduced below 20 pounds per square inch during a repair. Specific exclusions include: complaints of low pressure that are unrelated to a system condition requiring repair work; repairs to service piping under control of the customer; meter replacements that take less than 30 minutes; and shut-offs for nonpayment of bills.
· Planned disruptions are those where prior notice is given to all affected customers. Planned disruptions include new construction tie-ins, and replacements of valves, hydrants, meters, and other appurtenances under non-emergency conditions.

a. Duration less than 4 hours

33

b. Between 4 and 12 hours

26

c. Greater than 12 hours

0

44. Unplanned Water Service Disruptions or the number of CUSTOMERS experiencing disruption for the following durations (less then 4 hours, 4-12 hours and greater than 12 hours)

Definitions:

· Active customer account means all customer accounts that were billed for some or all of the reporting period. A single account may include service through more than one water service connection.
· Disruption of (water) service means any and all conditions within facilities or the distribution system under control of the utility whereby a customer loses full water service or has normal delivery pressure reduced below 20 pounds per square inch during a repair. Specific exclusions include: complaints of low pressure that are unrelated to a system condition requiring repair work; repairs to service piping under control of the customer; meter replacements that take less than 30 minutes; and shut-offs for nonpayment of bills.
· Unplanned disruptions include both those performed under emergency conditions where prior customer notice is impossible or impractical, and those which are otherwise planned but for which prior notice was not given. Unplanned disruptions usually occur during emergency pumping facility failures, pipeline breaks, and newly discovered major leaks where there is potential for unsafe conditions or significant property damage.

a. Duration less than 4 hours

143

b. Between 4 and 12 hours

0

c. Greater than 12 hours

1

45. the total number of active WATER accounts

Definition:

· Active WATER account means all water customer accounts that were billed for some or all of the reporting period. A single account may include service through more than one water service connection.

21,148

Disruption of Sewer Service (Customer Relations)

For each item below, please provide your response.

46. Planned Sewer Service Disruptions or the number of CUSTOMERS experiencing disruption for the following durations (less then 4 hours, 4-12 hours and greater than 12 hours)

Definitions:

· Active customer account means all customer accounts that were billed for some or all of the reporting period.

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An active account may include service through one or more sewer service connections.
· A disruption of sewer service is defined as a backup of flow into the customer's sewer from a utility caused backup, blockage or flow restriction (originating "downstream" of the customer's sewer connection).
· Planned disruptions are those where prior notice is given to all affected customers.

a. Duration less than 4 hours

b. Between 4 and 12 hours

c. Greater than 12 hours

47. Unplanned Sewer Service Disruptions or the number of CUSTOMERS experiencing disruption for the following durations (less then 4 hours, 4-12 hours and greater than 12 hours)

Definitions:
· Active customer account means all customer accounts that were billed for some or all of the reporting period. An active account may include service through one or more sewer service connections.
· A disruption of sewer service is defined as a backup of flow into the customer's sewer from a utility caused backup, blockage or flow restriction (originating "downstream" of the customer's sewer connection).
· Unplanned disruptions include both those performed under emergency conditions where prior customer notice is impossible or impractical, and those which are otherwise planned but for which prior notice was not given. Unplanned disruptions usually occur during an emergency, where there is potential for unsafe conditions or significant property damage.

a. Duration less than 4 hours

b. Between 4 and 12 hours

c. Greater than 12 hours

48. The total number of active WASTEWATER (Sewer) accounts

Definition:
· Active WASTEWATER account means all wastewater customer accounts that were billed for some or all of the reporting period. A single account may include service through more than one wastewater service connection.

Residential Cost of Water and/or Sewer Service (Customer Relations)

For each item below, please provide your response.

Definition:
· For each cost (bill) item below, please include any additional costs added to the bill for basic service that may include other taxes and fees required to be paid by the residential customer to retain basic service.
· The utility should calculate the bill amount for a typical residential customer served water through a ¾ x 5/8 inch meter. Include the fee for 7500 gallons of water, or the fee for sewer service consistent with that volume of water use. Add also any surcharges and taxes in effect during the reporting period. If billing is quarterly, calculate what the fee would be for 22,500 gallons of water and divide by 3. If there is more than one rate zone, calculate the weighted average of charges for all zones.

49. Bill amount for monthly residential water service for a customer using 7500 gallons per month

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50. Average residential water bill amount for one month of service	$29.33
51. Bill amount for monthly residential sewer service for a customer using 7500 gallons of water per month	$44.40
52. Average residential sewer bill amount for one month of service	
53. For multiple service utilities that cannot provide individual costs, the total monthly bill amount for residential water and sewer service for a customer using 7500 gallons of water per month	
54. For multiple service utilities that cannot provide individual costs, the average residential combined water and sewer bill amount for one month of service	

Customer Service Cost per Account (Customer Relations)

For each item below, please provide your response.

55. Total Customer Service Costs for the reporting period (include all supporting functions)

· Customer Service Costs are all direct salaries, employee benefits, and direct costs including contracts, which are associated with providing the following services to customers, plus a proportional share of total utility indirect costs.

- Activation of new accounts (including meter and service installation costs)
- Meter reads, maintenance, and repair or replacement
- Preparation and delivery of bills
- Receipt and processing of payments
- Records maintenance
- Collection of delinquent accounts
- Processing of bankruptcies
- Provision of turn on / turn off services
- Receipt, investigation, and resolution of complaints
- Preparation and provision of outreach and educational materials including the Consumer Confidence Report

Specifically excluded are all costs associated with maintaining service pipelines and customer plumbing on the customer side of the meter if present, or service property line if no meter is present.

$708,748.00

56. Number of Active Customer Accounts

Definition:

· Active customer account means all customer accounts that were billed for some or all of the reporting period. A single account may include service through more than one service connection (water and/or sewer).

21,148

Billing Accuracy (Customer Relations)

For each item below, please provide your response.

57. Number of bills generated during the reporting period.

(Multiple service utilities that send a single bill for water and sewer service will count each such bill as two bills for purposes of this indicator.)

Definition:

· Bill means the periodic statement of charges (volumetric, surcharges, and taxes) for water and/or sewer services which are calculated based on known volumes of water delivered or wastewater collected during a specific period of time.

126,892

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58 Number of error-driven billing adjustments made during the reporting period.

(Multiple service utilities that send a single bill for water and sewer service will count each billing adjustment once unless both water and sewer billings are adjusted, in which case two billing adjustments are counted.)

Definition:

· Error-driven billing adjustment is an adjustment to a customer's charges resulting from an error on the original bill actually sent to the customer, regardless of cause and including all such discoveries made by utility staff, the customer, or a third party. Errors include all those under control of the utility such as meter reads (whether by utility staff or the customer), data entry, and calculations or computer programming. Bills re-issued for estimated bills should NOT be included as a billing error.

317

Service Affordability (%)

For each item below, please provide your response.

59. Average ANNUAL residential water bill

Definition:

·Average annual residential bill is based on all residential customer accounts that were billed for some or all of the reporting period, averaged over the most recent fiscal year reporting period

533

60. Average ANNUAL residential sewer bill

Definition:

·Average annual residential bill is based on all residential customer accounts that were billed for some or all of the reporting period, averaged over the most recent fiscal year reporting period

61. Real median ANNUAL household income

Definition:

· Real median household annual income is based on latest data as reported by Census Bureau or other government agency for the area served.

$55,723

Stakeholder Outreach Index (%)

For each item below, please provide your response.

62. Stakeholder outreach index (%)

Definition:

·The Self-Assessment Checklist (see below) is used to calculate the index (%) for the most recent annual fiscal year period. The value assigned to each statement should be based on evidence that existed during the fiscal year to support the statement, as reviewed and rated by the senior management of the utility.

Stakeholder Outreach (SO) Checklist

a. We regularly conduct customer satisfaction surveys that result in a statistically significant measure (or set of measures) for customer satisfaction.
(0 = never/rarely; 1 = less than annual frequency; 2 = at least annually)

0

b. We use the results of customer satisfaction surveys to improve our processes, practices and systems.
(0 = never/rarely; 1 = less than annual frequency; 2 = at least annually)

0

c. We regularly conduct a series of interviews or open forums of focus groups with key stakeholders such as public officials, regulators, community representatives, special-interest groups, developers, contractors, etc.
(0 = never/rarely; 1 = less than annual frequency for 3 groups; 2 = at least annually for 3 groups)

2

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d. We provide numerous channels and interactions (2-way) with stakeholders through publicly-offered tours, speaking engagements, actively-managed booths/kiosks, etc., on a regular, periodic basis. (0 = never/rarely; 1 = less than annual frequency for 3 groups or more channels/interactions; 2 = at least annually for 3 groups or more channels/interactions)	2
e. We provide numerous outreach programs/products on a regular basis to targeted stakeholders through the media, mailers, newsletters, etc. (0 = never/rarely; 1 = less than annual frequency for 3 groups or more programs/products; 2 = at least annually for 3 groups or more programs/products)	2
f. We regularly review all sources of stakeholder feedback and develop actions to address areas of dissatisfaction or opportunities for improvement. (0 = never/rarely; 1 = less than annual frequency; 2 = at least annually)	2
Stakeholder Outreach Index	66.7%

Business Planning and Management

Debt Ratio (Business Planning and Management)

For each item below, please provide your response.

63. Total Liabilities

Definition:

· Total liabilities are the entire obligations of the utility under law or equity. (They are categorized as such on the utility's financial statement. In essence, they are the total amount of dollars owed to others. Liabilities are defined and designated by the Government Accounting Standards Board (GASB) or the Financial Accounting Standards Board (FASB)) (as applicable to each specific utility). They include outstanding bonds, outstanding long-term debt, outstanding short-term debt, payments owed to others, accounts payable, and deposits collected from customers.)

$119,389,902

64. Total Assets

Definition:

· Total assets are the entire resources of the utility, both tangible and intangible. (They are categorized as such on the utility's financial statement. They include the total value of properties and claims against others that are owned by the utility as expressed at original cost. Assets are defined and designated by the Government Accounting Standards Board (GASB) or the Financial Accounting Standards Board (FASB) (as applicable to each specific utility). They include accounts receivable, cash, inventories, service delivery facilities (less depreciation), cost of easements, cost of water rights, and all other items of value owned by the utility.)

$	268,505,866

System Renewal / Replacement Rate (Business Planning and Management)

For each item below, please provide your response.

Definitions:

Water Operations:

· Water treatment facilities include all assets associated with treating source water to make it ready for distribution. They include those assets associated with disposal of solids accumulated during treatment.

· Water distribution system includes all piping, valves, hydrants, pump stations, storage facilities, service taps and meters, and other appurtenances conveying treated water to customers.

· Water miscellaneous assets include surface and ground water resources, source water storage facilities, office buildings, maintenance facilities, laboratories not associated with treatment process control, and land acquired to protect water resources.

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Wastewater Operations:

- **Wastewater collection assets include all piping, manholes, clean-outs, pumping facilities and force mains used to convey wastewater to a central location for treatment.**
- **Wastewater treatment facilities include all assets at each facility used to treat wastewater, treat and dispose of solids, and protect air quality.**
- **Wastewater miscellaneous assets include office buildings, maintenance facilities, and laboratories not associated with process control.**

Total Present Worth:

- **Total present worth is the CURRENT replacement cost.**
- **Use the *Engineering News-Record* Construction Cost Index (CCI).**
- **Multiply the historic cost (cost at the time of actual asset expenditure) by the ratio of the CCI for the reporting period year divided by the CCI for the actual expenditure year.**

65. Total present worth of renewal and replacement needs for each asset group

Water Pipeline/Distribution	$179,006,159
Water Treatment Facility and Pumping	$52,693,033
Wastewater Pipelines and Collection	
Wastewater Treatment Facility and Pumping	

66. Weighted average lives for each asset group

Water Pipeline/Distribution	40
Water Treatment Facility and Pumping	12
Wastewater Pipelines and Collection	
Wastewater Treatment Facility and Pumping	

67. Total actual expenditures or total amount of funds reserved for renewal and replacement for each asset group during the reporting period.
Please use an average for the most recent three years.

Water Pipeline/Distribution	$9,956,945
Water Treatment Facility and Pumping	$783,642
Wastewater Pipelines and Collection	
Wastewater Treatment Facility and Pumping	

68. Please indicate method you used for question #67

A - Actual expenses
B - Reserved funds

	A - Actual expenses
Reserved funds	

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Return on Assets (Business Planning and Management)

For each item below, please provide your response.

69. Net Income

Definition:

· **Net Income is titled as such on the utility's financial statement, and is defined and designated by the Government Accounting Standards Board (GASB) or the Financial Accounting Standards Board (FASB), as applicable to each specific utility.**

$3,663,165

70. Total Assets

Definition:

· **Total assets are the entire resources of the utility, both tangible and intangible. (They are categorized as such on the utility's financial statement. They include the total value of properties and claims against others that are owned by the utility as expressed at original cost. Assets are defined and designated by the Government Accounting Standards Board (GASB) or the Financial Accounting Standards Board (FASB) (as applicable to each specific utility). They include accounts receivable, cash, inventories, service delivery facilities (less depreciation), cost of easements, cost of water rights, and all other items of value owned by the utility.)**

$268,505,866

Cash Reserves(Days)

For each item below, please provide your response.

71. Undesignated cash reserve dollars

Definition:

· **Undesignated Case Reserves are available cash used to pay the cost of ongoing operations; not committed to debit payments or other covenants.**

$11,814,067

72. Cost of ongoing operations (average $/day)

Definition:

· **Ongoing cost of operations is the total annual utility cost of operations for the most recent fiscal year reporting period divided by 365 to indicate $/day.**

$48,391

Energy Consumption Efficiency (kWh/MG)

For each item below, please provide your response.

Energy Consumption Efficiency

Data reported should be based on annual values for the same reporting period (e.g., calendar or fiscal year)

Water Supply, Treatment and Distribution

Energy Type	Units	
Electricity	kWh	7,297,568.00
Natural Gas	therms	
Fuel Oil #2	gallons	
Propane	gallons	
Other		

Energy use time period covered above:	12

73. Direct energy consumed to supply treated water (kBtu)

Definition:

· **Annual energy consumption includes purchases of electricity, natural gas, fuel oil, propane (and other crude oil derivatives). Energy consumption efficiency is expressed as kilowatt-hour per million gallons (KWh/MG). Annual energy consumed is based on purchases of electricity, natural gas and other fuels (minus stored amounts),**

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all converted to kWh.

81,003,004.80

74. Annual volume of water supplied (MG)

Definition:

· Annual volume of water supplied is based on measured flows in MG.
Annual measures are for the same most recent fiscal year reporting period (provide data in attached Energy Efficiency Table).(Water table MG)

4,928

Wastewater Collection, Treatment and Solids Disposal

Energy Type	Units	
Electricity	kWh	
Natural Gas	therms	
Fuel Oil #2	gallons	
Propane	gallons	
Other		

Energy use time period covered above:

75. Direct energy consumed to collect and treat wastewater (kBtu)

Definition:

· Annual energy consumption includes purchases of electricity, natural gas, fuel oil, propane (and other crude oil derivatives). Energy consumption efficiency is expressed as kilowatt-hour per million gallons (KWh/MG).
Annual energy consumed is based on purchases of electricity, natural gas and other fuels (minus stored amounts), all converted to kWh.

76. Annual volume of wastewater collected and treated (MG)

Definition:

· Annual volume of wastewater collected/treated is based on measured flows in MG.
Annual measures are for the same most recent fiscal year reporting period.

Triple-Bottom Line Index (%)

For each item below, please provide your response.

77. Triple-Bottom-Line Index (%)

Definition:

· The TBL checklist shown below is used to calculate the index (%). The value assigned to each statement should be based on evidence that exists during the fiscal year to support the statement, as reviewed and rated by the senior management of the utility.

Triple-Bottom-Line (TBL) Checklist

Some checklist statements are adapted from Water Research Foundation project: "Triple Bottom Line Reporting of Sustainable Water Utility Performance"

a. Our organization's policies, directions, and plans state our commitment to integrating and balancing environmental, social and economic goals.
(0 = none or little; 1 = some evidence; 2 = full compliance) — 2

b. Our strategic plan sets environmental, social and economic TBL goal areas with defined targets and objectives.
(0 = none or little; 1 = some evidence; 2 = full compliance) — 2

c. We routinely communicate to all employees the organization's TBL goals, targets and objectives, and our performance in meeting them. — 1

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(0 = none or little; 1 = some evidence; 2 = full compliance)

d. Our organization has policies, management systems, and decision-making processes to effect the results of our TBL goals and objectives. (0 = none or little; 1 = some evidence; 2 = full compliance)	1
e. The performance measures for our organization and its managers cover a balanced view of the environmental, social and economic outcomes. (0 = none or little; 1 = some evidence; 2 = full compliance)	1
f. At least annually, our organization reviews and reports on its performance against our TBL goal areas. (0 = none or little; 1 = some evidence; 2 = full compliance)	1
g. Our organization regularly (at least annually) seeks out the views of customers, stakeholders and the community about strengths, abilities, objectives and strategies in addressing environmental, social and economic concerns. (0 = none or little; 1 = some evidence; 2 = full compliance)	1
h. Sustainability of natural resources and the environment is always considered in utility plans and ongoing operations. (0 = none or little; 1 = some evidence; 2 = full compliance)	1
i. We regularly measure/report our utility's greenhouse gas emissions or carbon footprint and identify and implement ways to reduce it. (0 = none or little; 1 = some evidence; 2 = full compliance)	0
j. We actively manage our utility-wide energy as shown by regular measures of energy consumption efficiency or an energy index calculation and strategies to improve our efficiency. (0 = none or little; 1 = some evidence; 2 = full compliance)	1
Total Score	55.0%

Water Operations

Drinking Water Compliance Rate (Water Operations)

For each item below, please provide your response.

78. Number of calendar days during which the utility was in full compliance with all drinking water quality and treatment technique requirements contained in the National Primary Drinking Water Regulations.

Definitions:

· Definitions of regulated contaminants and treatment techniques are contained in 40 CFR Part 141 (the National Primary Drinking Water Regulations).

· Non-compliance refers to exceeding of an applicable primary maximum contaminant level or less than full compliance with an applicable treatment technique.

365

Distribution System Water Loss (Water Operations)

Reference Water Loss Control, 2nd edition , 2008, Julian Thornton, Reinhard Sturm, George Kunkel

79. Total volume of water distributed for customer use for the period (mg)

Definition:

· Distributed water is the total volume of water entering the distribution system from all sources, including treatment, facilities, well fields, individual wells, and purchased water connections.

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4,928.0

80. Total volume of water billed to customers for the period (mg)

Definition:

· The total volume of water (metered and unmetered) billed to all classes of registered customers, the water supplier, and others.

4,263.0

81. Total volume of water unbilled and authorized for the period (mg)

Definition:

· The total volume of water (metered and unmetered) used for authorized purposes but is not billed. Examples of un-billed authorized uses may include fire fighting and training, municipal uses such as flushing of mains and sewers, street cleaning, watering of municipal properties, public fountains, construction, tank drainage, storage tank overflows and frost protection. Most utilities may need to use estimates compile this number.

166.0

82. Total volume of water unbilled and unauthorized for the period (mg)

Definition:

· The total volume of used for unauthorized purposes and not billed. Examples of un-billed unauthorized uses may include illegal connections, misuse of hydrants & fire-fighting systems, vandalism or bypassed meters, corrupt practices, and open boundary valves to external distribution systems. Most utilities may need to use estimates compile this number.

166.0

83. Total volume of water from customer metering inaccuracies and data handling errors for the period (mg)

Definition:

· The total volume of water from customer metering inaccuracies and data handling errors. Examples are wrong size or types of meters, wrong size service line, changes in consumption n volume data adjusted for other then meter reading error, accounts incorrectly flagged as inactive, accounts missing from data base, and inaccurate meter data. Most utilities may need to use estimates compile this number.

166.0

84. Total volume of water from leakage in transmission lines, service lines, or storage tanks for the period (mg)

166.0

Water Distribution System Integrity (Water Operations)

For each item below, please provide your response.

85. Total MILES of distribution piping

Definition:

· Distribution piping includes all pipes, valves, hydrants, and other appurtenances conveying treated water between treatment facilities and the final point of utility control over customer service connections. Customer service piping downstream of that point is not part of the distribution system.

400

86. Total number of leaks during the reporting period

Definition:

· Leak means an opening in a distribution pipeline, valve, hydrant, appurtenance or service connection which is continuously losing water. The rate of leakage may be stable or progressive. Please exclude any leak or failure directly caused by the action of a person authorized by the utility.

302

87. Total number of pipeline breaks experienced during the reporting period

Definition:

· Break means physical damage to a pipe, valve, hydrant, or other appurtenance which results in an abrupt loss of water. Please exclude any break, or failure directly caused by the action of a utility staff person.

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246

Operations & Maintenance Cost Ratios (Water Operations)

For each item below, please provide your response.

88. **Total operations and maintenance costs for water operations (less depreciation)**

Definition:

· Total operations and maintenance costs (less depreciation) are compiled in accordance with GASB and FASB statements of accounting practices.

· Total operations and maintenance costs are the total costs for salaries, direct benefits, and all costs necessary to provide water utility service. Include costs for supporting functions. For example, supporting functions may include the water related portion of centralized human resources services, call center, finance services, etc.

$11,919,596

89. **Total number of active accounts**

Definition:

· Active customer account means all customer accounts of all classes that were billed for some or all of the reporting period. A single account may include service through more than one water service connection.

21,148

90. **Total volume of water distributed for customer use (mg)**

Definition:

· Distributed water is the total volume of water entering the distribution system from all sources, including treatment facilities, well fields, individual wells, and purchased water connections.

4,928

91. **Total direct operations and maintenance costs (for water treatment only)**

Definition:

· Total direct operations and maintenance costs for water treatment is the total costs for salaries, direct benefits, and all costs necessary to support water treatment services. It includes pumping costs only within treatment facilities but not those associated with distribution or the delivery of water to treatment facilities. Include supporting functions that apply only to the treatment facility. For example, supporting functions may include the water related portion of centralized human resources services, call center, health & safety, etc.

$906,549

Planned Maintenance Ratios (Water Operations)

For each item below, please provide your response.

92. **Total hours of planned maintenance undertaken by the utility and contractors working on behalf of the utility during the reporting period.**

Definition:

· Planned maintenance is all maintenance undertaken in advance of asset failure. Planned maintenance may be predictive or preventive. Total hours should include employee hours such as sick time and overtime.

42,762

93. **Total hours of corrective maintenance undertaken by the utility and contractors working on behalf of the utility during the reporting period.**

Definition:

· Corrective maintenance is all maintenance undertaken after asset failure. Total hours should include employee hours such as sick time and overtime.

48,221

94. **Total cost of planned maintenance during the reporting period, including costs of contracts for planned maintenance.**

Definition:

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· Planned maintenance is all maintenance undertaken in advance of asset failure. Planned maintenance may be predictive or preventive.

$305,589

95. Total cost of corrective maintenance undertaken by the utility, including costs of contracts for corrective maintenance.

$377,464

Current Water Demand

For each item below, please provide your response.

96. Five-year average water demand (MG)

20.9

97. Average available water supply based on current yield (MG)

26.2

Available Future Water Supply (years)

For each item below, please provide your response.

98. Future year when demand exceeds supply

Definition:

· Future demand is based on considerations that represent a 90% reliability level for known/projected use. Future supply is based on considerations that represent a 90% reliability level for regulated supply limits and infrastructure projects that are planned/authorized/budgeted to deliver that future water supply. Additional information about your utility-definedscenario for supply and demand considerations is to be provided in a data collection form on future supply.

2016

99. Current year

2011

Wastewater Operations

Sewer Overflow Rate (Wastewater Operations)

For each item below, please provide your response.

100. Total number of sewer overflows during the reporting period.

Definitions:

· An overflow refers to a discharge from a sewer through a manhole, clean-out, pumping facility, customer floor drain, or the drain in a fixture, if that discharge is related to limitations or problems with collection or treatment system components under control of the utility. Overflows caused by limitations or problems within customer-controlled piping and facilities are specifically excluded from this definition. A single limitation or overflows.

· A dry weather sewer overflow is an overflow from a combined sanitary/storm sewer experienced during weather conditions where the portion of flow attributed to storm water is negligible.

101. Total MILES of collection system pipeline

Definition:

· The collection system is comprised of all gravity sewerage piping, manholes, pressure sewers and lift stations under control of the utility from the point of customer property lines to the treatment facility or point of interception by another wastewater utility. Portions of the collection system may convey both sanitary sewage and storm water.

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Collection System Integrity (Wastewater Operations)

102. Total number of collection system failures experienced during the reporting period

Definitions:

- **Collection system means all gravity sewerage piping, manholes, pressure sewers and lift stations under control of the utility from the point of customer property lines to the treatment facility or point of interception by another wastewater utility. Portions of the collection system may convey both sanitary sewage and storm water.**
- **A collection system failure means a loss of capacity resulting from a flow restriction in gravity or pressurized sewer systems. Flow restrictions may be caused by deposition of foreign materials; structural failures of pipes, appurtenances, or manholes; deterioration of collection system materials; and root intrusion. Low spots in gravity sewers (sometimes called "swags") are failures if there is potential for deposition and diminished sewer capacity. If left unattended, collection system failures can result in cave-ins, back-ups or overflows. Maintenance activities such as sewer cleaning, rodding, root removal, and minor repairs to minimize infiltration or inflow are not collection system failures. Electrical and mechanical lift station failures unrelated to flow restrictions, electrical power outages at lift stations, and failures that occur on customer properties, are not counted as failures for the purpose of this indicator.**

Please exclude any failure directly caused by the action of a person authorized by the utility such as failure caused by incidental damage during construction/repair or incorrectly marked location.

103. Total miles of collection system pipeline

Definition:

- **Collection system means all gravity sewerage piping, manholes, pressure sewers and lift stations under control of the utility from the point of customer property lines to the treatment facility or point of interception by another wastewater utility. Portions of the collection system may convey both sanitary sewage and storm water.**

Wastewater Treatment Effectiveness Rate (Wastewater Operations)

For each item below, please provide your response.

104. Number of operating/discharge permits issued to the utility

Definition:

- **An operating/discharge permit is one issued through the National Pollutant Discharge Elimination System or its equivalent delegated state program. Refer to the Benchmarking Performance Indicators Reference Document for calculation details.**

105. Total number of standard non-compliance DAYS at each facility

Definition:

- **A standard non-compliance day is any day during which the wastewater utility, through actual monitoring, determines that it has not met one or more of its permitted (operating discharge permit violation) effluent quality standards at an individual treatment facility. If there is more than one treatment facility, then the SND should be averaged across the facilities. Refer to the Benchmarking Performance Indicators Reference Document . for calculation details**

Operations & Maintenance Cost Ratios (Wastewater Operations)

For each item below, please provide your response.

106. Total operations and maintenance costs for wastewater operations (less depreciation)

Definition:

- **Total operations and maintenance costs (less depreciation) are compiled in accordance with GASB and FASB statements of accounting practices.**
- **Total operations and maintenance costs are the total costs for salaries, direct benefits, and all costs necessary to provide wastewater utility service. Include costs for supporting functions. For example, supporting functions may include the water related portion of centralized human resources services, call center, finance services, etc.**

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107. Total number of active wastewater accounts

Definition:

· Active customer account means all customer accounts of all classes that were billed for some or all of the reporting period. A single account may include service through more than one sewer service connection.

108. Total volume of wastewater processed for the period (mg)

Definition:

· Total volume processed refers to the total volume of wastewater processed by the utility during the reporting period. It is reported in millions of gallons.

109. Total direct operations and maintenance costs (for wastewater treatment only)

Definition:

· Total direct operations and maintenance costs for wastewater treatment is the total costs for salaries, direct benefits, and all costs necessary to support wastewater treatment services.

It includes pumping costs only within treatment facilities but not those associated with collection of wastewater to treatment facilities. Include supporting functions that apply only to the treatment facility. For example, supporting functions may include the wastewater related portion of centralized human resources services, call center, health & safety, etc.

Planned Maintenance Ratios (Wastewater Operations)

For each item below, please provide your response.

110. Total HOURS of planned maintenance undertaken by the utility and contractors working on behalf of the utility during the reporting period

Definition:

· Planned maintenance is all maintenance undertaken in advance of asset failure. Planned maintenance may be predictive or preventive. Total hours should include employee hours such as sick time and overtime.

111. Total HOURS of corrective maintenance undertaken by the utility and contractors working on behalf of the utility during the reporting period.

Definition:

· Corrective maintenance is all maintenance undertaken after asset failure. Total hours should include employee hours, such as sick time and overtime.

112. Total cost of planned maintenance during the reporting period, including costs of contracts for planned maintenance.

Definition:

· Planned maintenance is all maintenance undertaken in advance of asset failure. Planned maintenance may be predictive or preventive.

113. Total cost of corrective maintenance undertaken by the utility, including costs of contracts for corrective maintenance.

Definition:

· Corrective maintenance is all maintenance undertaken after asset failure.

Summary

114. Please provide a brief summary regarding how data collection for this survey was conducted within your organization. Include in your comments which departments/groups were involved.

An assignment list was generated and distributed to Division Heads and Section Heads. Data was gathered from various sources such as our Billing records, CMMS data base, Financial Statements (Auditors Report), paper records and sometimes best estimates. Data from all Divisions was compiled into this

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CMMS data base, Financial Statements (Auditor's Report), paper records and sometimes best estimates. Data from all Divisions was compiled into this spreadsheet.

115. Please provide comments regarding the length and adequacy of definitions within this survey.

Question #42, "Number of technical quality of service complaints…" It is unclear if the report of leaks by the general public should be included in this data set. We did include the number report of leaks in this data set as they are a substantial percentage of the phone calls we receive. Please clarify if report of leaks should be included in this data. Need definitions for the Metrics Summary at the end of the survey.

116. What are your perceptions about the overall usefulness of the information that will be reported from this survey? Include in your comments any data that should be dropped or added.

This is our second benchmark survey and it is still difficult to judge its usefulness. Comparison of our results to other agencies of similar size and function will be interesting. The Metrics Summary at the end of the survey may be useful, but it is not clear how ratios were calculated and I'm not sure how to use this information.

117. Please list other variables that affect your utility's system.

The number of facilities, such as water storage tanks and water production stations, is not a variable in this survey. There is potential for some interesting ratios combining number of facilities with operational costs, account data, etc. We have a large number of facilities relative to other agencies especially centralized cities and would be interested in comparing data.

118. What other benchmarking activities has your utility participated in during the last two years?

Only internal monitoring of operational, billing and financial data.

119. Please identify the sources of information that you are familiar with, such as: Cleanwater Central, Benchmarking Clearinghouse, and Water:\Stats.

None

End of Survey. Thank you for participating.

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Metrics Summary

Organizational Development	Response Range	0
Organizational Best Practice Index:	7 (not practiced) to 35 (fully implemented)	15
Strategic Planning	1 (not practiced) to 5 (fully implemented)	2
Long-term Financial Planning	1 (not practiced) to 5 (fully implemented)	3
Risk Management Planning	1 (not practiced) to 5 (fully implemented)	2
Performance Measurement	1 (not practiced) to 5 (fully implemented)	2
Optimized Asset Management	1 (not practiced) to 5 (fully implemented)	2
Customer Involvement	1 (not practiced) to 5 (fully implemented)	2
Continuous Improvement	1 (not practiced) to 5 (fully implemented)	2
Employee Health & Safety Severity Rate	200,000 (Tot Days Away from Work) / Total hrs worked by all emp	24
Training Hours per Employee		29
Customer Accounts per Employee (Water)		271
Customer Accounts per Employee (Wastewater)		n/a
MGD Water Delivered per Employee		0.17
MGD Wastewater Processed per Employee		n/a
Employee Turnover Rates		3.85%
Emergency Response Readiness		0.0
Internal Employee Promotions		15.4%
Retirement Eligibility		17.9%

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Qualserve
Performance Indicators for Water and Wastewater Utilities Benchmarking Survey

Customer Relations		
Customer Service Complaints per 1000 Customers		2
Technical Quality Complaints per 1000 Customers		19
Disruption of Water Service Rate per 1000 Customers		
Planned (less than 4 hours)		2
Planned (between 4 and 12 hours)		1
Planned (greater than 12 hours)		0
Unplanned (less than 4 hours)		7
Unplanned (between 4 and 12 hours)		0
Unplanned (greater than 12 hours)		0
Disruption of Sewer Service		
Planned (less than 4 hours)		n/a
Planned (between 4 and 12 hours)		n/a
Planned (greater than 12 hours)		n/a
Unplanned (less than 4 hours)		n/a
Unplanned (between 4 and 12 hours)		n/a
Unplanned (greater than 12 hours)		n/a
Residential Cost of Water/Sewer Service:		
Monthly residential water using 7500 gallons per month		$29.33
Average residential water bill amount for one month of service		$44.40
Monthly residential sewer using 7500 gallons per month		n/a
Average residential sewer bill amount for one month of service		n/a
Multi-service, monthly bill - combined service using 7500 gallons per month		n/a
Multi-service, average residential combined bill for one month as service		n/a
Customer Service Cost per Account		$33.51
Billing Accuracy Rate (billing adjustments per 10,000 bills)		25.0
Service Affordability		
Water Service Affordability		0.96%
Wastewater Service Affordability		n/a
Stakeholder Outreach Index		66.67%

Business Operations		
Debt Ratio		44.5%
System Renewal / Replacement Rate:		
Water pipeline		5.6%
Water treatment facility and pumping		1.5%
Wastewater pipelines and collections		n/a
Wastewater treatment facility and pumping		n/a
Return on Assets		1.36%
Cash Reserves	in days	244
Energy Consumption Efficiency		
Water pipeline		16,439
Wastewater treatment facility and pumping		n/a
Triple Bottom Line Index		55.00%

Water Operations		
Drinking Water Compliance Rate		100.0%
Distribution System Water Loss		
Apparent Losses		10.11%
Real Losses		3.37%
Water Distribution System Integrity	leaks/breaks per 100 miles piping	137.0
Operations & Maintenance Cost Ratios:		
O&M cost per account		$564

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O&M cost per MG processed		$2,419
Direct cost of treatment per MG		$184
Planned Maintenance Ratios:		
Planned maintenance ratio (hours)		47.0%
Planned maintenance ratio (cost)		44.7%
Current Water Demand		79.50%
Available Future Water Supply (in years)		5.0

Wastewater Operations		
Sewer Overflow Rate		n/a
Collection System Integrity	failures per 100 miles piping	n/a
Wastewater Treatment Effectiveness Rate		n/a
Operations & Maintenance Cost Ratios:		
O&M cost per account		n/a
O&M cost per MG processed		n/a
Direct cost of treatment per MG		n/a
Planned Maintenance Ratios:		
Planned maintenance ratio (hours)		n/a
Planned maintenance ratio (cost)		n/a

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BRYAN J. BAPTISTE
MAYOR

MALCOLM C. FERNANDEZ
DIRECTOR OF PERSONNEL SERVICES

COUNTY OF KAUA`I
DEPARTMENT OF PERSONNEL SERVICES
MO`IKEHA BUILDING
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LIHU`E, KAUA`I, HAWAI`I 96766
Telephone (808) 241-6595 • Fax (808) 241-6593

May 8, 2007

TO: DEPARTMENT HEADS, DEPUTIES, EXECUTIVES COVERED UNDER KAUA`I COUNTY CODE §3-2.1, AND AFFECTED COMMISSIONS

FROM: MALCOLM C. FERNANDEZ, DIRECTOR OF PERSONNEL SERVICES

SUBJECT: **PERFORMANCE EVALUATIONS FOR EXECUTIVE APPOINTEES**

The 2007 Kaua`i County Salary Commission has recommended a measure for increased salaries for department heads, deputies and non-elected executives covered under the Kaua`i County Code §3-2.1 based on performance-based pay. Any salary increase will be contingent on evidence that the executive appointee has met or exceeded job requirements for the performance appraisal period of July 1, 2006 to June 30, 2007.

We are transmitting for your information, the County's policy and procedures on Performance Evaluation for Executive Appointees. Employees are required to be evaluated, at least annually, to determine their fitness and ability for employment in their positions, and to continue to demonstrate such by meeting all performance requirements of their positions. The performance evaluation is considered a critical employee development tool, and pre-determined job-specific performance goals and objectives are the cornerstone of the program.

Annual evaluations for non-elected executive appointees should be completed and signed by June 30th. Guidelines are attached and will serve as the basis for the transition to implementing this policy immediately. Legislative appointees covered by Section 3-2.1 of the Kaua`i County Code may choose to follow these procedures to meet the requirements of the Salary Ordinance proposal.

If there are questions on this, you may contact 241-6595.

Malcolm C. Fernandez
Director of Personnel Services

Attachments (3)

DEPARTMENT OF PERSONNEL SERVICES
COUNTY OF KAUA`I

ADMINISTRATIVE POLICIES & PROCEDURES

PERFORMANCE EVALUATION FOR EXECUTIVE APPOINTEES

I. POLICY

An objective evaluation of the performance of the County's non-elected executive appointees covered by Section 3-2.1 of the Kaua`i County Code shall be conducted regularly. Aspects of performance to be evaluated shall include managerial competencies and ability to either meet or exceed job expectations as specified on their job description or by other relevant factors.

II. RATIONALE

This policy provides a means to determine whether employees are meeting or exceeding job requirements as defined on the position description, and to highlight employees' progress and strengths and areas that need to be strengthened.

III. DEFINITIONS

"Appointing authority" means the Mayor or designee, board, commission or department head having the power to make adjustments for their respective employees.

"County" means the County of Kaua`i.

"Director" means the Director of Personnel Services for the County of Kaua`i.

IV. SCOPE

This policy applies to all non-elected department heads, deputies and executives covered by Section 3-2.1 of the Kaua`i County Code within the executive branch of the County of Kaua`i.

V. RESPONSIBILITIES

A. The Department of Personnel Services (DPS) is responsible for the development and implementation of the Executive Appointees Performance Evaluation Program, including determination of the form(s) and procedures used.

B. The Director of Personnel Services is responsible for the administration of the Executive Appointees Performance Evaluation Program.

C. DPS is responsible for ensuring compliance with established policy and procedures, maintaining forms and documents relative to this policy, and evaluating the effectiveness of the program and making appropriate adjustments, as necessary. Original forms and documents will be kept in the affected employee's official personnel file. Copies will be maintained at DPS.

D. The Mayor or his designated representative is responsible for reviewing of the Executive Appointees Performance Evaluation guidelines and procedures.

E. Executive employee's responsibilities:

1. Actively look for ways to measure own performance on the job;
2. Propose ideas to appointing authority when requested;
3. Keep an open mind when discussing goals with appointing authority;
4. Provide realistic and accurate input at the end of the rating period.

F. Appointing authority's responsibilities:

1. Set attainable and realistic goals with employees;
2. Challenge employees to increase effort or performance through challenging goals;
3. Clarify expectations for employee performance;
4. Monitor employee performance and provide feedback to aid in employee development.

VI. PROCEDURE

A. The executive employee drafts goals/standards for the coming year.

1. Goals should be specific, measurable, attainable, realistic and time-oriented.

2. Categories of goals

a) Individual goals
   1) focus on achievements of the individual employee;
   2) are meaningful to achievement of organizational success;
   3) relate to work being performed.

b) Work unit goals
   1) focus on employee contribution to achievement of the work units defined goals and objectives;
   2) treat all employees within the work unit equally;
   3) achievement makes contribution toward organizational goals.

c) Organizational goals
   1) relate to achievement of organizational goals, objectives, and mission;
   2) focus on the organization and the employees' role in achieving the organizational mission;
   3) identify competencies needed to meet organizational goals.

B. Employee and appointing authority agree to standards and goals for the year.

C. Goals are reassessed and modified at mid-year.

D. Appointing authority obtains input on performance from a minimum of eight (8) multiple sources (e.g. subordinates, co-workers and superiors).

E. The Director may authorize Commissions to evaluate the performance of their executive appointees on approved rating sheets that may provide for weighted judgement suited to their organizational

needs. Data will be transmitted on Form KPC-10 to satisfy Salary Commission requirements.

F. Appointing authority summarizes performance and provides comments on Form KPC-10.

G. Appointing authority and executive employee meet to discuss performance and to set new goals for planned improvement for the coming year.

H. Appointing authority and executive employee sign and date the form.

I. Appointing authority submits the appropriate form(s) to the Director of Personnel Services who creates reports to Mayor and Salary Commission as required.

VII. AUTHORITIES & REFERENCES

Hawai`i Revised Statutes §76-12, §76-13, §76-17, §89C; Rules of the Director of Personnel Services, §1-3.

EVALUATION FACTORS: APPOINTEES/MANAGERS

Name/Title:_____ Name of Rater:_____
Years of Service:_____

Unsatisfactory (1)	*Needs Improvement (2)*	*Satisfactory (3)*	*Excellent (4)*	*Superior (5)*	*Score*

1. **Customer Service:** Courtesy in dealing with customers and effectiveness in meeting the customer's needs. (Customers may include, but not limited to, the public; Mayor; County Council; Board or Commission; and other department/agency heads and deputies.)

Has shown little interest in meeting the needs of the customers. Antagonize the customers in dealings with them.	Is occasionally discourteous when working with customers. Sometimes is not effective in meeting the needs of customers.	Almost always courteous and effective when dealing with customers.	Is pleasant and helpful when dealing with customers.	Courteous and effective when dealing with customers; goes far beyond the call of duty to serve customers.	

Trend: Improving____Same_____Declining_____
Recommendation(s) for improvement:_____

2. **Planning and Organizing:** Establishing a course of action, structuring or arranging resources, and setting priorities for self and others to accomplish specific goals. Demonstrated ability to plan ahead, schedule work, set realistic goals, anticipate and prepare for future assignments, set logical priorities and use time wisely.

Usually disorganized, and often in a crisis caused by lack of planning and organizing.	Has difficulty in setting priorities and/or in attaining goals.	Usually does a good job in assigning priorities. Able to attain most goals.	Seldom in a crisis due to lack of planning and organizing. Is able to attain nearly all goals.	Does a superior job in assigning priorities. Anticipates problems and decides how to handle them. Accomplishes tasks ahead of scheduled in most instances.	

Trend: Improving____Same_____Declining_____
Recommendation(s) for improvement:_____

Unsatisfactory (1)	*Needs Improvement (2)*	*Satisfactory (3)*	*Excellent (4)*	*Superior (5)*	*Score*

3. **LEADERSHIP.** Measurement of getting people to willingly work to accomplish an objective. Utilization of appropriate interpersonal styles and methods to guide individuals or groups toward effective task accomplishment. Controlling and evaluating performance, utilization of resources available to accomplish tasks, effective employee development and counseling and sharing leadership when appropriate.

Inhibit subordinate motivation to accomplish tasks or improve personal development. Fails to take initiative and rarely knows job status. Shares little or no information with superiors or subordinates.	Sometimes fails to sufficiently motivate employees to accomplish tasks or develop. Shares very little information with superiors or subordinates.	Effectively motivates to accomplish tasks and develop employees. Takes action to solve problems. Maintains a good method of sharing information with superiors and subordinates.	Consistently effective in motivating employees to accomplish tasks and improve personal development. Maintains excellent method of sharing information. Most potential problems are detected early.	Exceptionally effective leader. Maintains highly motivated and developed employees. Problems are consistently detected early, and information is shared in the most efficient manner. This person is always on top of things.	

Trend: Improving____Same_____Declining_____
Recommendation(s) for improvement:_____

_____

4. **Communication.** Expression of ideas orally and in writing, providing relevant and timely information to superiors, co-workers, subordinates and other customers, listening and understanding others.

Written work is often incomplete and contains errors. Fails to clearly express opinion on ideas.	Written work usually contains some errors. Thoughts are not presented in a logical order in conversation, often has trouble being understood.	Reports are generally accurate but occasionally contain errors. Routine reports are performed adequately, but more important or complex reports require closer supervision.	Reports are consistently accurate and well organized, seldom needing correction. This person can capably prepare and present important oral or written reports. Listens well and can be understood.	Writes well-organized, understandable and accurate reports. Oral or written presentation is excellent, needs minimal improvement. In less formal conversation, this person listens well in addition to getting the point across.	

Trend: Improving____Same_____Declining_____
Recommendation(s) for improvement:_____

_____

Unsatisfactory (1)	*Needs Improvement (2)*	*Satisfactory (3)*	*Excellent (4)*	*Superior (5)*	*Score*

5. **Personnel Management.** Selecting, managing, motivating and developing employees, following prescribed personnel policies and practices, including equal employment opportunity. Effectiveness in utilization of personal resources.

Has difficulty in selecting, managing, motivating, and developing staff members to meet individual and group goals. Often disregards prescribed personnel policies and practices.	Somewhat effective in selecting, managing, motivating, and developing staff members to meet individual and group goals. Usually follows prescribed personnel policies and practices. However, some improvement of these skills is needed.	Generally effective in selecting, managing, motivating, and developing staff members to meet individual and group goals. Follows prescribed personnel policies and practices. Effective in managing personnel resources.	Very effective in selecting, managing, motivating, and developing staff members to meet individual and group goals. Follows prescribed personnel policies and practices. Handles employee performance problems effectively and selects well-qualified candidates.	Exceptionally effective and creative in selecting, managing, motivation and developing staff members to meet individual and group goals. Follows prescribed personnel policies and practices. Demonstrates skill and creativity in dealing with employee performance problems, and selecting well-qualified candidates.	

Trend: Improving____Same_____Declining_____
Recommendation(s) for improvement:_____

_____

6. **Achieving Goals.** Effective organizational management to achieve defined program measurements, goals, and objectives. Establish realistic program measurements, goals and objectives for employees. Produce a reasonable volume of work on schedule, demonstrating accuracy, thoroughness and dependability.

Does not achieve defined objectives, and establishes unrealistic goals for employees. Develops error prone, incomplete work. Work is generally untimely. Regular reminders needed to obtain compliance.	Goals are not always achieved, and accuracy and volume of work is sometimes less than standard. Work is frequently untimely. Some monitoring required.	Effective in the establishment of realistic, achievable goals; production of work is dependable and accurate generally. Work is generally timely.	Goals are consistently achieved. The volume, accuracy and thoroughness of work is very effective. Work is almost always timely.	Exceptional manager, achieving extremely high standards. Production of work is exceptional due to high degree of accuracy, volume, and thoroughness. Work is always timely.	

Trend: Improving____Same_____Declining_____
Recommendation(s) for improvement:_____

_____

Unsatisfactory (1)	*Needs Improvement (2)*	*Satisfactory (3)*	*Excellent (4)*	*Superior (5)*	*Score*

7. **Policy Development.** The development and implementation of sound policy, which identifies and analyzes problems effectively and develops alternative solutions. This encompasses job knowledge, which includes depth, currency, and breadth.

Cannot develop a policy independently, and does not identify or analyze problems.	Often is not able to develop a sound policy based on job knowledge. Often does not identify solutions.	Effective establishment of sound policy based on analysis of problems. Develops some alternative solutions.	Consistently develops and implements sound policies. Very knowledgeable and effectively analyzes problems.	Exceptional development and implementation of sound policy. Significant thorough research and analysis conducted and several feasible alternate solutions are developed.	

Trend: Improving____Same_____Declining_____
Recommendation(s) for improvement:_____

_____

8. **Financial Management.** Effective development and implementation of financial budgets and controls, operating within prescribed fiscal limits, incorporating key costs control issues.

Frequently pays inadequate attention to financial budgets and controls in planning and completing work. Work is frequently over budget. Fails to fully utilize budget resources; or budget fails to provide for program requirements.	Sometimes pay inadequate attention to financial budgets and controls in planning and completing work. Work is sometimes over budget without adequate attempts to control costs. Occasionally attempts to circumvent county guidelines.	Attentive to financial budgets and controls, and generally operates within prescribed financial limits. Budget overruns are infrequent, and causes are normally identified and justified. Implements plans to control costs where possible. Effective in managing fiscal resources.	Consistently effective in developing financial budgets and controls and in operating within prescribed financial limits. Seeks opportunities to control costs, and adapts plans and methods to prevent budget overruns.	Exceptionally effective in developing budgets and controls (incorporating low cost control issues) and in operating within prescribed financial limits. Actively seeks opportunities to control costs, adapts plans and methods to prevent budget overruns, and encourages and assists others in effecting cost savings.	

Trend: Improving____Same_____Declining_____
Recommendation(s) for improvement:_____

_____

Overall Trend: Improving____Same_____Declining_____

_____ _____

Signature of Employee Date Signature of Rater Date

Employee comments:_____

_____

_____

DEPARTMENT OF PERSONNEL SERVICES
COUNTY OF KAUA`I

EMPLOYEE PERFORMANCE EVALUATION GUIDELINES
FOR NON-ELECTED EXECUTIVE APPOINTEES

The Executive Appointees Performance Evaluation Program requires non-elected executive appointees covered by Section 3-2.1 of the Kaua`i County Code to be evaluated at least once annually. The purpose of the evaluation is to assess the services of the employee during the rating period to ensure the employee meets the performance requirements of the position. The performance evaluation is considered in personnel actions taken by an appointing authority as applicable.

Criteria:

The following general performance factors, and any other specific factor pertinent to the executive appointee should be used in the performance evaluation:

- Customer Service/Attitude, Cooperation and Collaboration
- Planning and Organizing of Objectives
- Leadership/Supervisory Skills
- Communication Skills
- Personnel Management, including Employee Retention
- Achieving Goals/Quality and Quantity of Work
- Policy Development/Problem Solving, Initiative and Creativity
- Management of Financial and Material Resources

Documentation and Evaluators:

Collect data and information that confirm the executive appointee's accomplishments. In consultation with the employee, the appointing authority will select a minimum of 8 colleagues/peers to provide performance evaluation input. Input will be used only as feedback for the evaluation and will be kept anonymous. Colleagues/peers should provide input only on those criteria for which they have verifiable information.

Appointing authorities and others providing input who evaluate the performance of the executive appointee should be personally familiar with the employee's work and have a thorough understanding of the job requirements for the position.

Formal Evaluation Summary Form:

The form used to record the final summary of the executive appointee's performance evaluation is DPS Form KPC-10. The appointing authority will review all the performance documentation, compare the documented data/information with the executive appointee's performance expectations and complete a summary of the evaluation, placing it on the evaluation summary form.

Rating: indicates the level of the executive appointee's performance for each criteria. The following are the ratings:

- (1) Unsatisfactory - employee does not meet minimum standards in this category;
- (2) Needs Improvement - performance must improve for employee to be successful in this category;
- (3) Satisfactory - employee performance meets the expected standards in this category;
- (4) Excellent - employee consistently meets and occasionally exceeds performance standards;
- (5) Superior - employee often exceeds performance standards.

Timing of Performance Evaluations:

The performance evaluations are to be conducted as deemed appropriate by the appointing authority, but no less than annually, assuring that the employee's Form KPC-10 is completed and signed at least thirty (30) days prior to any salary increase or by May 31. The evaluation period is the previous 12-month period, or since date of hire for employees hired within the previous 12-month period.

Employee Development Plan:

The executive appointee and appointing authority must establish performance expectations for the year. The expectations are developed around the criteria to be rated by the appointing authority at the end of the performance evaluation year. These may include, but are not limited to:

(1) Review of goals agreed upon at previous performance discussions.

(2) Review of developmental activities that have occurred since the previous performance discussion.
(3) Comparison and discussion of current (within the evaluation year) evaluation forms completed by the employee and appointing authority.
(4) Planning for goals and development for the next evaluation period.

Sources of data/information for the development of the performance expectations include future plans, program initiatives, situational variables, past performance areas needing improvement, etc.

Records:

Copies of the documents will be made for the appointing authority and employee's records for future use. The original documents are maintained in the employee's departmental personnel file. The original Form KPC-10 Evaluation Factors: Appointees/Managers is the only document that needs to be sent to the Department of Personnel Services.

REGULAR MEETING MINUTES
BOARD OF WATER SUPPLY
Thursday, October 25, 2012

The Board of Water Supply, County of Kaua'i, met in regular meeting at the Board Conference Room in Līhu'e on Thursday, 25, 2012. Chairperson Daryl Kaneshiro called the meeting to order at 10:06 a.m. On roll call, the following answered present:

BOARD: Mr. Daryl Kaneshiro, Chairperson
Mr. Clyde Nakaya, Vice Chair
Mr. Randall Nishimura
Mr. Michael Dahilig
Mr. Raymond McCormick *(entered at 10:45 am)*

ABSENT/EXCUSED: Mr. Larry Dill
Mr. Roy Oyama
Mr. Clyde Nakaya, Vice Chair *(exited meeting @12:00 noon)*

Quorum was achieved with 4 members present at the time of roll call.

STAFF: Mr. David Craddick
Mr. William Eddy
Mr. Val Reyna
Ms. Joy Buccat
Mr. Gregg Fujikawa
Ms. Marites Yano
Mr. Aaron Zambo
Ms. Sandi Nadatani-Mendez
Ms. Cherisse Zaima
Deputy County Attorney Andrea Suzuki

GUESTS: Mr. Terry Kamen, Manager for Kiahuna Mauka Partners

ACCEPTANCE OF AGENDA:
Mr. Nishimura moved to approve the agenda as circulated, seconded by Mr. Dahilig; with no objections, motion was carried with 4 ayes.

MINUTES:
Review and approval of:
Regular Board Meeting – September 20, 2012

Mr. Dahilig moved to approve the Regular Board Meeting minutes dated September 20, 2012; seconded by Mr. Nishimura; with no objections, motion was carried with 4 ayes.

CORRESPONDENCE/ANNOUNCEMENTS

1. Correspondence from Michelle Swartman, President, Kauai Developers Council dated October 15, 2012

Mr. Nishimura moved to receive the correspondence from Michelle Swartman, President, Kauai Developers Council dated October 15, 2012; seconded by Mr. Nakaya; by a unanimous vote, motion was carried with 4 ayes.

DISCUSSION:

Manager Craddick stated a meeting with Michelle Swartman, Kauai Developers Council regarding the FRC procedures will be arranged with Limtiaco, PR firm.

BOARD COMMITTEE REPORTS

No Board Committee Reports were presented at this meeting.

OLD BUSINESS

Re: Manager's Report 13-5 – 2012 Goals for the Manager / Employee Morale

DISCUSSION:

Manager Craddick reviewed the comparison of percentages on the chart for Overall Job Satisfaction FY 2010 – FY 2011as follows:

2010 – Overall Job Satisfaction = 20% 2011 – Overall Job Satisfaction = 46%
2010 & 2011 – Overall Job Satisfaction = 59% *(No change)*
2010 – Less Satisfied = 88% 2011 – Less Satisfied = 62%

The number of customer complaints is dropping and the technical complaints may be due to construction jobs related to water pressure. The DOW did not use the 2010 audited numbers but the 2011 numbers were better and the direction of percentages may be reversed. All performance indicators are monitored by the DOW. The AWWA (American Water Works Association) continues to collect data.

DISCUSSION:

Mr. Nakaya inquired why Item #5, Inter Agency Coordination between the DOW, Planning and the Department of Public Works for the Mayor's Holo Holo 2020 Plan was not complete.

Manager Craddick stated there have not been any DOW discussions except on affordable housing. This could be due to the transition of the new Housing Manager, Mr. Kamuela Cobb-Adams. The main project is the Ele'ele affordable housing. A question was raised at a Holo Holo meeting regarding when the FRC (Facilities Reserve Charge) will be implemented. There were no questions related to the recent rate change regarding water or affordable housing in the Holo Holo plan.

Mr. Nishimura stated in the Employee's Overall Satisfaction Survey, only 61 employees responded out of the entire Department. The first two items on the graph indicated a downward trend but the last two items showed an upward trend which made the results confusing. Last year

Manager Craddick changed Item #1 from the "Department is a leader in the industry" to "The individual employee is a leader in the Department" and to distinguish if the employee is not doing anything to upgrade the department. Their response correlates with their satisfaction with their work. Only a very small number of employees participated.

Mr. Nishimura questioned the Performance Indicator report which was submitted on June 18, 2012 with recent data from June 30, 2011.

Manager Craddick stated the survey data is one year behind.

Mr. Eddy clarified that the survey data is based on audited information for FY 2011 which ended on June 30, 2011.

Manager Craddick stated the audited information was received in December 2011and the form was received in April 2012.

Mr. Nakaya's main concern was there were less unhappy employees based on job satisfaction at 62% (high score). Mr. Nakaya recommended that Manager Craddick work to improve the percentages in the future.

Manager Craddick explained that he will possibly change the methodology next year on the first four survey items if they correlate with the employee's job satisfaction.

Mr. Nishimura suggested the questions should stay the same. Fifty-one (51) out of seventy five (75) employees participated which was higher than the last survey.

Mr. Nishimura moved to receive *Manager's Report 13-5* - 2012 Goals for the Manager / Employee Morale for Manager Craddick to incorporate into future goals; seconded by Mr. Dahilig; by a unanimous vote, motion carried with 4 ayes.

NEW BUSINESS

Re: Manager's Report 13-11 – Request Board Approval of Board Resolution No. 13-2 (10/12), Mahalo to the DOW Participants of the Make a Splash Water Festival

BACKGROUND:

Manager Craddick read Resolution 13-2 to the Board and division heads and thanked all that participated in the event as well as those who stayed behind to ensure business services ran smoothly.

DISCUSSION:

Chair Kaneshiro was amazed with the participation of the youth and different organizations and how water is important in the community. He felt it was a good learning experience for everyone.

Ms. Buccat recognized Chair Kaneshiro and Mr. Dill for their participation in Make a Splash (MAS). Ms. Beth Tokioka represented the Mayor's Office who attended the event for the first time and was appreciative of her participation. Mr. Nishimura was acknowledged for donating

the ice and requested thank you letters to be sent to all the organizations, companies and volunteers who assisted in the booths with a copy of the letter to the Board members.

Mr. Nishimura moved to approve Resolution No.13-2; seconded by Mr. Dahilig; by a unanimous vote, motion carried with 4 Ayes.

At 10:42 a.m. Chair Kaneshiro called for a recess for a photo op of the MAS participants.

At 10:45 a.m. Chair Kaneshiro reconvened the Board meeting.

Mr. McCormick entered the meeting at 10:45 a.m.

Chair Kaneshiro requested to rearrange the agenda by moving up Manager's Report 13-13 before Manager's Report 13-12.

Re: Manager's Report 13-13 – Board Discussion and Possible Action on budget LO-11, Omao 6-Inch Main Replacement

BACKGROUND:

Manager Craddick requested the Board to approve a budget amendment for $301,021 to pay Kukuiula Development for a 6-inch water line constructed on the DOW's behalf.

On April 2006, the Board approved a funded project for $301,000 to do a fire line nearby a 6-inch water line which was by Kukuiula Development. An invoice dated October 11, 2012 was received by the DOW.

DISCUSSION:

Mr. Nishimura inquired on why the funding for this project is coming from Account No. 106b instead of Account No. 101b which stated in the original budget?

Ms. Yano explained this was from an unbudgeted surplus and did not know how this amount was taken out from the previous budget. Ms. Yano explained the budget was from 2006 and 2008.

Manager Craddick explained that in 2006, a report to the Board stated that the project was budgeted for Account 101b. When the DOW signs up a contract, the amount is not minused. Next year if something does not get budgeted to the remaining balance on a contract, it can get lost. After Mr. Michael Hinazumi left the DOW in 2007, nobody made sure the project was re-budgeted and it was dropped. There is an asset being turned over to the DOW which was not paid. This came from the CIP funding that originally took funding from the Waimea job.

Mr. Terry Kamen, Manager for Kiahuna Mauka Partners provided his testimony.

Mr. Terry Kamen stated he has a cost sharing agreement with Kukuiula to do sewer and water lines. Kiahuna Mauka Partners built the Omao water tank. Kukuiula never told Kiahuna Mauka Partners about the Board meeting notice which he learned about from the DOW a few days ago. Kiahuna Mauka Partners paid 22% of the line and is requesting the Board, if approved, to give

Kiahuna Mauka Partners the check for the 22% or to wait until Kukuiula gives Kiahuna Mauka Partners a letter stating Kukuiula will give the 22% to Kiahuna Mauka Partners. Kiahuna Mauka Partners gave Kukuiula the funding in 2004 and finished the line in 2006. This was forgotten until Mr. Kamen learned about the meeting notice.

DISCUSSION:
Mr. Nishimura stated the Board should not get involved with inter-party disagreements and recommended not supporting Mr. Kamen's request.

Chair Kaneshiro asked Manager Craddick if Kiahuna Mauka Partners was involved with any signatures in the agreement with Kukuiula. Manager Craddick answered there were no written agreements, only the email from Mr. Hinazumi which stated "the Board approved this project and can you add this to the pipeline project."

Mr. Kamen stated he would have to check if there were any written agreements with the department and believes eight (8) years ago, the original master water plans were submitted by Mr. Tom Nance, however; will try to settle this with Mr. Lindsey Crawford at Kukuiula.

Mr. Dahilig stated this appears to be a third party agreement and is not in support of deferring payment.

Mr. Kamen fully understands the Board's position on this matter.

Chair Kaneshiro thanked Mr. Kamen for his testimony.

Mr. Dahilig moved to approve *Manager's Report 13-13* on the budget amendment to fund completed Job No. LO-11, Omao 6-inch Main Replacement; seconded by Mr. McCormick; by a unanimous vote, motion carried with 5 Ayes.

Mr. Nakaya moved to go into executive session due to prior commitments; seconded by Mr. Dahilig; by a unanimous vote, motion carried with 5 ayes.

At 10:59 p.m. Chair Kaneshiro recessed the Regular meeting, while the Board convened into an executive session.

> ***Pursuant to Hawaii Revised Statutes Sections 92-4 and 92-5(a)(4), the purpose of this executive session is to receive a letter from HGEA dated August 20, 2012. The Purpose of this executive session is to consult with the Board's attorney on questions and issues pertaining to the Board's powers, duties, privileges, immunities, and liabilities as it relates to the HGEA letter dated August 20, 2012.***

At 11:45 a.m. Chair Kaneshiro called the Regular Meeting back into session.

Re: Manager's Report No. 13 – 12 – Board Discussion and Possible Action on Reorganization for the Fiscal Division

BACKGROUND:
Manager Craddick recommended that the Board approve an organizational change by putting the warehouse operation and meter repairs under the supervision of the Fiscal Division.

In the revised Table of Organization chart, the Warehouse/Inventory Clerk would report to the Procurement Specialist IV. The Meter Mechanic would report to the Meter Reader Supervisor. These changes would not be in effect until Fiscal's reorganization is implemented but will be placed before the next audit.

DISCUSSION:
Mr. McCormick inquired if any staff will be displaced or reduced in their grade and if the union gets involved with the reorganization.

Manager Craddick stated staff is just being moved and is not aware of the union getting involved with the organization.

Mr. Nakaya and Mr. Nishimura asked what procedures in monitoring the inventory are being used and if there is a way to change the procedures instead of creating a new position?

Manager Craddick stated this would still be a problem from Purchasing to discharge inventory which is under one section. Accounting only pays the invoice and if there is a dollar discrepancy at the end of the year, Fiscal cannot figure out the discrepancy. The person who is currently handling the inventory would be moved under a supervisory position. This person enters the inventory and discharges it out and is currently reporting to the Operations Division which also orders materials. Since there is over $1 million of inventory, this reorganization would warrant a better oversight.

Mr. Nakaya inquired if Operations does the ordering, does the Controller do the oversight?

Manager Craddick explained Fiscal only approves the invoices. If the money is not matching up and the actual item cost is put into the inventory but not the shipping and handling cost, this should match up at the end of the year. Matching the smaller items might not have been done.

Mr. Nishimura asked how much percentage is the inventory off?

Ms. Yano stated Fiscal's inventory is off by 11%.

Mr. Nishimura inquired if there is a DOW Standard Operating Procedure (SOP) that is being followed. If DOW does not have an SOP, could an SOP be generated? Does this position currently fulfill the Dispatch position which is not reflected in the current Table of Organization chart.

Manager Craddick stated personnel no longer use Dispatch; they now use their cell phones. When a trouble calls comes in to Operations, the call goes straight to the supervisor.

Mr. Reyna added during office hours, there is a phone number a customer can call. After hours, holidays and weekends a customer can call the emergency dispatch number directly.

Manager Craddick clarified that under the Fiscal Officer in the reorganizational chart shows an Accountant II, and Procurement Specialist IV. Both positions have already been approved by the Board and budgeted. Both positions are pending with the Department of Personnel Services (DPS) for the positions to be in place.

Mr. Nakaya questioned if the Procurement Specialist IV, SR-22, NEW should be labeled "Vacant?" Manager Craddick explained that this position has not been approved by DPS as an official chart. The DPS has not accepted the approved position by the Board. The Procurement Officer's role on inventory control is to purchase materials and supervise the warehouse. The Procurement Officer also discharges the materials but does not use the materials.
Mr. Nakaya recommended seeing procedural changes to resolve this matter instead of creating a new a reorganizational department. The SOP can be improved to cut down on discrepancies.

At 12:00 noon Mr. Nakaya was excused and existed the meeting.

Chair Kaneshiro is concerned about emergencies on the weekends, because there are no warehouse procedures for the inventory.

Manager Craddick stated he is not aware of an SOP for the warehouse and that the Fiscal office is closed on the weekends and is not aware of inventory used. Would the person doing the purchasing be able to discharge inventory to themselves? If the Procurement Officer would be procuring, but not entering into the warehouse based on a request for materials, this would leave to no oversight control.

Mr. Nishimura stated if the Procurement Officer is in place and discharge is left for Operations procedures could change to make this part of the procurement process. Operations will receive the materials and send the packing list to procurement to enter it in the inventory system. This would be the check and balance.

Manager Craddick stated once the Procurement Officer is in place, they would not be able to check items in the warehouse and do all the contracts. If the Procurement Officer is supervising the staff, who is responsible for those procedures? On another matter the potential monthly meter reads will begin January 2013. To fill the Accountant II, we took the extra position that the Board approved for the Meter Reader and tried to do an understudy with the Accountant IV position which was moved. The biggest inventory issues are the meters. This meter mechanic position as approved by the Board is proposed to be taken from Operations and put under Customer Service under meters.

Mr. Dahilig moved to defer *Manager's Report No. 13-12* on the Reorganization for the Fiscal Division to give Manager Craddick an opportunity to explore procedures by the next Board meeting; seconded for Mr. McCormick; by a unanimous vote, motion carried with 4 ayes.

Re: Suggestions for Capital Improvement Projects (CIP) for 2013 Legislative Session

BACKGROUND:

Manager Craddick reported on the following priority CIP projects:

1. Kilauea School Waterline
2. Kapa'a 80 Gallon Storage Improvements
3. Drilling Well at Kapa'a Storage site
4. Kekaha Amfac Shack and Waterline
5. Hanapepe / Eleele Transmission Line – Manager Craddick stated the DOW asked the Administration to help with the Eleele affordable housing project. The Administration did not want to pursue the CIP last year.
6. Kawaihau Pipeline

DISCUSSION:

Manager Craddick stated the Board can add or change the priority projects. Manager Craddick will send the CIP priority project to the Administration. The Housing Director may fund the Ele`ele Transmission Line through a Community Block Grant.

Mr. Dahilig moved to approve the *Capital Improvement Projects for 2013 Legislative Sessions*; seconded by Mr. McCormick; by a unanimous vote, motion carried with 4 Ayes.

STAFF REPORTS

Re: Statement of Kauai County Water Department's Revenues and Expenditures

BACKGROUND:

Ms. Yano reported on the Fiscal Budget Status Summary for August 31, 2012 and addressed questions raised from the last Board meeting as follows (reflected on online pages):

1. Page 108 - Cash on Hand, Page A was corrected to "as of July 1, 2012" not 2011.
2. Page 110 - Salaries and Wages - Line Item "County Overcharge to Payroll" (was identified as "Worker's Comp") has been moved to Line Item 61 on Page 112.
3. Pages 127-129 – Is the chart for Revenue Receipts and consumption and imbalance.
4. Page 130 - Letter dated September 26, 2012 from SAIC (R. W. Beck) was a follow up from Mr. Nishimura's request for a written report.
5. Page 113 - Debt Service Requirements – At last Board meeting, Item 97.2 showed zero under the Budgeted column. This was due to the refunding bond issue finalized in 2012. This issue was used to refund Item 86 and part of Item 87. With this refunding issue, some principal payments were accelerated which caused an addition of $63,755 Budget Debt Service which needs to be funded. In the 2013 budget, there was a provision of additional Budget Debt Service of $320,000. In Item 99 the numbers reflect the illustration that is on Page 131, on how the 2005 fund issue was refunded.

Mr. Dahilig moved to receive the Statement of Kauai County Water Department's Revenues and Expenditures; seconded by Mr. McCormick; by a unanimous vote, motion carried with 4 Ayes.

Re: Report by the Public Relations Specialist on Public Relations Activities

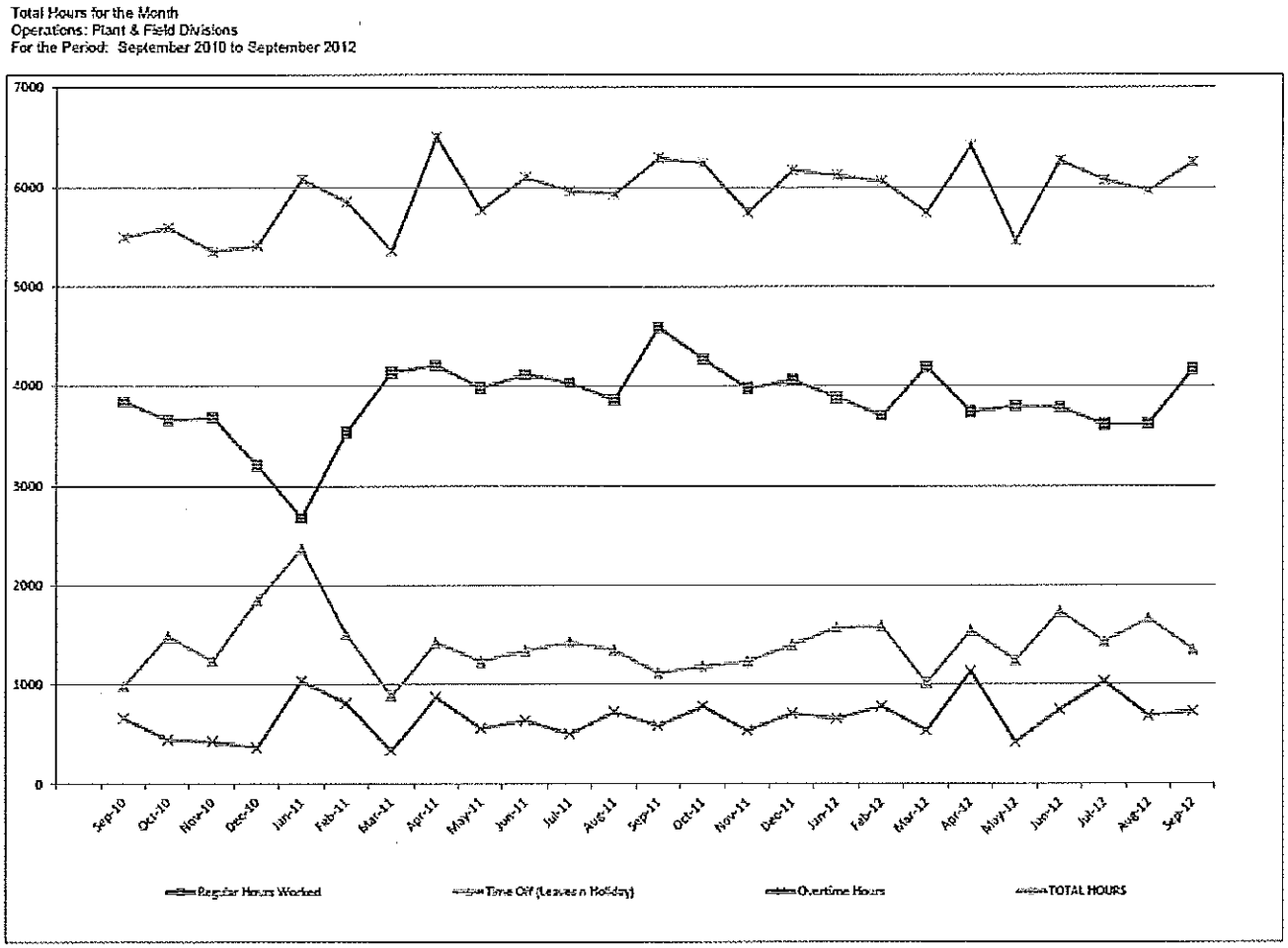
Mr. Dahilig moved to receive the Report by the Public Relations Specialist on Public Relations Activities; seconded by Mr. McCormick; by a unanimous vote, motion carried with 4 Ayes.

Re: Chief of Operation's Summary Report on Monthly Operational Maintenance

BACKGROUND:

Mr. Reyna distributed an updated graph which replaces Page 176 of Page 173. The earlier submitted graph showed overtime and corrections were made.

Received for the Record



Mr. Dahilig moved to receive the amended report by the Chief of Operation's Summary Report on Monthly Operational Maintenance; seconded by Mr. McCormick; by a unanimous vote, motion carried with 4 Ayes.

DISCUSSION:

Mr. Nishimura thanked Mr. Reyna for the Work Order Summaries which showed the completions. Mr. Reyna stated the high efficiently motors have not been received yet. The finalized contract was signed yesterday by Manager Craddick.

Re: Water Resources and Planning Subdivision Report

Ms. Dahilig moved to receive the Water Resources and Planning Subdivision Report; seconded by Mr. McCormick; by a unanimous vote, motion carried with 4 Ayes.

Re: Manager's Monthly Update Regarding Activities of Note of the Kauai County Water Department

BACKGROUND:

Manager Craddick stated one contract was awarded to Goodfellow Bros. for $4,671,000 for the Wailua Houselots Main replacement.

The second contract was awarded to Glenmount Global Solutions, Inc. (formerly FluidIQS) for $100,000 for the DOW Supervisory Control and Data Acquisition (SCADA) system.

The third contract was awarded to R. Electric for $73,722 for Job No. 12-9 Kalaheo Deep Wells No. 1 and No. 2 Starter Replacement.

Manager Craddick introduced Ms. Cherisse Zaima, Mr. Eddy's new Deputy Secretary to the Board.

Manager Craddick reported there is a Conveyance of Water Facility from Kukuiula Development Company and the BAB spend down graph shows expenditures.

Mr. Dahilig moved to receive Manager's Monthly Update Regarding Activities of Note of the Kauai County Water Department; seconded by Mr. McCormick; by a unanimous vote, motion carried with 4 Ayes.

QUARTERLY

1. Quarterly Update on Project Status
   a. Construction Management Division Status
   b. Engineering Division Design Status
2. Quarterly Update on Affordable Housing

DISCUSSION:

Mr. Eddy stated the format has changed with two separate reports from the Construction Management Division and Engineering Division. Special projects were eliminated. The Board stated the new format is good.

Mr. Dahilig moved to receive both Quarterly Update on Project Status and Affordable Housing as of October 25, 2012; seconded by Mr. McCormick; by a unanimous vote, motion carried with 4 Ayes.

TOPICS FOR NEXT WATER BOARD MEETING

1. Board HWWA Conference Reports – Conference was on October 17-19, 2012, Honolulu, Hawaii (*November 2012*)

DISCUSSION:
Mr. Nishimura will provide the HWWA Conference Report at the next Board meeting. Manager Craddick attended the conference on Friday, October 19th and reported the DOW is moving ahead in a water use development plant, energy efficiency and he also listened to what the other water agencies are doing.

Mr. Eddy participated in the WARN session and explained that the four water agencies provide assistance during an emergency. There is an agreement in place where the DOW can send out a crew to assist in an emergency right away. Manager Craddick added the DOW received the WARN agreement in December 2010 to participate in the WARN project. The added partner is Civil Defense which would be the difference from what the Board approved. If there are any changes with the project, the agreement would come before the Board again.

1. Draft Annual Audit (*November 2012*)

DISCUSSION:
Ms. Ignacio Neumiller, Commission Support Clerk, stated the Special Board Meeting tentative date is Friday, November 16th and the agenda posting would be on November 9th. Mr. McCormick stated he will be on Honolulu. The Board suggested Ms. Ignacio Neumiller send an email to all Board members of their availability on November 16th.

TOPICS FOR FUTURE WATER BOARD MEETINGS
1. Election of Officers for 2013 (*December 2012*)
2. Board Committee Assignments (*December 2012*)
3. Resolution No. 13-3 Mahalo and Aloha Water board Commissioner Roy Oyama (*December 2012*)

DISCUSSION:
Mr. Nishimura requested on the next Manager's Status Report, an update on the Emergency Response Plan (i.e., hurricane, tidal wave) and when this plan was last practiced.

Mr. Dahilig noted to correct the numbering for Resolution No. 13-3; Resolution No. 13-2 was just passed.

UPCOMING EVENTS
DISCUSSION:
1. DOW Annual Employee Meeting & Farewell to Board of Water Member Roy Oyama (*Thursday, December 6, 2012)*
2. AWWA Annual Conference Denver, CO *(June 9-13 2013)*
3. 39th Annual AWWA Hawaii Section Conference Honolulu, HI *(May 14-17 2013)*

NEXT WATER BOARD MEETING
1. Thursday, November 29, 2012, 10:00 a.m.
2. Thursday, December 27, 2012, 10:00 a.m.
3. Thursday, January 24, 2013, 10:00 a.m.
4. Thursday, February 28, 2013, 10:00 a.m.

ADJOURNMENT

There being no further business, Chair Kaneshiro adjourned the Regular Board meeting at 12:37 p.m.; with no objections, motion carried.

Respectfully Submitted,

Edie Ignacio Neumiller
Commission Support Clerk

Approved,

Randall Nishimura
Secretary – Board of Water Supply

DEPARTMENT OF WATER

County of Kaua'i

"Water has no Substitute – Conserve It!"

MANAGER'S REPORT No. 13-30

February 28, 2013

Re: Request for Board to Approve the Hawai'i Water Agency Response Network (HIWARN) Agreement

RECOMMENDATION: The Board is requested to approve the attached HIWARN Agreement.

BACKGROUND:
This report is provided to give the Board background to the WARN agreement and an explanation of why certain indemnity clauses are in the WARN agreement.

The National Incident Management System (NIMS) is spearheaded by the Department of Homeland Security pursuant to Homeland Security Presidential Directive (HSPD)-5, *Management of Domestic Incidents*. The following is a description of the purpose and intent of NIMS:

> "[NIMS] provides a systematic proactive approach to guide departments and agencies at all levels of government, nongovernmental organizations, and the private sector to work seamlessly to prevent, protect against, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size location, or complexity, in order to reduce the loss of life and property and harm to the environment. NIMS works hand-in-hand with the National Response Framework (NRF). NIMS provides the template for the management of incidents, while the NRF provides the structure and mechanisms for national-level policy for incident management."[1]

HSPD-5 requires Federal departments to make adoption of NIMS by State and local organizations a condition for Federal preparedness assistance (be it through grants, contracts, and other activities). Adoption of NIMS requires compliance with specific performance-based metrics prescribed in the NIMS 2009 Compliance Objectives, one of those being NIMS Compliance Objective #6 "Promote and/or develop intrastate and interagency mutual aid agreements and assistance agreements (to include agreements with the private sector and NGOs). Both FEMA and the EPA reference the American Water Works Association (AWWA) white paper titled "Utilities Helping Utilities: An Action plan for Mutual Aid and Assistance Networks for Water and Wastewater Utilities" which contains a standardized Mutual Aid and Assistance Agreement which covers key issues relating to resource sharing during emergencies.

It appears the indemnity language in Article IX of the HIWARN submitted to the Board, directly imitates the language provided in the American Water Works Association (AWWA) Mutual Aid

[1] Department of Homeland Security, *National Incident Management System* (December 2008).

Agreement sample. See Attachment 1 (Appendix 3). The following notes, which are intended to explain why certain provisions are included in the Model Agreement, were provided:

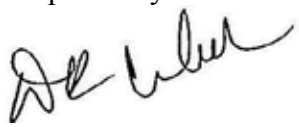
1. Article IX sets forth a comprehensive indemnity provision. The provision requires the requesting member to indemnify responding members and their officers and employees. This requirement protects responding members from the costs associated with civil suits that arise from, or are related to providing Mutual Aid and Assistance. The Model Agreement allows an indemnity provision that would encourage participating utilities to provide assistance in the event of an emergency.
2. However, it is important to recognize that Article IX places and added burden on members that request assistance. The duty to indemnify, along with other requesting member obligations set forth in the Model Agreement, may deter participating utilities from utilizing the Mutual Aid and Assistance Program. An alternative approach is provided in the Florida and Texas Agreements. Those agreements require each member to bear the risks associated with participating in the Mutual Aid and Assistance Program. This includes the risk of facing civil liability that arises from, or is related to, provided Mutual Aid and Assistance. This approach reduces the burdens on members that request assistance under the Mutual Aid and Assistance Program.[2]

It appears the indemnity language in Article X of the HIWARN submitted to the Board, directly imitates the language provided in the AWWA Mutual Aid Agreement sample. See Attachment 1 (Appendix 3). The following notes were provided:

> A lawsuit or similar action that arises from or is related to a Mutual Aid and Assistance response may name all participating utilities as defendants regardless of their involvement in the transaction or occurrence that gave rise to the suit. Article X protects non-responding members from costs associated with lawsuits or similar actions. This protection would encourage participation in the Mutual Aid and Assistance Program. Water and wastewater utilities would not incur additional liability by participating in the Mutual Aid Assistance Program.

Thank you for the consideration in approving the HIWARN Agreement.

Respectively submitted,



David R. Craddick, P.E., C.E.M.
Manager and Chief Engineer

Attached: Attachment 1 - Appendix 3
Attachment 2 - HIWARN Final Agreement

DC:ein
Mgrrp/February 2013/13-30 Hawai'i Water Agency Response Network (HIWARN) Report (2-28-13):ein

[2] American Water Works Association, Kevin Morley and Ray Riordan, *Utilities Helping Utilities: An Action Plan for Mutual Aid and Assistance Networks for Water and Wastewater Utilities* (2006).

Appendix 3

D R A F T

Sample Mutual Aid and Assistance Agreement

This Model Agreement contains procedures and standards for a water and wastewater utility Mutual Aid and Assistance Program. The Model is based on existing water and wastewater utility Mutual Aid and Assistance agreements implemented in California, Florida, Texas, and Washington. While the Model shares some similarities with each of the four agreements, it is a unique document in and of itself.

Creating an agreement for Mutual Aid and Assistance involves a number of policy decisions. The Model Agreement proposes specific approaches to Mutual Aid and Assistance Program issues; however, reasonable minds will differ as to whether the approaches presented in the model are the best. Accordingly, notes are included for each provision of the Model Agreement. These notes highlight significant issues that arise in the drafting of a mutual aid and assistance Program and how the Model Agreement approaches those issues. The notes also explain why certain provisions are included in the Model Agreement.

Representatives of the water and wastewater industry can use this Model Agreement as a tool to facilitate discussion on drafting an Intrastate Mutual Aid and Assistance agreement that best illustrates their needs. However, while each intrastate steering committee may revise portions of this Agreement, it is important to note that this Model Agreement allows for inclusion and eventual connection with a national interstate mutual aid and assistance agreement. Because mutual aid and assistance programs require standardized operational procedures, consistency between the intrastate agreements is critical. Thus, major modifications to this Agreement would preclude using it for connection with an interstate program for mutual aid and assistance program.

AGREEMENT

This Agreement is made and entered into by public and private Water and Wastewater Utilities that have, by executing this Agreement, manifested their intent to participate in an Intrastate Program for Mutual Aid and Assistance.

Statutory Authority (cite authorizing state statute, if any) This Agreement is authorized under Section XXX of the (state revised statutes on mutual aid), which provides that Water and Wastewater Utilities may contract with each other to provide services.

Note

Water and wastewater utilities may need statutory authority to enter into agreements for Mutual Aid and Assistance. If there is no statutory authority, a legal question arises as to whether such authority is necessary for a water and wastewater Mutual Aid and Assistance agreement. Both the California and Washington Agreements reference statutory authority. The Florida and Texas Agreements do not.

ARTICLE I.
PURPOSE

Recognizing that emergencies may require assistance in the form of personnel, equipment, and supplies from outside the area of impact, the signatory utilities established an Intrastate Program for Mutual Aid and Assistance. Through the Mutual Aid and Assistance Program, Members coordinate response activities and share resources during emergencies. This Agreement sets forth the procedures and standards for the administration of the Intrastate Mutual Aid and Assistance Program.

Note on Article I

Article I briefly describes why water and wastewater utilities established a Program for Mutual Aid and Assistance and the purpose of the Agreement. Inclusion of this Article recognizes the spirit and intent of the Mutual Aid and Assistance Program.

ARTICLE II.
DEFINITIONS

A. Emergency—A natural or manmade event that is, or is likely to be, beyond the control of the services, personnel, equipment, and facilities of a Mutual Aid and Assistance Program Member.

B. Member—Any public or private Water or Wastewater Utility that manifests intent to participate in the Mutual Aid and Assistance Program by executing this Agreement.

C. Authorized Official—An employee of a Member that is authorized by the Member's governing board or management to request assistance or offer assistance under this Agreement.

D. Requesting Member—A Member who requests assistance under the Mutual Aid and Assistance Program.

E. Responding Member—A Member that responds to a request for assistance under the Mutual Aid and Assistance Program.

F. Period of Assistance—A specified period of time when a Responding Member assists a Requesting Member. The period commences when personnel, equipment, or supplies depart from a Responding Member's facility and ends when the resources return to their facility (portal to portal). All protections identified in the agreement apply during this period. The specified Period of Assistance may occur during response to or recovery from an emergency, as previously defined.

G. National Incident Management System (NIMS)—A national, standardized approach to incident management and response that sets uniform processes and procedures for emergency response operations.

Note ou Article II

These terms and corresponding definitions are drawn from the four existing water and wastewater agreements for Mutual Aid and Assistance. Only the definition for emergency is noteworthy. The Model Agreement specifies a definition of an emergency that includes disasters that are "likely to be" beyond the control of the participating utility. As explained in the Note for Article V, this

permits a participating utility to request assistance prior to the onset of a disaster. The request for aid does NOT require a declaration of an emergency by the local or state agencies, and the aid may be provided during the emergency response or recovery phases. This approach is consistent with the California and Washington Agreements but differs from the Florida and Texas Agreements, which limit requests for Mutual Aid and Assistance to post-disaster periods.

ARTICLE III.
ADMINISTRATION

The Mutual Aid and Assistance Program shall be administered through Regional Committees, as needed, and a Statewide Committee. The purpose of a Regional Committee is to provide local coordination of the Mutual Aid and Assistance Program before, during, and after an emergency. The designated regions are consistent with the existing public health or emergency management regions of the state and include (list the regions, for example, one for the Southern Region Members, one for the Northern Region Members, one for the Western Region Members, and one for the Eastern Region Members). Each Region Committee, under the leadership of an elected Chairperson, shall meet annually to address Mutual Aid and Assistance Program issues. Each Regional Committee shall also meet annually to review emergency preparedness and response procedures. The Chairperson of each Regional Committee represents their Regional Committee's interests on the Statewide Committee. In addition to representing the interests of the Members, the Statewide Committee includes representatives from (list other organizations that may have a role to play in the Mutual Aid and Assistance Program, e.g., public health, emergency management, Rural Water Association, American Water Works Association, etc.). Under the leadership of the Chair, the Statewide Committee members shall plan and coordinate emergency planning and response activities for the Mutual Aid and Assistance Program.

Note on Article III

The Model Agreement conceptualizes a Mutual Aid and Assistance Program administered through regional committees and a statewide committee. Article III formalizes this approach. The concept is drawn from a provision in California's Agreement that establishes a committee system for program administration. The Model Agreement outlines administering the program through regional or "local" committees that could promote coordination and help resolve program issues. However, the sample agreement recognizes that a committee system for Program administration may be too elaborate for some states. There are other, less formal ways to ensure efficient operation of a Mutual Aid and Assistance Program. For example, the Mutual Aid and Assistance agreement could require participating utilities to develop operational and planning procedures. The main objective is to have a well-developed system for Mutual Aid and Assistance whether through establishment of a committee system or a less formal approach. The more organized the utilities are, the less apt emergency response agencies are to step in.

ARTICLE IV.
PROCEDURES

In coordination with the Regional Committees, emergency management, and the public health system of the state, the Statewide Committee shall develop operational and planning procedures for the Mutual Aid and Assistance Program. These procedures shall be updated at least annually.

Note on Article IV

Article IV recognizes that an agreement by itself may be insufficient to cover the range of issues that arise in Mutual Aid and Assistance Programs. To have an efficient Program, participating utilities may need to supplement the Mutual Aid and Assistance agreement with a Program guidance document that includes detailed operational and planning procedures. This is the approached taken by the Washington Mutual Aid and Assistance Program. That Program has a Mutual Aid and Assistance agreement that sets forth general procedures and standards. To supplement the agreement, participating utilities developed a Mutual Aid and Assistance Program Manual and a Mutual Aid and Assistance Handbook.

ARTICLE V.
REQUESTS FOR ASSISTANCE

Member Responsibility: Members shall identify an Authorized Official and alternates; provide contact information including 24-hour access; and maintain resource information made available by the utility for mutual aid and assistance response.

In the event of an Emergency, a Member's Authorized Official may request mutual aid and assistance from a participating Member. Requests for assistance can be made orally or in writing. When made orally, the request for personnel, equipment, and supplies shall be prepared in writing as soon as practicable. Requests for assistance shall be directed to the Authorized Official of the participating Member. Specific protocols for requesting aid shall be provided in the required procedures (Article IV).

Response to a Request for Assistance: After a Member receives a request for assistance, the Authorized Official evaluates whether resources are available to respond to the request for assistance. Following the evaluation, the Authorized Representative shall inform, as soon as possible, the Requesting Member whether it has the resources to respond. If the Member is willing and able to provide assistance, the Member shall inform the Requesting Member about the type of available resources and the approximate arrival time of such assistance.

Discretion of Responding Member's Authorized Official: Execution of this Agreement does not create any duty to respond to a request for assistance. When a Member receives a request for assistance, the Authorized Official shall have absolute discretion as to the availability of resources. An Authorized Member's decisions on the availability of resources shall be final.

Notes on Article V

1. The Model Agreement sets a low threshold for when Members can request mutual aid and assistance. Article V permits requests for mutual aid and assistance in the event of an "Emergency." An "Emergency" under Article II is defined as "an event that is, or is likely to be, beyond the control of the services, personnel, equipment, and facilities of a Mutual Aid and Assistance Program Member." This definition has two noteworthy characteristics. First, the use of the word "event," rather than "disaster," broadens the situations in which Members can request mutual aid and assistance. Second, an Emergency includes events that are "likely to be" beyond the control of the participating utility. By including the "is likely to be" language, participating utilities can request mutual aid and assistance before an event overwhelms their resources. This approach envisions situations where pre-event response would be necessary to protect human health and property. The Florida and Texas Agreements do not allow for pre-event assistance requests.

2. Article V permits oral and written requests for assistance; however, when made orally, the requesting member must put the request in writing as soon as practicable. This approach balances the need to make a quick and prompt request with the need for accuracy.

3. The Model Agreement does not provide specific details on the type of information that must be provided when a participating utility requests assistance. This can be provided in the protocols that support the agreement. This approach is in contrast to the Florida and Texas Agreements that do list the information that must be provided when a member makes a request for assistance. Those agreements also require a responding member to provide certain information to the requesting member. Again, the Model Agreement adopted a different approach. Article V only requires responding members to indicate what resources will be provided and when the resources will arrive at the requesting member's facility.

4. The Model Agreement provides participating utilities with absolute discretion when deciding whether to respond to a request for assistance. This is consistent with all four existing water and wastewater Mutual Aid and Assistance agreements.

ARTICLE VI.
RESPONDING MEMBER PERSONNEL

National Incident Management System: When providing assistance under this Agreement, the Requesting Utility and Responding Utility shall be organized and shall function under the National Incident Management System.

Control: Responding Member personnel shall remain under the direction and control of the Responding Member. The Requesting Member's Authorized Official shall coordinate response activities with the designated supervisor(s) of the Responding Member(s). Whenever practical, Responding Member personnel must be self sufficient for up to 72 hours.

Food and Shelter: The Requesting Member shall supply reasonable food and shelter for Responding Member personnel. If the Requesting Member fails to provide food and shelter for Responding personnel, the Responding Member's designated supervisor is authorized to secure the resources necessary to meet the needs of its personnel. The cost for such resources must not exceed the State per diem rates for that area. The Requesting Member remains responsible for reimbursing the Responding Member for all costs associated with providing food and shelter, if such resources are not provided.

Communication: The Requesting Member shall provide Responding Member personnel with radio equipment as available, or radio frequency information to program existing radio, in order to facilitate communications with local responders and utility personnel.

Status: Unless otherwise provided by law, the Responding Member's officers and employees retain the same privileges, immunities, rights, duties, and benefits as provided in their respective jurisdictions.

Licenses and Permits: To the extent permitted by law, Responding Member personnel who hold licenses, certificates, or permits evidencing professional, mechanical, or other skills shall be allowed to carry out activities and tasks relevant and related to their respective credentials during the specified Period of Assistance.

Right to Withdraw: The Responding Member's Authorized Official retains the right to withdraw some or all of its resources at any time. Notice of intention to withdraw must be communicated to the Requesting Member's Authorized Official as soon as possible.

Notes on Article VI

1. The National Incident Management System (NIMS) provides a consistent nationwide approach that allows federal, state, local, and tribal governments as well as private sector and nongovernmental organizations to work together to manage incidents and disasters of all kinds. To be eligible for federal emergency management assistance, water and wastewater mutual aid and assistance programs must meet NIMS standards for emergency preparedness and response.

2. The Model Agreement promotes "home" supervisory control over personnel. This approach recognizes that personnel will likely work better with their regular supervisors. To ensure an efficient response, Article VI requires responding member supervisors to coordinate with the requesting member's authorized official.

3. Article VI requires the requesting member to supply food and shelter to responding member personnel. This may be too onerous given that the requesting member will be faced with an emergency when it makes a request for Mutual Aid and Assistance. Accordingly, Article VI permits the requesting member to reimburse the responding member for food and shelter costs rather than securing such provisions.

4. Article VI includes a provision that allows the responding member to withdraw some or all of its resources at any time. This approach limits the commitment of the responding member. If a situation arose in the responding member's facility, resources could be withdrawn as appropriate. The Model Agreement promotes assistance because participating utilities would be less likely to withhold resources out of concern that they could not respond to needs at their own facilities.

5. Licensing and permitting authority will most likely not be an issue for intrastate mutual aid. However, this Agreement is drafted to permit assistance under the Interstate Emergency Management Assistance Compact and an Interstate Mutual Aid and Assistance Program for water and wastewater utilities, if such a program were established (see Article XIX). Because state-issued licensing and permitting credentials vary, it is important to clarify what actions and tasks responding member personnel can take when participating in interstate mutual aid and assistance. The licensing and permitting provision allows the maximum utilization of the professional skills held by responding member personnel. However, it does provide responding member personnel with authority to conduct activities or tasks that may only be completed by those holding locally issued professional credentials.

ARTICLE VII.
COST REIMBURSEMENT

Unless otherwise mutually agreed in whole or in part, the Requesting Member shall reimburse the Responding Member for each of the following categories of costs incurred while providing aid and assistance during the specified Period of Assistance.

Personnel: Responding Member personnel are to be paid for work completed during a specified Period of Assistance according to the terms provided in their employment contracts or other conditions of employment. The Responding Member designated supervisor(s) must keep accurate records of work performed by personnel during the specified Period of Assistance. Requesting Member reimbursement to the Responding Member must consider all personnel costs, including salaries or hourly wages, costs for fringe benefits, and indirect costs.

Equipment: The Requesting Member shall reimburse the Responding Member for the use of equipment during a specified Period of Assistance. As a minimum, rates for equipment use must be based on the Federal Emergency Management Agency's (FEMA) Schedule of Equipment Rates. If a Responding Member uses rates different from those in the FEMA Schedule of Equipment Rates, the Responding Member must provide such rates in writing to the Requesting Member prior to supplying resources. Mutual agreement on which rates are used must be reached in writing prior to dispatch of the equipment. Reimbursement for equipment not referenced on the FEMA Schedule of Equipment Rates must be developed based on actual recovery of costs.

Materials and Supplies: The Requesting Member must reimburse the Responding Member in kind or at actual replacement cost, plus handling charges, for use of expendable or non-returnable supplies. The Responding Member must not charge direct fees or rental charges to the Requesting Member for other supplies and reusable items that are returned to the Responding Member in a clean, damage-free condition. Reusable supplies that are returned to the Responding Member with damage must be treated as expendable supplies for purposes of cost reimbursement.

Payment Period: The Responding Member must provide an itemized bill to the Requesting Member for all expenses it incurred as a result of providing assistance under this Agreement. The Requesting Member must send the itemized bill not later than ninety (90) days following the end of the Period of Assistance. The Requesting Member must pay the bill in full on or before the forty-fifth (45th) day following the billing date. Unpaid bills become delinquent upon the forty-sixth (46th) day following the billing date, and, once delinquent, the bill accrues interest at the rate of prime, as reported by the *Wall Street Journal,* plus two percent (2%) per annum.

Notes on Article VII

1. Mutual Aid programs established in the 1950s did not have cost reimbursement procedures. Rather, program members would provide assistance at no charge, with the understanding that assistance would be provided to them when they were in need. For those utilities that wish to abide by that principle, the initial statement of Article VII allows the requesting and responding member to determine which resources could be exchanged without cost. Because public resources cannot normally be provided to private organizations, this process is appropriate only when the assistance is exchanged between private utilities.

2. For those utilities that seek reimbursement for services, Article VII reflects the cost reimbursement procedures set forth in the four existing water and wastewater agreements for Mutual Aid and Assistance. To qualify for FEMA cost reimbursement, this Article must be included in a mutual aid agreement.

3. In general, private organizations cannot receive public funds. This rule prevents gifts of private funds to private organizations. However, public funds can be used to reimburse private organizations for costs incurred as a result of providing assistance to a public entity as long as the costs are identified. Accordingly, Article VII requires an itemized bill for all expenses incurred during a Period of Assistance.

4. The Model Agreement suggests that procedures include a penalty provision for unpaid bills. Providing a penalty provision will promote timely reimbursement to the requesting member.

ARTICLE VIII.
DISPUTES

Any controversy or claim arising out of, or relating to, this Agreement, including, but not limited to, alleged breach of the Agreement, shall be settled by arbitration in accordance with the Rules of the American Arbitration Association. Any court of competent jurisdiction may enter the judgment rendered by the arbitrators as final judgment that is binding on the parties.

Note on Article VIII

Article VIII sets forth a two-tiered process for handling disputes. First, members must try negotiation. If unsuccessful, then the matter must be resolved through arbitration. Arbitration is much faster and less expensive than traditional civil litigation. The Rules of the American Arbitration Association are widely recognized and often cited in arbitration clauses. However, a dispute resolution provision could include specific procedures for arbitration rather than require use of procedures developed by the American Arbitration Association. The Florida and Texas Agreements take this approach.

ARTICLE IX.
REQUESTING MEMBER'S DUTY TO INDEMNIFY

The Requesting Member shall assume the defense of, fully indemnify and hold harmless, the Responding Member, its officers and employees, from all claims, loss, damage, injury, and liability of every kind, nature, and description, directly or indirectly arising from Responding Member's work during a specified Period of Assistance. The scope of the Requesting Member's duty to indemnify includes, but is not limited to, suits arising from, or related to, negligent or wrongful use of equipment or supplies on loan to the Requesting Member, or faulty workmanship or other negligent acts, errors, or omissions by Requesting Member or the Responding Member personnel.

The Requesting Member's duty to indemnify is subject to, and shall be applied consistent with, the conditions set forth in Article X.

Notes on Article IX

1. Article IX sets forth a comprehensive indemnity provision. The provision requires the requesting member to indemnify responding members and their officers and employees. This requirement protects responding members from the costs associated with civil suits that arise from, or are related to, providing Mutual Aid and Assistance. The Model Agreement allows an indemnity provision that would encourage participating utilities to provide assistance in the event of an emergency.

2. However, it is important to recognize that Article IX places an added burden on members that request assistance. The duty to indemnify, along with other requesting member obligations set forth in the Model Agreement, may deter participating utilities from utilizing the Mutual Aid and Assistance Program. An alternative approach is provided in the Florida and Texas Agreements. Those agreements require each member to bear the risks associated with participating in the Mutual Aid and Assistance Program. This includes the risk of facing civil liability that arises from, or is related to, providing Mutual Aid and Assistance. This approach reduces the burdens on members that request assistance under the Mutual Aid and Assistance Program.

ARTICLE X.
SIGNATORY INDEMNIFICATION

In the event of a liability, claim, demand, action, or proceeding of whatever kind or nature arising out of a specified Period of Assistance, the Members who receive and provide assistance shall indemnify and hold harmless those Members whose involvement in the transaction or occurrence that is the subject of such claim, action, demand, or other proceeding is limited to execution of this Agreement.

Note on Article X

A lawsuit or similar action that arises from or is related to a Mutual Aid and Assistance response may name all participating utilities as defendants regardless of their involvement in the transaction or occurrence that gave rise to the suit. Article X protects non-responding members from costs associated with lawsuits or similar actions. This protection would encourage participation in the Mutual Aid and Assistance Program. Water and wastewater utilities would not incur additional liability by participating in the Mutual Aid and Assistance Program.

ARTICLE XI.
WORKER'S COMPENSATION CLAIMS

The Responding Member is responsible for providing worker's compensation benefits and administering worker's compensation. The Requesting Member shall reimburse the Responding Member for all costs, benefits, and expenses associated with worker's compensation and other claims that arise from or are related to providing assistance under this Agreement. Reimbursement shall be made on a quarterly basis, or on other terms mutually agreed upon by the Requesting Member and Responding Member.

Note on Article XI

Responding member personnel will effectively be working for the requesting member during a period of assistance. Accordingly, Article XI provides that the requesting member is responsible for worker's compensation claims filed by responding member personnel if such claims arise from or are related to providing assistance to the requesting member under the Mutual Aid and Assistance Program.

ARTICLE XII.
NOTICE

A Member who becomes aware of a claim or suit that in any way, directly or indirectly, contingently or otherwise, affects or might affect other Members of this Agreement shall provide prompt and timely notice to the Members who may be affected by the suit or claim. Each Member reserves the right to participate in the defense of such claims or suits as necessary to protect its own interests.

Note on Article XII

Article XII recognizes that Members of the Agreement need to know about claims or suits that affect, or might affect, them. The Article also preserves the right of a Member to defend itself in any claim or suit that affects its interests.

ARTICLE XIII.
INSURANCE

Members of this Agreement shall maintain an insurance policy that covers activities that it may undertake by virtue of membership in the Mutual Aid and Assistance Program. The scope of the policy must include, at a minimum, coverage for employee faulty workmanship and other negligent acts, errors, or omissions and coverage for meeting the indemnity conditions provided in Articles IX and X.

Notes on Article XIII

1. Article XIII requires members to carry insurance to protect against risks associated with participation in the Mutual Aid and Assistance Program. This provision provides a secure means of covering risks associated with participation in the Mutual Aid and Assistance Program.

2. A requirement to carry insurance could be alternative to the indemnity provisions provided in Articles IX and X. That is, rather than place the burden on the requesting member to indemnify the responding member, the mutual aid and assistance agreement could provide that all members bear the risks of their own actions. The Florida and Texas Agreements take this approach; however, these agreements do not require participating utilities to obtain insurance.

ARTICLE XIV.
EFFECTIVE DATE

This Agreement shall be effective after the Water and Wastewater Utility's authorized representative executes the Agreement and the applicable Regional Committee Chair receives the Agreement. The Regional Committee Chair shall maintain a list of all Members in the respective region. The Statewide Committee Chair shall maintain a master list of all members of the Mutual Aid and Assistance Program.

Note on Article XIV

Article XIV provides a standard approach on the process for participation in the Mutual Aid and Assistance Program. In contrast, the Washington Agreement requires a utility to adopt or authorize the program agreement by resolution. The utility must then execute the agreement and send it to the Washington Association of Sewer and Water Districts.

ARTICLE XV.
WITHDRAWAL

A Member may withdraw from this Agreement by providing written notice of its intent to withdraw to the applicable Regional Committee Chair and the Statewide Chair. Withdrawal takes effect 60 days after the appropriate officials receive notice.

Note on Article XV

Article XV recognizes that a Member may decide to withdraw from a Mutual Aid and Assistance Program.

ARTICLE XVI.
MODIFICATION

No provision of this Agreement may be modified, altered, or rescinded by individual parties to the Agreement. Modifications to this Agreement may be due to programmatic operational changes to support the agreement. Modifications require a simple majority vote of Members within each region and a unanimous agreement between the regions. The Statewide Committee Chair must provide written notice to all Members of approved modifications to this Agreement. Approved modifications take effect 60 days after the date upon which notice is sent to the Members.

Note on Article XVI

Article XVI recognizes that members may want to modify the Program agreement. There may also be circumstances that require modification of the Program agreement. For example, creation of an interstate water and wastewater utility Mutual Aid and Assistance Program may require agreement modifications.

ARTICLE XVII.
PRIOR AGREEMENTS

This Agreement supersedes all prior Agreements between Members to the extent that such prior Agreements are inconsistent with this Agreement.

Note on Article XVII

Members of the Mutual Aid and Assistance Program may already have assistance agreements in place with utilities. Article XVII ensures that existing assistance agreements do not interfere with the operation of the intrastate Mutual Aid and Assistance Program.

ARTICLE XVIII.
PROHIBITION ON THIRD PARTIES AND ASSIGNMENT OF RIGHTS/DUTIES

This Agreement is for the sole benefit of the Members and no person or entity must have any rights under this Agreement as a third-party beneficiary. Assignments of benefits and delegations of duties created by this Agreement are prohibited and must be without effect.

Note on Article XVIII

Article XVIII covers issues of contract law that may interfere with the operation of the Mutual Aid and Assistance Program. The prohibition on third-party beneficiaries limits all rights and benefits under the agreement to participating utilities. Thus, a local government could not assert rights under this agreement as a third-party beneficiary. Article XVIII also prohibits the assignment of benefits created by the agreement to third parties. In other words, a participating utility could not assign its ability to request mutual aid and assistance to a non-participating utility. Prohibiting the delegation of duties ensures that only the participating utilities are involved in the Mutual Aid and Assistance Program.

ARTICLE XIX.
INTRASTATE AND INTERSTATE MUTUAL AID AND ASSISTANCE PROGRAMS

To the extent practicable, Members of this Agreement shall participate in Mutual Aid and Assistance activities conducted under the State of XXX Intrastate Mutual Aid and Assistance Program and the Interstate Emergency Management Assistance Compact (EMAC). Members may voluntarily agree to participate in an interstate Mutual Aid and Assistance Program for water and wastewater utilities through this Agreement if such a Program were established.

Note on Article XIX

At least 13 states have an overarching statewide mutual aid program. Article XIX requires coordination with the statewide mutual aid program, if one exists. Additionally, Article XIX permits participation in an interstate water and wastewater mutual aid program if one were established.

Now, therefore, in consideration of the covenants and obligations set forth in this Agreement, the Water and Wastewater Utility listed here manifests its intent to be a Member of the Intrastate Mutual Aid and Assistance Program for Water and Wastewater Utilities by executing this Agreement on this _____ day of _____ 2006.

Water/Wastewater Utility:_____

By:_____ By:_____

Title:_____ Title_____

_____ _____

Please Print Name Please Print Name

Appendix 4

National Incident Management System Mutual Aid Agreement Requirements

No.	NIMS Requirements	Model Agreement 7 pages w/o notes	CalWARN 4 pages www.calwarn.org	FlaWARN 6 pages www.flawarn.org	TxWARN 5 pages www.txwarn.org	WA 2 pages
1	Provide definitions of key terms used in the agreement	Article II defines 8 key terms that are used in the agreement	Article III defines emergency; definitions are found throughout	Article II defines 8 terms	Article IV defines 9 terms, including use of NIMS	Article II defines an emergency
2	Specify roles and responsibilities of individual parties	Article II defines member role; Article III outlines committee responsibilities; Article V defines requester role; Article VI defines resource control	Article II defines committee role; Articles VI, VII, and VIII define lender and borrower roles	Article III defines the role and responsibility of damaged utility and assisting utility	Article III defines member role; Article V defines damaged utility and assisting utility role and use of NIMS	Does not address
3	Procedures for requesting and providing assistance	Article V provides for this	Article IV defines the procedure	Article III defines the procedure	Article V defines the procedure	Article I addresses this
4	Procedures, authorities, and rules for payment; reimbursement and allocation of costs	Article VII defines this	Articles VI, VII, VIII, and IX define the procedures	Article IV defines the procedures	Article VI defines the procedure	Article VIII addresses this
5	Notification procedures	Article V defines this	Article IV defines the procedure	Article III defines the procedure	Article V defines the procedure	Does not address
6	Protocols for interoperable communications	Articles III and VI address personnel reporting relationship; Article VI addresses technology	Article IV addresses contacting coordination groups; technical issues are not addressed	Article III describes what to communicate; technical issues are not addressed	Article V describes what to communicate; technical issues are not addressed	Does not address
7	Relationships with other agreements among jurisdictions	Article XVII covers existing agreements for mutual aid	Article XVI recognizes other agreements; Article IV defines coordination with other organizations	Does not address; this is only an agreement; participants do not have to sign it	Does not address; allows modification of agreement through Article VIII	Does hot address
8	Workers' compensation	Article XI covers the requirement	Article XII addresses this	Does not address	Does not address	Does not address
9	Treatment of liability and immunity	Articles IX and X provide for this	Article X addresses liability; Article XI addresses indemnification; no discussion on insurance	Article V addresses insurance; each utility bears own risk	Article VIII addresses insurance; each utility bears own risk	Article VI addresses indemnification; Article VII addresses insurance
10	Recognition of qualifications and certifications	Article VI provides for this	Does not address	Does not address	Does not address	Does not address
11	Sharing agreements, as required	Article II states all public or private utilities are included; Article XVIII does not allow third party	Article I includes all utilities; Article XIV does not allow transfer	Does not address	Does not address	Article XII does not allow third party

Pertinent Non-NIMS Requirements						
No.	**NIMS Requirements**	**Model Agreement**	**CalWARN**	**FlaWARN**	**TxWARN**	**WA**
12	Provision of insurance	Article XIII provides for this	Does not address	Article V addresses this	Article VII addresses this	Article VII addresses this
13	Term of the agreement	Article XIV provides for this	Article XV provides for this	Does not address	Article IX addresses this	Article X addresses this
14	Arbitration	Article VIII provides for this	Article XVIII addresses this	Article VI addresses this	Article X addresses this	Does not address
15	Termination	Article XV provides for this	Article XIV addresses this	Does not address	Article X addresses this	Article XI addresses this
16	Coordination link with jurisdictions	Article IV addresses development of procedures that would include linkage to response system	Article IV addresses this	Does not address	Does not address	Does not address
17	Administration or governance	Article III addresses this	Article II addresses this	Does not address	Does not address	Does not address
18	Use of NIMS	Articles II and VI address this	Articles II and VI address this	Does not address	Article V addresses this	Does not address
19	Duty to respond to request	Article V addresses this	Article V addresses this	Article III addresses this	Article V addresses this	Article III addresses this
20	Control of resources	Article VI addresses this	Article VIII addresses this–under control of requester	Article III addresses under responder control	Article V addresses this–under responder control	Article IV addresses this–under responder control
21	Allowance and process for agreement modifications	Article XVI addresses this	Article XIII addresses this	Does not address	Does not address	Does not address

Appendix 5

Sample Water/Wastewater Agency Response Network (WARN) Information Flyer

WHAT IS A WARN?

A Water Agency Response Network (WARN) is a network of utilities helping utilities to:

- Prepare for the next natural or human caused emergency
- Organize response according to established requirements
- Share personnel and other resources statewide by agreement

Past disaster response and lessons learned tell us that:

- Utility operations are specialized
- Utilities must be self-sufficient and fill the gap between disaster onset and arrival of other government aid
- Customers can live with power and phone interruptions, not without water
- Water restoration provides hope

WHAT CAN A WARN DO FOR YOU?

In order to be eligible for federal grants and reimbursements before, during and after an emergency, by the end of Fiscal Year 2006, all local, state and tribal governments, associations and non-governmental and private organizations are to:

- Adopt the National Incident Management System (NIMS)
- Support the development of interstate mutual aid programs
- Integrate response at the field, local and state levels of government

A WARN program will help facilitate meeting these requirements.

MISSION

The mission of a WARN network is to support and promote statewide emergency preparedness, disaster response, and mutual assistance matters for public and private water and wastewater utilities for natural and human caused events.

PURPOSE

The WARN network provides water and wastewater utilities with:

- A mutual assistance agreement and process for sharing emergency resources among water and wastewater agencies statewide.
- A mutual assistance program consistent with other statewide mutual aid and assistance programs and the National Incident Management System.
- The resources to respond and recover more quickly from a natural or human caused disaster.
- A forum for developing and maintaining emergency contacts and relationships.

PARTICIPATION

The WARN Omnibus Mutual Assistance Agreement is available to all public and private water and wastewater utilities in the state.

AGREEMENT

All actions, recommendations, etc. are made in accordance with the articles of the WARN Mutual Aid and Assistance Agreement.

WHAT'S INVOLVED?

The seven steps to a successful WARN program include:

1. Identify your WARN program purpose
2. Identify your WARN membership
    - General Membership
    - Steering Committee
3. Identify pre-event support needs
4. Develop response protocols
    - Define how to activate and use the WARN system
5. Create a mutual aid and assistance agreement
    - Draft sample is available
6. Develop facilitation tools
7. Program maintenance

SUPPORT

To support the effort to create WARN programs in your state, eight national associations met and agreed to support a WARN program in every state in the nation. The Joint Policy Statement of Mutual Aid and Assistance Networks included:

- National Rural Water Association
- American Water Works Association
- Association of Metropolitan Water Agencies
- Water Environmental Federation
- National Association of Clean Water Agencies
- Association of State Drinking Water Authorities
- Association of State and Interstate Water Pollution Control Administrators
- National Association of Water Companies

WARN BENEFITS

- No Cost to participate.
- Increased planning and coordination
- Enhances access to specialized resources
- A single agreement provides access to all member utilities statewide.
- Provides insurance for access to resources during an emergency without pre-contractual limitations or retainer fees.
- Expedites arrival of aid
- Signators have a pre-established relationship under which they are able to share resources during an emergency at the discretion of each participating agency.
- Is consistent with National Incident Management System (NIMS).
- Provides a list of emergency contacts and phone numbers.
- Reduces administrative conflict
- Agreement contains indemnification and workers' compensation provisions to protect participating utilities, and provides for reimbursement of costs, as needed.
- Avoid federal bureaucracy
- Increases hope that recovery comes quickly

WHO DO YOU INVOLVE?

- Utility Owner/Operators
- Professional Association Representation (AWWA, NRWA, WEF, Sanitation Association, etc)
- State Water and Wastewater Primacy Agency (State Health, Environmental Protection, etc.)
- State Emergency Management and/or Homeland Security Agency
- US EPA Region representation

Water/Wastewater

Agency

Response

Network

Utilities Helping Utilities

Appendix 6

Existing Water and Wastewater Agency Response Network Contacts

The following contacts are provided to allow potential intrastate mutual aid and assistance program leaders to contact others involved with the development of the current and successful Water/Wastewater Agency Response Networks (WARN) across the nation.

The contacts are listed alphabetically by network affiliation based on those networks in place before March 2006.

California Water/Wastewater Agency Response Network (CalWARN)

Martin Falarski, Chair
Construction Manager
East Bay Municipal Utility District
375 Eleventh Street
Oakland, CA 94583
falarski@ebmud.com
510.287.1233

Raymond Riordan, State Committee Member
Certified Emergency Manager
California Utilities Emergency Association
2662 Marsh Drive
San Ramon, CA 94583
rayriordan@comcast.net
925.830.9180

Florida Water/Wastewater Agency Response Network (FlaWARN)

Scott Kelly, Chair
Water and Wastewater Services Director
JEA
102 N Kernan Blvd.
Jacksonville, FL 32225
KellSD@jea.com
904.665.4642

Gary Williams, Vice-Chair
Executive Director
Florida Rural Water Association
2970 Wellington Circle W, Suite 101
Tallahassee, FL 32309-6885
Gary.Williams@frwa.net
850.668.2746

Louisiana Water/Wastewater Agency Response Network (LaWARN)

Don Broussard, Co-Chair
Water Operations Manager
Lafayette Utility Systems
P.O. Box 4017-C
Lafayette, LA 70502
aitch2oh@lus.org
337.291.5901

Patrick Credeur, Co-Chair
Executive Director
Louisiana Rural Water Association
P.O. Box 180
Kinder, LA 70648
pclrwa@centurytel.net
800.256.2591

Texas Water/Wastewater Agency Response Network (TxWARN)

Mike Howe, State Committee Member
Texas AWWA, Executive Director
P.O. Box 80150
Austin, TX 78708
mikehowe@tawwa.org
512.238.9292

Washington Association of Sewer & Water Districts

Hal Schlomann, Executive Director
2800 South 192nd Street, Suite 104
SeaTac, WA 98188-5164
halsclomann@waswd.org
206-246-1299

Headquarters Office

6666 West Quincy Avenue
Denver, CO 80235
PH 303.794.7711
FX: 303.794.1140

http://www.awwa.org

Government Affairs Office

1401 New York Avenue, NW, Suite 640
Washington, DC 20005
PH: 202.628.8303
FX: 202.628.2846

Hawaii Water Agency Response Network (HIWARN)
Mutual Aid and Assistance Agreement

AGREEMENT

This Hawai'i Water Agency Response Network (HIWARN) Mutual Aid Agreement ("Agreement") is made and entered into by Hawaii Water Utilities that have, by executing this Agreement, manifested their intent to participate in an Intrastate Program for Mutual Aid and Assistance.

ARTICLE I.
PURPOSE

Recognizing that emergencies may require aid or assistance in the form of personnel, equipment, and supplies from outside the area of impact, the signatory utilities hereby establish a Hawaii Water Agency Response Network (HIWARN) Intrastate Program for Mutual Aid and Assistance. Through the Mutual Aid and Assistance Program, Members coordinate response activities and share resources during emergencies. This Agreement sets forth the procedures and standards for the administration of the HIWARN Mutual Aid and Assistance Program.

ARTICLE II.
DEFINITIONS

A. Authorized Official – An employee or officer of a Member utility that is authorized to:
   1. Request assistance;
   2. Offer assistance;
   3. Refuse to offer assistance or
   4. Withdraw assistance under this agreement.

B. Emergency – A natural or human caused event or circumstance causing, or imminently threatening to cause, loss of life, injury to person or property, human suffering or financial loss, and includes, but is not limited to, fire, explosion, flood, severe weather, drought, earthquake, volcanic activity, tsunami, contamination, disease, intentional acts, sabotage, or war that is, or could reasonably be beyond the capability of the services, personnel, equipment, and facilities of a Mutual Aid and Assistance Program Member to fully manage and mitigate internally.

C. Members – Any Hawaii Water Utility that manifests intent to participate in the Mutual Aid and Assistance Program by executing this Agreement.

D. Hawaii Water Utility – Any county or private municipal drinking water utility that is regulated under Hawaii Administrative Rules, Title 11, Department of Health, Chapter 20, Rules Relating to Potable Water Systems.

E. Associate Member – Any non utility participant, approved by the HIWARN Steering Committee, that provides a support role for the HIWARN program, such as the State of Hawai'i Department of Health, or those who are members of the HIWARN Steering Committee and do not officially sign this Agreement.

F. Requesting Member – A Member or Associate Member who requests aid or assistance under the Mutual Aid and Assistance Program.

G. Responding Member – A Member or Associate Member that responds to a request for aid or assistance under the Mutual Aid and Assistance Program.

H. Non-Responding Member - A Member or Associate Member that does not provide aid or assistance during a Period of Assistance under the Mutual Aid and Assistance Program.

I. Confidential Information - Any document shared with any signatory of this Agreement that is marked confidential, including but not limited to any map, report, notes, papers, opinion, or e-mail which relates to the system vulnerabilities of a Member or Associate Member.

J. Period of Assistance – A specified period of time when a Responding Member assists a Requesting Member. The period commences when personnel, equipment, or supplies depart from Responding Member's facility and ends when the resources return to their facility (portal to portal). All protections identified in this Agreement apply during this period. The specified Period of Assistance may occur during response to or recovery from an emergency, as previously defined.

K. National Incident Management System (NIMS): A national, standardized approach to incident management and response that sets uniform processes and procedures for emergency response operations.

ARTICLE III.
ADMINISTRATION

The Mutual Aid and Assistance Program shall be administered by the HIWARN Leadership Team through the HIWARN Steering Committee in accordance with the HIWARN By-Laws. The purpose of the HIWARN Steering Committee is to provide local coordination of the Mutual Aid and Assistance Program before, during, and after an emergency.

The HIWARN Leadership Team shall meet semi-annually to address Mutual Aid and Assistance Program issues. The HIWARN Steering Committee shall also meet annually to review emergency preparedness and response procedures. The Leadership Team and Steering Committee represent the interests of the HIWARN program and its members. In addition to representing the interests of the Members, the Leadership Team and Steering Committee includes representatives from County water utilities and those organizations that may have a role to play in the Mutual Aid and Assistance Program, such as public health, emergency management, Rural Water Association, American Water Works Association, etc. Under the leadership of the Chair, the HIWARN Steering Committee shall plan and coordinate emergency planning and response activities for the Mutual Aid and Assistance Program.

ARTICLE IV.
PROCEDURES

In coordination with the HIWARN Leadership Team, the Steering Committee shall develop operational and planning procedures for the Mutual Aid and Assistance Program. These procedures shall be reviewed at least annually and updated as needed by the Steering Committee.

ARTICLE V.
REQUESTS FOR ASSISTANCE

A. Member Responsibility- Members shall identify an Authorized Official and alternates; provide contact information including 24-hour access and maintain resource information that may be available from the utility for mutual aid and assistance response. Such contact information shall be updated annually or when changes occur, and provided to the HIWARN Steering Committee.

In the event of an Emergency, a Member's Authorized Official may request mutual aid and assistance from a participating Member. Requests for assistance can be made orally or in writing. When made orally, the request for personnel, equipment, and supplies shall be prepared in writing as soon as practicable. Requests for assistance shall be directed to the Authorized Official of the participating Member. Specific protocols for requesting aid shall be provided in the required procedures (Article IV).

B. Response to a Request for Assistance – Members of this Agreement are not obligated to respond to a request. After a Member receives a request for assistance, the Authorized Official evaluates whether or not to respond, whether resources are available to respond, or if other circumstances would hinder response. Following the evaluation, the Authorized Representative shall inform, as soon as possible, the Requesting Member whether it will respond. If the Member is willing and able to provide assistance, the Member shall inform the Requesting Member about the type of available resources and the approximate arrival time of such assistance.

C. Discretion of Responding Member's Authorized Official – Execution of this Agreement does not create any duty to respond to a request for assistance. When a Member receives a request for assistance, the Authorized Official shall have sole and absolute discretion as to whether or not to respond, or the availability of resources to be used in such response. An Authorized Member's decisions on the availability of resources shall be final.

ARTICLE VI.
RESPONDING MEMBER PERSONNEL

A. National Incident Management System - When providing assistance under this Agreement, the Requesting Utility and Responding Utility shall be organized and shall function under the National Incident Management System (NIMS).

B. Control - While employees so provided may be under the supervision of the Responding Member, the Responding Member's employees come under the direction and control of the Requesting Member, consistent with the NIMS Incident Command System to address the needs identified by the Requesting Member. The Requesting Member's Authorized Official shall coordinate response activities with the designated supervisor(s) of the Responding Member(s). The Responding Member's designated supervisor(s) must keep accurate records of work performed by personnel during the specified Period of Assistance.

C. Food and Shelter – Whenever practical, Responding Member personnel must be self sufficient for up to 72 hours. When possible, the Requesting Member shall supply reasonable food and shelter for Responding Member personnel. If the Requesting Member is unable to provide food and shelter for Responding personnel, the Responding Member's designated supervisor is authorized to secure the resources necessary to meet the needs of

its personnel. Except as provided below, the cost for such resources must not exceed the State per diem rates for that area. To the extent food and shelter costs exceed the State per diem rates for the area; the Responding Member must demonstrate that the additional costs were reasonable and necessary under the circumstances. Unless otherwise agreed to in writing, the Requesting Member remains responsible for reimbursing the Responding Member for all reasonable and necessary costs associated with providing food and shelter, if such resources are not provided.

D. Communication – The Requesting Member shall provide Responding Member personnel with radio equipment as available, or radio frequency information to program existing radio, in order to facilitate communications with local responders and utility personnel.

E. Status - Unless otherwise provided by law, the Responding Member's officers and employees retain the same privileges, immunities, rights, duties and benefits as provided in their respective jurisdictions.

F. Licenses and Permits – To the extent permitted by law, Responding Member personnel that hold licenses, certificates, or permits evidencing professional, mechanical, or other skills shall be allowed to carry out activities and tasks relevant and related to their respective credentials during the specified Period of Assistance.

G. Right to Withdraw - The Responding Member's Authorized Official retains the right to withdraw some or all of its resources at any time for any reason in the Responding Member's sole and absolute discretion. Notice of intention to withdraw must be communicated to the Requesting Member's Authorized Official as soon as soon as is practicable under the circumstances.

ARTICLE VII.
COST- REIMBURSEMENT

The Requesting Member shall reimburse the Responding Member for each of the following categories of costs incurred during the specified Period of Assistance as agreed in whole or in part by both parties; provided, that any Responding Member may assume in whole or in part such loss, damage, expense, or other cost, or may loan such equipment or donate such services to the Requesting Member without charge or cost.

A. Personnel – The Responding Member shall be reimbursed by the Requesting Member for personnel costs incurred for work performed during the specified Period of Assistance. Responding Member personnel costs shall be calculated according to the terms provided in their employment contracts or other conditions of employment. The Responding Member's designated supervisor(s) must keep accurate records of work performed by personnel during the specified Period of Assistance. Requesting Member reimbursement to the Responding Member could consider all personnel costs, including salaries or hourly wages, costs for fringe benefits, and indirect costs.

B. Equipment – The Requesting Member shall reimburse the Responding Member for the use of equipment during the specified Period of Assistance, including, but not limited to, reasonable rental rates, all fuel, lubrication, maintenance, transportation, and loading/unloading of loaned equipment. All equipment shall be returned to the Responding Member in good working order as soon as is practicable and reasonable under the circumstances. At a minimum, rates for equipment use must be based on the Federal Emergency Management Agency (FEMA) Schedule of Equipment Rates. If a Responding Member uses rates different from those in the FEMA Schedule of Equipment Rates, the Responding Member must provide such rates orally or in writing to the Requesting Member prior to supplying the equipment. Mutual agreement on which rates are used must be reached in writing prior to dispatch of the equipment. Reimbursement for equipment not referenced on the FEMA Schedule of Equipment Rates must be developed based on actual recovery of costs. If Responding Member must lease or rent a piece of equipment while its equipment is being repaired, Requesting Member shall reimburse Responding Member for such lease or rental costs.

C. Materials and Supplies – The Requesting Member must reimburse the Responding Member in kind or at actual replacement cost, plus handling charges, for use of expendable or non-returnable supplies. The Responding Member must not charge direct fees or rental charges to the Requesting Member for other supplies and reusable items that are returned to the Responding Member in a clean, damage-free condition. Reusable supplies that are returned to the Responding Member with damage must be treated as expendable supplies for purposes of cost reimbursement.

D. Payment Period – The Responding Member must provide an itemized bill to the Requesting Member for all expenses incurred by the Responding Member while providing assistance under this Agreement. The Responding Member must send the itemized bill not later than ninety (90) calendar days following the end of the Period of Assistance. The Responding Member may request additional periods of time within which to submit the itemized bill, and Requesting Member shall not unreasonably withhold consent to such request. The Requesting Member must pay the bill in full on or before the forty-fifth (45th) calendar day following the billing date. The Requesting Member may request additional periods of time within which to pay the itemized bill, and Responding Member shall not unreasonably withhold consent to such request, provided, however, that all payment shall occur not later than twelve (12) months after the date a final itemized bill is submitted to the Requesting Member.

E. Records - Each Responding Member and their duly authorized representatives shall have access to a Requesting Member's books, documents, notes, reports, papers and records which are directly pertinent to this Agreement for the purposes of reviewing the accuracy of a cost; bill; or making a financial, maintenance, or regulatory audit. Each Requesting Member and their duly authorized representatives shall have access to a Responding Member's books, documents, notes, reports, papers and records which are directly pertinent to this Agreement for the purposes of reviewing the accuracy of a cost; bill; or making a financial, maintenance, or regulatory audit. Such records shall be maintained for at least three (3) years from the date of final payment to a Responding Member or longer where required by law.

ARTICLE VIII.
DISPUTES

If any controversy or claim arises out of, or relates to, the execution of the Agreement, including, but not limited to, alleged breach of the Agreement, the disputing Members shall first attempt to resolve the dispute by negotiation, followed by mediation and finally shall be settled by arbitration in accordance with the Rules of the American Arbitration Association. Any court of competent jurisdiction may enter the judgment rendered by the arbitrators as a final judgment that is binding on the parties.

ARTICLE IX.
REQUESTING MEMBER'S DUTY TO INDEMNIFY RESPONDING MEMBERS

The Requesting Member shall assume the defense of, fully indemnify, and hold harmless the Responding Member, its officers, and employees from all claims, loss, damage, injury and liability of every kind, nature and description, directly or indirectly arising from Responding Member's work during a specified Period of Assistance. The scope of the Requesting Member's duty to indemnify includes, but is not limited to, suits arising from, or related to, negligent or wrongful use of equipment or supplies on loan to the Requesting Member, or faulty workmanship or other negligent acts, errors or omissions by Requesting Member or the Responding Member personnel.

The Requesting Member's duty to indemnify non-responding members is subject to, and shall be applied consistent with, the conditions set forth in Article X.

ARTICLE X.
REQUESTING MEMBER'S DUTY TO INDEMNIFY NON-RESPONDING MEMBERS

In the event of a liability, claim, demand, action or proceeding of whatever kind or nature arising out of a specified Period of Assistance, the Requesting Member who receives assistance shall have a duty to defend, indemnify, save and hold harmless all Non-Responding Members, their officers, agents and employees from any liability, claim, demand, action, or proceeding of whatever kind or nature arising out of a Period of Assistance.

ARTICLE XI.
WORKER'S COMPENSATION CLAIMS

The Responding Member is responsible for providing worker's compensation benefits and administering worker's compensation for its employees. The Requesting Member is responsible for providing worker's compensation benefits and administering worker's compensation for its employees.

ARTICLE XII.
NOTICE

A Member who becomes aware of a claim or suit that in anyway, directly or indirectly, contingently or otherwise arises out of this Agreement which affects or might affect other Members of this Agreement shall provide prompt and timely notice to the Members who may be affected by the suit or claim. Each Member reserves the right to participate in the defense of such claims or suits as necessary to protect its own interests.

ARTICLE XIII.
INSURANCE

Members of this Agreement shall maintain an insurance policy or maintain a self insurance program that covers activities that it may undertake by virtue of membership in the Mutual Aid and Assistance Program.

ARTICLE XIV.
CONFIDENTIAL INFORMATION

To the extent provided by law, any Member or Associate Member shall maintain in the strictest confidence and shall take all reasonable steps necessary to prevent the disclosure of any Confidential Information disclosed under this Agreement. If any Member, Associate Member, third party or other entity requests or demands, by subpoena or otherwise, that a Member or Associate Member disclose any Confidential Information disclosed under this Agreement, the Member or Associate Member shall immediately notify the owner of the Confidential Information and shall take all reasonable steps necessary to prevent the disclosure of any Confidential Information by asserting all applicable rights and privileges with respect to such information and shall cooperate fully in any judicial or administrative proceeding relating thereto.

ARTICLE XV.
EFFECTIVE DATE

This Agreement shall be effective after the Water Utility's authorized representative executes the Agreement and the Chairs of the Leadership Team and Steering Committee receives the Agreement. The Steering Committee Chair shall maintain a master list of all members of the HIWARN Mutual Aid and Assistance Program.

ARTICLE XVI.
WITHDRAWAL

A Member may withdraw from this Agreement by providing written notice of its intent to withdraw to the Leadership Team Chair and the Steering Committee Chair. Withdrawal takes effect sixty (60) days after these officials receive notice. Withdrawal from this Agreement shall in no way affect a Requesting Member's duty to reimburse a Responding Member for cost incurred during a Period of Assistance, which duty shall survive such withdrawal.

ARTICLE XVII.
MODIFICATION

No provision of this Agreement may be modified, altered or rescinded by individual parties to the Agreement. Modifications to this Agreement may be due to programmatic operational changes to support this Agreement, legislative action, creation of an interstate aid and assistance agreement, or other developments. Modifications require a majority vote of the Leadership Team upon giving due consideration and deliberation to comments received from the Members and Steering Committee. The Leadership Team Chair must provide written notice to all Members of approved modifications to this Agreement. Approved modifications take effect ninety (90) calendar days after the date upon which notice is sent to the Members.

ARTICLE XVIII.
SEVERABILITY

The parties agree that if any term or provision of this Agreement is declared by a court of competent jurisdiction to be illegal or in conflict with any law, the validity of the remaining terms and provisions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the Agreement did not contain the particular term or provision held to be invalid.

ARTICLE XIX.
PRIOR AGREEMENTS

This Agreement supersedes all prior agreements between Members to the extent that such prior agreements are inconsistent with this Agreement.

ARTICLE XX.
PROHIBITION ON THIRD PARTIES AND ASSIGNMENT OF RIGHTS/DUTIES

This Agreement is for the sole benefit of the Members and no person or entity must have any rights under this Agreement as a third party beneficiary. Assignments of benefits and delegations of duties created by this Agreement are prohibited and must be without effect.

ARTICLE XXI.
INTRASTATE AND INTERSTATE MUTUAL AID AND ASSISTANCE PROGRAMS

To the extent practicable, Members of this Agreement shall participate in Mutual Aid and Assistance activities conducted under the HIWARN Intrastate Mutual Aid and Assistance Program and the State of Hawaii Interstate Emergency Management Assistance Compact (EMAC). Members may voluntarily agree to participate in an interstate Mutual Aid and Assistance Program for water utilities through this Agreement if such a Program were established.

Now, therefore, in consideration of the covenants and obligations set forth in this Agreement, the Water Utility listed here manifests its intent to be a Member of the HIWARN Intrastate Mutual Aid and Assistance Program for Water Utilities by executing this Agreement on this _____ day of _____, _____.

Water Utility:_____

By:_____

Title:_____

_____
Print Name

By:_____

Title_____

_____
Print Name

Approved as to form and legality

By:_____
Attorney for Utility

_____
Print Name

DEPARTMENT OF WATER

County of Kaua'i

"Water has no Substitute – Conserve It!"

MANAGER'S REPORT NO. 13-31:

February 28, 2013

Re: Request for Board Approval to Purchase of a Water System

RECOMMENDATION: It is recommended that the Board grant the Department approval to negotiate the purchase or the custody of the operation of a water system and to bring the information back to the Board for approval.

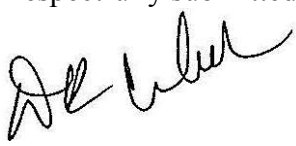
BACKGROUND: In the FY13 budget there is an item for purchase of a water system. The budgeted amount is ($1) one dollar. In order to negotiate in good faith, the Board needs to fully understand what is being asked of them in order to approve this item.

This negotiation may involve personnel in addition to equipment and I would ask that further disclosure be held in executive session. Once Board members feel they understand what liabilities and benefits may accrue to the Water Department customers, I would ask that the Board approve good faith negotiations with the understanding that the negotiation is subject to final Board approval when it is known what the full financial implications are as well as due diligence disclosure.

(An attachment for this recommendation is available for the Board to be held in executive session)

Thank you for your attention to this matter.

Respectfully submitted,



David R. Craddick, P.E. C.E.M.
Manager and Chief Engineer

DC:mjg

Mggrp/Regular/February 2013/13-31 Purchase of a Water System (2-28-13):mjg

---4398 Pua Loke Street, Lihu'e, Kaua'i, Hawai'i or P. O. Box 1706, Lihu'e, HI 96766-5706---
Phone No. (808) 245-5400 – Administration FAX No. (808) 246-8628 – Engineering/Fiscal/Shop FAX No. (808) 245-5813

DEPARTMENT OF WATER
County of Kaua'i

"Water has no Substitute – Conserve It!"

MANAGER'S REPORT No.13-32

February 28, 2013

Re: Manager's Response to Mr. Michael Tresler's letter, dated December 14, 2012 regarding electrical service accounts for the Waiahi Surface Water Treatment Plant

THIS REPORT IS INTENTIONALLY LEFT BLANK

AND

WILL BE DISCUSSED IN

EXECUTIVE SESSION

---4398 Pua Loke Street, Lihu'e, Kaua'i, Hawai'i or P. O. Box 1706, Lihu'e, HI 96766-5706---
Phone No. (808) 245-5400 – Administration FAX No. (808) 246-8628 – Engineering/Fiscal/Shop FAX No. (808) 245-5813

WAIAHI WATER COMPANY, LLC									
for FY 2012-2013									
	July	August	September	October	November	December	January	February	March
Usage Charge	$ 94,224.97	$ 98,238.98	$ 91,950.85	$ 93,173.37	$ 88,168.95	$ 90,977.68			
Electricity-Kapaia Reservoir	27,446.22	25,979.29	27,543.04	28,832.16		27,025.84			
Electricity-Maalo Rd	86.24	80.98	86.80	98.72		112.09			
GE Tax	5,072.41	5,178.31	4,981.73	5,086.86		4,920.70			
TOTAL	$ 126,829.84	$ 129,477.56	$ 124,562.42	$ 127,191.11	$ 88,168.95	$ 123,036.31	$ -	$ -	$ -
Usage (gallons)	63,665,520	66,377,690	62,128,955	62,954,980	58,337,065	59,275,355			
(minimum/2 MG/day)									
$1.48/1,000gallons/day	$ 91,760.00	$ 91,760.00	$ 91,760.00	$ 91,760.00	$ 88,800.00	$ 91,760.00	$ 91,760.00	$ 85,840.00	$ 91,760.00
					$ 181,342.32				
Paid directly to KIUC:									
Electricity-Kapaia Reservoir					28454.18				
Electricity-Maalo Rd					120.67				
					28574.85				
					$ 116,743.80				

Invoice

Waiahi Water Company, LLC
P.O. BOX 662069
LIHUE, HI 96766
USA

Voice: 808-245-3678
Fax: 808-246-9470

Invoice Number: 2012-07

Invoice Date: Jul 31, 2012

Page: 1

Sold To:
DEPARTMENT OF WATER
PO BOX 1706
LIHUE, HI 96766

Ship to:
DEPARTMENT OF WATER
PO BOX 1706
LIHUE, HI 96766

Customer ID	Customer PO	Payment Terms	
10780		Net 30 Days	
Sales Rep ID	**Shipping Method**	**Ship Date**	**Due Date**
	Courier		8/30/12

Quantity	Item	Description	Unit Price	Extension
		USAGE CHARGE, JULY 1 TO JULY 31, 2012		94,224.97
		ELECTRICITY - KAPAIA RESERVOIR (06/15/12 TO 07/16/12)		27,446.22
		ELECTRICITY - MAALO ROAD (06/18/12 TO 07/18/12)		86.24
		GENERAL EXCISE TAX		5,072.41

RC-29621

Subtotal	126,829.84
Sales Tax	
Total Invoice Amount	126,829.84
Payment/Credit Applied	
TOTAL	126,829.84

Check/Credit Memo No

Kaua'i Island Utility Cooperative
Your Touchstone Energy® Cooperative
4463 Pahee St. Ste 1
Lihue HI 96766-2000

ADDRESS SERVICE REQUESTED

AUTO5-DIGIT 96766 5 PS5 75822AA20-A-1
1198 1 AV 0.350

GROVE FARM CO
WAIAHI
3-1850 KAUMUALII HWY
LIHUE HI 96766-8609

See reverse side for important information.

SPECIAL MESSAGE FROM YOUR CO-OP AND YOUR COMMUNITY

KIUC 2012 Membership Meeting
Thursday, July 26, 5 to 6:30 p.m.

Kauai Community College Performing Arts Center

***

"Like" KIUC on Facebook at: www.facebook.com/Kauaicoop
"Follow" KIUC on Twitter @KIUC

JUL 27 2012

ACCOUNT INFORMATION

ACCOUNT NUMBER:	2051-003
SERVICE ADDRESS:	MAALO RD
SERVICE PERIOD:	06/18/12 TO: 07/18/12
SERVICE DAYS:	30
BILLING DATE:	07/19/12
RATE SCHEDULE: SMALL COMMERCIAL	(4G1)
CYCLE:	11
BILLING MULTIPLIER:	1

METER INFORMATION

METER	PREVIOUS	CURRENT	USAGE
MAIN - A-01-10191	167	317	150
DEMAND - A-01-10191		0.300	0.30
BILLED DEMAND:			0.30

CURRENT ELECTRIC CHARGES

NON-FUEL ENERGY CHARGE		24.94
FUEL AND PURCHASED POWER ENERGY		36.98
Base Fuel Charge	28.71	
Energy Rate Adjustment Clause	8.27	
CUSTOMER CHARGE		23.82
RESOURCE COST CHARGE		0.50

AMOUNT DUE

CURRENT AMT DUE NO LATER THAN 08/13/12	86.24
TOTAL	86.24
LAST PAYMENT AMOUNT:	93.34

GER #: AMC
Entity #:
Vendor #: 11036 Name: KIUC
Contract #:
Inv #: 2051003 Date: 7/19/12
07/19/12

GL Acct	Cost	Amount
6360-701		86.24
Total		
Desc:		
Appr'd By:	Date:	
2nd Appr'd By:	Date:	
Entd By:	Date:	

RECEIVED ON 07/13/12, THANK YOU!

YOUR ENERGY USE - kWh per day usage last 13 months

KWH COST COMPARISON	BILL DAYS	KWH USED	KWH PER DAY
THIS PERIOD	30	150	5.00
LAST PERIOD	32	154	4.81
THIS PER, LAST YR	32	153	4.78

RETAIN TOP PORTION FOR YOUR RECORDS

Kaua'i Island Utility Cooperative
Your Touchstone Energy® Cooperative

Please detach and return this portion with your payme
Bring entire bill if making payment in perso
Make your check-payable to KIU

ACCOUNT INFORMATION

ACCOUNT NUMBER:	2051-003
SERVICE ADDRESS:	MAALO RD
SERVICE PERIOD:	06/18/12 TO: 07/18/12
BILLING DATE:	07/19/12

AMOUNT DUE

CURRENT AMT DUE NO LATER THAN 08/13/12	86.2
TOTAL	86.2

AMOUNT ENCLOSED

$

GROVE FARM CO
WAIAHI
3-1850 KAUMUALII HWY
LIHUE HI 96766-8609

☐ Please check if new address or phone number and indicate change(s) on back.

KAUAI ISLAND UTILITY COOPERATIVE
PO BOX 29560
HONOLULU HI 96820-1960

081320120000086240000086240000000002051003995600

Kaua'i Island Utility Cooperative
Your Touchstone Energy® Cooperative
4463 Pahee St. Ste 1
Lihue HI 96766-2000

ADDRESS SERVICE REQUESTED

AUTOSCH 3-DIGIT 967 5 PS3 75822AA24-A-1
1209 1 AT 0.374

GROVE FARM CO
ATT: WAIAHI
3-1850 KAUMUALII HWY
LIHUE HI 96766-8609

See reverse side for important information.

SPECIAL MESSAGE FROM YOUR CO-OP AND YOUR COMMUNITY

KIUC 2012 Membership Meeting
Thursday, July 26, 5 to 6:30 p.m.

Kauai Community College Performing Arts Center

***

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"Follow" KIUC on Twitter @KIUC

ACCOUNT INFORMATION

JUL 30 2012

ACCOUNT NUMBER:	2051-004
SERVICE ADDRESS:	KAPAIA RESERVOIR
SERVICE PERIOD:	06/15/12 TO: 07/16/12
SERVICE DAYS:	31
BILLING DATE:	07/23/12
RATE SCHEDULE: LARGE POWER SCHED P	(5P1)
CYCLE:	10
BILLING MULTIPLIER:	200

METER INFORMATION

METER	PREVIOUS	CURRENT	USAGE
MAIN - Z-26-10002	85	440	71000
KVAR - Z-26-10002	34	180	29200
DEMAND - Z-26-10002		0.678	135.60
BILLED DEMAND:			135.60
POWER FACTOR:			93 %
ADJUSTED KWH:			68515

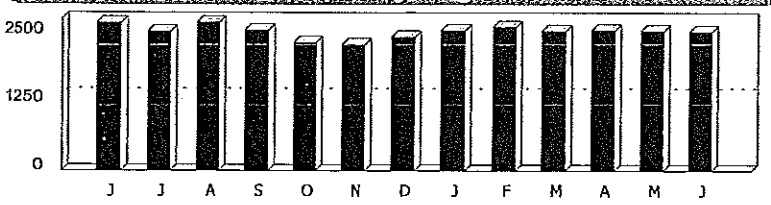
CURRENT ELECTRIC CHARGES

NON-FUEL ENERGY CHARGE		8,040.61
FUEL AND PURCHASED POWER ENERGY		17,288.51
Base Fuel Charge	13,115.83	
Energy Rate Adjustment Clause	4,172.68	
CUSTOMER CHARGE		369.38
RESOURCE COST CHARGE		237.14
KW DEMAND CHARGE		1,510.58

AMOUNT DUE

CURRENT AMT DUE NO LATER THAN 08/17/12	27,446.22
TOTAL	27,446.22

YOUR ENERGY USE - kWh per day usage last 13 months



LAST PAYMENT AMOUNT: 29,662.87

RECEIVED ON 07/13/12, THANK YOU!

KWH COST COMPARISON	BILL DAYS	KWH USED	KWH PER DAY
THIS PERIOD	31	71000	2290.32
LAST PERIOD	30	69000	2300.00
THIS PER, LAST YR	30	73000	2433.33

RETAIN TOP PORTION FOR YOUR RECORDS

Please detach and return this portion with your payment.
Bring entire bill if making payment in person.
Make your check-payable to KIUC.

Kaua'i Island Utility Cooperative
Your Touchstone Energy® Cooperative

ACCOUNT INFORMATION

ACCOUNT NUMBER:	2051-004
SERVICE ADDRESS:	KAPAIA RESERVOIR
SERVICE PERIOD:	06/15/12 TO: 07/16/12
BILLING DATE:	07/23/12

AMOUNT DUE

CURRENT AMT DUE NO LATER THAN 08/17/12	27,446.22
TOTAL	27,446.22

AMOUNT ENCLOSED

$

GROVE FARM CO
ATT: WAIAHI
3-1850 KAUMUALII HWY
LIHUE HI 96766-8609

☐ Please check if new address or phone number and indicate change(s) on back.

KAUAI ISLAND UTILITY COOPERATIVE
PO BOX 29560
HONOLULU HI 96820-1960

0817201200274462200274462200000000020510049956O4

Invoice

Waiahi Water Company, LLC
P.O. BOX 662069
LIHUE, HI 96766
USA

Voice: 808-245-3678
Fax: 808-246-9470

Invoice Number: 2012-08

Invoice Date: Aug 31, 2012

Page: 1

Sold To:
DEPARTMENT OF WATER
PO BOX 1706
LIHUE, HI 96766

Ship to:
DEPARTMENT OF WATER
PO BOX 1706
LIHUE, HI 96766

Customer ID	Customer PO	Payment Terms	
10780		Net 30 Days	
Sales Rep ID	Shipping Method	Ship Date	Due Date
	Courier		9/30/12

Quantity	Item	Description	Unit Price	Extension
		USAGE CHARGE - AUGUST 1 TO AUGUST 31, 2012		98,238.98
		ELECTRICITY - KAPAIA RESERVOIR, (07/16/12 TO 08/15/12)		25,979.29
		ELECTRICITY - MAALO ROAD, (07/18/12 TO 08/16/12)		80.98
		GENERAL EXCISE TAX		5,178.31

RC-29857

Subtotal	129,477.56
Sales Tax	
Total Invoice Amount	129,477.56
Payment/Credit Applied	
TOTAL	129,477.56

Check/Credit Memo No

WAIAHI WATER COMPANY, LLC
PO BOX 662069
LIHUE, HI 96766

DEPARTMENT OF WATER
PO Box 1706
Lihue, HI 96766

INVOICE#: 2012-08
DATE: 09/01/2012

Surface water usage for period of August 1 to August 31, 2012

Usage Charge *(computed below)*	**$98,238.98**
Electricity – Kapaia Reservoir – 07/16/12 – 08/15/12	**25,979.29**
Electricity – Maalo Rd – 7/18/12 – 8/16/12	**80.98**
Subtotal	**$124,299.25**
General excise tax	**5,178.31**
TOTAL BALANCE DUE	**$129,477.56**

Usage Charge equals the greater of minimum gallons per day or actual usage

Days in period	31
Minimum gallons per day (per contract)	2,000,000
Rate per 1,000 gallons	$1.48
Minimum guaranteed usage charge	**$ 91,760.00**
Actual usage per KDOW valve meter (in gallons)	66,377,690
Rate per 1,000 gallons	$1.48
Usage Charge based on actual usage	**$ 98,238.98**

Please remit payment to the address above.

Any billing inquiries should be directed to Shawn Shimabukuro – (808) 632-2525.

Linda Inouye

From: Reiko Yoshida
Sent: Tuesday, September 04, 2012 9:17 AM
To: Linda Inouye
Subject: FW: Grove Farm SWTP - August Billing

Importance: High

Linda,

Attached is the Waiahi reading for the August billing. Let me know when you're ready to do & I'll come over to help you!

☺ Reiko

From: Nadatani, Sandi [mailto:SNadatani@kauaiwater.org]
Sent: Tuesday, September 04, 2012 9:09 AM
To: Arryl Kaneshiro; Dave Hinazumi; Michael Tresler; Reiko Yoshida; Shawn Shimabukuro
Cc: Ann Sokei; Arume, Carl; Canavan, Andy; Craddick, David; Doi, Edward; Eddy, William; Fujikawa, Gregg; Guy Moriguchi; Hugh Strom; Jack Wilhelm; Mendez, Jeff; Moises, Dustin; Reyna, Val; Smith, Ryan; Tateishi, Fay; Yamase, Mel; Yano, Marites
Subject: Grove Farm SWTP - August Billing
Importance: High

Good Morning Everyone,

Hope you all had a nice long Labor Day Weekend ☺

The Hanamaulu Control Valve Meter Total for the SWTP for the month of August 2012 is 66,377,690 (2.14 MGD).

Mahalo,
Sandi Nadatani-Mendez
Information Technology Specialist I
Kauai Dept of Water
Phone: 808-245-5454
Cell: 808-652-1833
Email: snadatani@kauaiwater.org
Website: www.kauaiwater.org

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Kaua'i Island
Utility Cooperative
Your Touchstone Energy® Cooperative
4463 Pahee St. Ste 1
Lihue HI 96766-2000

ADDRESS SERVICE REQUESTED

**SINGLE-PIECE 1 SGL 75822AA17-A-1
174 1 SP 0.450

GROVE FARM CO
ATT: WAIAHI
3-1850 KAUMUALII HWY
LIHUE HI 96766-8609

See reverse side for important information.

SPECIAL MESSAGE FROM YOUR CO-OP AND YOUR COMMUNITY

"Like" KIUC on Facebook at: www.facebook.com/Kauaicoop
"Follow" KIUC on Twitter @KIUC

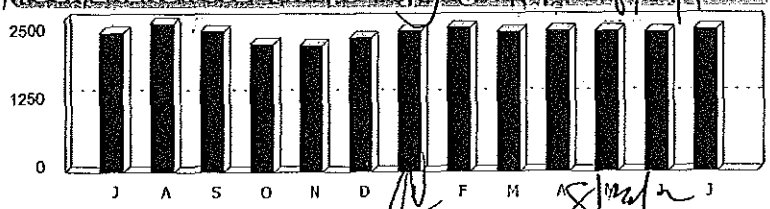
CER #:
Entity #: WWC
Vendor #: 11036
Name: KIUC
Contract#:
Inv #: 2051-04
Date: 8/16/12
08/16/12

GL Acct#	Cost Code#	Amount
6360-7.1		25,979.29
Total		

Date: 8-24-12
Date: 8/31/12

cc: LINDA

YOUR ENERGY USE - kWh per day - Usage last 13 months



ACCOUNT INFORMATION

AUG 23 2012

ACCOUNT NUMBER:	2051-004
SERVICE ADDRESS:	KAPAIA RESERVOIR
SERVICE PERIOD:	07/16/12 TO: 08/15/12
SERVICE DAYS:	30
BILLING DATE:	08/16/12
RATE SCHEDULE: LARGE POWER SCHED P	(5P1)
CYCLE:	10
BILLING MULTIPLIER:	200

METER INFORMATION

METER	PREVIOUS	CURRENT	USAGE
MAIN - Z-26-10002	440	790	70000
KVAR - Z-26-10002	180	324	28800
DEMAND - Z-26-10002		0.662	132.40
BILLED DEMAND:			132.40
POWER FACTOR:			93 %
ADJUSTED KWH:			67550

CURRENT ELECTRIC CHARGES

NON-FUEL ENERGY CHARGE		7,914.97
FUEL AND PURCHASED POWER ENERGY		15,986.20
Base Fuel Charge	12,931.10	
Energy Rate Adjustment Clause	3,055.10	
CUSTOMER CHARGE		369.38
RESOURCE COST CHARGE		233.80
KW DEMAND CHARGE		1,474.94

AMOUNT DUE

CURRENT AMT DUE NO LATER THAN 09/10/12	25,979.29
TOTAL	25,979.29

LAST PAYMENT AMOUNT: 27,446.22

RECEIVED ON 08/13/12, THANK YOU!

KWH COST COMPARISON	BILL DAYS	KWH USED	KWH PER DAY
THIS PERIOD	30	70000	2333.33
LAST PERIOD	31	71000	2290.32
THIS PER, LAST YR	30	68800	2293.33

RETAIN TOP PORTION FOR YOUR RECORDS

REFERENCE NO.	DESCRIPTION	INVOICE DATE	INVOICE AMOUNT	DISCOUNT TAKEN	AMOUNT PAID

CHECK DATE	CHECK NO.	PAYEE	DISCOUNTS TAKEN	CHECK AMOUNT
8/31/12	1153	KAUAI ISLAND UTILITIES COOPERATIVE		$25,979.29

LAP98 COMPATIBLE ENVELOPE - CE15 / CE15S

Kaua'i Island Utility Cooperative
Your Touchstone Energy® Cooperative
4463 Pahee St. Ste 1
Lihue HI 96766-2000

ADDRESS SERVICE REQUESTED

AUTO5-DIGIT 96766 5 PS5 76230AA20-A-1
1191 1 AV 0.350

GROVE FARM CO
WAIAHI
3-1850 KAUMUALII HWY
LIHUE HI 96766-8609

See reverse side for important information.

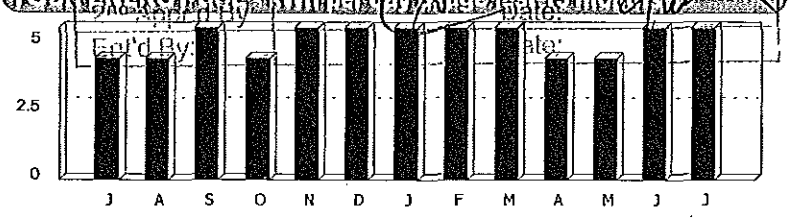
SPECIAL MESSAGE FROM YOUR CO-OP AND YOUR COMMUNITY

"Like" KIUC on Facebook at: www.facebook.com/Kauaicoop
"Follow" KIUC on Twitter @KIUC

WWC
11036
Name: K.I.U.C.
2051-003 08/16/12
Date: 8/20/12
Amount 80.98
6360-701
Desc:
9/6/12
Date:
Date:
Date:

SS

YOUR ENERGY USE - kWh per day - Page last 13 months



ACCOUNT INFORMATION AUG 24 2012

ACCOUNT NUMBER:	2051-003
SERVICE ADDRESS:	MAALO RD
SERVICE PERIOD:	07/18/12 TO: 08/16/12
SERVICE DAYS:	29
BILLING DATE:	08/20/12
RATE SCHEDULE: SMALL COMMERCIAL	(4G1)
CYCLE:	11
BILLING MULTIPLIER:	1

METER INFORMATION

METER	PREVIOUS	CURRENT	USAGE
MAIN - A-01-10191	317	458	141
DEMAND - A-01-10191		0.288	0.29
BILLED DEMAND:			0.28

CURRENT ELECTRIC CHARGES

NON-FUEL ENERGY CHARGE		23.44
FUEL AND PURCHASED POWER ENERGY		33.25
Base Fuel Charge	26.99	
Energy Rate Adjustment Clause	6.26	
CUSTOMER CHARGE		23.82
RESOURCE COST CHARGE		0.47

AMOUNT DUE

CURRENT AMT DUE NO LATER THAN 09/14/12	80.98
TOTAL	80.98

cc: LWDA

LAST PAYMENT AMOUNT: 86.24

RECEIVED ON 08/13/12, THANK YOU!

KWH COST COMPARISON	BILL DAYS	KWH USED	KWH PER DAY
THIS PERIOD	29	141	4.86
LAST PERIOD	30	150	5.00
THIS PER, LAST YR	30	143	4.77

RETAIN TOP PORTION FOR YOUR RECORDS

COUNTY OF KAUAI / DEPARTMENT OF WATER

018062

WAIWA001 WAIAHI WATER COMPANY LLC

018062
9/18/2012
021241

Voucher	Document	Date	Amount Outstanding	Net Check Amount
034239	2012-08	8/31/2012	$129,477.56	$129,477.56
			$129,477.56	$129,477.56

018062

Department of Water County of Kaua'i

COUNTY OF KAUAI
DEPARTMENT OF WATER
P.O. BOX 1706
LIHUE KAUAI, HAWAII 96766

FIRST HAWAIIAN BANK
LIHUE BRANCH
LIHUE, HAWAII 96766
59-101-1213

DATE 9/18/2012

AMOUNT $129,477.56

Security features. Details on back.

PAY One Hundred Twenty Nine Thousand Four Hundred Seventy Seven Dollars And 56 Cents

TO THE ORDER OF
WAIAHI WATER COMPANY LLC
P. O. Box 662069
Lihue HI 96766-7069

VOID AFTER 90 DAYS FROM DATE OF ISSUE

AUTHORIZED SIGNATURE

⑈018062⑈ ⑆121301015⑆ 30⑈000331⑈

COUNTY OF KAUAI / DEPARTMENT OF WATER

018062

WAIWA001 WAIAHI WATER COMPANY LLC

018062
9/18/2012
021241

Voucher	Document	Date	Amount Outstanding	Net Check Amount
034239	2012-08	8/31/2012	$129,477.56	$129,477.56
			$129,477.56	$129,477.56

Invoice

Waiahi Water Company, LLC
P.O. BOX 662069
LIHUE, HI 96766
USA

Voice: 808-245-3678
Fax: 808-246-9470

Invoice Number: 2012-09

Invoice Date: Sep 30, 2012

Page: 1

12 OCT -4 A11 :10

DEPT. OF WATER
COUNTY OF KAUAI

Sold To:
DEPARTMENT OF WATER
PO BOX 1706
LIHUE, HI 96766

Ship to:
DEPARTMENT OF WATER
PO BOX 1706
LIHUE, HI 96766

Customer ID	Customer PO	Payment Terms	
10780		Net 30 Days	
Sales Rep ID	**Shipping Method**	**Ship Date**	**Due Date**
	Courier		10/30/12

Quantity	Item	Description	Unit Price	Extension
		USAGE CHARGE-SEPTEMBER 1 TO SEPTEMBER 30, 2012		91,950.85
		ELECTRICITY - KAPAIA RESERVOIR (08/15/12 TO 09/14/12)		27,543.04
		ELECTRICITY - MAALO ROAD (08/16/12 TO 09/17/12)		86.80
		GENERAL EXCISE TAX		4,981.73

Subtotal	124,562.42
Sales Tax	
Total Invoice Amount	124,562.42
Payment/Credit Applied	
TOTAL	124,562.42

Check/Credit Memo No

WAIAHI WATER COMPANY, LLC
PO BOX 662069
LIHUE, HI 96766

DEPARTMENT OF WATER
PO Box 1706
Lihue, HI 96766

INVOICE#: 2012-09
DATE: 10/01/2012

Surface water usage for period of September 1 to September 30, 2012

Usage Charge *(computed below)*	**$91,950.85**
Electricity – Kapaia Reservoir – 08/15/12 -09/14/12	**27,543.04**
Electricity – Maalo Rd – 08/16/12 – 09/17/12	**86.80**
Subtotal	**$119,580.69**
General excise tax	**4,981.73**
TOTAL BALANCE DUE	**$124,562.42**

Usage Charge equals the greater of minimum gallons per day or actual usage

Days in period	30
Minimum gallons per day (per contract)	2,000,000
Rate per 1,000 gallons	$1.48
Minimum guaranteed usage charge	**$ 91,760.00**
Actual usage per KDOW valve meter (in gallons)	62,128,955
Rate per 1,000 gallons	$1.48
Usage Charge based on actual usage	**$ 91,950.85**

Please remit payment to the address above.

Any billing inquiries should be directed to Shawn Shimabukuro – (808) 632-2525.

Linda,

This is for Waiahi revenue billing. If you need my help, can wait for me.

Thanks!

Begin forwarded message:

From: "Nadatani, Sandi" <SNadatani@kauaiwater.org>
Date: October 1, 2012, 7:51:21 AM HST
To: Arryl Kaneshiro <akaneshiro@grovefarm.com>, "David Hinazumi" <dhinazumi@grovefarm.com>, "Michael Tresler" <mtresler@grovefarm.com>, Reiko Yoshida <ryoshida@grovefarm.com>, "Shawn Shimabukuro" <sshimabukuro@grovefarm.com>
Cc: "Ann Sokei" <ann@aquaengineers.com>, "Arume, Carl" <CArume@kauaiwater.org>, "Canavan, Andy" <acanavan@kauaiwater.org>, "Craddick, David" <dcraddick@kauaiwater.org>, "Doi, Edward" <EDoi@kauaiwater.org>, "Eddy, William" <WEddy@kauaiwater.org>, "Fujikawa, Gregg" <GFujikawa@kauaiwater.org>, Guy Moriguchi <guy@aquaengineers.com>, Hugh Strom <hugh@aquaengineers.com>, Jack Wilhelm <jack@aquaengineers.com>, "Mendez, Jeff" <JMendez@kauaiwater.org>, "Moises, Dustin" <dmoises@kauaiwater.org>, "Reyna, Val" <vreyna@kauaiwater.org>, "Smith, Ryan" <rsmith@kauaiwater.org>, "Tateishi, Fay" <ftateishi@kauaiwater.org>, "Yamase, Mel" <MYamase@kauaiwater.org>, "Yano, Marites" <myano@kauaiwater.org>
Subject: Grove Farm SWTP - September Billing

Good Morning Everyone,

Hope you all had a nice weekend ☺

The Hanamaulu Control Valve Meter Total for the SWTP for the month of September 2012 is 62,128,955 (2.07 MGD).

Mahalo,
Sandi Nadatani-Mendez
Information Technology Specialist I
Kauai Dept of Water
Phone: 808-245-5469
Email: snadatani@kauaiwater.org
Website: www.kauaiwater.org

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2012-049

Kaua'i Island Utility Cooperative
Your Touchstone Energy® Cooperative
4463 Pahee St. Ste 1
Lihue HI 96766-2000

ADDRESS SERVICE REQUESTED

AUTO5-DIGIT 96766 5 P55 76230AA18-A-1
1200 1 AV 0.350

GROVE FARM CO
WAIAHI
3-1850 KAUMUALII HWY
LIHUE HI 96766-8609

ACCOUNT INFORMATION

ACCOUNT NUMBER:	2051-003
SERVICE ADDRESS:	MAALO RD
SERVICE PERIOD:	08/16/12 TO: 09/17/12
SERVICE DAYS:	32
BILLING DATE:	09/18/12
RATE SCHEDULE: SMALL COMMERCIAL	(4G1)
CYCLE:	11
BILLING MULTIPLIER:	1

METER INFORMATION

METER	PREVIOUS	CURRENT	USAGE
MAIN - A-01-10191	458	605	147
DEMAND - A-01-10191		0.290	0.29
BILLED DEMAND:			0.29

CURRENT ELECTRIC CHARGES

NON-FUEL ENERGY CHARGE		24.44
FUEL AND PURCHASED POWER ENERGY		38.05
Base Fuel Charge	28.14	
Energy Rate Adjustment Clause	9.91	
CUSTOMER CHARGE		23.82
RESOURCE COST CHARGE		0.49

AMOUNT DUE

CURRENT AMT DUE NO LATER THAN 10/13/12	86.80
TOTAL	86.80

See reverse side for important information.

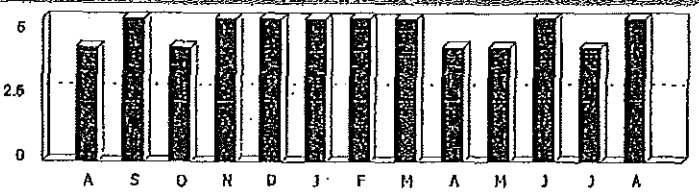
SPECIAL MESSAGE FROM YOUR CO-OP AND YOUR COMMUNITY

"Like" KIUC on Facebook at: www.facebook.com/Kauaicoop
"Follow" KIUC on Twitter @KIUC

Name:
Date:

		Amount
	Date:	
	Date:	
	Date:	

YOUR ENERGY USE - KWH per day through last 12 months



LAST PAYMENT AMOUNT: 80.08
RECEIVED ON 09/10/12, THANK YOU!

KWH COST COMPARISON	BILL DAYS	KWH USED	KWH PER DAY
THIS PERIOD	32	147	4.59
LAST PERIOD	29	141	4.86
THIS PER. LAST YR	30	148	4.93

KIA0824120970814 • 76230AA18A-1:1200-1-2-0.350

RETAIN TOP PORTION FOR YOUR RECORDS

Please detach and return this portion with your payment.
Bring entire bill if making payment in person.
Make your check payable to KIUC.

Kaua'i Island Utility Cooperative
Your Touchstone Energy® Cooperative

ACCOUNT INFORMATION

ACCOUNT NUMBER:	2051-003
SERVICE ADDRESS:	MAALO RD
SERVICE PERIOD:	08/16/12 TO: 09/17/12
BILLING DATE:	09/18/12

AMOUNT DUE

CURRENT AMT DUE NO LATER THAN 10/13/12	86.80
TOTAL	86.80

AMOUNT ENCLOSED

$

GROVE FARM CO
WAIAHI
3-1850 KAUMUALII HWY
LIHUE HI 96766-8609

☐ Please check if new address or phone number and indicate change(s) on back.

KAUAI ISLAND UTILITY COOPERATIVE
PO BOX 29660
HONOLULU HI 96820-1960

10132012000008680000008680000000000205100399560 9

Kaua'i Island Utility Cooperative
Your Touchstone Energy® Cooperative
4463 Pahee St. Ste 1
Lihue HI 96766-2000

SEP 2 4 2012 Page 1 of 2

ADDRESS SERVICE REQUESTED

**SINGLE-PIECE 1 SGL 76230AA17-A-1
180 1 SP 0.450

GROVE FARM CO
ATT: WAIAHI
3-1850 KAUMUALII HWY
LIHUE HI 96766-8609

See reverse side for Important Information.

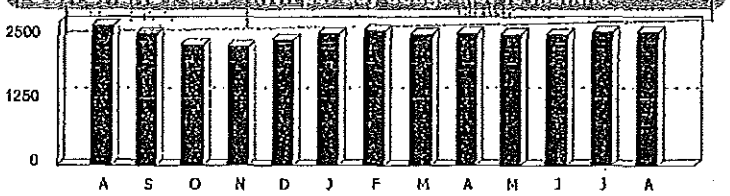
SPECIAL MESSAGE FROM YOUR CO-OP AND YOUR COMMUNITY

"Like" KIUC on Facebook at: www.facebook.com/Kauaicoop
"Follow" KIUC on Twitter @KIUC

CER #:			
Entity #:			
Vendor #:		Name:	
Contract#:			
[illegible] #:		Date:	

[illegible]	Cost [illegible]	Amount
[illegible]		
[illegible]		
[illegible] By:		Date:
		Date:

YOUR ENERGY USE (kWh per day usage last 13 months)



ACCOUNT INFORMATION

ACCOUNT NUMBER:	2051-004
SERVICE ADDRESS:	KAPAIA RESERVOIR
SERVICE PERIOD:	08/15/12 TO: 09/14/12
SERVICE DAYS:	30
BILLING DATE:	09/17/12
RATE SCHEDULE: LARGE POWER SCHED P	(5P1)
CYCLE:	10
BILLING MULTIPLIER:	200

METER INFORMATION

METER	PREVIOUS	CURRENT	USAGE
MAIN - Z-26-10002	790	1140	70000
KVAR - Z-26-10002	324	468	28800
DEMAND - Z-26-10002		0.671	134.20
BILLED DEMAND:			134.20
POWER FACTOR:			93 %
ADJUSTED KWH:			67550

CURRENT ELECTRIC CHARGES

NON-FUEL ENERGY CHARGE		7,932.26
FUEL AND PURCHASED POWER ENERGY		17,512.61
Base Fuel Charge	12,931.10	
Energy Rate Adjustment Clause	4,581.51	
CUSTOMER CHARGE		369.38
RESOURCE COST CHARGE		233.80
KW DEMAND CHARGE		1,494.99

AMOUNT DUE

CURRENT AMT DUE NO LATER THAN 10/12/12	27,543.04
TOTAL	27,543.04

LAST PAYMENT AMOUNT: 25,979.29
RECEIVED ON 09/04/12, THANK YOU!

KWH COST COMPARISON	BILL DAYS	KWH USED	KWH PER DAY
THIS PERIOD	30	70000	2333.33
LAST PERIOD	30	70000	2333.33
THIS PER. LAST YR	31	75600	2438.71

RETAIN TOP PORTION FOR YOUR RECORDS

Kaua'i Island Utility Cooperative
Your Touchstone Energy® Cooperative

Please detach and return this portion with your payment.
Bring entire bill if making payment in person.
Make your check-payable to KIUC.

ACCOUNT INFORMATION

ACCOUNT NUMBER:	2051-004
SERVICE ADDRESS:	KAPAIA RESERVOIR
SERVICE PERIOD:	08/15/12 TO: 09/14/12
BILLING DATE:	09/17/12

AMOUNT DUE

CURRENT AMT DUE NO LATER THAN 10/12/12	27,543.04
TOTAL	27,543.04

AMOUNT ENCLOSED

$

GROVE FARM CO
ATT: WAIAHI
3-1850 KAUMUALII HWY
LIHUE HI 96766-8609

☐ Please check if new address or phone number and indicate change(s) on back.

KAUAI ISLAND UTILITY COOPERATIVE
PO BOX 29560
HONOLULU HI 96820-1960

101220120027543040027543040000000002051004995601

Waiahi Water Company, LLC
P.O. BOX 662069
LIHUE, HI 96766
USA

Voice: 808-245-3678
Fax: 808-246-9470

Invoice

Invoice Number: 2012-10

Invoice Date: Oct 31, 2012

Sold To:
DEPARTMENT OF WATER
PO BOX 1706
LIHUE, HI 96766

Ship to:
DEPARTMENT OF WATER
PO BOX 1706
LIHUE, HI 96766

Customer ID	Customer PO	Payment Terms	
10780		Net 30 Days	
Sales Rep ID	**Shipping Method**	**Ship Date**	**Due Date**
	Courier		11/30/12

Quantity	Item	Description	Unit Price	Extension
		USAGE CHARGE, OCTOBER 1 TO OCTOBER 31, 2012		93,173.37
		ELECTRICITY - KAPAIA RESERVOIR (09/14/12 TO 10/15/12)		28,832.16
		ELECTRICITY - MAALO ROAD (09/17/12 TO 10/17/12)		98.72
		GENERAL EXCISE TAX		5,086.86

RC-30228

Subtotal	127,191.11
Sales Tax	
Total Invoice Amount	127,191.11
Payment/Credit Applied	
TOTAL	127,191.11

Check/Credit Memo No

WAIAHI WATER COMPANY, LLC
PO BOX 662069
LIHUE, HI 96766

DEPARTMENT OF WATER
PO Box 1706
Lihue, HI 96766

INVOICE#: 2012-10
DATE: 11/01/2012

Surface water usage for period of October 1 to October 31, 2012

Usage Charge *(computed below)*	**$93,173.37**
Electricity – Kapaia Reservoir – 09/14/12 – 10/15/12	**28,832.16**
Electricity – Maalo Rd – 09/17/12 – 10/17/12	**98.72**
Subtotal	**$122,104.25**
General excise tax	**5,086.86**
TOTAL BALANCE DUE	**$127,191.11**

Usage Charge equals the greater of minimum gallons per day or actual usage

Days in period	31
Minimum gallons per day (per contract)	2,000,000
Rate per 1,000 gallons	$1.48
Minimum guaranteed usage charge	**$ 91,760.00**
Actual usage per KDOW valve meter (in gallons)	62,954,980
Rate per 1,000 gallons	$1.48
Usage Charge based on actual usage	**$ 93,173.37**

Please remit payment to the address above.

Any billing inquiries should be directed to Shawn Shimabukuro – (808) 632-2525.

Linda Inouye

From: Reiko Yoshida
Sent: Friday, November 02, 2012 10:37 AM
To: Linda Inouye; Alison Moriguchi
Subject: FW: Grove Farm SWTP - October Billing

Linda,

Use the below for your October Waiahi revenue billing.

☺ Reiko

From: Smith, Ryan [mailto:rsmith@kauaiwater.org]
Sent: Friday, November 02, 2012 9:43 AM
To: Arryl Kaneshiro; Dave Hinazumi; Michael Tresler; Reiko Yoshida; Shawn Shimabukuro
Cc: Ann Sokei; Arume, Carl; Canavan, Andy; Craddick, David; Doi, Edward; Eddy, William; Fujikawa, Gregg; Guy Moriguchi; Hugh Strom; Jack Wilhelm; Mendez, Jeff; Moises, Dustin; Reyna, Val; Tateishi, Fay; Yamase, Mel; Yano, Marites
Subject: Grove Farm SWTP - October Billing

Aloha Everyone,

The Hanamaulu Control Valve Meter Total for the SWTP for the month of October 2012 is 62,954,980 (2.03 MGD).

Regards,
Ryan Smith
Water Plants Superintendent
Operations Division

County of Kauai, Department of Water
Department of Water County of Kauai
P.O. Box 1706
Lihue, HI 96766
Tel: (808) 245-5436
Fax: (808) 245-5402
Email: rsmith@kauaiwater.org
Web: www.kauaiwater.org

Kaua'i Island Utility Cooperative
Your Touchstone Energy Cooperative
4463 Pahee St. Ste 1
Lihue HI 96766-2000

ADDRESS SERVICE REQUESTED

**SINGLE-PIECE 1 SGL 76580AA17-A-1
173 1 SP 0.450

GROVE FARM CO
ATT: WAIAHI
3-1850 KAUMUALII HWY
LIHUE HI 96766-8609

See reverse side for important information.

SPECIAL MESSAGE FROM YOUR CO-OP AND YOUR COMMUNITY

KIUC is now offering a $1,000 rebate for solar water heating for a limited time, from October 1, 2012 - December 31, 2012.
For more information call 808.246.8280 or 808.246.8275.

Entity #: WWC
***
Vendor #: 11036 Name: KIUC.
"Like" KIUC on Facebook at: www.facebook.com/Kauaicoop
"Follow" KIUC on Twitter @KIUC
2051-004 Date: 10/16/12
101612
Amount

ACCOUNT INFORMATION OCT 22 2012

ACCOUNT NUMBER:	2051-004
SERVICE ADDRESS:	KAPAIA RESERVOIR
SERVICE PERIOD:	09/14/12 TO: 10/15/12
SERVICE DAYS:	31
BILLING DATE:	10/16/12
RATE SCHEDULE: LARGE POWER SCHED P	(5P1)
CYCLE:	10
BILLING MULTIPLIER:	200

METER INFORMATION

METER	PREVIOUS	CURRENT	USAGE
MAIN - Z-26-10002	1140	1486	69200
KVAR - Z-26-10002	468	612	28800
DEMAND - Z-26-10002		0.616	123.20
BILLED DEMAND:			123.20
POWER FACTOR:			92 %
ADJUSTED KWH:			66778

CURRENT ELECTRIC CHARGES

NON-FUEL ENERGY CHARGE		7,750.65
FUEL AND PURCHASED POWER ENERGY		19,108.55
Base Fuel Charge	12,783.31	
Energy Rate Adjustment Clause	6,325.24	
CUSTOMER CHARGE		369.38
RESOURCE COST CHARGE		231.13
KW DEMAND CHARGE		1,372.45

AMOUNT DUE

CURRENT AMT DUE NO LATER THAN 11/10/12	28,832.16
TOTAL	28,832.16

Kaua'i Island Utility Cooperative
Your Touchstone Energy® Cooperative
4463 Pahee St. Ste 1
Lihue HI 96766-2000

OCT 25 2012

ADDRESS SERVICE REQUESTED

AUTO5-DIGIT 96766 5 P55 76693AA18-A-1
1195 1 AV 0.350

GROVE FARM CO
WAIAHI
3-1850 KAUMUALII HWY
LIHUE HI 96766-8609

ACCOUNT INFORMATION

ACCOUNT NUMBER:	2051-003
SERVICE ADDRESS:	MAALO RD
SERVICE PERIOD:	09/17/12 TO: 10/17/12
SERVICE DAYS:	30
BILLING DATE:	10/18/12
RATE SCHEDULE: SMALL COMMERCIAL	(4G1)
CYCLE:	11
BILLING MULTIPLIER:	1

METER INFORMATION

METER	PREVIOUS	CURRENT	USAGE
MAIN - A-01-10191	605	770	165
DEMAND - A-01-10191		0.302	0.30
BILLED DEMAND:			0.30

CURRENT ELECTRIC CHARGES

NON-FUEL ENERGY CHARGE		27.43
FUEL AND PURCHASED POWER ENERGY		46.92
Base Fuel Charge	31.59	
Energy Rate Adjustment Clause	15.33	
CUSTOMER CHARGE		23.82
RESOURCE COST CHARGE		0.55
CURRENT AMT DUE NO LATER THAN 11/12/12		98.72
TOTAL		98.72

See reverse side for important information.

SPECIAL MESSAGE FROM YOUR CO-OP AND YOUR COMMUNITY

KIUC is now offering a $1,000 rebate for solar water heating for a limited time, from October 1, 2012 - December 31, 2012. For more information call 808.246.8280 or 808.246.8275.

***

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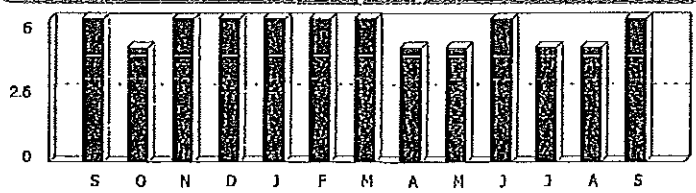
"Follow" KIUC on Twitter @KIUC

CER #
Entity #:
Vendor #:
Contract#:
Inv #:
Date: 10/18/12

GL Acct#	Cost Code#	Amount
63600-701		98.72

Date:
Date:
Date:

YOUR ENERGY USE - KWH per day usage last 13 months



LAST PAYMENT AMOUNT: 86.80
RECEIVED ON 10/09/12, THANK YOU!

KWH COST COMPARISON	BILL DAYS	KWH USED	KWH PER DAY
THIS PERIOD	30	165	5.50
LAST PERIOD	32	147	4.59
THIS PER. LAST YR	32	161	5.03

RETAIN TOP PORTION FOR YOUR RECORDS

Please detach and return this portion with your payment.
Bring entire bill if making payment in person.
Make your check-payable to KIUC.

Kaua'i Island Utility Cooperative
Your Touchstone Energy® Cooperative

ACCOUNT INFORMATION

ACCOUNT NUMBER:	2051-003
SERVICE ADDRESS:	MAALO RD
SERVICE PERIOD:	09/17/12 TO: 10/17/12
BILLING DATE:	10/18/12

AMOUNT DUE

CURRENT AMT DUE NO LATER THAN 11/12/12	98.72
TOTAL	98.72

AMOUNT ENCLOSED

$

GROVE FARM CO
WAIAHI
3-1850 KAUMUALII HWY
LIHUE HI 96766-8609

☐ Please check if new address or phone number and indicate change(s) on back.

KAUAI ISLAND UTILITY COOPERATIVE
PO BOX 29560
HONOLULU HI 96820-1960

1112201200000987200000987200000000020510039995607

COUNTY OF KAUAI / DEPARTMENT OF WATER

018222

WAIWA001 WAIAHI WATER COMPANY LLC

018222
10/17/2012
021402

Voucher	Document	Date	Amount Outstanding	Net Check Amount
034481	2012-09	9/30/2012	$124,562.42	$124,562.42

$124,562.42 $124,562.42

018222

Department of Water County of Kaua'i

COUNTY OF KAUAI
DEPARTMENT OF WATER
P.O. BOX 1706
LIHUE KAUAI, HAWAII 96766

FIRST HAWAIIAN BANK
LIHUE BRANCH
LIHUE, HAWAII 96766
59-101-1213

DATE 10/17/2012

AMOUNT $124,562.42

PAY One Hundred Twenty Four Thousand Five Hundred Sixty Two Dollars And 42 Cents

TO THE ORDER OF
WAIAHI WATER COMPANY LLC
P. O. Box 662069
Lihue HI 96766-7069

VOID AFTER 90 DAYS FROM DATE OF ISSUE

AUTHORIZED SIGNATURE

FD Security features. Details on back.

⑈018222⑈ ⑆121301015⑆ 30⑈000331⑈

COUNTY OF KAUAI / DEPARTMENT OF WATER

018222

WAIWA001 WAIAHI WATER COMPANY LLC

018222
10/17/2012
021402

Voucher	Document	Date	Amount Outstanding	Net Check Amount
034481	2012-09	9/30/2012	$124,562.42	$124,562.42

$124,562.42 $124,562.42

Waiahi Water Company, LLC
P.O. BOX 662069
LIHUE, HI 96766
USA

Voice: 808-245-3678
Fax: 808-246-9470

Invoice

Invoice Number: 2012-11

Invoice Date: Nov 30, 2012

Page: 1

Sold To:
DEPARTMENT OF WATER
PO BOX 1706
LIHUE, HI 96766

Ship to:
DEPARTMENT OF WATER
PO BOX 1706
LIHUE, HI 96766

Customer ID	Customer PO	Payment Terms	
10780		Net 30 Days	
Sales Rep ID	Shipping Method	Ship Date	Due Date
	Courier		12/30/12

Quantity	Item	Description	Unit Price	Extension
		USAGE CHARGE, NOVEMBER 1 TO NOVEMBER 30, 2012		88,168.95

Subtotal	88,168.95
Sales Tax	
Total Invoice Amount	88,168.95
Payment/Credit Applied	
TOTAL	88,168.95

Check/Credit Memo No

Linda Inouye

From: Reiko Yoshida
Sent: Monday, December 10, 2012 7:40 AM
To: Linda Inouye
Subject: FW: Grove Farm SWTP - November Billing

Linda,

Below is the November reading. We don't have electricity bills at this time, so you can exclude that portion from the monthly billing. Let me know if you have questions.

☺ Reiko

From: Smith, Ryan [mailto:rsmith@kauaiwater.org]
Sent: Friday, December 07, 2012 4:01 PM
To: Arryl Kaneshiro; Dave Hinazumi; Michael Tresler; Reiko Yoshida; Shawn Shimabukuro
Cc: Ann Sokei; Arume, Carl; Canavan, Andy; Craddick, David; Doi, Edward; Eddy, William; Fujikawa, Gregg; 'Guy Moriguchi'; 'Hugh Strom'; 'Jack Wilhelm'; Mendez, Jeff; Moises, Dustin; Reyna, Val; Tateishi, Fay; Yamase, Mel; Yano, Marites
Subject: Grove Farm SWTP - November Billing

Aloha Everyone,

The Hanamaulu Control Valve Meter Total for the SWTP for the month of November 2012 is 59,573,620 (1.99 MGD).

Regards,
Ryan Smith
Water Plants Superintendent
Operations Division

County of Kauai, Department of Water
Department of Water County of Kauai
P.O. Box 1706
Lihue, HI 96766
Tel: (808) 245-5436
Fax: (808) 245-5402
Email: rsmith@kauaiwater.org
Web: www.kauaiwater.org

COUNTY OF KAUAI / DEPARTMENT OF WATER

018506

WAIWA001 WAIAHI WATER COMPANY LLC

018506

12/13/2012

021686

Voucher	Document	Date	Amount Outstanding	Net Check Amount
034857	2012-11	11/30/2012	$88,168.95	$88,168.95
			$88,168.95	$88,168.95

018506

Department of Water County of Kaua'i

COUNTY OF KAUAI
DEPARTMENT OF WATER
P.O. BOX 1706
LIHUE KAUAI, HAWAII 96766

FIRST HAWAIIAN BANK
LIHUE BRANCH
LIHUE, HAWAII 96766
59-101-1213

DATE 12/13/2012

AMOUNT $88,168.95

PAY Eighty Eight Thousand One Hundred Sixty Eight Dollars And 95 Cents

TO THE ORDER OF
WAIAHI WATER COMPANY LLC
P. O. Box 662069
Lihue HI 96766-7069

VOID AFTER 90 DAYS FROM DATE OF ISSUE

AUTHORIZED SIGNATURE

Security features. Details on back.

⑈018506⑈ ⑆121301015⑆ 30⑈000331⑈

COUNTY OF KAUAI / DEPARTMENT OF WATER

018506

WAIWA001 WAIAHI WATER COMPANY LLC

018506

12/13/2012

021686

Voucher	Document	Date	Amount Outstanding	Net Check Amount
034857	2012-11	11/30/2012	$88,168.95	$88,168.95
			$88,168.95	$88,168.95

Waiahi Water Company, LLC
P.O. BOX 662069
LIHUE, HI 96766
USA

Voice: 808-245-3678
Fax: 808-246-9470

Invoice

Invoice Number:
REVISED 2012-12/

Invoice Date:
Dec 31, 2012

Page:
1

Sold To:
DEPARTMENT OF WATER
PO BOX 1706
LIHUE, HI 96766

Ship to:
DEPARTMENT OF WATER
PO BOX 1706
LIHUE, HI 96766

Customer ID	Customer PO	Payment Terms	
10780		Net 30 Days	
Sales Rep ID	**Shipping Method**	**Ship Date**	**Due Date**
	Courier		1/30/13

Quantity	Item	Description	Unit Price	Extension
		USAGE CHARGE, DECEMBER 1 TO DECEMBER 31, 2012		90,977.68
		ELECTRICITY - KAPAIA RESERVOIR (11/14/12 TO 12/14/12)		27,025.84
		ELECTRICITY - MAALO ROAD (11/16/12 TO 12/13/12)		112.09
		GENERAL EXCISE TAX		4,920.70

Subtotal	123,036.31
Sales Tax	
Total Invoice Amount	123,036.31
Payment/Credit Applied	
TOTAL	123,036.31

Check/Credit Memo No

WAIAHI WATER COMPANY, LLC
PO BOX 662069
LIHUE, HI 96766

DEPARTMENT OF WATER
PO Box 1706
Lihue, HI 96766

INVOICE#: 2012-12 **REVISED**
DATE: 01/03/2013

Surface water usage for period of December 1 to December 31, 2012

Usage Charge *(computed below)*	**$ 90,977.68**
Electricity – Kapaia Reservoir – 11/14/12 – 12/14/12	**27,025.84**
Electricity – Maalo Rd – 11/16/12 – 12/13/12	**112.09**
Subtotal	**118,115.61**
General excise tax	**4,920.70**
TOTAL BALANCE DUE	**$123,036.31**

Usage Charge equals the difference between the minimum guaranteed usage charge for the fourth quarter of 2012 less the amounts previously billed for October & November.

Days in period (October – December)	92
Minimum gallons per day (per contract)	2,000,000
Rate per 1,000 gallons	$1.48
Minimum guaranteed usage charge (October – December)	**$ 272,320.00**
Actual usage per KDOW valve meter (in gallons) October - December	180,567,400
Rate per 1,000 gallons	$1.48
Usage Charge based on actual usage	$ 267,239.75
Less: Amount Billed in October & November	$ 181,342.32
Amount Remaining:	**$ 90,977.68**

Please remit payment to the address above.

Any billing inquiries should be directed to Shawn Shimabukuro – (808) 632-2525.

DEC 2 4 2012

Kaua'i Island Utility Cooperative
Your Touchstone Energy® Cooperative
4463 Pahee St. Ste 1
Lihue HI 96766-2000

ADDRESS SERVICE REQUESTED

**SINGLE-PIECE 1 SGL 76830AA17-A-1
131 1 SP 0.450

GROVE FARM CO
ATT:WAIAHI
PO BOX 662069
LIHUE HI 96766-7069

See reverse side for important information.

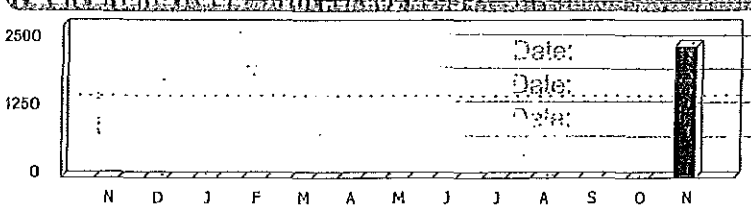
SPECIAL MESSAGE FROM YOUR CO-OP AND YOUR COMMUNITY

KIUC is now offering a $1,000 rebate for solar water heating for a limited time, from October 1, 2012 - December 31, 2012. For more information call 808.246.8280 or 808.246.8275.

CER #: ***
"Like" KIUC on Facebook at: www.facebook.com/Kauaicoop
"Follow" KIUC on Twitter @KIUC
Vendor #: Name:
Contract#:
Date:

			Amount

YOUR ENERGY USE - kWh per day usage last 13 months



ACCOUNT INFORMATION

ACCOUNT NUMBER:	2051-011
SERVICE ADDRESS:	KAPAIA RESERVOIR
SERVICE PERIOD:	11/14/12 TO: 12/14/12
SERVICE DAYS:	30
BILLING DATE:	12/17/12
RATE SCHEDULE: LARGE POWER SCHED P	(5P1)
CYCLE:	10
BILLING MULTIPLIER:	200

METER INFORMATION

METER	PREVIOUS	CURRENT	USAGE
MAIN - Z-26-10002	1823	2148	65000
KVAR - Z-26-10002	754	893	27800
DEMAND - Z-26-10002		0.651	130.20
BILLED DEMAND:			130.20
POWER FACTOR:			92 %
ADJUSTED KWH:			62725

CURRENT ELECTRIC CHARGES

NON-FUEL ENERGY CHARGE		7,419.34
FUEL AND PURCHASED POWER ENERGY		17,549.59
Base Fuel Charge	12,007.45	
Energy Rate Adjustment Clause	5,542.14	
CUSTOMER CHARGE		369.38
RESOURCE COST CHARGE		217.10
SERVICE PROCESSING FEE		20.00
KW DEMAND CHARGE		1,450.43

AMOUNT DUE

CURRENT AMT DUE NO LATER THAN 01/11/13	27,025.84
TOTAL	27,025.84

KWH COST COMPARISON	BILL DAYS	KWH USED	KWH PER DAY
THIS PERIOD	30	65000	2166.66
LAST PERIOD	0	0	0.00
THIS PER. LAST YR	0	0	0.00

RETAIN TOP PORTION FOR YOUR RECORDS

Kaua'i Island Utility Cooperative
Your Touchstone Energy® Cooperative

Please detach and return this portion with your payment.
Bring entire bill if making payment in person.
Make your check-payable to KIUC.

ACCOUNT INFORMATION

ACCOUNT NUMBER:	2051-011
SERVICE ADDRESS:	KAPAIA RESERVOIR
SERVICE PERIOD:	11/14/12 TO: 12/14/12
BILLING DATE:	12/17/12

AMOUNT DUE

CURRENT AMT DUE NO LATER THAN 01/11/13	27,025.84
TOTAL	27,025.84

AMOUNT ENCLOSED

$

GROVE FARM CO
ATT:WAIAHI
PO BOX 662069
LIHUE HI 96766-7069

☐ Please check if new address or phone number and indicate changa(s) on back.

KAUAI ISLAND UTILITY COOPERATIVE
PO BOX 29560
HONOLULU HI 96820-1960

01112013002702584002702584000000002051011995603

Kaua'i Island Utility Cooperative
Your Touchstone Energy® Cooperative
4463 Pahee St. Ste 1
Lihue HI 96766-2000

Jan billing
2012-12

ADDRESS SERVICE REQUESTED

AUTO5-DIGIT 96766 4 PS5 76830AA14-A-1
830 1 AV 0.350

GROVE FARM CO
ATTN:WAIAHI
PO BOX 662069
LIHUE HI 96766-7069

ACCOUNT INFORMATION

ACCOUNT NUMBER:	2051-012
SERVICE ADDRESS:	MAALO RD
SERVICE PERIOD:	11/16/12 TO: 12/13/12
SERVICE DAYS:	27
BILLING DATE:	12/14/12
RATE SCHEDULE: SMALL COMMERCIAL	(4G1)
CYCLE:	11
BILLING MULTIPLIER:	1

METER INFORMATION

METER	PREVIOUS	CURRENT	USAGE
MAIN - A-01-10191	938	1091	153
DEMAND - A-01-10191		0.362	0.36
BILLED DEMAND:			0.36

CURRENT ELECTRIC CHARGES

NON-FUEL ENERGY CHARGE		25.44
FUEL AND PURCHASED POWER ENERGY		42.32
Base Fuel Charge	29.29	
Energy Rate Adjustment Clause	13.03	
CUSTOMER CHARGE		23.82
RESOURCE COST CHARGE		0.51
SERVICE PROCESSING FEE		20.00

See reverse side for important information.

SPECIAL MESSAGE FROM YOUR CO-OP AND YOUR COMMUNITY

KIUC is now offering a $1,000 rebate for solar water heating for a limited time, from October 1, 2012 - December 31, 2012. For more information call 808.246.8280 or 808.246.8275.

***

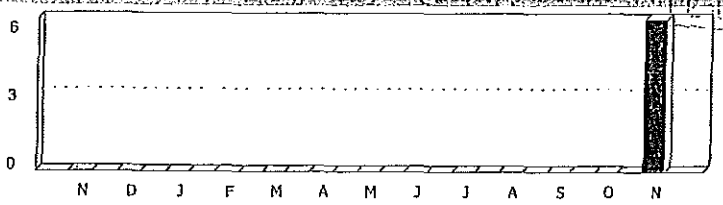
"Like" KIUC on Facebook at: www.facebook.com/Kauaicoop
"Follow" KIUC on Twitter @KIUC

AMOUNT DUE

CURRENT AMT DUE NO LATER THAN 01/08/13	112.09
TOTAL	112.09

Name: K.U.C.
Date: 12/14/12
Amount 112.99

YOUR ENERGY USE (KWH PER DAY OVER THE LAST 12 MONTHS)



KWH COST COMPARISON	BILL DAYS	KWH USED	KWH PER DAY
THIS PERIOD	27	153	5.66
LAST PERIOD	0	0	0.00
THIS PER LAST YR	0	0	0.00

KIA052412CB70614 - 76830AA14-A-1.830.1.4.0.350

RETAIN TOP PORTION FOR YOUR RECORDS

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Make your check payable to KIUC.

Kaua'i Island Utility Cooperative
Your Touchstone Energy® Cooperative

ACCOUNT INFORMATION

ACCOUNT NUMBER:	2051-012
SERVICE ADDRESS:	MAALO RD
SERVICE PERIOD:	11/16/12 TO: 12/13/12
BILLING DATE:	12/14/12

AMOUNT DUE

CURRENT AMT DUE NO LATER THAN 01/08/13	112.09
TOTAL	112.09

AMOUNT ENCLOSED

$

GROVE FARM CO
ATTN:WAIAHI
PO BOX 662069
LIHUE HI 96766-7069

☐ Please check if new address or phone number and indicate change(s) on back.

KAUAI ISLAND UTILITY COOPERATIVE
PO BOX 29560
HONOLULU HI 96820-1960

0108201300001120900001120900000000205101279560 4

Invoice

Waiahi Water Company, LLC
P.O. BOX 662069
LIHUE, HI 96766
USA

Voice: 808-245-3678
Fax: 808-246-9470

Invoice Number: 2012-12

Invoice Date: Dec 31, 2012

Page: 1

Sold To:
DEPARTMENT OF WATER
PO BOX 1706
LIHUE, HI 96766

Ship to:
DEPARTMENT OF WATER
PO BOX 1706
LIHUE, HI 96766

Customer ID	Customer PO	Payment Terms	
10780		Net 30 Days	
Sales Rep ID	**Shipping Method**	**Ship Date**	**Due Date**
	Courier		1/30/13

Quantity	Item	Description	Unit Price	Extension
		USAGE CHARGE, DECEMBER 1 TO DECEMBER 31, 2012		91,760.00
		ELECTRICITY - KAPAIA RESERVOIR (11/14/12 TO 12/14/12)		27,025.84
		ELECTRICITY - MAALO ROAD (11/16/12 TO 12/13/12)		112.09
		GENERAL EXCISE TAX		4,953.29

Subtotal	123,851.22
Sales Tax	
Total Invoice Amount	123,851.22
Payment/Credit Applied	
TOTAL	123,851.22

Check/Credit Memo No

WAIAHI WATER COMPANY, LLC
PO BOX 662069
LIHUE, HI 96766

DEPARTMENT OF WATER
PO Box 1706
Lihue, HI 96766

INVOICE#: 2012-12
DATE: 01/09/2013

Surface water usage for period of : December 1 to December 31, 2012

Usage Charge *(computed below)*	**91,760.00**
Electricity – Kapaia Reservoir – 11/14/12 - 12/14/12	**27,025.84**
Electricity – Maalo Rd – 11/16/12 – 12/13/12	**112.09**
Subtotal	**$118,897.93**
General excise tax	**4,953.29**
TOTAL BALANCE DUE	**$123,851.22**

Usage Charge equals the greater of minimum gallons per day or actual usage

Days in period	31
Minimum gallons per day (per contract)	2,000,000
Rate per 1,000 gallons	$1.48
Minimum guaranteed usage charge	**$ 91,760.00**
Actual usage per KDOW valve meter (in gallons)	58,038,800
Rate per 1,000 gallons	$1.48
Usage Charge based on actual usage	**$ 85,897.42**

Please remit payment to the address above.

Any billing inquiries should be directed to Shawn Shimabukuro – (808) 632-2525.

Kaua'i Island Utility Cooperative
Your Touchstone Energy Cooperative
4463 Pahee St. Ste 1
Lihue HI 96766-2000

DEC 2 0 2012 Page 1 of 4

Jan bill 12
2012-12

ADDRESS SERVICE REQUESTED

AUTO5-DIGIT 96766 4 PS5 76830AA14-A-1
830 1 AV 0.350

GROVE FARM CO
ATTN:WAIAHI
PO BOX 662069
LIHUE HI 96766-7069

ACCOUNT INFORMATION

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SERVICE ADDRESS:	MAALO RD
SERVICE PERIOD:	11/16/12 TO: 12/13/12
SERVICE DAYS:	27
BILLING DATE:	12/14/12
RATE SCHEDULE: SMALL COMMERCIAL	(4G1)
CYCLE:	11
BILLING MULTIPLIER:	1

METER INFORMATION

METER	PREVIOUS	CURRENT	USAGE
MAIN - A-01-10191	938	1091	153
DEMAND - A-01-10191		0.362	0.36
BILLED DEMAND:			0.36

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CUSTOMER CHARGE		23.82
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***

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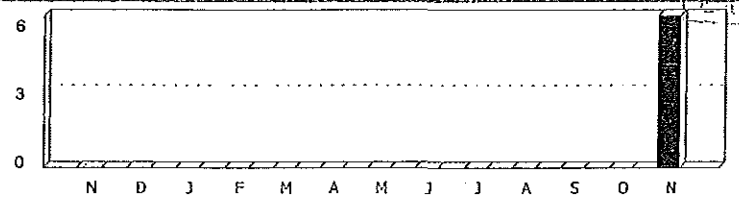
"Follow" KIUC on Twitter @KIUC

AMOUNT DUE

CURRENT AMT DUE NO LATER THAN 01/08/13	112.09
TOTAL	112.09

Name: K.I.U.C.
2051-012 12/14/12
Date: 12/14/12
Amount 112.09
Date:
Date:
Date:

YOUR ENERGY USE - kWh per day usage last 13 months



KWH COST COMPARISON	BILL DAYS	KWH USED	KWH PER DAY
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LAST PERIOD	0	0	0.00
THIS PER, LAST YR	0	0	0.00

KIAI062412CB70814 - 76830AA14-A-1.830.1.4.0.350

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Your Touchstone Energy Cooperative

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TOTAL	112.09

AMOUNT ENCLOSED

$

GROVE FARM CO
ATTN:WAIAHI
PO BOX 662069
LIHUE HI 96766-7069

☐ Please check if new address or phone number and indicate change(s) on back.

KAUAI ISLAND UTILITY COOPERATIVE
PO BOX 29560
HONOLULU HI 96820-1960

010820130000112090000112090000000002051012995604

Kaua'i Island Utility Cooperative
Your Touchstone Energy® Cooperative
4463 Pahee St. Ste 1
Lihue HI 96766-2000

ADDRESS SERVICE REQUESTED

**SINGLE-PIECE 1 SGL 76830AA17-A-1
131 1 SP 0.450

GROVE FARM CO
ATT:WAIAHI
PO BOX 662069
LIHUE HI 96766-7069

ACCOUNT INFORMATION

ACCOUNT NUMBER:	2051-011
SERVICE ADDRESS:	KAPAIA RESERVOIR
SERVICE PERIOD:	11/14/12 TO: 12/14/12
SERVICE DAYS:	30
BILLING DATE:	12/17/12
RATE SCHEDULE: LARGE POWER SCHED P	(5P1)
CYCLE:	10
BILLING MULTIPLIER:	200

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ADJUSTED KWH:			62725

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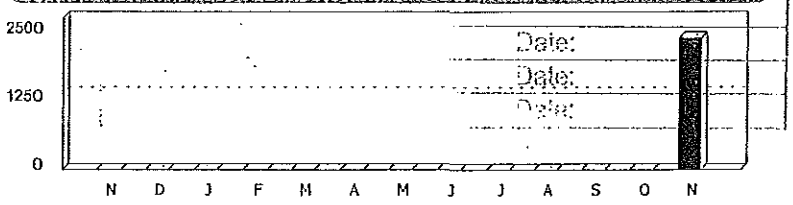
"Follow" KIUC on Twitter @KIUC

CER #:
Vendor #:
Check #:
Name:
Date:

		Amount

YOUR ENERGY USE - KWH BY BILLING PERIOD FOR LAST 12 MONTHS



KWH COST COMPARISON	BILL DAYS	KWH USED	KWH PER DAY
THIS PERIOD	30	65000	2166.66
LAST PERIOD	0	0	0.00
THIS PER, LAST YR	0	0	0.00

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Kaua'i Island Utility Cooperative
Your Touchstone Energy® Cooperative

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TOTAL	27,025.84

AMOUNT ENCLOSED

$

GROVE FARM CO
ATT:WAIAHI
PO BOX 662069
LIHUE HI 96766-7069

☐ Please check if new address or phone number and indicate change(s) on back.

KAUAI ISLAND UTILITY COOPERATIVE
PO BOX 29560
HONOLULU HI 96820-1960

01112013002702584002702584U00000000020510119956O3

COUNTY OF KAUAI / DEPARTMENT OF WATER

018726

WAIWA001 WAIAHI WATER COMPANY LLC

018726
1/17/2013
021906

Voucher	Document	Date	Amount Outstanding	Net Check Amount
035128	2012-12	12/31/2012	$123,036.31	$123,036.31

$123,036.31 $123,036.31

018726

Department of Water County of Kaua'i

COUNTY OF KAUAI
DEPARTMENT OF WATER
P.O. BOX 1706
LIHUE KAUAI, HAWAII 96766

FIRST HAWAIIAN BANK
LIHUE BRANCH
LIHUE, HAWAII 96766
59-101-1213

DATE 1/17/2013

AMOUNT $123,036.31

PAY One Hundred Twenty Three Thousand Thirty Six Dollars And 31 Cents

TO THE ORDER OF
WAIAHI WATER COMPANY LLC
P. O. Box 662069
Lihue HI 96766-7069

VOID AFTER 90 DAYS FROM DATE OF ISSUE

AUTHORIZED SIGNATURE

FD Security features. Details on back.

⑈018726⑈ ⑆121301015⑆ 30⑈000331⑈

COUNTY OF KAUAI / DEPARTMENT OF WATER

018726

WAIWA001 WAIAHI WATER COMPANY LLC

018726
1/17/2013
021906

Voucher	Document	Date	Amount Outstanding	Net Check Amount
035128	2012-12	12/31/2012	$123,036.31	$123,036.31

$123,036.31 $123,036.31

December 14, 2012

Chairman Daryl Kaneshiro
Kauai Board of Water Supply
4398 Pua Loke Street
Lihue, Hawaii 96766

Re: Electrical Service Accounts for the Waiahi Surface Water Treatment Plant

Dear Chairman Kaneshiro:

On December 7, 2012 we discovered that Mr. Craddick *closed* the Grove Farm Company, Inc. (Grove Farm) electrical service accounts with Kauai Island Utility Cooperative (KIUC) for the Waiahi Surface Water Treatment Plant (Waiahi SWTP). He had the accounts changed in the name of the Department of Water. We feel that such action by Mr. Craddick on behalf of the Board of Water Supply was deceitful and in poor judgment – especially as he did not have Grove Farm's authorization. Further, such action goes against what is written in the *Water Treatment and Delivery Agreement.*

On February 19, 2004 the Board of Water Supply (BWS) and Grove Farm Properties, Inc. (Grove Farm) entered into a *Water Treatment and Delivery Agreement* for the Waiahi SWTP. Section 7.a., relating to the Treatment and Delivery Sales Fee, specifically states that the Delivered Water Fee should include *"(ii) a reimbursement to Grove Farm for any and all electrical service costs incurred by Grove Farm in connection with the operation of the Facility (the "electrical service cost"); and (iii) a sum equal to all and any State of Hawaii general excise applicable to and payable in respect to the Delivered Water fee and the electrical service cost reimbursement."* To avoid payment of the general excise tax and without the knowledge of Grove Farm, Mr. Craddick proceeded to close Grove Farm's accounts. Grove Farm has since made the change back to the rightful account holder with KIUC.

Grove Farm wanted to apprise the Board of Water Supply of this incident and hope it will not occur again.

Sincerely,

Michael H. Tresler
Senior Vice President

3-1850 Kaumualii Highway Lihue, HI 96766-8609
P 808.245.3678 F 808.246.9470
www.grovefarm.com

12 DEC 18 P12:37

DEPT. OF WATER
COUNTY OF KAUAI

GROVE FARM COMPANY, INCORPORATED
3-1850 Kaumualii Hwy
LIHUE, HI 96766-8609

To

Chairman Daryl Kaneshiro
Kauai Board of Water Supply
4398 Pua Loke Street
Lihue, Hawaii 96766

HAND DELIVERED

DEPARTMENT OF WATER

County of Kaua'i

"Water has no Substitute – Conserve It!"

MANAGER'S REPORT No.13-33

February 28, 2013

Re: Manager's Response to Mr. Michael Tresler's letter regarding Waiahi Surface Water Treatment Plant Delivered Water Fee, dated December 18, 2012

RECOMMENDATION: None

BACKGROUND:
In the January 24th board meeting. The board directed the Manager to provide the Board with the Water Treatment and Delivery Agreement between the DOW and Grove Farm.

"Grove Farm" the operator and financer of the treatment facility want to increase the rate for water from the facility. This is allowable under the agreement for cost increases.

At the conclusion of the trial period fee estimate cost of $1.327/kgal in the agreement in 2004, the water rate has remained at $1.48/kgal since the facility was put in operation in 2006. I am fairly sure operating costs have risen during that time.

Grove Farm provided its audited cost for one year 2/21/13. We have requested a proforma for three years of audited numbers just past year audited or not current year and five year cost projection. Once we get this information we will be able to say whether this request is justified or not.

Respectfully submitted,

David R. Craddick, P.E., C.E.M.
Manager and Chief Engineer

Attachment: Michael Tresler's correspondence (12-18-12)
Grove Farm - Water Treatment & Delivery Agreement (2-19-04)

DC:mjg

Mgrrp/February 2013/13-33 Manager's Response to Mr. Michael Tresler's letter, dated December 18, 2012 (2-28-13):mjg

---4398 Pua Loke Street, Lihu'e, Kaua'i, Hawai'i or P. O. Box 1706, Lihu'e, HI 96766-5706---
Phone No. (808) 245-5400 – Administration FAX No. (808) 246-8628 – Engineering/Fiscal/Shop FAX No. (808) 245-5813

DEC 18 2012

December 18, 2012

Chairman Daryl Kaneshiro
Board of Water Supply
4398 Pua Loke Street
Lihue, Hawai'i 96766

Re: Waiahi Surface Water Treatment Plant Delivered Water Fee

Dear Chairman Kaneshiro:

This is to advise the Department of Water (DOW) that based on Section 7 of the *Water Treatment and Delivery Agreement* for the Waiahi Surface Water Treatment Plant, the Delivered Water Fee shall be adjusted annually based on the operational, maintenance and development cost of the plant. The rate has remained unchanged since 2007.

Furthermore, based on Section 7.b, the adjustment to the BWS Treatment Fee is based on the following: 1) operational and maintenance cost, 2) the cost to develop the facility, 3) and *a return of ten percent of two-thirds of the cost to develop and construct the facility*. To date, Grove Farm has not received the minimum return of ten percent based on the Delivered Water Fee.

If agreeable with the Board of Water Supply (BWS), we would like to propose that we renegotiate the rate through 2015, thereby eliminating the need to reconvene on this subject matter annually.

Enclosed for your review is a worksheet reflecting the prior income generation and rate of return shortfall.

I look forward to hearing from you so we may discuss this further.

Sincerely,

Michael H. Tresler
Senior Vice President

C Mr. David Craddick, P. E., Department of Water

Enclosure

3-1850 Kaumualii Highway Lihue, HI 96766-8609
P 808.245.3678 F 808.246.9470
www.grovefarm.com

GROVE FARM PROPERTIES, INC.
Waiahi Water - Pro Forma
December 14, 2012

			2006 ACTUAL		2007 ACTUAL		2008 ACTUAL		2009 ACTUAL		2010 ACTUAL		2011 ACTUAL		2012 PROJECTION	
1	Plant-In-Service		$ 10,620,677		$ 10,620,677		$ 10,566,181		$ 10,564,013		$ 10,556,628		$ 10,562,558		$ 10,562,558	
2	<Accumulated Depreciation>		(644,800)		(1,344,284)		(2,107,442)		(2,817,406)		(3,531,012)		(4,247,506)		(4,963,382)	
3	Net Plant	L1 + L2	9,975,277		9,276,393		$ 8,460,739		$ 7,776,607		$ 7,105,616		$ 6,415,052		$ 5,599,176	
4	Grove Farm Capacity Adjustment	33.3%	(3,322,100)		(3,088,195)		(2,817,426)		(2,589,619)		(2,368,170)		(2,135,212)		(1,867,826)	
5	Average Rate Base	L3 - L4	6,654,177		6,187,467		5,643,313		5,186,987		4,738,446		4,278,840		3,801,351	
																$ 2,000,000
6	Revenue: Water		$ 1,284,008	$ 1,327	$ 1,384,630	$ 1,480	$ 1,471,029	$ 1,480	$ 1,212,724	$ 1,480	$ 1,104,580	$ 1,480	$ 1,097,274	$ 1,480	$ 1,060,400	$ 1,480
7	Electricity Recovery		-		220,534	12%	371,395	0%	247,223	0%	200,020	0%	349,997	0%	326,823	0%
8	General Excise Tax		53,492		66,429		76,761		60,821		56,108		60,287		56,900	
9	Gain/Loss on Asset Disposal								(9,441)				(10,179)			
10	TOTAL		$ 1,337,499		$ 1,671,793		$ 1,919,186		$ 1,512,327		$ 1,452,708		$ 1,497,492		$ 1,444,123	
11	Operations & Maintenance		353,069		457,244		679,141		713,535		641,696		611,648		596,616	
12	Electricity		187,665		236,443		353,950		253,728		200,168		347,146		326,823	
13	Taxes		64,220		84,639		77,311		60,831		56,517		60,307		56,900	
14	Depreciation Expenses		644,800		699,664		705,230		709,964		713,606		716,494		713,876	
15	Grove Farm Capacity Adjustment	33.3%	(214,652)		(232,995)		(234,642)		(236,416)		(237,631)		(238,593)		(238,367)	
16	Total Operating Expenses		1,044,925		1,225,015		1,580,790		1,501,740		1,466,654		1,497,002		1,456,830	
17	Income Before Income Taxes	L7 - L12	292,573		446,778		338,395		10,587		(13,946)		490		6,293	
18	Income Taxes	37.97%	(111,090)		(169,642)		(128,460)		(4,020)		5,295		(186)		(2,389)	
19	Net Operating Income		181,483		277,136		209,907		6,567		(8,651)		304		3,904	
20	Rate of Return		3%		4%		4%		0%		0%		0%		0%	
20	Prescribed Rate of Return		10%		10%		10%		10%		10%		10%		10%	
21	Rate of Return Deficiency		-7%		-6%		-6%		-10%		-10%		-10%		-10%	
22	Additional Income Required	(10% of L10) - L18	483,935		341,612		354,425		512,133		462,595		427,560		376,232	2,978,512

Notes:

> (line 11) Increase in Operating & Maintenance from 2006 is primarily attributed to the inclusion of insurance ($52K in 2009), DOH Testing ($35K in 2009), Repair & Maintenance of Water Systems ($75K in 2009), and Repair & Maintenance of the Plant ($40K in 2009) that were not reflected in 2006.

> (line 20) Section 7b of the Agreement states a "reasonable return on Grove Farm's investment, which shall be ten percent (10%) of 2/3rds of the cost of the development and construction of the Facility.

12 DEC 18 P12:37

DEPT. OF WATER
COUNTY OF KAUAI

GROVE FARM COMPANY, INCORPORATED
3-1850 Kaumualii Hwy
LIHUE, HI 96766-8609

To

Chairman Daryl Kaneshiro
Kauai Board of Water Supply
4398 Pua Loke Street
Lihue, Hawaii 96766

HAND DELIVERED

WATER TREATMENT AND DELIVERY AGREEMENT

This WATER TREATMENT AND DELIVERY AGREEMENT ("**Agreement**") is made effective as of the 18th day of February, 2003 ("**Effective Date**"), between GROVE FARM PROPERTIES, INC., a Hawaii corporation ("**Grove Farm**"), whose post office address is P. O. Box 662069, Lihue, Kauai, Hawaii 96766-7069, and the COUNTY OF KAUAI, BOARD OF WATER SUPPLY ("**BWS**"), whose principal place of business is 4398 Pua Loke Street, Lihue, Kauai, HI 96766-5706.

RECITALS:

A. Grove Farm and LLCO, defined below, are each required by various Land Use Commission Decisions and Orders and County of Kauai Ordinances to provide potable water source requirements for the Projects, hereafter defined, controlled by Grove Farm and LLCO;

B. BWS wishes to increase potable water capacity in the Lihue area to satisfy existing and future potable water needs; and,

C. Grove Farm is able to satisfy a portion of the BWS's increased capacity requirements in the manner described in this Agreement.

NOW, THEREFORE, in consideration of the respective undertakings and agreement of Grove Farm and BWS set forth herein, Grove Farm and BWS agree as follows:

1. **Definitions.** In addition to the various terms defined in the body of this Agreement, the following defined terms are used throughout this Agreement and shall control in the interpretation of this Agreement.

BWS Receiving Main means and refers to BWS's 16" transmission main (DOW's 16" Waterline shown on **Exhibit 2**) located along Maalo Road and the haul cane road leading to BWS's Hanamaulu No. 3 well.

Capacity means and refers to the capacity of the Treatment Plant to treat surface water and produce potable water and is calculated in mgd.

Dedication Option means and refers to BWS's option to request and to accept dedication of the Option Property as more fully described in Section 10.

Delivered Water means and refers to the actual throughput of the Treatment Plant delivered to BWS and measured prior to delivery to the BWS Receiving Main.

Facility means and refers collectively to the improvements comprising the Water Delivery System and the Treatment Plant.

Governmental Conditions means and refers to the obligation imposed on Grove Farm and LLCO, as a result of Land Use Commission Docket No. A89-636 and Kauai County Zoning Ordinance PM 206-90, and as a result of Land Use Commission Docket No. A94-703 and Kauai County Zoning Ordinance PM 326-96, respectively, to provide the potable water source requirements for the Projects.

Hanamaulu Ditch System means and refers to that surface water system located at Hanamaulu in the Lihue district of Kauai owned by LLCO, which ditch system feeds Kapaia Reservoir ("**Reservoir**").

License Area means and refers to the Treatment Plant Site licensed by LLCO to Grove Farm, and the Water Delivery System Easement Areas in respect of which easements have been granted by LLCO to Grove Farm. The License Area is subject to those encumbrances specified in **Appendix A**.

LPCO refers to Lihue Plantation Company, Limited.

LLCO refers to Lihue Land Company, the trade name under which Visionary LLC ("**Visionary**") operates the former properties of LPCO, including, without limitation, the Lihue-Hanamaulu master plan real estate development project.

Maximum Capacity refers to the effective Capacity of the Treatment Plant, which is approximately 4.0 mgd, less Process Water.

mgd when used to described potable water requirements or production, means and refers to "million gallons per day".

Option Property means and refers to (a) the Facility, (b) a fee simple interest in the Treatment Plant Site, and (c) an easement for pipeline, utility and access on, over and under the Water Delivery System Easement Areas.

Process Water means and refers to water received into the Treatment Plant and utilized for cleaning, maintenance, flushing, and other functions designed to produce the actual output of the Treatment Plant and generally describes that portion of the water representing the difference between water received into the Treatment Plant and its actual output.

Project(s) includes and refers to, collectively and individually, Grove Farm's Lihue-Puhi real estate development project that consists of single and multi-family residential, commercial, school, golf course, and park components and LLCO's Lihue-Hanamaulu real estate development project (formerly owned by LPCO and acquired by LLCO in 2001) that will consist of single and multi-family residential, commercial, industrial, school and park components.

Total Construction Cost of the Facility shall mean and refer to the total of the design, construction (administration and improvement), and construction financing costs incurred by Grove Farm to plan, design, and develop the Facility.

Treatment Plant means and refers to a membrane type surface water treatment system manufactured by Zenon Environmental Systems, Inc., or equivalent, with a rated capacity of 3.0 mgd (the "**Rated Capacity**"). A schematic of the Treatment Plant is attached as **Appendix B** and the Treatment Plant is more fully detailed and described in the items described in **Appendix C** to this Agreement. The Treatment Plant will be located on certain lands adjacent to the Kapaia Reservoir, generally in the location shown on the map attached as **Exhibit 1** (the "**Treatment Plant Site**").

Water Delivery System means and refers to the (a) the pipeline systems that will transport surface water from the Reservoir to the Treatment Plant and (b) the pipeline system labeled "Proposed WTF Finished Waterline and Access Road" on **Exhibit 2** that will transport finished potable water from the Treatment Plant to the BWS Receiving Main, generally in the location shown on the map attached as **Exhibit 2** (collectively the "**Water Delivery System Easement Area(s)**"), which lands consisting of the Water Delivery System Easement Area are included in the License Area.

2. **General**.

a. Source Water Requirements. Grove Farm's Project, when fully developed, is expected to require approximately 1.6 million gallons of potable water per day on an average daily demand basis. LLCO's Project at full build-out is estimated to require approximately 1.8 million gallons of potable water per day on an average daily demand basis. The Governmental Conditions require Grove Farm and LLCO to provide all of the Projects' potable water source requirements. As of the date of this Agreement, Grove Farm and LLCO have provided only a portion of the 3.4 mgd required under the Governmental Conditions for the Projects. Grove Farm contemplates supplying a portion of the remaining obligation under the terms of this Agreement.

b. Control of Surface Water System. Grove Farm, its stockholder ALPS LLC, a Delaware limited liability company, Visionary and LLCO are each independent, but related, companies with common ownership. One or more of these companies (1) own or control the Hanamaulu Ditch System, which feeds Kapaia Reservoir and the stream diversion facilities (the "**Stream Diversion Facilities**") for the South Fork Wailua River (the "**Stream**"), which can divert over 30 million gallons of water per day into the Hanamaulu Ditch System and (2) act as diversion works operator under a Stream Diversion Registration of Works and Declaration of Water Use, dated May 24, 1989, filed with the Commission on Water Resource Management for the Stream by LPCO. To facilitate the performance of this Agreement, Grove Farm will enter into an agreement or agreements (the "**Authorizing Agreements**") with LLCO: (i) permitting Grove Farm access to and allowing Grove Farm to operate the Stream Diversion Facilities, (ii) allowing Grove Farm to secure limited water from Kapaia Reservoir, (iii) securing for Grove Farm an easement or license over the Water Delivery System Easement Area, (iv) securing for Grove Farm an easement or license of the Treatment Plant Site and (v) permitting Grove Farm to construct the Facility. Such authorizing

agreement shall contain a provision binding the successors and assigns of Grove Farm and LLCO. Grove Farm shall provide copies of the Authorizing Agreements to BWS by December 31, 2003.

c. Interpretation. In interpreting and effecting the provisions of this Agreement, the parties shall be guided by the following general principles;

i. The parties shall act reasonably and in good faith;

ii. Interpretations shall be fair and reasonable, taking into account the interests of and consequences to both parties;

iii. This Agreement contemplates that costs associated with the development, planning, and operation of the Facility be borne proportionally by the parties in the manner specified in this Agreement. Where appropriate and as the Agreement may dictate, the principle of proportional cost-sharing shall be considered in the interpretation of this Agreement.

3. **Term of Agreement.** This Agreement shall be effective and commence upon execution by all parties. Upon the terms and conditions set forth herein, this Agreement, unless earlier terminated in accordance with Section 17, shall terminate fifteen (15) years after the Effective Date or upon dedication of the Facility to BWS, whichever occurs first, except to the extent specifically provided to the contrary in this Agreement. If the Facility has not been dedicated to BWS within the initial fifteen (15) year term of this Agreement, the term of this Agreement shall be automatically extended for successive two (2) year periods (the "**Renewal Term(s)**") unless and until (i) the Facility is dedicated to BWS, (ii) either party delivers to the other written notice of such party's election to terminate this Agreement at least ninety (90) days prior to the conclusion of the initial term or any successive two (2) year term (the "**Termination Notice**") or (iii) the parties mutually agree to terminate this Agreement. In the event a timely Termination Notice is given, this Agreement shall terminate at the conclusion of the initial fifteen (15) year term or Renewal Term during which the Termination Notice is given.

4. **The Facility - Treatment Plant.**

a. Agreement to Design and Construct Treatment Plant.

i. Subject to the terms and conditions herein, Grove Farm agrees, at its sole cost and expense, to design and to construct the Treatment Plant and a water delivery system that, using water from the Hanamaulu Ditch System, will treat and deliver potable water to the BWS Receiving Main.

ii. The actual point of connection is subject to BWS approval. BWS shall allow this connection free of charge except, however, Grove Farm shall reimburse BWS for its customary expenses incurred in conjunction with the inspection and acceptance of connections of this type.

iii. Grove Farm intends to develop the Treatment Plant as a membrane type surface water filtration and treatment plant in Hanamaulu in close proximity to the Kapaia Reservoir. Additionally, water from the Treatment Plant shall not (1) adversely disrupt or cause taste or aesthetic quality problems to the BWS's water system based on an objective and verifiable increase in consumer complaints (within BWS's Lihue-Hanamaulu service area) regarding the taste or aesthetic quality of the water delivered by BWS incorporating the Delivered Water or (2) cause BWS to violate the Safe Drinking Water Act, State of Hawaii Department of Health rules and regulations and all other applicable rules and regulations. The Treatment Plant will treat water from the Hanamaulu Ditch System and comply with the potable water requirements of the Safe Drinking Water Act, State of Hawaii Department of Health rules and regulations and other applicable rules and regulations. The parties agree they will cooperate and use their respective best efforts to assure that the standards described in this Section are satisfied throughout the period of operation of the Treatment Plant.

iv. Grove Farm will make the necessary improvements to the BWS water systems to integrate the water supply from the Treatment Plant into the BWS system. Improvements may include pumps, controllers and equipment to connect and balance BWS's 393 and 510 water systems. Grove Farm shall fund a study to identify such improvements, which shall be reviewed and approved by BWS.

v. The parties acknowledge that a portion of the BWS's water transmission system located in the Hanamaulu Area in Kuhio Highway (from Kapaia Bridge to Wilcox Hospital and running towards Kapaa), which is intended to transport portions of the Delivered Water may require upsizing or replacement, due to a physical size constraint, in order to accept the quantity of Delivered Water contemplated by this Agreement. The parties have agreed that any mutually approved cost required to upsize or replace the described portion of the transmission system or to install an additional transmission line along the cane haul road/Ehiku Street route, as each are shown on the map attached as **Exhibit 3** (the "**Pipeline Improvement Map**"), shall be borne 66.67% by BWS and 33.33% by Grove Farm.

b. Design of Treatment Plant.

i. Grove Farm will design the Treatment Plant with the Rated Capacity in compliance with applicable standards with respect to membrane type systems in effect at the time of the commencement of construction of the Treatment Plant and in a manner that will permit the Treatment Plant to be accepted by and dedicated to BWS. Notwithstanding the foregoing the parties acknowledge that the Treatment Plant will have a maximum capacity of 4.0 mgd. As a result, the actual throughput of treated water may exceed 3 mgd.

ii. BWS shall have the right to review the design plans for the Facility and to provide suggestions with respect to the design of the Facility. BWS shall conduct its review and provide comments, if any, in a timely manner so as not to unreasonably delay the design process. Grove Farm may incorporate into the

final design of the Treatment Plant those suggestions that Grove Farm, in its sole discretion, deems appropriate; provided, however, Grove Farm acknowledges that its failure to incorporate BWS's minimum design requirements or comments could affect BWS's decision to exercise its Dedication Option. Upgrades of the Treatment Plant required following its construction shall be controlled by Section 12 of this Agreement.

c. Financing and Construction Bond. Grove Farm agrees to provide a construction bond for the cost of constructing the Treatment Plant, in a form and amount reasonably acceptable to BWS. BWS acknowledges that Grove Farm plans to finance the development and construction of the Facility with a loan, in an amount not less than 80% total development and construction cost of the Facility (which Grove Farm estimates to be approximately $8,000,000.00) from an institutional lender (the "**Development Lender**") secured by an assignment of income attributable to the Facility's operations and/or mortgage on the Facility and other interests Grove Farm may have in the Facility and/or License Area (the "**Development Loan**"). Grove Farm estimates that the Development Loan will be amortized over a period of up to 15 years.

d. Post-Completion Insurance. Following completion of construction of the Treatment Plant, Grove Farm shall acquire and maintain casualty insurance on the improvements to the Treatment Plant Site. The parties shall, prior to completion of construction of the Treatment Plant, approve the terms, conditions and amount of the casualty insurance.

5. **Water Supply and Delivery.**

a. Acceptance of Water. Throughout the term of this Agreement, BWS shall accept into its water system the Delivered Water. BWS agrees to purchase Delivered Water, subject to the provision of 4.a.iii and to the limitations contained in this Agreement relating to Minimum Daily Delivery limitations set out in Section 6, for the fees described in Section 7. BWS shall and does hereby agree to take all necessary and required actions to secure and shall maintain throughout the term of this Agreement all appropriate and necessary approvals applicable to the procurement of Delivered Water. All and any of Grove Farm's obligations under this Agreement are specifically conditional on such procurement approvals.

b. Performance Bond. Commencing from and after the date of first delivery of Delivered Water to BWS, Grove Farm shall maintain or cause to be maintained by the operator of the Treatment Plant, defined below, a performance bond, if available, issued by a financially capable surety, that ensures the continuous operation of the Treatment Plant until the expiration or termination of this Agreement, provided BWS first approves the scope and expense of such performance bond. A copy of such bond (and any replacement bonds) obtained shall be provided to BWS. The cost of securing such performance bond shall be included in the cost of operations of the Facility.

c. Plant Management Agreement and Operations. Grove Farm contemplates that it will enter into a Treatment Plant management agreement (the "**Plant Management Agreement**") with an entity or entities qualified and experienced in the operations of facilities similar to the Treatment Plant (the "**Operator**"). To secure the continued, uninterrupted operation of the Treatment Plant in accordance with this Agreement and the performance of Grove Farm's obligations under this Agreement, Grove Farm shall, to the extent permitted by the Development Loan, assign to BWS, as security only, Grove Farm's rights arising under the Plant Management Agreement. Such assignment shall be made concurrently with the establishment of the Tested Capacity of the Treatment Plant, as described in Section 8.b. The form of assignment for security purposes shall be approved by the parties and Grove Farm's Development Lender.

6. **Daily Delivery Limitations.**

a. Minimum Delivery. Delivered Water received at BWS' Receiving Main shall be controlled by BWS' supervisory control and data acquisition system ("**SCADA**"). Subject to the provisions of 4.a.iii and the provisions of this Agreement, Grove Farm will deliver and BWS will accept not less than 2.0 mgd of Delivered Water calculated on a quarterly basis (2.0 mgd calculated on a quarterly basis is the "**Minimum Daily Delivery**") from the end of the Trial Period described in Section 8 until such time as BWS elects to increase the Minimum Daily Delivery of Delivered Water in the manner provided in this Section.

b. Modified Delivery Limitation. At any time, BWS may increase the delivery of Delivered Water (such that it exceeds 2.0 mgd), provided BWS may not cause Delivered Water to exceed the Capacity of the Treatment Plant. Any such increase shall be effected by BWS by electronic telemetry through SCADA. Subject to the parties' performance as provided in Section 4.a.iii, in no event may BWS decrease the amount of Delivered Water below the 2.0 mgd Minimum Daily Delivery.

c. Effect on Section 8 Credits and Use of Water. Any adjustment by BWS of the Minimum Daily Delivery shall not diminish Grove Farm's Credits available under the terms of this Agreement. Grove Farm may use the output of the Treatment Plant not included in Delivered Water (the "**Additional Water**") for purposes determined appropriate by Grove Farm; provided, however, if Grove Farm proposes to utilize the BWS System for delivery of Additional Water, Grove Farm must first obtain BWS's consent to use the BWS System, which consent shall not be unreasonably withheld. Improvements to the facility required to permit Grove Farm's use of Additional Water shall be at Grove Farm's expense.

7. **Treatment and Delivery Sales Fee.**

a. BWS Fee. As consideration for the delivery by Grove Farm of potable water from the Treatment Plant, BWS shall pay Grove Farm the treatment and delivery sales fees described in this Section (the "**BWS Fee**"), which BWS Fees shall be subject to periodic adjustment as provided in this Section. The BWS Fee

shall include (i) a fee for Delivered Water at the rate of $ 1.327 per 1,000 gallons of Delivered Water (the "**Delivered Water Fee**"), which includes the reimbursement identified in section 7.a.(ii) and 7.a.(iii) below; (ii) a reimbursement to Grove Farm for any and all electrical service costs incurred by Grove Farm in connection with the operation of the Facility (the "**electrical service cost**"); and (iii) a sum equal to all and any State of Hawaii general excise applicable to and payable in respect of the Delivered Water Fee and the electrical service cost reimbursement. The electrical service cost shall be based on actual meter reading and shall be supported by such evidentiary data as specified in Section 7.d. The parties acknowledge that the Delivered Water Fee represents a blend of the cost of the treatment and delivery sales fee for water reserved by and credited to Grove Farm (the "**Grove Farm Fee**") and the treatment and delivery sales fee for water delivered to and allocated to BWS (the "**BWS Treatment Fee**") on a one (1) to two (2) ratio between the Grove Farm Fee and the BWS Treatment Fee. In the event that BWS increases the Minimum Daily Delivery of water, that portion of the Delivered Water Fee for the water delivered in excess of the Minimum Daily Delivery shall, to the extent that the referenced Delivered Water Fee is not absorbed by Grove Farm's return on investment (described in Section 7.b), operational and maintenance costs, electric service costs, and general excise tax, be applied by Grove Farm to reduce sums owed under the Development Loan.

b. Adjustment of BWS Fee. At the conclusion of the Trial Period and thereafter, when and as requested by either party, but not more often than once annually, the Delivered Water Fee shall be adjusted by mutual agreement based on the operational, maintenance and development costs of the Treatment Plant, but in no event shall the Delivered Water Fee be less than the greater of (i) the Delivered Water Fee established pursuant to Section 7.a or (ii) the Delivered Water Fee established by the review for the immediately preceding period made pursuant to this Section 7.b. Operational and maintenance costs shall include any and all costs incurred by Grove Farm (or its assignee or successor) to administer, maintain, repair, improve, replace, refurbish, and operate the Facility, to own, lease, license, operate or maintain any portions thereof, and otherwise in acting pursuant to this Agreement, or to be incurred in respect of offsite improvements to BWS's water transmission facilities in accordance with the Agreement or subsequent agreement of the parties, including without limitation, (A) the costs of planning, construction and financing of the modernization, improvement, renovation or replacement of the Facility necessitated by floods, washouts, landslides, earthquakes, hurricanes or other acts of God or man, or necessitated by technological change or governmental requirements, (B) the costs required to maintain a standard schedule of maintenance and repair typical for similar surface water treatment plants, and to ensure that all components of the Facility are operated and maintained in a manner which will not prevent or hinder the ability of Grove Farm or BWS to access capacity in or expand the Treatment Plant, (C) all expenses of record keeping, bank fees, government filings, accounting, yard, janitorial and other similar services, wages, accounting, legal and management fees, other necessary expenses of upkeep, maintenance, management and operation actually incurred including those incurred to comply with any law or regulation, (D) all expenses of all employees, managers, and consultants required to operate, manage, maintain, improve,

replace, refurbish, and repair the Facility, or to perform any of the functions above described, as reasonably determined by Grove Farm, (E) the costs of insurance, bonds or other assurances maintained by Grove Farm as required or permitted by this Agreement or in respect of the Development Loan or customarily secured for operations of the nature contemplated, (F) all charges for leases, licenses, rents, and taxes, (G) the cost of all utility services (including water, electricity, gas, refuse disposal, sewer and any similar services), and (H) reasonable reserves for contingencies, replacements and other proper purposes deemed appropriate by Grove Farm to meet the costs and expenses of maintenance, repairs and replacement for items that must be maintained, repaired, or replaced on a periodic basis. In connection with the periodic review, the parties shall consider and take into account that the portion of the Delivered Water Fee representing the BWS Treatment Fee shall be equal to the total of (1) BWS's operational and maintenance costs, exclusive of electrical service costs, of its current source systems in the Lihue-Hanamaulu area, (2) the cost(s) to develop the Facility, and (3) a reasonable return on Grove Farm's investment, which shall be ten percent (10%) of 2/3rds of the cost of the development and construction of the Facility. In connection with the periodic review, the parties shall also consider and take into account that the portion of the Delivered Water Fee representing the Grove Farm Fee shall be not less than an amount that equals Grove Farm's cost of operations, insurance and financing. BWS may audit, at its discretion and at its cost, operational and maintenance costs. In no event, shall the Delivered Water Fee exceed BWS's actual cost to provide water to its current customers.

c. Increased Monitoring Costs. The parties acknowledge that costs incurred in distribution system monitoring in conformance with the Safe Drinking Water Act (SDWA) may increase due to the introduction of surface water into the distribution system. The mutually approved additional costs, including sampling and laboratory analysis (collectively the "**Increased Monitoring Costs**"), shall be borne 66.67% by BWS and 33.33% by Grove Farm. All such costs shall be advanced by BWS and BWS shall receive 33.33% of the Increased Monitoring Costs as a credit against monthly BWS Fee paid pursuant to this Agreement; provided BWS submits to Grove Farm any and all invoices and documentation in respect of the Increased Monitoring Costs, together with evidence of BWS's payment of such costs for which BWS seeks such credit.

d. Billing Procedures. Grove Farm will submit, on a calendar month basis, billings to BWS for Delivered Water based on Sections 7.a and 7.b of this Agreement (the "**Water Fee Invoices**"). Concurrently, Grove Farm shall submit to BWS as supporting documentation any and all invoices received by Grove Farm in respect of the electrical service to the Facility, together with evidence of Grove Farm's payment of such invoices. BWS shall pay the Water Fee Invoices within 31 days of their receipt. Any payment or reimbursement not timely paid by BWS shall bear interest at the rate of twelve percent (12%) per annum until paid.

8. **Credits Toward Grove Farm's Obligation.**

a. The Credits. In consideration of Grove Farm's funding and construction of the Treatment Plant, Grove Farm and LLCO shall receive a facility reserve charge credit ("**FRC Credit**") and a source credit equal to 1/3rd of the Tested Capacity as determined in Section 8.b. (collectively the "**Credits**"), allocated as directed by those parties, against their respective potable water development obligation under all applicable Governmental Conditions. Grove Farm may apply the FRC Credit against any facilities reserve charges that may be assessable to Grove Farm or LLCO with respect to water meters delivered to any development by those parties.

b. Procedure for Determining Amount of Credits.

i. The Credits shall be determined after a trial period to evaluate performance of the Treatment Plant (the "**Trial Period**"). The Trial Period shall commence ten (10) calendar days following the date the Facility is fully operational. The Facility shall be deemed fully operational when the Treatment Plant's actual operational time exceeds 90 percent of the available run time during a 30-day period (the "**Minimum Run Time**"). Grove Farm will give BWS written notice when the Treatment Plant is fully operational. The length of the Trial Period will be mutually agreed to by Grove Farm and BWS, provided, however, that the trial period will be completed within six (6) months from the start date.

ii. During the Trial Period, the parties shall coordinate with the State Department of Health Safe Drinking Water Branch to monitor operations of the Facility and to establish the "**Tested Capacity**" of the Facility. The Tested Capacity shall be established by the parties and the State Department of Health Safe Drinking Water Branch in conformance with the State of Hawaii Administrative Rules relating to potable water systems.

iii. During the Trial Period, Grove Farm will receive Credits equal to 0.50 mgd.

iv. Following the Trial Period, Grove Farm will receive Credits specified in Section 8.a.

c. Assignment of Credits. Grove Farm, at its option, may assign any or all of the Credits to LLCO in partial satisfaction of LLCO's obligation under Docket No. A94-703 and PM 326-96. Grove Farm may assign the Credits, or portions thereof, to (1) any user, occupant or developer of the Grove Farm property under Docket No. A89-636 and PM 206-90 or (2) LLCO lands that are described under Docket No. A94-703 and PM 326-96. BWS will acknowledge such assignment or assignments and confirm the availability of the assigned portion of the Credits to the assignee on request by Grove Farm

d. Survival of Credits. The Credits will survive the termination of this Agreement and any exercise by BWS of its option to accept dedication of the

Treatment Plant and its related real estate and facilities in accordance with Section 10, provided, however, that if Grove Farm is in default under any provision of this Agreement and such default remains uncured as described in Section 17 and actually diminishes the Rated Capacity of the Treatment Plant, the Credits shall be reduced by the number of gallons by which the Rated Capacity is actually diminished.

9. **BWS Access to Treatment Plant and Operational Data.** Grove Farm will provide BWS, in writing, the name, telephone number and other relevant contact information of an appropriate contact person or persons available twenty-four (24) hours a day and seven (7) days a week. Upon twenty-four (24) hours prior telephone notification from BWS to the operator of the Treatment Plant, Grove Farm agrees to permit BWS to have reasonable access to the Treatment Plant for periodic site visits for purposes of observing its operation and to review the Treatment Plant's operational data. Such visits are generally for the purpose of familiarizing BWS with the Treatment Plant in advance of BWS's exercise of its Dedication Option. In cases of an emergency, such advance notice shall not be required prior to entry; provided, however, BWS shall give Grove Farm telephonic notice as soon as reasonably possible following such entry. BWS's visits shall not interfere with the operations of the Treatment Plant.

10. **Dedication Option and Delivery of Source Water.**

a. Option. Subject to the limitations provided in this Section 10, BWS will have an option to request and accept dedication (the "**Dedication Option**") of the Option Property, in its "as-is, where-is" condition, free and clear of the Development Loan and any monetary lien or encumbrance (unless assumed by BWS in accordance with this Agreement) and all liens or encumbrances except those specified in Appendix A and which may in the future be approved by BWS or required by this Agreement. BWS approves the encumbrances affecting the Option Property described in Appendix A.

b. Cost of Option Property. In the event BWS exercises its Dedication Option on or before the date by which Grove Farm will have been fully reimbursed for its cost of development and construction of the Facility and financing of that portion of the Facility allocable to BWS via payment of the BWS Fee (the "**Reimbursement Date**"), BWS shall pay to Grove Farm the sum (the "**Acquisition Fee**") of: (1) the fair market value of the fee simple interest in the Treatment Plant Site, and the easement interest in the Water Delivery System Easement Areas that are not already owned by BWS ("**License Area Price**"), which value shall be established by mutual agreement between the parties and failing such mutual agreement by appraisal applying the customary methodology applicable to condemnation of fee simple interest in land , plus (2) the un-amortized cost of the development and construction of the Facility as at the date of the exercise of the Dedication Option (the "**Facility Improvements Price**"), provided, however, such Facility Improvements Price shall not be less than a percentage of the outstanding balance (principal, accrued interest, closing and pay-off fees, if any) due and owing in respect of the Development Loan equal to 66.67

divided by a fraction, the denominator of which is the Total Construction Cost of the Facility and the numerator of which is the principal balance due under the Development Loan following completion of construction of the Facility (e.g., the Facilities Improvements Price would not be less than 83.33% of the Development Loan if only 80% of a $8,000,000 Total Construction Cost is financed). BWS may credit the balance due under the Development Loan against the Acquisition Fee if BWS is permitted to assume all or a portion of the Development Loan equal to the Acquisition Fee and Grove Farm is released fully under the Development Loan. In the event the Dedication Option is exercised after the Reimbursement Date, BWS shall pay to Grove Farm no License Area Price and no Facility Improvements Price will be payable upon dedication of the Facility.

c. Term of Dedication Option. So long as this Agreement is in full force and effect, BWS may exercise its Dedication Option at any time after the effective date of this Agreement. BWS's Dedication Option shall expire on termination of this Agreement.

d. Procedure for Exercising Option/Closing. BWS may exercise its Dedication Option by giving Grove Farm written notice by certified mail or personal delivery of its intent to do so ("**Notice of Intent**"). In the event BWS provides Grove Farm with a Notice of Intent, Grove Farm shall have the right to designate the time, place and date of closing ("**Closing Date**"), provided that the Closing Date shall be within ninety (90) business days after receipt of the Notice of Intent, unless the parties shall mutually agree in writing to extend the Closing Date. Grove Farm shall subdivide and convey the Treatment Plant Site to BWS by deed, the form and content of which shall be mutually agreed upon by the parties. The Water Delivery System Easement Areas shall be conveyed by grant of easement using the customary form of grant utilized by and between Grove Farm and BWS. Any unattached components of the Facility shall be conveyed by bill of sale.

e. Delivery of Source Water. From and after the conveyance of the Option Property to BWS (which date of conveyance is described as the "**Conveyance Date**") and subject to the provisions of this Agreement, BWS shall have the right to purchase from Grove Farm and Grove Farm agrees to sell to BWS an uninterrupted supply of water from Kapaia Reservoir and the Hanamaulu Ditch System (the "**Source Water**") in an amount not less than the Maximum Capacity of the Treatment Plant. BWS shall pay Grove Farm the sum of $ 0.003 per 1000 gallons of Source Water delivered to the Treatment Plant (the "**Source Water Delivery Fee**"). The Source Water Delivery Fee shall be increased by three percent (3%) annually, on the anniversary date of the Conveyance Date. Notwithstanding the foregoing, the parties agree that due to the difficulty in calculating the Source Water Delivery Fee, BWS may elect to pay in lieu of the Source Water Delivery Fee a sum to Grove Farm (as manager of the Kapaia Reservoir and the Hanamaulu Ditch System) equal to BWS's prorata share of the cost to deliver water to Kapaia Reservoir (the "**In-Lieu Fee**"). BWS's prorata share shall equal a fraction of such cost of the management of the Kapaia Reservoir and the Hanamaulu Ditch System, the numerator equaling the actual amount of water delivered to the Treatment Plant and the denominator being the total amount of

water delivered to the Reservoir as measured by the gauging station at Hanamaulu Ditch. As of the Effective Date, the prorata share of a 3.0 mgd plant is approximately $2,640.00 per year. The conveyance instrument for the Option Property shall include appropriate covenants formalizing (1) the right of BWS to purchase delivery of Source Water, together with access rights to Kapaia Reservoir and the Hanamaulu Ditch System for purposes of assuring delivery of Source Water to the Treatment Plant for so long as BWS utilizes the Treatment Plant or successor facility to supply potable water to its consumers, (2) the right of BWS to divert flush or discharge water (a component of Process Water created by the Treatment Plant) to a location selected by Grove Farm for so long as BWS utilizes the Treatment Plant or successor facility to supply potable water to its consumers, which flush or discharge water will be accepted by Grove Farm and (3) the obligation of BWS to pay the Source Water Delivery Fee or the In-Lieu Fee, upon which the delivery of Source Water is conditioned.

f. Agreement Controls in the Event of Condemnation. BWS agrees that any condemnation of the Facility shall require the payment and be subject to the retained rights and the Credits specified in this Agreement. In all respects, any such condemnation shall constitute an exercise of the Dedication Option described in this Agreement and shall be undertaken subject to the terms of this Agreement.

g. Effect of Dedication on Credits. Grove Farm's rights and obligations under this Agreement will be terminated upon dedication, provided, however, that the rights and obligations of the parties and the Credits to Grove Farm described in Section 8 and in this Section 10 will survive the exercise of the Dedication Option.

11. **Government Approvals.** The parties shall cooperate and assist each other in obtaining any government approvals, if any, necessary to carry out the terms of this Agreement. The parties shall bear their own respective costs and expenses incurred in obtaining those approvals.

12. **Future Expansion and Upgrade.** Any expansion of the Treatment Plant and associated equipment beyond its Maximum Capacity or upgrade to the Treatment Plant shall be subject to the mutual approval of Grove Farm, LLCO and the BWS. Any such expansion, if by BWS, Grove Farm or by both of them shall be undertaken, if at all, generally subject to the following terms:

a. No Harm to Existing Capacity. Expansion of the Treatment Plant is permitted only if the parties agree that there will be no permanent resulting decrease in the quantity of potable water produced by the then existing facility.

b. Grove Farm Expansion. Any expansion of the Treatment Plant by Grove Farm during the period Grove Farm owns the Treatment Plant, will be at its sole cost and expense. Grove Farm agrees that it shall expand the Treatment Plant only to fulfill the Governmental Conditions or other potable water source requirements imposed on Grove Farm or LLCO or both in connection with the development of property owned by one or the other of them. Notwithstanding Section 8.b.iv, BWS agrees that if Grove Farm expands the Treatment Plant for the

foregoing reasons, BWS shall be obligated to take delivery of potable water from the Treatment Plant to satisfy the potable water source requirements of the Projects and the foregoing developments and to credit Grove Farm for water source capacity in accordance with Section 8.

c. BWS Expansion. As long as Grove Farm owns the Plant, BWS agrees that it will not seek expansion of the Treatment Plant unless BWS is then accepting delivery of the Rated Capacity of the Treatment Plant. If BWS seeks expansion of the Treatment Plant prior to BWS's acquisition of the Treatment Plant, BWS agrees (1) that any expansion shall be at its sole cost and expense; and (2) that it shall be responsible for any increase in operational costs resulting from said expansion. Grove Farm and BWS also agree that any additional treatment and delivery capacity created by a BWS expansion shall belong to BWS.

d. Grove Farm Participation In Expansion. After conveyance of the Treatment Plant to BWS, BWS will allow Grove Farm to participate in future expansion of the Treatment Plant as shall be mutually agreed to by Grove Farm and BWS, provided that said agreement shall generally follow the guidelines provided for in this Section 12.

e. Upgrade of Facility. In the event of a change in regulations applicable to the Facility requiring the upgrade of the Facility or in the event the parties mutually approve a capital improvement to the Facility, the parties shall cooperate to undertake any such required upgrade. The cost of any such upgrade required prior to BWS's exercise of the Dedication Option shall be borne 66.66% by BWS and 33.34% by Grove Farm. The method of payment for any such upgrade shall be mutually approved by the parties and may include, without limitation, cash payment, refinancing, or other methods. Any upgrade required post-dedication shall be the responsibility of BWS.

f. Survival. The rights and obligations of the parties arising under this Section 12 shall survive the exercise of the Dedication Option by BWS and dedication of the Facility to BWS.

13. **Injury to Treatment Plant.**

a. Rebuilding Permitted. In the event the Treatment Plant is destroyed wholly or partially by any cause other than the negligence of BWS, Grove Farm shall, to the extent of available insurance proceeds and if permitted by the Development Loan, rebuild the Treatment Plant at no cost or expense to BWS. Grove Farm shall use its reasonable efforts to undertake and to complete such reconstruction, if permitted by the Development Loan, as soon as practicable following such destruction. Grove Farm agrees that it shall use its best efforts to obtain a Development Loan that permits such application of insurance proceeds. During the period of repairs, Grove Farm will have no obligation to deliver water to BWS except as is reasonably possible and may be accomplished at a cost first approved by BWS. In that regard, the parties agree to cooperate in securing and developing alternate sources of water, if required. All additional cost incurred by

Grove Farm in effecting such delivery shall be reimbursed by BWS to Grove Farm upon demand by Grove Farm.

b. Rebuilding Restricted. Should the Development Loan prohibit the reconstruction of the Treatment Plant contemplated by this Section 13 in the event of substantial destruction (by requiring, by way of example, that the insurance proceeds be applied to the outstanding debt under the Development Loan) Grove Farm will make its best faith effort to secure alternate financing that will permit the reconstruction of the Treatment Plant.

c. Transfer of Plant/Discharge of Obligations. If within 12 months following the destruction of the Treatment Plant, Grove Farm is unable to complete reconstruction of the Treatment Plant or is unable to secure alternate financing to rebuild the Treatment Plant, BWS may elect, by written notice to Grove Farm given within thirty (30) days following the expiration of the 12 month period following destruction of the Treatment Plant, to exercise the Dedication Option, as modified by this Section 13.c. or accept a payment from Grove Farm equal to one-third ($1/3^{rd}$) of the depreciated value of the Treatment Plant as at the date of its destruction in full and complete satisfaction of Grove Farm's obligations under this Agreement (the "**Destruction Payment**"). Should BWS elect to accept the Destruction Payment, this Agreement shall be terminated without prejudice to the Credits received by Grove Farm and BWS shall have no further rights in or to the Facility. The acceptance of the Destruction Payment shall constitute a waiver by BWS of any and all rights to condemn the Facility or the water supply to the Facility. If BWS elects to exercise its Dedication Option following destruction of the Treatment Plant, the provisions of Section 10 shall apply, provided, however, (a) BWS shall pay to Grove Farm: (1) the License Area Price plus (2) a sum equal to the Facility Improvements Price reduced by the amount of insurance proceeds received by Grove Farm in respect of the destruction and applied to the Development Loan, plus (3) any unexpended insurance proceeds attributable to the destruction of the Treatment Plant assigned to BWS by Grove Farm and (b) Grove Farm shall, if requested by BWS, assign to BWS, subject to receipt of the foregoing payment, any unexpended insurance proceeds attributable to the destruction of the Treatment Plant not required to be applied to the Development Loan. In no event, however, shall the reduced Facility Improvements Price be less than $0.00.

14. **Representations and Warranties.** Grove Farm represents and warrants that it has full power and authority to enter into this Agreement. BWS represents and warrants that it has full power and authority to enter into this Agreement.

15. **Assignment.** With BWS approval, which shall not be unreasonably withheld, Grove Farm shall have the right to assign this Agreement, provided Grove Farm may assign this Agreement to any of its subsidiaries and/or affiliates without the consent of BWS. Grove Farm shall give BWS written notice of any such assignment. Any Assignee shall possess or be able to hire and employ persons having management and operational skills, experience and personnel sufficient to enable the Assignee to manage, operate and maintain the Facility in the manner it

was managed, operated and maintained prior to the assignment. The assignee shall be bound by terms of this Agreement.

16. **No Early Termination.** This Agreement may not be terminated by either party at any time prior to the end of the Term of Agreement described in Section 3, except as otherwise provided for in this Agreement.

17. **Default.** If either party shall be in violation, breach or default of any term or condition of this Agreement ("**Default**"), and any such Default is not cured within thirty (30) days after written notice of such Default, the party that gave notice of the Default may, at its sole discretion, terminate this Agreement without prejudice to any of its other remedies at law or in equity. In the event such Default is of such a character as to require more than thirty (30) days to cure, such Default shall not permit termination of this Agreement if efforts to cure such Default have been commenced within such thirty (30) day period following written notice and are diligently and consistently pursued thereafter by appropriate steps to cure such Default.

18. **Condemnation Action.** The parties further agree they will endeavor to settle all claims asserted in Board of Water Supply vs. Visionary, L.L.C., Civil No. 00-010 -0021, pending in the Circuit Court of the Fifth Circuit, State of Hawaii, ("**Condemnation Action**") for the amount deposited by the Board of Water Supply, County of Kauai, with the Chief Clerk of the Fifth Circuit Court, and withdrawn by Visionary, L.L.C. pursuant to the Stipulation For Withdrawal Of Funds entered therein on May 16, 2002, with each party bearing their own attorneys' fees and costs. The parties agree that any settlement of the Condemnation Action may not proceed unless this Agreement has been approved by BWS and Grove Farm.

19. **Mediation and Arbitration.**

a. No Litigation. Except as specifically permitted in this Section 19, no federal or state judicial or administrative (inclusive of arbitrations) proceeding shall be commenced or maintained by any party with respect to matters covered by this Agreement.

b. Arbitration.

i. With respect to any dispute or disagreement arising out of this Agreement and each parties obligations hereunder (a "**Dispute**"), Grove Farm and BWS agree to resolve the Dispute by arbitration pursuant to the Arbitration Rules, Procedures, and Protocols of Dispute Prevention and Resolution, Inc. ("**DPR**"), then in effect (the "**Arbitration**") and Haw. Rev. Stat. chapter 658A; provided, however, the Arbitration shall be conducted by a three-member arbitration panel. One panel member shall each be chosen by BWS and Grove Farm, and the two members shall then, by joint agreement, choose the third panel member. The three members of the panel may, but are not required to, be chosen from DPR's list of arbitrators. In the event of any actual, implied, or apparent conflicts between 1) the Arbitration Rules, Procedures, and Protocols of DPR, and 2) H.R.S. chapter 658A, the

provisions of HRS chapter 658A shall prevail and control. Any counterclaim a party may have against another party shall also be resolved in the context of and by Arbitration. Any Arbitration shall be conducted in the County of Kauai, and shall be governed by the laws of the State of Hawaii. No punitive damages shall be awarded in any claim. Further, no award of attorneys' fees or for damages attributable to emotional distress or a multiple of actual damages based upon any theory of law may be made or awarded in any claim against either party in any Dispute. The arbitration panel may award costs, including expert witness fees, to the prevailing party. Additionally, the arbitration panel may award equitable relief pursuant to any Arbitration instituted as a result of or to enforce this Agreement. The award rendered by the arbitration panel shall be final and binding and a judgment may be entered upon it in accordance with H.R.S. chapter 658A in the Circuit Court of the Fifth Circuit, State of Hawaii.

c. Qualification. In the arbitration of any Dispute, the arbitration panel shall be impartial and to the extent reasonably available, trained or experienced in the subject matter of the arbitration.

d. Obligations Pending Arbitration. The pendency of an Arbitration proceeding shall not relieve Grove Farm or BWS of any duty to perform any obligation under this Agreement capable of performance, including the delivery of water and the payment of fees attributable to such delivery, except as otherwise provided in this Agreement. Should any Dispute which relates to expansion of the Treatment Plant be submitted to arbitration, the party seeking such expansion shall not proceed with such expansion during such arbitration without first securing either the prior written consent of the objecting party, which consent shall be given or withheld solely at the discretion of the objecting party, or first depositing a bond with the objecting party in a form and with sureties satisfactory to the objecting party indemnifying the objecting party against all losses, damage or claims and demands resulting from an alteration of the Treatment Plant. The objecting party's approval of any such bond shall not be unreasonably withheld.

20. **Miscellaneous.**

a. Successors and Assigns/No Third Party Beneficiaries. This Agreement shall be binding upon, and inure to the benefit of, the parties hereto and their respective successors and assigns. There are no third-party beneficiaries to this Agreement.

b. Amendment. This Agreement may be amended or modified by, and only by, a written instrument executed by the parties.

c. Force Majeure. For any period of time during which either party is prevented from performing the actions or obligations either may have under this Agreement as the result of acts of God, strikes, lockouts, litigation, court orders, government imposed or caused delays, or other cause without fault and beyond the reasonable control of such party (financial inability excepted), the period for the performance of any such act or obligation shall be extended for a period equivalent

to the period of such delay; provided, however, that nothing shall excuse the prompt payment of the BWS Fee required by Section 7 of this Agreement to be paid in respect of Delivered Water. The party so delayed or prevented from the performance of any act shall notify the other of such delay or prevention and shall thereafter keep the other party regularly informed of the status of such delay or prevention.

d. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Hawaii.

e. Section Headings. The section headings inserted in this Agreement are for convenience only and are not intended to, and shall not be construed to limit, enlarge or affect the scope or intent of this Agreement, nor the meaning of any provision hereof.

f. Excise Tax. All fees or sums paid by BWS to Grove Farm under this Agreement shall include State of Hawaii general excise tax, as it may be amended from time to time, or any successor or similar tax, payable in an amount which, when added to such fee or other payment, shall yield to Grove Farm, after deduction of all such tax payable by Grove Farm with respect to all such fees or payments, a net amount equal to that which Grove Farm would have realized from such fees or payments had no such tax been imposed.

g. Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, and said counterparts shall together constitute one and the same agreement, binding all of the parties hereto, notwithstanding that all of the parties are not signatories to the original or same counterpart. For all purposes, including, without limitation, delivery of this Agreement, duplicate unexecuted and unacknowledged pages of the counterparts may be discarded and the remaining pages assembled as one document.

h. Merger of Prior Agreements. This Agreement supersedes all prior agreements and understandings between the parties hereto relating to the subject matter hereof.

i. No Party Deemed Drafter. The parties agree that no party shall be deemed to be the drafter of this Agreement, and further, that if this Agreement is ever construed by a court of law, or mediator or arbitration panel pursuant to Section 19 of this Agreement, such court, mediator or arbitration panel shall not construe this Agreement or any provision thereof against any party as the drafter of this Agreement.

j. Time is of the Essence. Time is of the essence of this transaction.

k. Attorney's Fees. If any action is brought by any party to enforce any right or remedy hereunder, the prevailing party in any such action or dispute, whether by final judgment or out of court settlement, shall be entitled to recover from the other its costs and expenses of suit, including, without limitation,

reasonable attorneys' fees. Said obligation of the non-prevailing party shall be deemed to accrue on the date of commencement of such action.

l. No Waiver. No waiver by either party of any provision hereof shall be deemed a waiver of any other provision hereof or of any subsequent breach by either party of the same or any other provision.

m. Notice. All notices, requests, demands or documents which are required or permitted to be given or served hereunder shall be in writing and (1) delivered personally, (2) delivered by national overnight courier, or (3) transmitted by facsimile, addressed as follows: President, Grove Farm Properties, Inc., P. O. Box 662069, Lihue, Hawaii 96766-7069, Fax No. (808) 246-9470; Manager and Chief Engineer, County of Kauai, Board of Water Supply, 4398 Pua Loke Street, Lihue, Hawaii 96766-5706, Fax No. (808) 246-8628. Notice delivered personally or transmitted by facsimile shall be deemed received on the day delivered personally or transmitted by facsimile. Notice delivered by national overnight courier shall be deemed received one (1) day following the date such notice is provided to the national overnight courier for delivery.

n. Advice of Counsel. Each party acknowledges that such party has had full benefit and advice of counsel of its own selection, in regard to understanding the terms, meaning and effect of this Agreement.

o. Further Assurances. The parties agree to execute any other or further documents, and take any actions, which reasonably may be required to carry out or effect the purposes of this Agreement.

p. Severability. Each provision of this Agreement shall be interpreted in a manner as to be valid and enforceable under applicable law. If any provision of this Agreement should be held to invalid or unenforceable, such invalidity shall not affect the validity or enforceability of the remaining provisions of this Agreement.

q. Incorporation of Exhibits and Appendices. All exhibits and appendices to this Agreement are incorporated by this reference.

r. Consent. Visionary, LLC has evidenced its consent to this Agreement by its execution of this instrument.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first above written.

ACKNOWLEDGEMENT AND CONSENT:

VISIONARY, LLC
A Delaware limited liability company

By _____
Its: Vice President

GROVE FARM PROPERTIES, INC.

By _____
Name: Michael H. Furukawa
Title: Vice President

By _____
Name: Sandra L. Day
Title: Treasurer

APPROVED:

_____
Manager and Chief Engineer

COUNTY OF KAUAI, BOARD OF WATER SUPPLY

By _____
Name:
Title: Chairperson

APPROVED AS TO FORM AND LEGALLY:

_____
County Attorney

STATE OF HAWAII)
) ss.
COUNTY OF KAUAI)

On this 4th day of February, 2004, before me appeared Michael H. Furukawa and Sandra L. Day, to me personally known, who, being by me duly sworn, did say that they are the Vice President and the Treasurer, respectively, of GROVE FARM PROPERTIES, INC., a Hawaii corporation, that the seal affixed to the foregoing instrument is the corporate seal of said corporation, and that said instrument was signed and sealed on behalf of said corporation by authority of its Board of Directors, and said Officers acknowledged said instrument to be the free act and deed of said corporation.

Mary Ann T. McMillen
Notary Public, State of Hawaii L.S.

Notary's Name: Mary Ann T. McMillen
My commission expires: 4-14-2006

STATE OF HAWAII)
) ss:
COUNTY OF KAUAI)

Visionary LLC

On 4th of February, 2004, before me personally appeared Michael H. Furukawa, to me personally known, who, being by me duly sworn or affirmed, did say that such person(s) executed the foregoing instrument as the free act and deed of such person(s), and if applicable, in the capacities shown, having been duly authorized to execute such instrument in such capacities.

Mary Ann T. McMillen
Notary Public, State of Hawaii L.S.

Notary's Name: Mary Ann T. McMillen
My commission expires: 4-14-2006

STATE OF HAWAII)
) ss.
COUNTY OF KAUAI)

On this 19th day of February, 2004, before me appeared Curtis Tom, to me personally known, who, being by me duly sworn, did say that he/~~she~~ is the Chairperson of the BOARD OF WATER SUPPLY, COUNTY OF KAUAI, and that the foregoing instrument was signed on behalf of said Board, by authority of said Board, and that said officer acknowledged said instrument to be the free act and deed of said Board, and that said Board has no corporate seal.

N.I.

Rona Miura
Notary Public, State of Hawaii

Notary's Name: Rona Miura
My commission expires: 10-16-07

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SCHEDULE OF EXHIBITS

Exhibit 1 - Map of Treatment Plant Site

Exhibit 2 - Map of Water Delivery System Easement Area

Exhibit 3 - Pipeline Improvement Map

APPENDICES

Appendix A - License Area Encumbrances (Lihue Land's Title Report)

Appendix B - Schematic of the Treatment Plant

Appendix C - Treatment Plant Details

EXHIBIT “1”

APPROXIMATE SCALE: 1" = 2500'

ENGINEERING REPORT FOR SURFACE WATER TREATMENT SOURCES GROVE FARM WATER TREATMENT FACILITY HANAMAULU, KAUAI, HAWAII	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS • SURVEYORS HONOLULU • WAILUKU, HAWAII TAX MAP	EXHIBIT 1

EXHIBIT “2”

NOT FOR PUBLIC RELEASE

REF: USGS TOPOGRAHIC MAP, KAPAA AND WAIALEALE QUADRANGLES, 1983

NORTH

SCALE: 1" = 1500'

ENGINEERING REPORT FOR
SURFACE WATER TREATMENT SOURCES
GROVE FARM WATER TREATMENT FACILITY
HANAMAULU, KAUAI, HAWAII

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS • SURVEYORS HONOLULU • WAILUKU, HAWAII

VICINITY MAP

EXHIBIT 2

FN: 01-051\Reports\ER\Final ER\Exhibits\Ex-2 Vicinity Map.dwg

EXHIBIT “3”

NOT FOR PUBLIC RELEASE

APPENDIX "A"

Appendix A
(Encumbrance Schedule)

1. Reservation in favor of the State of Hawaii of all mineral and metallic mines.

2. Roadways, pipe and tunnel line, Hanamaulu Ditch and other ditches as shown on the Tax Map.

3. Free flowage of streams as shown on the Tax Map.

4. Access or easement rights in favor of Tax Key Designation (4) 3-8-004-006 located within the subject land.

5. LICENSE

TO : MCBRYDE SUGAR COMPANY, LIMITED, a Hawaii corporation
DATED : April 28, 1950
RECORDED : Liber 6727 Page 420
GRANTING : a right-of-way 60 feet wide for electric powerline purposes, for a term of 50 years, beginning January 1, 1950, to and including, December 31, 1999

Said License was amended by instrument dated January 15, 1971, recorded in Liber 8214 at Page 141.

Said License, as amended, having been assigned to CITIZENS UTILITIES COMPANY, a Delaware corporation, by instrument dated August 12, 1992, recorded as Document No. 93-106356; consent given by THE LIHUE PLANTATION COMPANY, LIMITED, by instrument dated August 13, 1992, recorded as Document No. 93-106357.

Said License, as assigned, was further amended by instrument dated August 13, 1992, recorded as Document No. 93-106358; re: term extended for an additional 50 year term commencing on January 1, 2000, and terminating on December 31, 2049.

6. GRANT

TO : KAUAI ELECTRIC COMPANY, a Division of Citizens Utilities Company, a Delaware corporation
DATED : November 18, 1971
RECORDED : Liber 8186 Page 231
GRANTING : a perpetual right and easement to build, construct, rebuild, reconstruct, maintain, operate and repair pole and wire line or lines, etc., for the transmission and distribution of electricity

7. GRANT

TO : KAUAI ELECTRIC DIVISION, CITIZENS UTILITIES COMPANY, a Delaware corporation, and GTE HAWAIIAN TELEPHONE COMPANY, INCORPORATED (now VERIZON HAWAII INC.)
DATED : February 4, 1986
RECORDED : Liber 20312 Page 392
GRANTING : nonexclusive perpetual easement(s) for underground water pipeline and road purposes over Easement "3" and for overhead electrical and telephone system purposes over Easement "4", described therein

8. GRANT

TO : CITIZENS UTILITIES COMPANY
DATED : May 21, 1999
RECORDED : Document No. 99-104648
GRANTING : a perpetual right and easement for electrical transmission line purposes over Easement "U-1" (60.00 feet wide) described therein

9. NOTICE OF PENDENCY OF ACTION

PLAINTIFF : BOARD OF WATER SUPPLY, COUNTY OF KAUAI
DEFENDANT : THE LIHUE PLANTATION COMPANY, LTD., a Hawaii corporation, et al.
DATED : February 3, 2000
FILED : Circuit Court of the Fifth Circuit, State of Hawaii, Case No. 00-01-0021, on February 4, 2000
RECORDED : Document No. 2000-032547 on March 10, 2000
RE : condemnation for water wells, control valves, water tanks, etc.

10. Matters shown on survey map prepared by James Thompson, Land Surveyor, with Walter P. Thompson, Inc., dated June 29, 2001, as follows:

(A) Easement "1", being non-exclusive easement for access purposes in favor of the State of Hawaii, as shown on H.S.S. Plat 3104.

(B) Easement "2", being non-exclusive easement for access purposes in favor of the State of Hawaii, as shown on H.S.S. Plat 3104.

(C) Easement "3", being a non-exclusive easement for access purposes in favor of the State of Hawaii, as shown on H.S.S. Plan 3104.

(D) Easement "4", being a non-exclusive easement for access purposes in favor of the State of Hawaii, as shown on H.S.S. Plat 3104.

(E) LOT 1, Well Site.

(F) LOT 2, Well Site.

(G) LOT 3, Well Site.

(H) LOT 4, Well Site.

(I) Easement "1", for access and utility purposes.

(J) Easement "3", for access and utility purposes.

(K) Easement "4", for access and utility purposes.

(L) Easement "5", for drainage purposes.

(M) LOT 1-A, Well Site.

(N) Easement "6", for access purposes.

(O) Easement "7", for pipeline purposes.

(P) Reservoirs.

(Q) Roads.

11. GRANT OF EASEMENTS AND RIGHT-OF-ENTRY; GRANT OF WATER WITHDRAWAL AND USE RIGHTS

TO : CITIZENS COMMUNICATIONS COMPANY (formerly known as Citizens Utilities Company)
DATED : June 29, 2001
RECORDED : Document No. 2001-103122
GRANTING : a non-exclusive right-of-entry ("Access Right-of-Entry") for access purposes to and from the "Hydro Easement Areas" over, upon and across the "Access Route" shown on Exhibit "C" attached thereto

12. Maalo Road, as referenced in the DEED dated July 6, 2001, recorded as Document No. 2001-103876, and as shown on survey map prepared by James Thompson, Land Surveyor, with Walter P. Thompson, Inc., dated June 29, 2001.

13. GRANT OF EASEMENTS

TO : THE LIHUE PLANTATION COMPANY, LIMITED
DATED : July 6, 2001
RECORDED : Document No. 2001-103877
GRANTING : pursuant to and in accordance with Section 10(b) of the Purchase Agreement, dated May 8, 2001, the grantor grants to the grantee easement and other rights, for access, utility, drainage and other purposes over, under and across portions of the grantor's property (the "Easement Areas") necessary or convenient for the continued

operation and maintenance of the LPCo Power Plant (including without limitation operation and maintenance of the Waiahi Hydros).

14. Terms and provisions of the Authorizing Agreements, as defined in the Water Treatment and Delivery Agreement

15. Terms and provisions of the Deed, as defined in the Water Treatment and Delivery Agreement

16. Terms and provisions of any applicable grant of easement for the Water Delivery System Easement Areas, as defined in the Water Treatment and Delivery Agreement

APPENDIX “B”

TRUE NORTH
SCALE: 1"=20'

LEACHING FIELD

EXISTING RES

RESERVOIR
VALVE ASS
SEE DWG.

NOT FOR PUBLIC RELEASE

SURVEY TRAV.
TALAPIA-2

STA. 2+16.75 DRAIN LINE "A"
OUTLET HEADWALL "A-1"

CURVE DATA						
NO.	Δ	Δ/2	R	T	Ch	Lc
(1)	122°20'04"	61°10'02"	30.00'	54.50'	52.56'	64.05
(2)	171°15'42"	85°37'51"	20.00'	261.76'	39.88'	59.78'
(3)	68°00'00"	34°00'00"	30.00'	20.24'	33.55'	35.60'
(4)	90°00'00"	45°00'00"	20.00'	20.00'	28.28'	31.42'

SITE PLAN
SCALE: 1" = 40'

ENGINEERING REPORT FOR
SURFACE WATER TREATMENT SOURCES
GROVE FARM WATER TREATMENT FACILITY
HANAMAULU, KAUAI, HAWAII

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS • SURVEYORS HONOLULU • WAILUKU, HAWAII

WTF SITE PLAN

APPENDIX B

APPENDIX "C-1" – "C-13"

[redacted]

NOT FOR PUBLIC RELEASE

SCHEDULE OF VALVES AND FITTINGS

NO.	DESCRIPTION
	ITRIC REDUCER, FE (SEE NOTE 3)
	FE, 9" LONG
	UGE/MANUAL AIR RELEASE ASSEMBLY
	HECK VALVE, FE
	4-3/4"ø G.S. RODS
	E x PE, LTS
	Y VALVE, WAFER-TYPE, w/ GEAR OPERATOR
	FE
	E, LTS
	S, FE
	D, FE
	E x MJ, 12" LONG
	E, LTS
	D, MJ
	ANGE

NO.	DESCRIPTION
(20)	16" DR 17 HDPE FL. ADAPTER & RING
(21)	18"x16" CONCENTRIC REDUCER, FE
(22)	18"x16" TEE, FE
(23)	18" SPOOL, LTS
(24)	18"x16" REDUCING ELBOW, FE
(25)	18" 1/4 BEND, FE
(26)	16" SPOOL, FE, LTS
(27)	16"x16" TEE, FE
(28)	24"x16" CONCENTRIC REDUCER, FE
(29)	24" BLIND FLANGE

S TO BE OF DUCTILE IRON, UNLESS INDICATED OTHERWISE.
IRON SPOOLS TO BE CLASS 53.
RMINED BY PUMP SELECTED LENGTHEN ADJACENT
EDUCTION NOT REQUIRED.

G REPORT FOR
TREATMENT SOURCES
R TREATMENT FACILITY
HANAMAULU, KAUAI, HAWAII

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS • SURVEYORS HONOLULU • WAILUKU, HAWAII

RESERVOIR INTAKE PIPING PLAN

APPENDIX
C-1

ENGINEERING REPORT FOR
SURFACE WATER TREATMENT SOURCES
GROVE FARM WATER TREATMENT FACILITY
HANAMAULU, KAUAI, HAWAII

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS • SURVEYORS HONOLULU • WAILUKU, HAWAII

RESERVOIR INTAKE
PIPING SECTIONS

APPENDIX
C-2

ENGINEERING REPORT FOR
SURFACE WATER TREATMENT SOURCES
GROVE FARM WATER TREATMENT FACILITY
HANAMAULU, KAUAI, HAWAII

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS • SURVEYORS HONOLULU • WAILUKU, HAWAII

RESERVOIR INTAKE
PIPING SECTIONS AND DETAILS

APPENDIX
C-3

ENGINEERING REPORT FOR
SURFACE WATER TREATMENT SOURCES
GROVE FARM WATER TREATMENT FACILITY
HANAMAULU, KAUAI, HAWAII

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS • SURVEYORS HONOLULU • WAILUKU, HAWAII

PROCESS SCHEMATIC

APPENDIX
C-4

NOT FOR PUBLIC RELEASE

APPROX. SCALE: 3/16"=1'-0"

GROVE FARM WATER TREATMENT FACILITY
HANAMAULU, KAUAI, HAWAII

STRAINER AND STATIC MIXER PIPING PLAN

C-5

[redacted]

NOT FOR PUBLIC RELEASE

ENGINEERING REPORT FOR
SURFACE WATER TREATMENT SOURCES
GROVE FARM WATER TREATMENT FACILITY
HANAMAULU, KAUAI, HAWAII

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS • SURVEYORS HONOLULU • WAILUKU, HAWAII

FLOCCULATION TANKS
PIPING PLAN

APPENDIX
C-6

NOT FOR PUBLIC RELEASE

NORTH

CONTROL BUILDING FLOOR PLAN

APPROX. SCALE: 1/8"= 1'-0"

GROVE FARM WATER TREATMENT FACILITY

HANAMAULU, KAUAI, HAWAII

CONTROL BUILDING FLOOR PLAN

C-7

ENGINEERING REPORT FOR
SURFACE WATER TREATMENT SOURCES
GROVE FARM WATER TREATMENT FACILITY
HANAMAULU, KAUAI, HAWAII

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS • SURVEYORS HONOLULU • WAILUKU, HAWAII

CONTROL BUILDING SECTION

APPENDIX
C-8

ENGINEERING REPORT FOR
SURFACE WATER TREATMENT SOURCES
GROVE FARM WATER TREATMENT FACILITY
HANAMAULU, KAUAI, HAWAII

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS • SURVEYORS HONOLULU • WAILUKU, HAWAII

PUMP GALLERY FLOOR PLAN

APPENDIX C-9

NOT FOR PUBLIC RELEASE

ENGINEERING REPORT FOR
SURFACE WATER TREATMENT SOURCES
GROVE FARM WATER TREATMENT FACILITY
HANAMAULU, KAUAI, HAWAII

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS • SURVEYORS HONOLULU • WAILUKU, HAWAII

DETENTION BASIN PIPING
PLAN AND SECTIONS

APPENDIX
C-11

NOT FOR PUBLIC RELEASE

ENGINEERING REPORT FOR
SURFACE WATER TREATMENT SOURCES
GROVE FARM WATER TREATMENT FACILITY
HANAMAULU, KAUAI, HAWAII

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS • SURVEYORS HONOLULU • WAILUKU, HAWAII

CONTROL BUILDING
EXTERIOR ELEVATIONS

APPENDIX
C-12

NOT FOR PUBLIC RELEASE

SCHEDULE OF VALVES AND FITTINGS	
NO.	DESCRIPTION
(1)	16" X 12" REDUCING ELBOW, FE
(2)	16" X 16" TEE, MJ
(3)	16" SPOOL, FE X PE, LTS
(4)	16" SPOOL, FE X MJ, 12" LONG
(5)	16" X 12" TEE, FE
(6)	12" SPOOL, FE X PE, LTS
(7)	12" FCA W/4 - 3/4"ø G.S. BOLTS
(8)	12" BUTTERFLY VALVE, WAFER-TYPE W/GEAR OPERATOR & HANDWHEEL
(9)	PRESSURE GAUGE/MANUAL AIR RELEASE ASSEMBLY
(10)	12" SILENT CHECK VALVE, FE
(11)	FLOW SWITCH
(12)	12" X 12" TEE, FE
(13)	12" SPOOL, FE X FE, LTS
(14)	12" LONG RADIUS ELBOW, FE
(15)	16" SPOOL, BE X PE, 36" LONG
(16)	12" 1/4 BEND, FE
(17)	12" SPOOL, FE X FE, 36" LONG
(18)	12" MAGMETER
(19)	12" X * REDUCING LONG RADIUS ELBOW, FE
(20)	16" X 12" REDUCING LONG RADIUS ELBOW
(21)	12" X * ECCENTRIC REDUCER, FE
(22)	16" X 6" TEE, MJ X FE
(23)	16" 1/4 BEND, FE
(24)	16" SPOOL, PE, LTS
(25)	HDPE FLANGE ADAPTER & RING W/ TYPE 316 S.S. NUTS & BOLTS
(26)	16" SPOOL, FE, LTS
(27)	16" BUTTERFLY VALVE, WAFER-TYPE W/GEAR OPERATOR & HANDWHEEL
(28)	12" SPOOL, FE, 9" LONG
(29)	16" X 6" TEE, MJ X FE
(30)	3" X 11" REDUCING FLANGE
(31)	3" BRASS SPOOL, 6" LONG
(32)	3" BRONZE GATE VALVE, SE, W/SVB
(33)	18" X 16" HDPE REDUCER

NOTES:

1. * SIZE DETERMINED BY PUMP SELECTED.
2. ALL FITTINGS TO BE OF DUCTILE IRON, UNLESS INDICATED OTHERWISE.
3. ALL DUCTILE IRON SPOOLS TO BE CLASS 53.

E OR 17 PIPE

ENGINEERING REPORT FOR
SURFACE WATER TREATMENT SOURCES
GROVE FARM WATER TREATMENT FACILITY
HANAMAULU, KAUAI, HAWAII

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS • SURVEYORS HONOLULU • WAILUKU, HAWAII

FINISHED WATER PUMPS
PIPING PLAN

APPENDIX
C-13

Staff Reports

DEPARTMENT OF WATER
Budget Status Summary
December 31, 2012

I. WATER UTILITY FUND

	Current Month	Year to Date	
Beginning Balance 07/1/2012			$ 19,170,870.48
Add: Revenues	$ 2,197,344.95	$ 16,782,319.26	$ 16,782,319.26
TOTAL RESOURCES:			**$ 35,953,189.74**
Less: Expenditures	$ 1,650,609.66	$ 11,082,165.54	$ 11,082,165.54
TOTAL EXPENDITURES:			**$ 11,082,165.54**
Ending Balance			**$ 24,871,024.20**

II. FACILITIES RESERVE CHARGE

Beginning Balance 07/1/2012			$ 3,224,353.68
Add: Revenues	$ 30,763.77	$ 403,841.34	$ 403,841.34
TOTAL RESOURCES:			**$ 3,628,195.02**
Less: Expenditures	$ -	$ 4,999.50	$ 4,999.50
TOTAL EXPENDITURES:			**$ 4,999.50**
Endiug Balance			**$ 3,623,195.52**

III. BOND FUND

Beginning Balance 07/1/2012			$ -
Add: Revenues	$ -	$ -	-
TOTAL RESOURCES:			**$ -**
Less: Expenditures	$ -	$ -	$ -
Endiug Balance			**$ -**

IV. WATERWORK BUILD AMERICA PROJECT FUND

Beginning Balance 07/1/2012			$ 32,677,748.66
Add: Revenues	$ -	$ -	$ -
TOTAL RESOURCES:			**$ 32,677,748.66**
Less: Expenditures	$ 983,461.06	$ 5,144,324.52	$ 5,144,324.52
Ending Balance			**$ 27,533,424.14**

TOTAL - ALL FUNDS at December 31, 2012 **$ 56,027,643.86**

STATEMENT OF REVENUES AND EXPENDITURES
WATER UTILITY FUND
December 31, 2012

REVENUES:

Cash on hand as of July 1, 2012		$ 19,170,870.48
Add: Revenues To Date		$ 16,782,319.26
Sub-Total		$ 35,953,189.74
EXPENDITURES:		
Less: Expenditures to Date		$ 11,082,165.54
BALANCE AT THE END OF THE MONTH		$ 24,871,024.20

SHORT TERM INVESTMENTS - WATER UTILITY FUND

BANK OF HAWAII

CENTRAL PACIFIC BANK

FIRST HAWAIIAN BANK

	T30020197	0.09000%	INT. DUE	03/14/13	$	1,200,000.00

MERRILL-LYNCH

CUSIP#	C313378KS9	0.5200%	INT. DUE	04/06/15	$	1,000,000.00
CUSIP#	C313589NJ8	0.1730%	INT. DUE	10/24/13	$	998,347.22
CUSIP#	C313397BEO	0.1520%	INT. DUE	01/29/13	$	999,095.83

SUB-TOTAL FOR PAGE A $ 4,197,443.05

SUB-TOTAL FROM PAGE A						**$**	**4,197,443.05**
SHORT TERM INVESTMENTS - WATER REVENUES							
MULTI-BANK							
CUSIP#	85508VAC3	2.70000%	INT. DUE	11/18/13	98,000.00		
CUSIP#	36160JGY8	1.20000%	INT. DUE	07/13/15	150,000.00		
CUSIP#	3136FTWX3	1.15000%	INT. DUE	12/28/16	1,000,000.00		
CUSIP#	3136GOQA2	0.75000%	INT. DUE	07/01/17	1,000,000.00		
U B S							
CUSIP#	3136GOTV3	0.60000%	INT. DUE	01/26/16	1,000,000.00		
CUSIP#	C3136GOX89	0.75000%	INT. DUE	04/26/17	1,998,000.00		
CUSIP#	C3133EAVGO	2.04000%	INT. DUE	04/29/13	1,000,111.11		
CUSIP#	9127957A3	0.15000%	INT. DUE	07/25/13	$ 998,500.00	**$**	**7,244,611.11**
TOTAL SHORT-TERM INVESTMENTS - WATER UTILITY						**$**	**11,442,054.16**
CASH ON HAND WITH TREASURER - COK				12/31/12		**$**	**(43,434.91)**
CASH ON HAND-FHB Checking (EP)				12/31/12		**$**	**50,000.00**
CASH ON HAND-BOH Savings				12/31/12		**$**	**10,749,951.12**
AP Adjustment						**$**	**0.30**
CASH ON HAND-FHB Blackrock T-FUND (Sweep Acct)				12/31/12		**$**	**3,204,843.75**
CASH ON HAND - FHB Savings				12/31/12		**$**	**25,828.00**
LESS:	December Claims Payable					**$**	**(1,228,669.96)**
	December Claims paid in December					**$**	**684,324.83**
	Due to FRC			12/31/12		**$**	**(2,172.09)**
	Due to Trust Fund			12/31/12		**$**	**(11,701.00)**
WATER UTILITY FUND CASH BALANCE AT THE END OF THE MONTH						**$**	**24,871,024.20**

TRUST FUND

CASH ON HAND WITH TREASURER - COK	12/31/12	$	320,000.00
CASH ON HAND-FHB Savings Trust Fund	12/31/12		447,846.93
TRUST FUND RECEIPTS	12/31/12		(767,846.93)
		$	-

DEPARTMENT OF WATER
County of Kauai
JULY 1, 2012 TO JUNE 30, 2013
December 31, 2012

WATER UTILITY FUND

% Budget Elapsed 50.00%

	CASH RECEIPTS:	BUDGETED RECEIPTS	TOTAL RECEIPTS TO DATE	RECEIPTS FOR THE MONTH	%	BALANCE OF BUDGET OVER TOTAL ACTUAL RECEIPTS
	BEGINNING CASH BALANCE	**$ 19,170,870.48**				**$ 19,170,870.48**
1	Water Sales	$ 23,437,595.00	$ 13,260,488.79	$ 2,191,377.12	57%	$ 10,177,106.21
	Prior Year Receipts		$ 2,549,824.30			$ (2,549,824.30)
2	Net Miscellaneous Receipts	$ 60,000.00	$ -	$ -	0%	$ 60,000.00
3	Interest Income	$ 235,000.00	$ 28,277.17	$ 5,967.83	12%	$ 206,722.83
4	County Service Charge	$ 1,467,126.00	$ -		0%	$ 1,467,126.00
5	State Revolving Fund	$ 5,000,000.00	$ 91,300.00	$ -	2%	$ 4,908,700.00
5a	Other Receipts	$ 1,000,000.00	$ 341,274.90	$ -	0%	$ 658,725.10
5b	OTHER - BAB Subsidy	$ 715,615.00	$ 511,154.10	$ -	71%	$ 204,460.90
5c	FRC Debt Service Payback	$ 1,968,273.00	$ -	$ -		$ 1,968,273.00
5d	Grant, Drought Mitigation	$ 230,000.00	$ -			$ 230,000.00
	TOTAL RESOURCES	**$ 53,284,479.48**	**$ 16,782,319.26**	**$ 2,197,344.95**		**$ 36,502,160.22**
	DISBURSEMENTS:	**BUDGETED AMOUNT**	**TOTAL ACTUAL EXPENDITURES TO DATE**	**EXPENDITURES FOR THE MONTH**	**%**	**BALANCE OF BUDGET OVER TOTAL ACTUAL EXPENDITURES**
	SALARIES:					
	County over charge to payroll		$ (1,415.63)			
15	Salaries - DOW	$ 5,442,045.00	$ 2,226,934.19	$ 383,585.80	41%	$ 3,216,526.44
		$ (14,139.08)				
	Provision for	$ 14,139.08				
16	Accrued Vacation	$ 100,000.00	$ 10,973.29		11%	$ 89,026.71
	TOTAL SALARIES:	**$ 5,542,045.00**	**$ 2,236,491.85**	**$ 383,585.80**		**$ 3,305,553.15**
	NORMAL EXPENDITURES					
19	**COUNTY SERVICE CHRG**	**$ 1,467,126.00**	$ -		**0%**	**$ 1,467,126.00**
	ADMINISTRATIVE OFFICE and ENGINEERING:					
21	Utilities	$ 247,380.00	$ 105,020.93	$ 14,680.47	42%	$ 142,359.07
22	Postage and Printing	$ 141,000.00	$ 37,382.39	$ 4,933.67	27%	$ 103,617.61
	Office Equipment					
24	Maintenance	$ 161,100.00	$ 36,291.85	$ 6,643.36	23%	$ 124,808.15
	05/19/06					
24b	Con 461 Four Winds Group MMIS Phases I & II	$ 24,210.00	$ 20,028.40	$ 7,000.00	83%	$ 4,181.60

	ITEM	BUDGETED AMOUNT	TOTAL ACTUAL EXPENDITURES TO DATE	EXPENDITURES FOR THE MONTH	%	BALANCE OF BUDGET OVER TOTAL ACTUAL EXPENDITURES
		$ (3,750.00)				
	Open FRC Accounts Listing	$ 40,000.00				
27	Contractual Services	$ 677,199.80	$ 181,291.15	$ 31,502.36	27%	532,158.65
27a	Con 521 R. W. Beck Inc. Financial Management Planning & Rate Analysis	$ 8,008.00	$ -		0%	$ 8,008.00
27b	Con 506 R. W. Beck Inc.	$ 3,750.00				
	FRC Study for DOW	$ 3,000.00	$ -		0%	$ 6,750.00
27d	Con 535 Fukunaga & Assoc. WRP 01 FY 05-06, Kauai Water Use & Developmnt Plan update	$ 515,460.00	$ -		0%	$ 515,460.00
27e	USGS Joint Funding Agrmt. Water Monitoring Program for the period 10/1/11-9/30/12	$ 31,350.00	$ -		0%	$ 31,350.00
27f	UH Rainfall Study (2 years $80K and $70K	$ 80,000.00	$ 28,445.67	$ 600.00	36%	$ 51,554.33
28	Travel and Incidentals - Board	$ 19,798.00	$ 1,031.81		5%	$ 18,766.19
29	Travel and Incidentals - Staff	$ 42,050.00	$ 6,581.36	$ 736.30	16%	$ 35,468.64
30	Collector's Commission	$ -				$ -
31	Miscellaneous	$ 18,500.00	$ 12,141.48	$ 533.19	66%	$ 6,358.52
		$ (66,000.00)				
32	Auditing Fee	$ 76,000.00	$ -		0%	$ 10,000.00
32c	Annual Audit Contract No. 537 KMH, LLP	$ 66,000.00	$ 45,000.00			$ 21,000.00
33	In-Service Training	$ 90,600.00	$ 26,986.92	$ 8,507.59	30%	$ 63,613.08
34	Supplies - Office & Eng.	$ 45,000.00	$ 15,022.33	$ 3,313.40	33%	$ 29,977.67
35	Operating Reserve Fund	$ 20,000.00	$ -		0%	$ 20,000.00
36	Public Relations	$ 86,500.00	$ 12,567.29	656.25	15%	$ 73,932.71
36.1	Kauai Watershed Alliance Grant: The Nature Conservanc	$ 75,000.00	$ 75,000.00			$ -
36.2	Con 531 Limtiaco Co, Inc. Public Relations Services	$ 33,718.50	$ 1,505.20		4%	$ 32,213.30
36.3	Project WET - Source Protection Education	$ 230,000.00	$ -			$ 230,000.00
	Computer Support and		$ -			
37	Supplies	$ 97,000.00	$ 25,055.32	$ 1,183.31	26%	$ 71,944.68
			$ -			
	Microlab Materials and		$ -			
38	Supplies	$ 20,000.00	$ 3,853.38	$ 156.25	19%	$ 16,146.62
			$ -			
		$ 2,782,874.30	**$ 633,205.48**	**$ 80,446.15**		**$ 2,149,668.82**

	ITEM	BUDGETED AMOUNT	TOTAL ACTUAL EXPENDITURES TO DATE	EXPENDITURES FOR THE MONTH	%	BALANCE OF BUDGET OVER TOTAL ACTUAL EXPENDITURES
OPERATIONS AND MAINTENANCE:						
40	Vehicle - Materials & Service	145,000.00	$ 70,566.86	$ 21,848.19	49%	$ 74,433.14
41	Vehicle - Fuel	189,000.00	$ 75,851.52	$ 10,289.70	40%	$ 113,148.48
42	Utilities	91,700.00	$ 37,311.12	$ 6,320.35	41%	$ 54,388.88
43	Meter Parts	8,300.00	$ 290.61		4%	$ 8,009.39
43a	Electrical Parts	34,000.00	$ 11,344.49	$ 2,904.20	33%	$ 22,655.51
44	Miscellaneous	5,000.00	$ -		0%	$ 5,000.00
44a	Misc. - Tapping Team	8,000.00	$ -		0%	$ 8,000.00
44b	Misc. - Drought Mitigation	61,968.42	$ (10,000.00) $ 17,305.29		28%	$ 54,663.13
45	Contractual Services	(100,000.00) 200,000.00	$ 2,307.01	$ 515.52	1%	$ 97,692.99
45a	Con 540, FluidIQS, LLC, SCADA Maintenance	2,677.60	$ -		0%	$ 2,677.60
47	Materials and Supplies	404,000.00	$ 99,219.33	$ 26,780.79	25%	$ 304,780.67
48	Collective Bargaining Items	30,000.00	$ 10,622.02	$ 1,810.01	35%	$ 19,377.98
51	Pump Electrical	3,250,000.00	$ 1,678,614.14	$ 256,711.73	52%	$ 1,571,385.86
55	Purchase of Water	1,891,826.00	$ 746,934.72	$ 127,674.21	39%	$ 1,144,891.28
58	Chemicals	65,000.00	$ 26,916.78	$ 3,438.75	41%	$ 38,083.22
59	Safe Drinking Water Act Program	50,000.00	$ 48,854.34	$ 14,400.00	98%	$ 1,145.66
59g	Contract No. 496 10/08 MWH Laboratories	-	$ -		0%	$ -
	TOTAL OPERATIONS:	**6,336,472.02**	**$ 2,816,138.23**	**$ 472,693.45**		**$ 3,520,333.79**
		6,336,472.02 -	$ 2,816,138.23	$ 472,693.45		$ 3,520,333.79
INSURANCE AND EMPLOYEE BENEFITS:						
60	Insurance and Bonds	200,000.00	$ -		0%	$ 200,000.00
60a	Small Claims	10,000.00	$ -		0%	$ 10,000.00
61	Workmen's Compensation Insurance	2,988.64 150,000.00	$ 1,415.63 $ 2,988.64		2%	$ 148,584.37
62	Retirement System	79,655.83 844,605.39	$ 330,642.87	$ 27,928.51	39%	$ 593,618.35
63	FICA Taxes - Employer's	39,207.38 416,316.44	$ 156,608.19	$ 12,752.13	38%	$ 298,915.63
64	Health, Life, & Dental (EUTF)	44,520.68 528,052.00	$ 190,571.56	$ 12,704.73	36%	$ 382,001.12

	ITEM	BUDGETED AMOUNT	TOTAL ACTUAL EXPENDITURES TO DATE	EXPENDITURES FOR THE MONTH	%	BALANCE OF BUDGET OVER TOTAL ACTUAL EXPENDITURES
	Health & Life Insurance -	$ 20,114.50				
67	Retirees & OPEB	$ 850,000.00	$ -		0%	$ 870,114.50
	EMPLOYEE BENEFITS	**$ 3,185,460.86**	**$ 682,226.89**	**$ 53,385.37**	**21%**	**$ 2,503,233.97**
	TOTAL NORMAL EXPENDITURES:	**$ 13,771,933.18**	**$ 4,131,570.60**	**$ 606,524.97**	**30%**	**$ 9,640,362.58**
		$ 13,771,933.18	$ 4,131,570.60	$ 606,524.97		$ 9,640,362.58
		-				-
	DEBT SERVICE REQUIREMENT:					
	SRF Loan Job 97-5					
80	Hanapepe River Crossing	$ 94,527.00	$ 94,527.03	$ 47,008.52	100%	$ (0.03)
	SRF Loan Job 97-6					
81	Hanapepe 27" Steel Pipe	$ 52,680.00	$ 52,679.67	$ 26,197.73	100%	$ 0.33
	SRF Loan Job 98-33 WK-21					
82	Wailua Hmstds Well #3	$ 30,334.00	$ 15,250.85		50%	$ 15,083.15
	SRF Loan Job 97-2 PLH-31					
83	Lihue Steel Tanks 1 & 2	$ 96,588.00	$ 96,588.86	$ 48,030.73	100%	$ (0.86)
	SRF Loan Job 98-6 WK-07					
84	Ornellas 0.2 MG Tank	$ 62,462.00	$ 31,398.94		50%	$ 31,063.06
	SRF Loan Job 97-11 WK-03					
85	16" W/L Along Kuhio Hwy	$ 177,755.00	$ 89,366.96		50%	$ 88,388.04
		$ (104,637.00)				
86	DOW Bond 2005 Issue	$ 212,309.00	$ 102,315.62		48%	$ 5,356.38
	DOW Bond 2005 Series,	$ 114,903.00				
87	Partial Refund 2001 Series A	$ 149,988.00	$ 206,440.63		78%	$ 58,450.37
	SRF Loan Job 98-2 KP-07					
88	KP-08 16" W/L on Poipu Rd	$ 396,838.00	$ 396,837.80	$ 197,350.63	100%	$ 0.20
	SRF Loan Job WK -42					
89	PH I Stable 1.0 MG Tank	$ 599,177.00	$ 301,108.35		50%	$ 298,068.65
	SRF Loan Job KW -27					
90	Kaumualii Hwy 12" Main Repl	$ 327,272.00	$ 164,449.80		50%	$ 162,822.20
	SRF Loan Job K -7, LO-13					
91	Waha, Wawae & Niho Rds	$ 150,887.00	$ 75,818.64		50%	$ 75,068.36
	DOW Bond					
92	Series 2010A	$ 2,920,881.00	$ 1,460,440.34		50%	$ 1,460,440.66
	FmHa $300,000 @5%					
93	20 year Bond	$ 18,550.00	$ 1,275.00		7%	$ 17,275.00
	SRF Loan Job					
94	Kapilimao 0.5 MG Tank	$ 302,382.00	$ 159,801.32	$ 159,801.32	53%	$ 142,580.68
97.1	DOW 2011A					
95	Series 2005A(2001A Refnd)	$ 440,550.00	$ 359,150.00			$ 81,400.00
	DOW Bond 2012A Issue					
97.2	Series 2005A Refunded	$ 63,754.69	$ 6,660.94		10%	$ 57,093.75
	SRF Loan Job 97-1					
98	Kokolau Tunnel Repairs	$ 125,395.00	$ 125,394.78	$ 62,347.96	100%	$ 0.22
	SRF Loan Job 96-4					
99	Kapilimao Valley Well	$ 67,617.00	$ 33,999.56		50%	$ 33,617.44
		$ (63,754.69)				
		$ (114,903.00)				
	Provision for Additional Debt	$ 104,637.00				
	Service Requirement	$ 320,000.00				$ 245,979.31
	TOTAL DEBT SERVICE REQ	**$ 6,546,192.00**	**$ 3,773,505.09**	**$ 540,736.89**	**58%**	**$ 2,772,686.91**
		$ 6,546,192.00	$ 3,773,505.09	$ 540,736.89		$ 2,772,686.91
		$ -				
	TOTAL SALARIES, NORMAL EXPENDITURES, AND DEBT SERVICE REQUIREMENTS:	**$ 25,860,170.18**	**$ 10,141,567.54**	**$ 1,530,847.66**	**39%**	**$ 15,718,602.64**
	PROOF	$ 25,974,309.26	$ 10,141,567.54	$ 1,530,847.66		$ 15,832,741.72

	ITEM	BUDGETED AMOUNT	TOTAL ACTUAL EXPENDITURES TO DATE	EXPENDITURES FOR THE MONTH	%	BALANCE OF BUDGET OVER TOTAL ACTUAL EXPENDITURES
CAPITAL EXPENDITURES						
	Job 02-19	$ (2,147,000.00)				
	Job 02-15	$ (4,671,000.00)				
101	Capital Improvements	$ 14,927,757.00	$ -		0%	8,109,757.00
101b	Capital Rehabilitation	$ 470,531.00	$ -		0%	$ 470,531.00
		$ (20,372.00)				
	Misc. Other Capital	$ 95,000.00				
102	Expenditures, OPS	$ 975,000.00	$ 283,935.85	$ 21,644.12	27%	$ 765,692.15
		$ 14,000.00				
		$ (84,000.00)				
	(IT Strategic Plan)	$ 150,000.00				
	(Telephone System)	$ 62,485.29				
103	Office and Engineering	$ 591,900.00	$ 181,779.30	$ 16,346.46	31%	$ 552,605.99
105	Recording Meters	$ -	$ -			$ -
106	Vehicles and Equipment	$ 212,000.00	$ 18,006.41	$ 13,842.38	8%	$ 193,993.59
		$ 14,139.08				
		$ (301,021.00)				
106b	CIP Reserve Fund	$ 3,441,814.90	$ -		0%	$ 3,154,932.98
128	Emergency Reserve	$ 2,400,000.00	$ -		0%	$ 2,400,000.00
PAGE 5 SUBTOTALS		$ 16,131,234.27	$ 483,721.56	$ 51,832.96		$ 15,647,512.71

	ITEM	BUDGETED AMOUNT	TOTAL ACTUAL EXPENDITURES TO DATE	EXPENDITURES FOR THE MONTH	%	BALANCE OF BUDGET OVER TOTAL ACTUAL EXPENDITURES
107	Purchase of Meter and Meter Boxes	(14,000.00) 129,000.00	37,556.00	$ 33,972.66	29%	$ 77,444.00
370	7/15/1993 **WK-23** Con #259, Job 93-1 Nishimura, Katayama, .25 MG Wailua Tank	53,151.00	-		0%	$ 53,151.00
401	8/8/1994 Contract #37348,Job 91-13 R.M. Towill Corp., Drill Hanamaulu Well #1 (Kalepa Well #2)	645.08	-		0%	$ 645.08
464	11/20/02 (106b) Contract #309, Job 97-1 **PLH-02** SSFM Engineers, Repair Kokolau Tunnel	1.00	-		0%	$ 1.00
499	8/2/1999 Contract #346, Job 97-7 **KP-06a** Wagner Eng. Replace Lawai Rd. 8" W/L	1.00	-		0%	$ 1.00
519	6/2/2000 **KP-01** Con. #355 Okahara & Assoc., Inc Job 92-4 Koloa Well "F" Pump	6,638.00	-		0%	$ 6,638.00
540	1/17/2001 Contract #368 (103) Century Computers Job 98-17 Fin. Acctg.	12,245.67	-		0%	$ 12,245.67
561	(02/06/02) Con 384 (101) **LO-07** Fukunaga & Assoc. Job 99-8 Drill Omao Well No. 1	79,860.00	-		0%	$ 79,860.00
586	12/24/02 (101) Con 401 Control Mfg. Co. Job 94-4 SCADA Systems	63,068.49	-		0%	$ 63,068.49
587	1/14/03 (101b, 106b) Con 403 RM Towill Corp **WK-28** Job 02-15 Wailua Hslts W/L Repl	82,637.00	2,304.00	$ 2,304.00	3%	$ 80,333.00
588	1/14/03 (101b, 106b) Con 404 Fukunaga & Assoc. **WK-32** Job 02-18 Kapaa Hmstds W/L Repl	51,100.00	-		0%	$ 51,100.00
591	2/05/03 (101b, 106b) Con 408 Wagner Eng. Inc. **H-01 H-02 H-03** Job 02-17 Maka Ridge Deepwell, Tank	17,309.00	5,000.00		29%	$ 12,309.00
601	9/03/03 (101b) Con 420 Hawaii Pacific Eng, Job 02-08 **HE-08** Eleele Twin 0.4 MG Tanks	8,327.00	-		0%	$ 8,327.00
607	12/05/03 (101) Con 425 HI Pacific Eng. Job 02-21**PLH-37** Rehab & Deepen Existing Wells	3,149.00	-		0%	$ 3,149.00

	ITEM	BUDGETED AMOUNT	TOTAL ACTUAL EXPENDITURES TO DATE	EXPENDITURES FOR THE MONTH	%	BALANCE OF BUDGET OVER TOTAL ACTUAL EXPENDITURES
609	2/19/04 (101b) Con 428 Brown Caldwell Job 03-02 **HW-02, HW-03 A-04, KW-06** Renovations: Wainiha Booster, Haena Steel Tank, Anahola 0.15 MG Tank, Kekaha Shaft	29,586.97	-		0%	$ 29,586.97
610	2/27/04 (101) Con 429 Esaki Surveying **M-01, M-02** Job 02-11 Moloaa 50,000 Gal SS Storage Tank	125,200.00	-		0%	$ 125,200.00
618	9/30/04 (101) **PLH-41** Contract 52243 Earthworks Pacific, Inc. Ulaula & Uliuli Rds; PRV, BP & 6" Main, Lihue	19,009.33	-		0%	$ 19,009.33
630	6/30/05 (101b, 106b) Con 447 Fukunaga & Assoc **WK-14** Job 04-02 Vivian Heights Main Repl	5,791.00	-		0%	$ 5,791.00
634	10/20/05 (101b) **WK-30** Con 450 ParEn Inc. Job 04-03 Waipouli-Olohena Rd. Pipeline	28,420.00	-		0%	$ 28,420.00
638	11/16/05 (101b, 106b) Con 453 Belt Collins HI **PLH-30** Job 05-05 Nawiliwili, Niumalu & Kupolo Main	19,938.00	1,260.00		6%	$ 18,678.00
645	5/19/06 (101, 106b) Con 460 Brown & Caldwell **KW-25** Job 05-03 Kapilimao 0.5 MG Tank	5,775.00	-		0%	$ 5,775.00
647	06/10/06 (101b) Con 462 Eng Solutions Inc now Kennedy/Jenks Consultant **KW-05 KW-20** Job 04-06 Waimea Well A & Kekaha B	17,519.31	6,930.00		40%	$ 10,589.31
651	9/21/06 (101b) Con 466 Brown & Caldwell **KW-28** Job 06-01 Amfac Shaft Renovation, State Well No.5842-02 Phase 1A	108,972.84	8,336.28		8%	$ 100,636.56
668	01/14/08 (101) Con 484 Wagner Eng. Services Job 02-01 Kukuiolono Tank Site Exchange, Kalaheo	5,210.47	-		0%	$ 5,210.47
676	11/28/08 (101) Con 497 Kauai Builders Ltd. **KW-25** Job 05-03 Kapilimao 0.5 MG Storage Tank	100,682.15	-		0%	$ 100,682.15
683	7/31/09 (101b) Con 503 Goodfellow Bros. Job 04-06 KW-05 Kekaha (Waipao) Well "B" Renovations	-	-			$ -
xxx	Install Electrical Saving Device	(203,000.00) (73,722.00) 336,161.00	-		0%	$ 59,439.00

	ITEM	BUDGETED AMOUNT	TOTAL ACTUAL EXPENDITURES TO DATE	EXPENDITURES FOR THE MONTH	%	BALANCE OF BUDGET OVER TOTAL ACTUAL EXPENDITURES
694	9/1/2011 Con 538, Esaki Surveying &Mapping, Inc. Job 11-05, As Needed Surveying Services	30,000.00	3,840.00		13%	$ 26,160.00
696	9/22/2011 Con 546, SSFM International, Inc Job 11-01, As Needed Construction Management Services	50,000.00	22,267.73		45%	$ 27,732.27
697	11/23/11 BOD Con 562, Goodfellow Brothers Job 02-15, WK-28; Wailua Hse-lls Main Replacement	4,671,000.00	-		0%	$ 4,671,000.00
698	Con ___, Kauai Habitat for Humanity Over Sizing ML Ext-Eleele Luna Subd	11,465.35	-		0%	$ 11,465.35
699	Con 555, Lyon Associates Job 11-10, K-18; 8-inch Main Replacement, Halewili Rd, Kalaheo	91,077.00	32,751.51	$ 6,056.00	36%	$ 58,325.49
700	9/22/2011 Con 545, AECOM Techincal Svc Job 11-11, J-17, PLH-42 Water Treatment Facilities	76,235.93	15,254.54	$ 11,232.00	20%	$ 60,981.39
701	Con 549, Beylik Drilling & Pump Job 11-14, Puhi Well #4, Trubine Pump Assembly Replacement	49,925.00	-		0%	$ 49,925.00
702	Con 539, Mears Group, Inc. PLH-03, Kahili Directionally Drilled Horizontal Well	1,928,690.00	209,208.00		11%	$ 1,719,482.00
704	Con 547, Inter Pacific Motors, Inc (1) 4WD Cargo Van	52,804.00	"FINAL" 52,804.00		100%	$ -
706	Con 552, Badger Meter, Inc. Drive by Accoustic Leak Noise Logging System	45,000.00	"FINAL" 10,000.00 35,000.00		78%	$ -
707	Con 553, Esaki Surveying & Map Job 12-1; H-05, Weke, Anae, Mahimahi and Hee Road; 6" and 8" Main replacement	139,494.44	14,364.38	$ 14,364.38	10%	$ 125,130.06
709	Con 557, Okahara, Job 11-07 HE-03 Hanapepe & Koloa Well MCC Improvements	199,592.00	-		0%	$ 199,592.00
710	Con 558, R. Electric Job 12-8; Kalepa Back Pressure Valve Replacement	20,372.00	-		0%	$ 20,372.00
711	Con 560, EMA Inc. IT Review & Assessment Planning & Implementation	84,000.00	-		0%	$ 84,000.00
712	Con 561, Goodfellow Brothers Job 02-19; WK-12; Main Replacement, Kuhio Hwy, Wailua	2,147,000.00	-		0%	$ 2,147,000.00

	ITEM	BUDGETED AMOUNT	TOTAL ACTUAL EXPENDITURES TO DATE	EXPENDITURES FOR THE MONTH	%	BALANCE OF BUDGET OVER TOTAL ACTUAL EXPENDITURES
713	Con 564, R. Electric, Inc. Furnish & Install, reduced Voltage soft starters, Power Factor Correction Capacitors, Surge Protective Devices.	73,722.00	-		0%	$ 73,722.00
714	Con 565, Derrick's Well Drilling Electrical Savings Device Hallow Shaft, Vertical Turbine Pump Motors	203,000.00	-		0%	$ 203,000.00
715	Con 563, Glenmount Global Solutions, SCADA	100,000.00	-		0%	$ 100,000.00
716	Con 13-1 MOA Kukuiula Development LO-11	301,021.00	-		0%	$ 301,021.00
TOTAL CAPITAL EXPENDITURES:		**27,424,309.30**	**940,598.00**	**$ 119,762.00**		**$ 26,483,711.30**
		27,424,309.30	940,598.00	$ 119,762.00		$ 26,483,711.30
		-	-			$ -
TOTAL SALARIES, NORMAL EXPENDITURES, DEBT REQUIREMENTS AND CAPITAL EXPENDITURES:		**53,284,479.48**	**11,082,165.54**	**$ 1,650,609.66**	**21%**	**$ 42,202,313.94**

STATEMENT OF REVENUES AND EXPENDITURES
FACILITIES RESERVE CHARGE FUND
December 31, 2012

REVENUES:

Cash on hand as of July 1, 2012							**$ 3,224,353.68**
Add: Revenues To Date							$ 403,841.34
Sub-Total							**$ 3,628,195.02**

EXPENDITURES:

Less: Expenditures To Date							$ 4,999.50
BALANCE AT THE END OF THE MONTH							**$ 3,623,195.52**

SHORT TERM INVESTMENTS-FRC
BANK OF HAWAII

CUSIP#					$	-

CENTRAL PACIFIC BANK

CUSIP#					$	-

FIRST HAWAIIAN BANK

CUSIP#	T30020174	0.10000%	INT. DUE	02/15/13	$	500,000.00

MERRILL LYNCH

CUSIP#

MULTI-BANK

CUSIP#	402194CU6	2.50000%	INT. DUE	12/23/13	$	240,000.00
CUSIP#	70455AAG5	2.30000%	INT. DUE	12/31/12	$	245,000.00
CUSIP#	36160VCH2	5.00000%	INT. DUE	08/06/13	$	97,000.00
CUSIP#	89214PAJ8	5.00000%	INT. DUE	08/13/13	$	97,000.00
CUSIP#	92705SAE3	1.50000%	INT. DUE	06/07/13	$	248,000.00
CUSIP#	70153RGT9	1.50000%	INT. DUE	09/09/13	$	249,000.00
CUSIP#	02004MN74	1.50000%	INT. DUE	09/03/13	$	248,000.00

TDI (CSA)

CUSIP#

VINING SPARKS

TOTAL SHORT-TERM INVESTMENTS - FRC					**$ 1,924,000.00**
CASH ON WITH TREASURER - COK		12/31/12	$	205,454.21	
CASH ON HAND - FHB Savings (30-288435)		12/31/12	$	1,491,569.22	
Due from WU		12/31/12	$	2,172.09	
December Claims paid in December					
Less: CLAIMS FOR December 2012					**$ 1,699,195.52**
CASH BALANCE AT THE END OF THE MONTH					**$ 3,623,195.52**

DEPARTMENT OF WATER
County of Kauai

JULY 1, 2012 TO JUNE 30, 2013
December 31, 2012

FACILITIES RESERVE CHARGE **% Budget Elapsed** **50.00%**

	CASH RECEIPTS	BUDGETED RECEIPTS	ACTUAL RECEIPTS TO DATE	RECEIPTS FOR THE MONTH	%	BALANCE OF BUDGET OVER ACTUAL RECEIPTS
BEGINNING CASH BALANCE		**$ 3,224,353.68**	$ -	$ -		$ 3,224,353.68
	(FRC Refunds)			$ -		
4a	Facilities Reserve Charge	$ 1,000,000.00	$ 386,200.00	$ 27,600.00	39%	$ 613,800.00
5a	Interest Earned	$ 43,750.00	$ 17,641.34	$ 3,163.77	40%	$ 26,108.66
5b	BAB Subsidy	$ 306,692.47			0%	$ 306,692.47
	TOTAL RESOURCES	**$ 4,574,796.15**	**$ 403,841.34**	**$ 30,763.77**	9%	**$ 4,170,954.81**

	CAPITAL EXPENDITURES	BUDGETED AMOUNT	TOTAL ACTUAL EXPENDITURES TO DATE	EXPENDITURES FOR THE MONTH	%	BALANCE OF BUDGET OVER TOTAL ACTUAL EXPENDITURES
301	FRC CIP	$ 380,000.00	$ -	$ -	0%	$ 380,000.00
301b	FRC Fund Balance	$ 1,929,505.85	$ (0.50)		0%	$ 1,929,506.35
301c	FRC Debt Service	$ 1,968,273.00	$ -		0%	$ 1,968,273.00
302	10/12/98 Contract #322 GMP Assoc, Inc. Job 87-1 Poipu Storage Tank	$ 2,050.00	$ - $ -	$ -	0%	$ 2,050.00
304	08/01/99 **WK-21** Contract # 345 Fukunaga & Assoc. Job 98-33 Wailua Well 3	$ 10,500.00	$ -	$ -	0%	$ 10,500.00
318	3/8/06 (301, 301b) Con 457 Kodani & Assoc Inc **H-8 HW-12** Job 05-02 Drill & Test Wainiha Well No. 4	$ 160,340.00	$ -		0%	$ 160,340.00
			$ -			$ -

	CAPITAL EXPENDITURES	BUDGETED AMOUNT	TOTAL ACTUAL EXPENDITURES TO DATE	EXPENDITURES FOR THE MONTH	%	BALANCE OF BUDGET OVER TOTAL ACTUAL EXPENDITURES
	1/17/2007 (301)					
321	Con 471 PORTech Eng. **WK-23** Job 93-1 Wailua 250,000 MG Tank Survey	$ 7,177.30	$ "FINAL" -		0%	$ 7,177.30
	03/31/08 (301, 301b)					
324	Con 488 HDR Engineering **WK-39** Kapaa Hmstds Well No. 4 Drill & Test	$ 116,950.00	$ 5,000.00		4%	$ 111,950.00
		$ -	$ -			$ -
		$ -	$ -			$ -
		$ -	$ -			$ -
		$ -	$ -			$ -
		$ -	$ -			$ -
	TOTAL EXPENDITURES	**$ 4,574,796.15**	**$ 4,999.50**	**$ -**		**$ 4,569,796.65**

STATEMENT OF REVENUES AND EXPENDITURES
BOND - BAB FUND
December 31, 2012

REVENUES:

Cash on hand as of July 1, 2012	**$ 32,677,748.66**
Add: Revenues To Date	$ -
Sub-Total	**$ 32,677,748.66**

EXPENDITURES:

Less: Expenditures To Date	$ 5,144,324.52
BALANCE AT THE END OF THE MONTH	**$ 27,533,424.14**

SHORT TERM INVESTMENTS - BOND

BANK OF HAWAII

FIRST HAWAIIAN BANK

CUSIP#	1062140	1.2940%	INT. DUE	12/31/12	$ 25,000,000.00	
TOTAL SHORT-TERM INVESTMENTS - BOND						**$ 25,000,000.00**
CASH ON HAND WITH TREASURER - COK				12/31/12	742,423.20	
BAB Bond Interest Earned with Bond Company				06/30/12	2,084,421.64	
Due fr W/U					0.00	
Due to BAB -fr WU					0.00	
Due to WU					0.00	
Claims Paid in December 2012					690,040.36	
LESS CLAIMS FOR December 2012				12/31/12	(983,461.06)	**$ 2,533,424.14**
BALANCE AT THE END OF THE MONTH						**$ 27,533,424.14**

DEPARTMENT OF WATER
County of Kauai
STATUS OF THE BUDGET
JULY 1, 2012 TO JUNE 30, 2013
December 31, 2012

BUILD AMERICA BONDS (BABs) - FUND **% Budget Elapsed 50.00%**

	CASH RECEIPTS:	BUDGETED RECEIPTS	TOTAL ACTUAL RECEIPTS TO DATE	RECEIPTS FOR THE MONTH	%	BALANCE OF BUDGET OVER TOTAL ACTUAL RECEIPTS
	BEGINNING CASH BALANCE	**$ 32,677,748.66**	**$ -**	**$ -**		**$ 32,677,748.66**
	Bond Proceeds	$ -	$ -	$ -	0%	$ -
	Interest Income	$ 210,000.00	$ -		0%	$ 210,000.00
	TOTAL RESOURCES	**$ 32,887,748.66**	**$ -**	**$ -**	**0%**	**$ 32,887,748.66**
	CAPITAL EXPENDITURES:	**BUDGETED AMOUNT**	**TOTAL ACTUAL EXPENDITURES TO DATE**	**EXPENDITURES FOR THE MONTH**	**%**	**BALANCE OF BUDGET OVER TOTAL ACTUAL EXPENDITURES**
201-01	**BOND - BAB, CIP**	$ (2,640.81) $ 21,849,679.22	$ -		0%	$ 21,847,038.41
218	5/11/2010 CON 513 Jennings Pacific, LLC Job No. 02-18, WK - 32 Kapaa Hmstds Pipe Repl	$ 57.00	$ -		0%	$ 57.00
219	5/11/10 CON 514 Earthworks Pacific Job No. 04-02, WK-14, Pipeline Repl for Vivian hts	$ 139,276.41	"FINAL" $ 105,007.40	$ 105,007.40	75%	$ 34,269.01
220	6/30/10 CON 516 Unlimited Builders, LLC Job No. 03-02, HW-02, Wainiha Booster Pump Stn	$ 1,662,632.67	$ 589,748.67	$ 23,844.45	35%	$ 1,072,884.00
221	9/30/10 Con 520 (201-01) Fukunaga & Associates Job # 10-01, Ani-01a Pipeline Repl - Anini RD	$ 333,560.00	$ 91,600.00	$ 91,600.00	27%	$ 241,960.00
222	9/30/10 Con 519 (201-01) Park Engineering Job # 10-02, Upsizing of the Kaumualii Hwy. 16"	$ 14,102.70	$ -		0%	$ 14,102.70
	TOTAL EXPENDITURES	**$ 23,996,667.19**	**$ 786,356.07**	**$ 220,451.85**	**3%**	**$ 23,210,311.12**

DEPARTMENT OF WATER
County of Kauai
STATUS OF THE BUDGET
JULY 1, 2012 TO JUNE 30, 2013
December 31, 2012

BUILD AMERICA BONDS (BABs) - FUND **% Budget Elapsed 50.00%**

	CAPITAL EXPENDITURES:	BUDGETED AMOUNT	TOTAL ACTUAL EXPENDITURES TO DATE	EXPENDITURES FOR THE MONTH	%	BALANCE OF BUDGET OVER TOTAL ACTUAL EXPENDITURES
223	10/31/10 Con 523 (201-01) BCP Constr. Of Hawaii Job 06-06, P:H-25 Eiwa, Umi, Akahi.. 8" ML Repl	$ 207,527.45	"FINAL" $ 207,527.45		100%	$ -
224	10/31/10 Con 524 (201-01) Koga Eng. & Constr., Inc. Job 02-16, WP 2020 Proj WK 36, Pipeline Repl along Wailua Ohana, Anolani & Kuamoo Rds.	$ 897,084.43	"FINAL" $ 816,129.43	$ 200,607.90	91%	$ 80,955.00
225	Con 405 3rd n 4th Amm Kodani & Associates, Inc. Job 02-19, KW-12 Waipouli Main Repl Wailua-Kapaa	$ 7,370.00	$ 3,718.72		50%	$ 3,651.28
227	Con 525 KW-20 R. Electric Waimea Well A Renovations	$ 2,640.81 $ 297,296.90	$ 260,948.97	$ 69,261.23	88%	$ 38,988.74
592	6/28/11 Con 409 Esaki Surveying & Mapping, Inc.; Job 02-16, WK-36, P/L replace - Wailua	$ 65,757.60	$ 20,245.50			$ 45,512.10
230	Con 529 (201-01) Oceanic Company, Inc. Job 02-08, HE-08 Rehabilitation of Eleele Twin 0.4 MG Steel Tanks	$ 1,239,130.40	$ 700,317.07	$ 103,684.83	57%	$ 538,813.33
621	Con 440 Kodani & Associates, Inc. Kilauea 1.0 MG Tank and Pipeline, Ph I (fr W/U)	$ 179,350.20	$ 47,995.55	7,562.45		$ 131,354.65
	SUB - TOTAL	$ 2,896,157.79	$ 2,056,882.69	$ 381,116.41		$ 839,275.10

DEPARTMENT OF WATER
County of Kauai
STATUS OF THE BUDGET
JULY 1, 2012 TO JUNE 30, 2013
December 31, 2012

BUILD AMERICA BONDS (BABs) - FUND **% Budget Elapsed 50.00%**

	CAPITAL EXPENDITURES:	BUDGETED AMOUNT	TOTAL ACTUAL EXPENDITURES TO DATE	EXPENDITURES FOR THE MONTH	%	BALANCE OF BUDGET OVER TOTAL ACTUAL EXPENDITURES
231	Con 530 (201-01) Earthworks Pacific Job 02-19, WK-12 Waipouli Main Replacement	$ 672,617.08	$ 386,642.39	$ 148,507.80	57%	$ 285,974.69
232	Con 427 (201-01) Belt Collins Hawaii, Ltd. Job 02-14, Kapaa Hmstds 0.5 MG Storage Tank & Kapahi 1.0 MG Storg Tank	$ 30,637.80	$ 4,820.46		16%	$ 25,817.34
608	Con 427 (201-01) Belt Collins Hawaii, Ltd. Job 02-14, Kapaa Hmstds 0.5 MG Storage Tank & Kapahi 1.0 MG Storg Tank	$ 25,922.00	$ -		0%	$ 25,922.00
233	Con 533 (201-01) Belt Collins Hawaii, Ltd. Job K-01, K-12, Kalaheo 1111' and 1222' Water System Improvements	$ 466,710.49	$ 37,671.40		8%	$ 429,039.09
683	Con 503 (201-01) Goodfellow Brothers, Inc. Job 04-06, KW-05, Kekaha Well "B"" Renovations	$ 43,203.60	$ 42,828.60		99%	$ 375.00
235	Con 534 (201-01) Goodfellow Brothers, Inc. Job 05-05, PLH-30, Niumalu & Kupolo 6-inch, 8-inch and 12" Main Replacement PH I	$ 742,006.00	$ 315,513.08		43%	$ 426,492.92
236	Job 10-02, MOA Dept of Transportation/Kiewit-Kaumualii Hwy widening, Anonui Rd and Lihue Mill Bridge.	$ 151,027.27	$ -		0%	$ 151,027.27
237	6/28/2011 (201-01) Con 536, Esaki Surveying & Mapping, Inc., Job 11-02, PLH-01a Replace Grove Farm Tanks #1 & #2	$ 198,023.00	$ -		0%	$ 198,023.00
238	Con 544, HONUA Engineering, Job 11-04 (L-08, L-10) Water Main Replacement & Service Improvement	$ 60,400.00	$ -		0%	$ 60,400.00
692	6/28/11 Con 512 - Architects Hawaii, Ltd., Job No. PLH-39; Lihue Baseyard Improvements for DOW	$ 383,988.44	$ 354,378.38	$ 29,468.45	92%	$ 29,610.06
	TOTAL EXPENDITURES	**$ 29,667,360.66**	**$ 3,985,093.07**	**$ 779,544.51**		**$ 25,682,267.59**

DEPARTMENT OF WATER
County of Kauai
STATUS OF THE BUDGET
JULY 1, 2012 TO JUNE 30, 2013
December 31, 2012

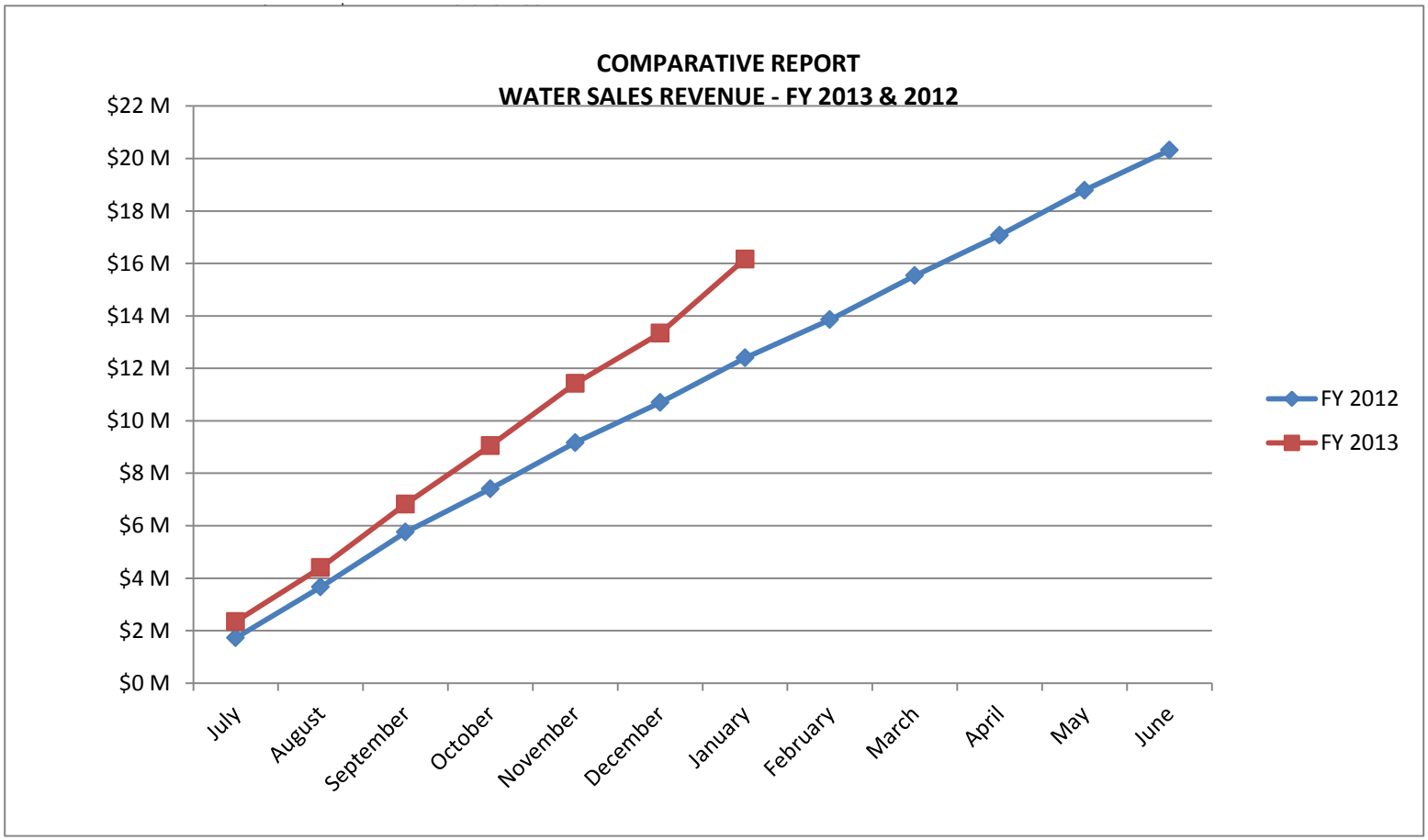
BUILD AMERICA BONDS (BABs) - FUND

% Budget Elapsed 50.00%

	CAPITAL EXPENDITURES:	BUDGETED AMOUNT	TOTAL ACTUAL EXPENDITURES TO DATE	EXPENDITURES FOR THE MONTH	%	BALANCE OF BUDGET OVER TOTAL ACTUAL EXPENDITURES
239	Con 542, (201-01) MEI Corporation Job 02-17, H-01, H-02, H-03 Maka Ridge Facilities Rehab & Princeville Interconnection Plan	$ 2,500,000.00	$ 1,074,479.45	$ 203,916.55	43%	$ 1,425,520.55
240	Con 543, (201-01) Oceanit Laboratories, Inc. Job 11-03, M-03 Land & Well Acquisition, Moloaa and Waimea, Kauai	$ 144,309.00	$ 43,282.00		30%	$ 101,027.00
241	Con 457, (201-01) Kodani & Associates Inc. Job 05-02, H-8, HW-12 Drill & Test Hanalei Well #2 & Wainiha Well #4	$ 32,430.00	$ -		0%	$ 32,430.00
242	Job 02-11, M-02 Land Acquisition	$ 121,000.00	$ -		0%	$ - $ 121,000.00
243	Contract 550 (201-01) Honua Engineering, Inc. Job 11-06, WK-01	$ 81,340.00	$ -		0%	$ 81,340.00
244	Con 551, (201-01) Esaki Surveying & Mapping, Inc Job K-05A, Kukuiolono 0.5 MG 886' Tank	$ 247,087.00	$ 41,470.00			$ 205,617.00
610	Con 429, Esaki Surveying & Mapping,Inc. Job 02-11, M-02, 100,000 Gal. Tank & Pipeline, Moloaa	$ 94,222.00	$ -			$ 94,222.00
			$ -			$ -
			$ -			$ -
			$ -			$ -
	TOTAL EXPENDITURES	**$ 32,887,748.66**	**$ 5,144,324.52**	**$ 983,461.06**		**$ 27,743,424.14**

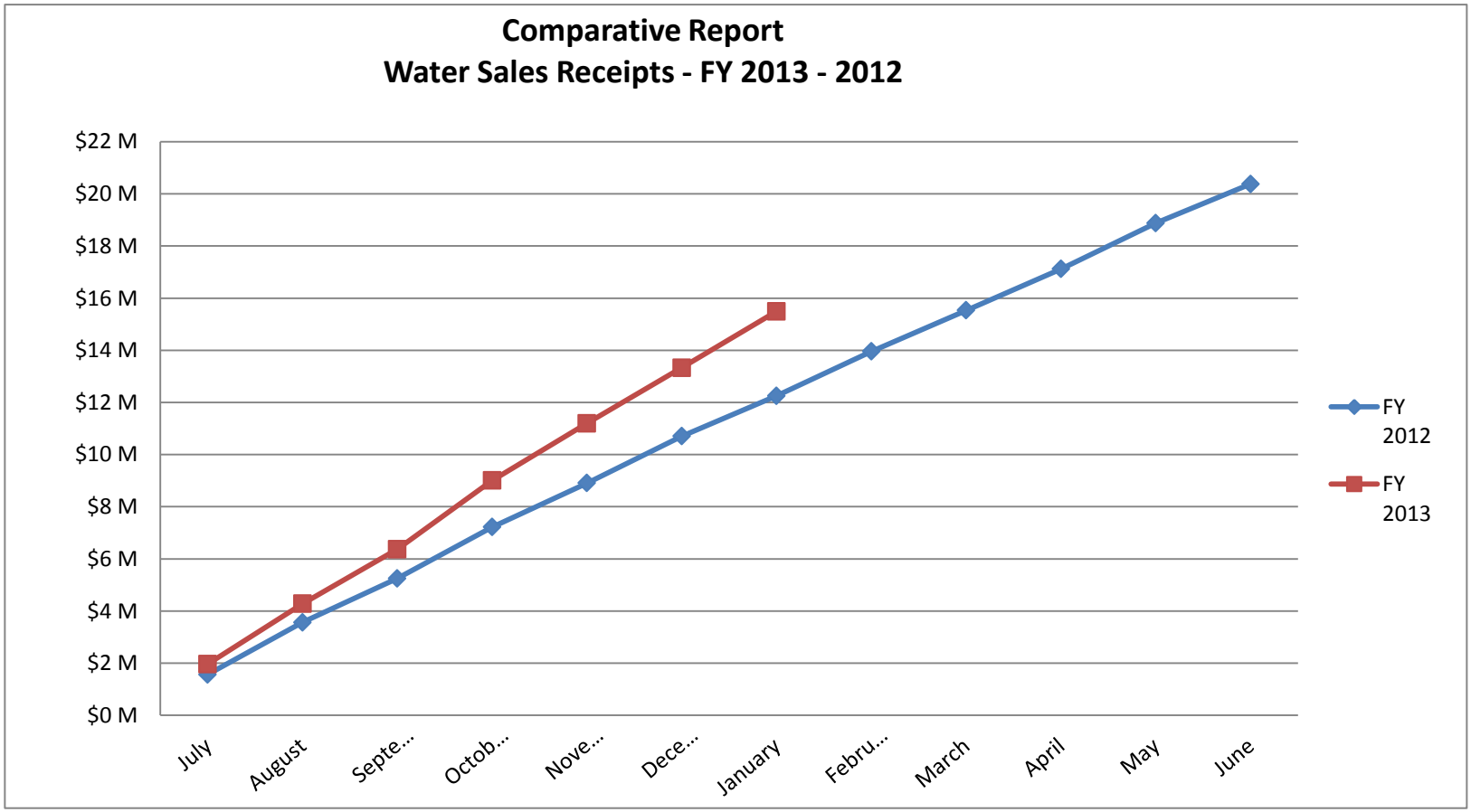
REVENUE COMPARATIVE REPORT
AS OF JANUARY 2012 & 2013

	FY 2012	FY 2013	Inc (Dec)	
July	$ 1,724,579	$ 2,346,892	$ 622,313	36.08%
August	$ 3,660,136	$ 4,399,666	$ 739,530	20.20%
September	$ 5,753,515	$ 6,828,224	$ 1,074,709	18.68%
October	$ 7,408,261	$ 9,056,386	$ 1,648,125	22.25%
November	$ 9,166,600	$ 11,423,911	$ 2,257,310	24.63%
December	$ 10,693,795	$ 13,338,790	$ 2,644,995	24.73%
January	$ 12,400,040	$ 16,163,728	$ 3,763,689	30.35%



WATER SALES RECEIPT COMPARATIVE REPORT
AS OF JANUARY, 2012 & 2013

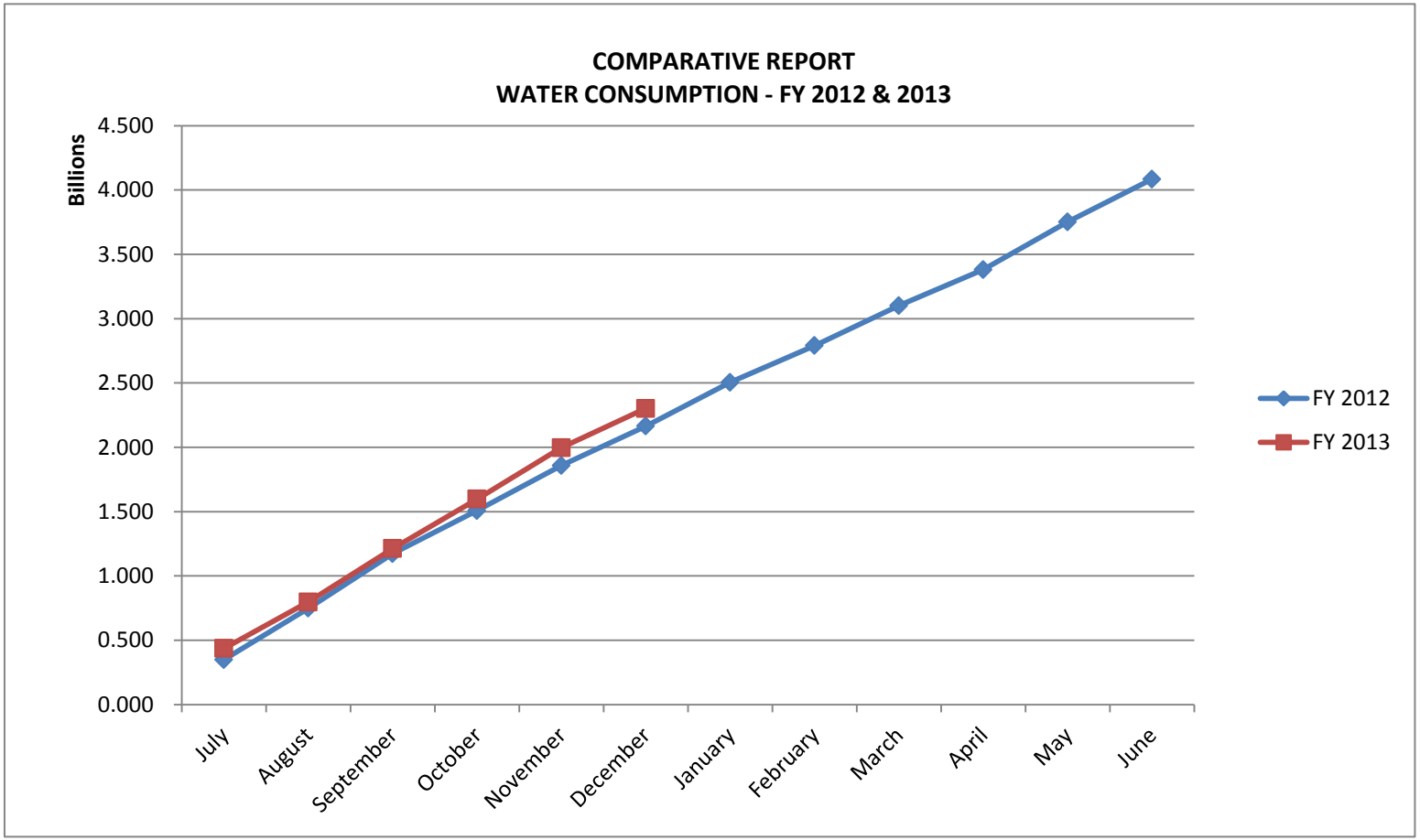
		FY 2012		FY 2013		Inc (Dec)
July	$	1,564,012	$	1,964,915	$	400,903
August	$	3,564,618	$	4,275,571	$	710,953
September	$	5,250,808	$	6,370,743	$	1,119,935
October	$	7,221,874	$	9,006,500	$	1,784,626
November	$	8,905,488	$	11,197,586	$	2,292,098
December	$	10,706,608	$	13,332,029	$	2,625,421
January	$	12,254,208	$	15,496,524	$	3,242,316



2 receipts

WATER CONSUMPTION (GALLONS) COMPARATIVE REPORT
AS OF DECEMBER, 2012 & 2013

	FY 2012	FY 2013	INC (DEC)
July	349,500	436,238	86,738
August	748,067	797,837	49,770
September	1,172,622	1,213,013	40,391
October	1,507,452	1,597,947	90,495
November	1,857,997	1,996,810	138,813
December	2,164,504	2,302,086	137,582



3 consumption in gallons

PR SPECIALIST REPORT

February 28, 2013

Press Releases: A press release requesting public feedback/comment on the WSDF increase and implementation went out on February 11th. Deadline for public comment was set for February 18th.

A press release went out on February 13th notifying the public of night work and a lane closure in the Waipouli area beginning February 18th to replace a segment of a water main.

A follow-up release extending the WSDF public comment period to March 8th went out on February 14th.

Water System Development Fee: Seven (7) community meetings were held during the month of January. See attached report from the Department's contractor, The Limtiaco Company.

Continued community outreach followed into February with a press release, stakeholders email blast, and paid ad seeking public comment on this issue until March 8th.

1st Annual Joint State Water Conference: The State's 1st Annual Joint Water Conference was held on January 14th at the Kaua'i Community College. Many positive comments and feedback were received about the information and array of topics covered by the group speakers and breakout session presenters. A request for a copy of the conference survey went out to the DOH, awaiting information.

Conservation: The Detect-a-Leak-Week (March 18-24, 2013) Proclamation is scheduled to be presented by the Mayor on Monday, March 11th at 11:30am at the County Building Rotunda area. All that are interested in attending are welcomed.

Final meeting of the state Water Conservation Advisory Group took place on January 10th. The Commission on Water Resource Management (Commission) plans to move forward with the implementation of the State Water Conservation Program with two initiatives: Water Loss Audit Training Work Plan and Irrigation Metering Demonstration Project Work Plan.

Source Water/Wellhead Protection Program Grant: Committee to select a contractor for the Source Water/Wellhead Protection Program Grant has met to discuss plan for selection process.

Respectfully submitted,

Joy Buccat
Public Relations Specialist

Attached: Report from The Limtiaco Company
1st Annual Joint State Water Conference Evaluation Form

JB/ein

Mgrrp Public Informational Specialist Report (02-28-13):ein

thelimtiacocompany
COMMUNICATIONS CONSULTANTS

January 29, 2013

To:
David Craddick,
Kaua`i Department of Water

Cc:
Joy Buccat
Kaua_i Department of Water

From:
Ruth Limtiaco,
The Limtiaco Company
and
Jan TenBruggencate
Island Strategy LLC

REPORT ON WATER SYSTEM DEVELOPMENT FEE
COMMUNITY MEETINGS JANUARY 2013

Below please find our report on the outcome of community meetings held during the middle of January 2013 on proposed changes of the Facilities Reserve Charge, which will henceforth be called the Water System Development Fee.

The Department of Water held seven (7) community meetings around the island during January on the proposed Water System Development Fee. They covered all parts of the island of Kaua`i, tallied clockwise: Kilauea, Kapa`a, Lihu`e, Koloa, Kalaheo, Hanapepe, Kekaha.

The Kekaha and Lihue meetings generated larger numbers; Kalaheo and Kilauea had no public attendance; others had two or three members of the public. Four board members attended four of the sessions. The board members were Roy Oyama, Clyde Nakaya (2 meetings), Randy Nishimura and Larry Dill. A Meeting Team of Manager David Craddick and communications consultant Jan TenBruggencate attended all seven meetings.

SUMMARY:

In all, 29 members of the public (not counting board members or meeting team) attended the seven meetings. Consultant‘s summary of key takeaway points is as follows:

1) There was general support for the concept that new users should pay a fee to help cover the cost of expanding the system.
2) There was some shock about the cost, but most who expressed opinion said the fee of $17,000 is acceptable if it reflects actual cost to expand the system. A few speakers seemed to feel a lower fee was appropriate, particularly for smaller homes or young people.

3) Members of the public seemed intrigued by the fixture unit concept, and several felt it would appropriately reduce costs for ohana units and increase costs for mansion-type houses. One speaker argued for a reduced fee for low-flow fixtures.

4) There was no support for using regular water rates to fund expansion.

5) There was not much comment on either side of the issue of whether state projects should be credited for state grants to the DOW.

INDIVIDUAL MEETING REPORTS:

Meeting-by-meeting report with key comments from each.

Koloa Neighborhood Center 1/10: Meeting Team, Board Member Roy Oyama, 2 public.
–This needs to happen. It should be charged to the people who come in," said Realtor Rowena Cobb.
–It seems like everyone would want the Water Department to be solvent," said Chris White.
Re giving state projects WSDF credit for state funding of the Water Department, both said that all development projects should pay something regardless of grants. White suggested that 50% credit could be given to state projects to account for state grants.

Kapaa Neighborhood Center 1/11: Meeting Team, 2 public.
–The economy isn't good. The proposed raise is high. The economy's going to tank. If we build for growth and the population does not grow, the current users will be forced to pay for the expansion," said Ken Taylor.
Kapaa resident Marj Dente was concerned about the size of the increase, but felt it was appropriate that new users pay their fair share.

Kekaha Neighborhood Center 1/14: Meeting team, Board Member Clyde Nakaya, 8 public.
This is a good opportunity to provide credits to people who use less water. Is there a way to respond to lower usage?—Mike Faye.
Pay as you go. Developers should pay for expanding the system. – Laura Kelly
Ohana units, since they encourage development of existing areas rather than expanding into new areas, should be encouraged as a matter of policy. –Mike Faye
Can't there be a special consideration for ohana units?—two speakers, including Randy Francisco. Craddick argued that fees based on fixture units could reduce costs for small homes. There should be a credit for using low-flow units. –Mike Faye
Every housing unit should have its own meter. --speaker

All customers need to pay. –Randy Francisco.
Several speakers said the Water Department has not done enough to publicize this proposed change. –I'm afraid this is a KIUC waiting to happen," said Randy Francisco.

Lihue Neighborhood Center 1/15: Meeting Team, Board Members Clyde Nakaya and Randy Nishimura, 13 public.
Want to be sure fees are ONLY used for expansion. –I would rather pay the fee than not get the water meter."–Jimmy Nishida.
People with ag rates who have a home on the property should pay residential rates for the home and then get the ag rate for actual ag use. –Ken Taylor
The county should not be forcing gentleman farmers to farm—it wastes ag water that should be available to real farmers. –Jimmy Nishida.
Something should be done about people who have paid for meters but not put them in. –speaker.
If people can pay the fee, be sure they can get water—especially on affordable housing projects. –speaker.

Kalaheo Neighborhood Center 1/17: Meeting Team, no public.
No testimony. (Major community basketball event in Kalaheo that night, as well as a record crowd at a Kauai War Memorial Convention Hall anti-GMO event.)

Hanapepe Neighborhood Center 1/22: Meeting team, 3 public.
–I can see meters going up, but not by $10,000. Don't penalize the new homeowner or young kids starting out. " –speaker, who has a daughter about to build a home.

One individual stated that he wanted rates to go up to lower the development cost. However, by the end of the meeting he understood better what the issues were and said we need to keep the fee down for the –little guy." This individual's project was for a three bathroom house which is rather large.

Kilauea Neighborhood Center 1/25: Meeting team, Board Member Larry Dill, 1 public.
No testimony. (Friday night.)

NOTE:

The staff encountered significant problems scheduling all these meetings: finding days that were open and locations that were available. As a result, some meetings were publicized with a few days' notice and others more than a week.

There was criticism from one member of the public and one board member that the publicity was too close to the day of the meeting. It is difficult to derive from this small sample size an optimal advance meeting notice, but in this case, both the shortest period of notice and the longest did result in members of the public attending those meetings.

Oddly, meetings with only one and two days notice had a better turnout that those with three days‘ notice, but less than those with five to eight days‘ notice.

A total of 29 members of the public turning out for evening meetings is from our experience a significant sampling. Total turnout was 48, including board members, meeting team and public.

2013 1st Annual Joint State Water Conference
"Integrating Water Quantity and Quality to Protect our Water Resources"
Kauai Community College - Performing Arts Center
January 14, 2013

CONFERENCE EVALUATION FORM
SUMMARY

1. How much experience do you have working in water industry program areas?

   5 0-1 years **5** 2-5 years **12** 5-10 years **12** 10-20 years **9** 20+ years

2. Which water industry area(s) do you work in? (Check all that are applicable)

   39 Drinking Water | **10** Wastewater | **2** Watershed Management/Protection | **2** Other (specify): **See below**

   (1- gov't. resource management; 1-budget County Council)

3. How would you rate the overall conference?

   13 Excellent **28** Good **2** Adequate ____ Poor

4. What did you like about the conference?

- **Good information**
- **Informative**
- **Great info for lectures**
- **Afternoon sessions**
- **Topics**
- **Everything**
- **Updated issues & new studies**
- **Good subject matter**
- **Various departments pulled together.**
- **Everything**
- **Slides. Lunch was provided.**
- **The food :)**
- **Very informational**
- **Free lunch, very good menu.**
- **Information provided**
- **Explanation of information.**
- **Multiple subject matter; 1-day format; conference fee $0 !**
- **Good location; adequate sound system.**
- **Most speakers seem competent and very informative.**
- **New info acquired.**
- **Gaining more knowledge.**
- **Food, length of speaking.**
- **Topics on Water.**

- **Presenters subject knowledge.**
- **Interesting topics.**
- **It was informative, we should have more training.**
- **Well organized, excellent speakers.**
- **Comfortable venue. Easy to hear, good seats, etc. Speaker knowledge.**
- **Afternoon classes better.**
- **Broad range of pertinent topics. Intensity of sessions which includes operator CEU's.**
- **The topics covered a broad range and discussed the background of various projects and where were heading.**
- **Seeing county & state Departments working together for safety issues on water. Also informational. On spending cost?**
- **Loved the fact it more of a meet & greet. Guest speakers were very informative. The food was awesome.**
- **Informative about very important (survival & quality of life) issue to community. Allows an overall view. Good acoustics & AV.**

5. What did you dislike about the conference?

- **No meat for lunch.**
- **Nothing.**
- **Afternoon - Three (3) sessions - only attend one (1) - need to attend all.**
- **N/A (3)**
- **Concurrent Sessions**
- **All good (2)**
- **None (2)**
- **Intention of some attending not educational for conference.**
- **Lunch, where's the meat.**
- **No dislikes, better lunch menu.**
- **Sometimes hard to hear speakers & persons asking questions.**
- **Room too large for the number of attendees.**
- **Monday not a good day for classes. Need more meat for lunch.**
- **Not enough visual examples of subjects.**
- **Everything turned out to be good except afternoon classes. Should have rotated instead of only one.**
- **Couldn't see projector photo/screen!**
- **Some visuals were small so couldn't read or speakers were soft.**
- **Venue seemed too big for attendance - seems wasteful of energy resources and fiscally expensive but perhaps AV & acoustics quality not available in smaller venue.**

6. How do you rate the presentation of technical information (was it presented in an understandable and interesting manner)?

11 Excellent **31** Good **1** Adequate ____ Poor

This question needs to be broken down by presenter.

7. Did this conference meet your expectation?

39 Yes **1** No

Comments:

- **Learn lots.**
- **Thought it would be more focused on Kauai issues.**
- **Had no expectations.**
- **I wasn't sure what to expect since this is the first annual conference. I hope to attend it again next year.**
- **Still learning; about the theoretical, distribution, and cost/**

8. In the future, would you attend this type of conference again?

39 Yes **1** No

Comments:

- **Need reps from other water departments - make this statewide.**
- **This conference had a good flow.**

9. Are there aspects of the conference that you believe should have greater (or less) emphasis?

- **None**
- **No (3)**
- **NA**
- **Greater**
- **Cover more local issues**
- **Need more info on water rights issues.**
- **Definitely.**
- **Need more time for questions. Was press here? Should have been.**

10. Do you have any suggestions on how the training could be improved?

- **Not separate classes session, cause all session is different and not get to know what other classes were about.**
- **Provide copies of slides ised in presentations and/or provide a few sheets of notepaper for notes.**
- **No (5)**
- **NA**
- **More topic options.**
- **Have a mic for persons asking questions.**
- **Press should be present. Better sized, but equally good venue.**

11. Do you have any suggestions for topics for future conferences?

- **No (5)**
- **NA**
- **More practical training.**
- **Water Rights Issues.**
- **Energy efficiency in pumps & motors (USDOE Motor Challenge Program).**
- **Thank you for bringing training to Kauai. Topics provided working staff to see broader picture of the industry's interrelationship/regulations/long-term planning.**
- **Would like more in-depth focus on drinking water contaminants and prevention thereof.**

DEPARTMENT OF WATER
County of Kaua'i

"Water has no Substitute – Conserve It!"

Operations Division Report for the Month of January 2013

Personnel

- 27 Operations Division personnel attended the First Annual Joint Water Conference.

Source and Storage

- Repair of Kalaheo Well #2 by Beylik Drilling is complete. Both Wells #1 and #2 are now operational.
- Repair of Puhi Well #4 is complete. The well is now operational.

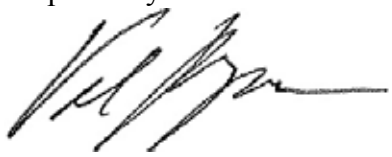
Distribution

- Operations crews continue to perform leak repair of service laterals and mainlines.
- Six (6) water meters were installed or replaced.

Fleet, Inventory, Warehouse and Baseyard Area

- We received a total of 49 calls from customers reporting leaks on the mainline, service laterals, meters, and fire hydrants including 1 called-in complaint of no water pressure and 1 call for dirty water.
- For the month of January 2013, a total of one hundred seventy six (176) work orders were issued for the Operations Division. Works included: electrical repairs and maintenance, automotive repairs and maintenance, water meter installation and replacement, service lateral installations, leak repairs, well and tank site maintenance, replace damaged meter boxes, replace damaged or leaking hydrant, Hawaii One Call request for markings, door-to-door customer notifications for tie-ins of new lines to existing lines, callouts due to customer complaints/reports. Attached below is a copy print out of MPET work orders along with the man-hours and overtime charts as well as the leak repair chart.

Respectfully submitted:



Valentino P. Reyna
Chief, Operations Division

VR:ein

Attached: January 2013 MPET Work Order
Overtime Charts
Leak Repair Chart

---4398 Pua Loke Street, Lihu'e, Kaua'i, Hawai'i or P. O. Box 1706, Lihu'e, HI 96766-5706---
Phone No. (808) 245-5400 – Administration FAX No. (808) 246-8628 – Engineering/Fiscal/Shop FAX No. (808) 245-5813

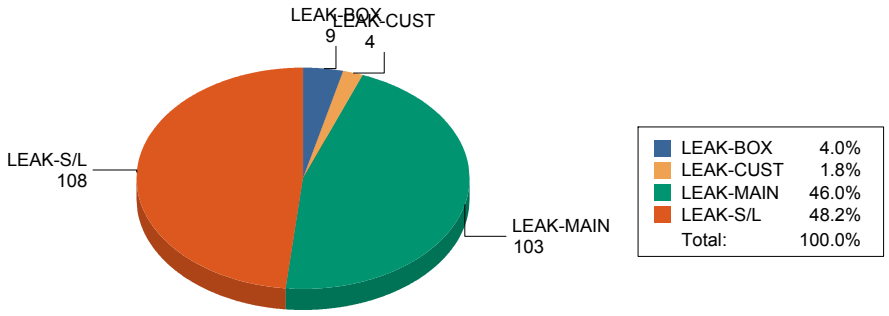
01-Feb-2013

Work Orders by Job Reason Code for Selected Date Range

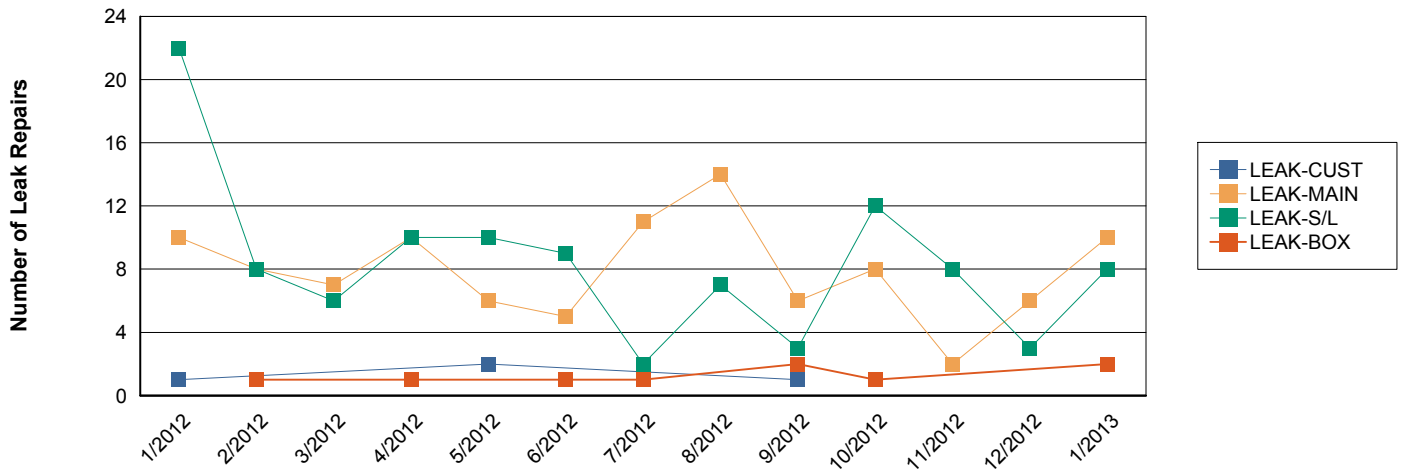
01/01/2012 **to** 01/31/2013

# of W/O's	Job Reason Code	Description
9	**LEAK-BOX**	Meter Box Leak Repair
4	**LEAK-CUST**	Customer-Side Leak Repair
103	**LEAK-MAIN**	Mainline Leak Repair
108	**LEAK-S/L**	Service Lateral Leak Repair

Work Orders by Job Reason Code



Number of Leak Repairs per Month



Job ID	Object ID	Step Title	Priority	Status	Requested	Starting	Completed	Labor Class	Group	Outcome	Supervisor
S130018	06--KOL/POI SYS	Meter Installation		COMP-PART	1/17/2013	1/18/2013	1/18/2013			N/A	1806
S130017	02--WAIMEA SYS	Meter Installation	AS-REQ	ACCT-1836	1/16/2013	1/17/2013	1/17/2013	PF-L		COMPLETED	1806
S130016	09--WAI/KAP SYS	Meter Installation	ROUTINE	ACCT-1836	1/16/2013	1/17/2013	1/17/2013	PF-L	OPS-EAST	COMPLETED	3092
S130015	06--KOL/POI SYS	Meter Installation	AS-REQ	ACCT-1836	1/16/2013	1/17/2013	1/17/2013	PF-L		COMPLETED	1806
S130014	08--LIH/HAN SYS	Meter Installation		COMP-PART	1/15/2013	1/30/2013	1/30/2013	PF-L	OPS-EAST	N/A	3092
S130013	12--KILAUEA SYS	Meter Installation	ROUTINE	COMP-PART	1/14/2013	1/17/2013	1/17/2013	WSS-III	OPS-EAST	N/A	3092
S130012	09--WAI/KAP SYS	Meter Installation	ROUTINE	COMP-PART	1/14/2013	1/25/2013	1/25/2013	PF-L	OPS-EAST	N/A	3092
S130011	04--KALAHEO SYS	Meter Installation		ACCT-1836	1/11/2013	1/15/2013	1/15/2013	PF-L		COMPLETED	1806
S130010	15--HAE/WAI SYS	Meter Installation	ROUTINE	ACCT-1836	1/10/2013	1/31/2013	1/31/2013	WSS-III	OPS-EAST	COMPLETED	3092
S130009	09--WAI/KAP SYS	Meter Installation	ROUTINE	ACCT-1836	1/10/2013	1/23/2013	1/23/2013	PF-L	OPS-EAST	COMPLETED	3092
S130008	09--WAI/KAP SYS	Meter Installation	ROUTINE	ACCT-1836	1/10/2013	1/11/2013	1/11/2013	WSS-III	OPS-EAST	COMPLETED	3092
S130007	06--KOL/POI SYS	Meter Installation		ACCT-1836	1/10/2013	1/11/2013	1/11/2013			N/A	1806
S130006	09--WAI/KAP SYS	Meter Installation		ISSUED	1/9/2013					N/A	3092
S130005	08--LIH/HAN SYS	Meter Installation	ROUTINE	COMP-PART	1/8/2013	1/9/2013	1/9/2013	PF-L	OPS-EAST	N/A	3092
S130004	09--WAI/KAP SYS	Meter Installation	ROUTINE	COMP-PART	1/5/2013	1/8/2013	1/8/2013	PF-L	OPS-EAST	N/A	3092
S130003	06--KOL/POI SYS	Meter Installation	AS-REQ	ACCT-1836	1/2/2013	1/8/2013	1/8/2013			COMPLETED	1806
S130002	06--KOL/POI SYS	Meter Installation	AS-REQ	ACCT-1836	1/2/2013	1/8/2013	1/8/2013			COMPLETED	1806
S130001	09--WAI/KAP SYS	Meter Installation	ROUTINE	COMP-PART	1/2/2013	1/24/2013	1/24/2013	PF-L	OPS-EAST	N/A	3106
C130176	08--LIH/HAN SYS	Akahi St, Lihue. Pass	ROUTINE	COMPLETED	1/31/2013	2/1/2013	2/1/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130175	12--KILAUEA SYS	One call. Kailihiholol	ROUTINE	COMPLETED	1/31/2013	2/4/2013	2/4/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130174	09--WAI/KAP SYS	One Call. Kuhio Hwy,	ROUTINE	COMPLETED	1/31/2013	2/1/2013	2/1/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130173	99-OPS--STRU	Paint over grafitti on b	TROUBLE	COMPLETED	1/31/2013	1/31/2013	1/31/2013	MAINT-II	OPS	COMPLETED	1529
C130172	06--KOL/POI SYS	1/31/13- 1698 Poipu	PRIORITY	COMPLETED	1/31/2013	1/31/2013	1/31/2013	PF-L	OPS-WEST	COMPLETED	1806
C130171	06-HYD-I-087R	1/30/13- Hyd. returne		COMPLETED	1/31/2013	1/30/2013	1/30/2013	PF	OPS-WEST	COMP-HYD	1816
C130170	99-ME-TLR-CK0739	Replace all 4 worn tire		ISSUED	1/31/2013	1/31/2013		AUTO-II	OPS	N/A	1529
C130169	99-V-CK2049	Replace 2 front worn		ISSUED	1/31/2013	1/31/2013		AUTO-II	OPS	N/A	1529
C130168	09--WAI/KAP SYS	4504 Kukui St, Kapaa	ROUTINE	COMPLETED	1/31/2013	2/1/2013	2/8/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130167	08--LIH/HAN SYS	4121- D Rice St, Lihu	ROUTINE	COMP-PART	1/31/2013	2/4/2013	2/4/2013	WSS-III	OPS-EAST	N/A	3092
C130166	08--LIH/HAN SYS	4010 Hehi Rd, Hanar	ROUTINE	COMP-PART	1/31/2013	2/4/2013	2/15/2013	WSS-III	OPS-EAST	N/A	3092
C130165	08--LIH/HAN SYS	7 Pilimai St, Lihue. Ir	ROUTINE	COMP-PART	1/31/2013	2/1/2013	2/1/2013	WSS-III	OPS-EAST	N/A	3092
C130164	09--WAI/KAP SYS	1271 Kamalu Rd unit	ROUTINE	COMP-PART	1/31/2013	2/4/2013	2/4/2013	WSS-III	OPS-EAST	N/A	3092
C130163	08--LIH/HAN SYS	3483 Maona St, Lihu	ROUTINE	COMP-PART	1/31/2013	2/4/2013	2/4/2013	WSS-III	OPS-EAST	N/A	3092
C130162	08--LIH/HAN SYS	4421 Kukui Grove St,	ROUTINE	COMP-PART	1/31/2013	2/4/2013	2/4/2013	PF-L	OPS-EAST	N/A	3092
C130161	08--LIH/HAN SYS	2 Pilimai Pl, Lihue. Ir	ROUTINE	COMP-PART	1/31/2013	2/1/2013	2/1/2013	WSS-III	OPS-EAST	N/A	3092
C130160	06--KOL/POI SYS	1/31/13- 2 & 3 Hoona	AS-REQ	SCHEDULED	1/31/2013	1/31/2013		PF	OPS-WEST	N/A	1806
C130159	05--LAW/OMO SYS	1/31/13- Hawaii One	AS-REQ	COMPLETED	1/31/2013	1/31/2013	1/31/2013	PF-L	OPS-WEST	COMPLETED	1806
C130158	03-PS-02	Troubleshoot Hanape	TRBL-SHOOT	SCHEDULED	1/31/2013	1/21/2013		WPO-I	OPS	N/A	1529
C130157	METER TEST	QP Test		COMPLETED	1/31/2013	1/31/2013	1/31/2013			COMP-CM	ADMIN

Job ID	Object ID	Step Title	Priority	Status	Requested	Starting	Completed	Labor Class	Group	Outcome	Supervisor
C130156	02--WAIMEA SYS	1/30/13- 4602 A Mer	AS-REQ	COMP-PART	1/31/2013	1/4/2013	2/4/2013	PF-L	OPS-WEST	N/A	1806
C130155	08--LIH/HAN SYS	Hehi Rd, Hanamaulu.	ROUTINE	COMP-PART	1/31/2013	1/31/2013	1/31/2013	WSS-III	OPS-EAST	N/A	3092
C130154	METER TEST	test		COMPLETED	1/30/2013	1/30/2013	1/30/2013	CLERK-DISP	OPS-SUPV	COMPLETED	3096
C130153	08-HYD-J-001R	1/23/13- Hyd. Maint.		COMPLETED	1/30/2013	1/23/2013	1/23/2013	PF	OPS-WEST	COMP-HYD	1816
C130152	08-HYD-J-002R	1/23/13- Hyd. Maint.		COMPLETED	1/30/2013	1/23/2013	1/23/2013	PF	OPS-WEST	COMP-HYD	1816
C130151	08-HYD-J-007	1/23/13- Hyd. maint.		COMPLETED	1/30/2013	1/23/2013	1/23/2013	PF	OPS-WEST	COMP-HYD	1816
C130150	08-HYD-K-009R	1/23/13-Hyd. Maint.		COMPLETED	1/30/2013	1/23/2013	1/23/2013	PF	OPS-WEST	COMP-HYD	1816
C130149	08-HYD-K-022R	1/23/13- Hyd. Maint.		COMPLETED	1/30/2013	1/23/2013	1/23/2013	PF	OPS-WEST	COMP-HYD	1816
C130148	99-V-CK2128	Emergency call in Kila		ISSUED	1/30/2013	1/30/2013		AUTO-II	OPS	N/A	1529
C130147	09--WAI/KAP SYS	Remove Hydrant met	ROUTINE	PLANNING	1/30/2013			EQUIP-II	OPS-WEST	N/A	1806
C130146	03--HAN/ELE SYS	Remove Hydrant met	ROUTINE	PLANNING	1/30/2013			EQUIP-II	OPS-WEST	N/A	1806
C130145	14--HANALEI SYS	Remove Hydrant met	ROUTINE	PLANNING	1/30/2013			EQUIP-II	OPS-WEST	N/A	1806
C130144	10--ANAHOLA SYS	4207 Ulumanao St, A	ROUTINE	COMP-PART	1/30/2013	2/1/2013	2/1/2013	WSS-III	OPS-EAST	N/A	3092
C130143	09--WAI/KAP SYS	5619 Ohelo Rd, W.H	ROUTINE	ACCT-1836	1/30/2013	1/29/2013	1/29/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130142	09--WAI/KAP SYS	5010 Malie Rd, Kapa	ROUTINE	COMPLETED	1/30/2013	1/30/2013	1/30/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130141	06-HYD-G-112	1/30/13- Hit & run co	AS-REQ	COMPLETED	1/30/2013	1/29/2013	2/14/2013	PF	OPS	COMPLETED	1806
C130140	09--WAI/KAP SYS	342 Aina Lani Pl, W.H	ROUTINE	COMPLETED	1/30/2013	1/29/2013	1/30/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130139	12-HYD-X-069R	1/29/31- Repair Hyd.	AS-REQ	COMPLETED	1/30/2013	1/29/2013	1/29/2013	PF	OPS	COMPLETED	1806
C130138	06--KOL/POI SYS	1/29/13- 3756 Waiho	TROUBLE	COMPLETED	1/30/2013	1/29/2013	1/30/2013	PF	OPS-WEST	COMPLETED	1806
C130137	04--KALAHEO SYS	1/29/13- 2585 Poohiv	TROUBLE	COMP-PART	1/29/2013	1/29/2013	1/30/2013	PF	OPS-WEST	N/A	1806
C130136	05--LAW/OMO SYS	1/28/13- Hyd. E-159.	AS-REQ	COMP-PART	1/29/2013	1/28/2013	1/28/2013	PF	OPS	N/A	1806
C130135	05-HYD-E-023	1/28/13- Hyd. Maint.	AS-REQ	COMP-PART	1/29/2013	1/28/2013	1/28/2013	PF	OPS	N/A	1806
C130134	05-HYD-E-074	1/28/13- Hyd. Maint.	AS-REQ	COMP-PART	1/29/2013	1/28/2013	1/28/2013	PF	OPS	N/A	1806
C130133	05-HYD-E-050	1/28/13- Hyd. Maint.	AS-REQ	COMP-PART	1/29/2013	1/28/2013	1/28/2013	PF	OPS	N/A	1806
C130132	05-HYD-E-051	1/28/13- Hyd. Maint.	AS-REQ	COMP-PART	1/29/2013	1/28/2013	1/28/2013	PF	OPS	N/A	1806
C130131	05-HYD-E-052	1/28/13- Hyd. Maint.	AS-REQ	COMP-PART	1/29/2013	1/28/2013	1/28/2013	PF	OPS	N/A	1806
C130130	01--KEKAHA SYS	1/28/13- Kekaha, Wat	PM	SCHEDULED	1/29/2013	1/28/2013		PF	OPS-WEST	N/A	1806
C130129	03--HAN/ELE SYS	Call out. 3507 Aulike	TROUBLE	COMPLETED	1/29/2013	1/27/2013	1/27/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130128	06--KOL/POI SYS	Call out. Pane Rd, Pc	TROUBLE	COMPLETED	1/29/2013	1/27/2013	1/27/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130127	03--HAN/ELE SYS	Call out. 3586 Pilialo	TROUBLE	COMPLETED	1/29/2013	1/27/2013	1/27/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130126	09-HYD-M-014R	1/25/13- Hyd. Maint.	AS-REQ	COMP-PART	1/29/2013	1/25/2013	1/25/2013	PF	OPS	N/A	1806
C130125	09-HYD-N-056R2	1/25/13- Hyd. Maint.	AS-REQ	COMP-PART	1/29/2013	1/25/2013	1/25/2013	PF	OPS	N/A	1529
C130124	09-HYD-O-017R	1/25/13- Hyd. Maint.	AS-REQ	COMP-PART	1/29/2013	1/25/2013	1/25/2013	PF	OPS	N/A	1529
C130123	04--KALAHEO SYS	1/25/13- 4232 Puu pi	TROUBLE	COMP-PART	1/28/2013	1/25/2013	2/14/2013	PF-L	OPS-WEST	N/A	1806
C130122	04-PS-02	R&R 1 HP booster pu	TRBL-SHOOT	SCHEDULED	1/28/2013	1/28/2013		ELECT-TII	OPS	N/A	1529
C130121	09-PS-04	Repair leak off 1" PVC	TROUBLE	SCHEDULED	1/28/2013	1/28/2013		WPO-I	OPS	N/A	1529
C130120	99-V-CK2161	Fabricate water pressu	ROUTINE	COMPLETED	1/28/2013	1/28/2013	1/28/2013	OPS-ASST	OPS	COMPLETED	1529
C130119	99-V-CK2162	CK 2162, Replace cabi	TROUBLE	SCHEDULED	1/28/2013	1/24/2013		AUTO-II	OPS	N/A	1529

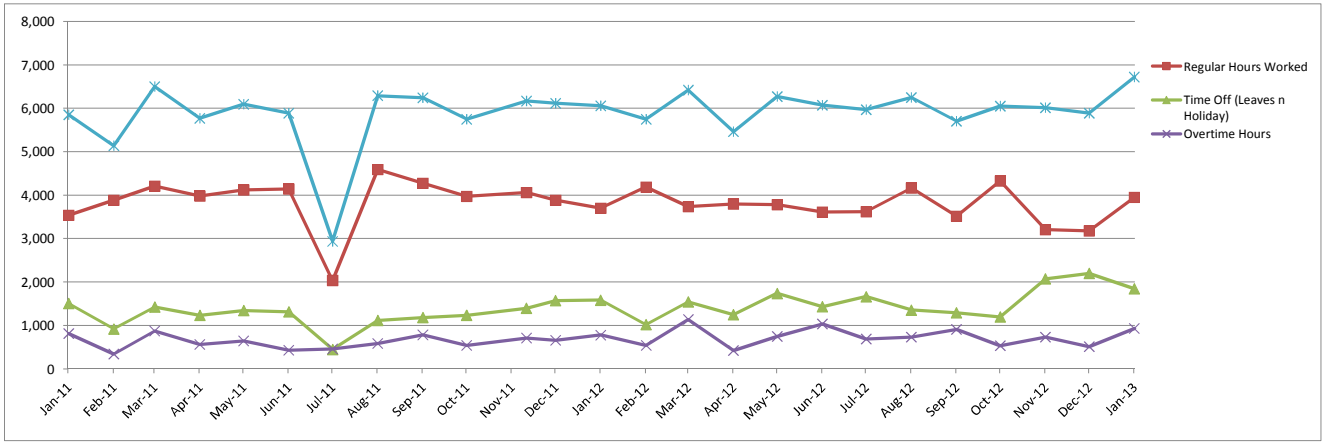
Job ID	Object ID	Step Title	Priority	Status	Requested	Starting	Completed	Labor Class	Group	Outcome	Supervisor
C130118	99-ADM--STRU	build box for fornt de	AS-REQ	SCHEDULED	1/28/2013	1/28/2013		MAINT-II	OPS	N/A	1529
C130117	08--LIH/HAN SYS	3155 Akahi St, Lihue.	ROUTINE	COMP-PART	1/28/2013	1/25/2013	1/25/2013	WSS-III	OPS-EAST	N/A	3106
C130116	09--WAI/KAP SYS	4895 Aliali Rd, Kapaa	ROUTINE	COMPLETED	1/28/2013	1/25/2013	1/28/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130115	09--WAI/KAP SYS	4605 Haua'ala Rd. Ka	ROUTINE	COMPLETED	1/28/2013	1/25/2013	1/25/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130114	09--WAI/KAP SYS	1/24/13- Ulu Rd. Kapa	AS-REQ	COMPLETED	1/25/2013	1/24/2013	1/24/2013	PF	OPS	COMPLETED	1806
C130113	09--WAI/KAP SYS	Olohena Rd, W.Hmst	TROUBLE	COMPLETED	1/25/2013	1/24/2013	1/24/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130112	09-HYD-N-070R	1/24/13- Hyd. Maint.	AS-REQ	COMP-PART	1/25/2013	1/24/2013	1/24/2013	PF	OPS	N/A	1529
C130111	09-HYD-N-069R	1/24/13- Hyd Maint.	AS-REQ	COMP-PART	1/25/2013	1/24/2013	1/24/2013	PF	OPS	N/A	1529
C130110	09-HYD-N-068R	1/24/13- Hyd. Maint.	AS-REQ	COMP-PART	1/25/2013	1/24/2013	1/24/2013	PF	OPS	N/A	1529
C130109	09-HYD-N-038	1/24/13- Check leak.	AS-REQ	SCHEDULED	1/25/2013	1/24/2013		PF	OPS	N/A	1806
C130108	12--KILAUEA SYS	17 Kalihiholo Rd, Kila	ROUTINE	COMP-PART	1/25/2013	2/1/2013	2/1/2013	WSS-III	OPS-EAST	N/A	3092
C130107	14--HANALEI SYS	5192-A Weke Rd, Ha	ROUTINE	COMP-PART	1/25/2013	1/28/2013	1/28/2013	WSS-III	OPS-EAST	N/A	3092
C130106	09--WAI/KAP SYS	Kuhio Hyw, Kapaa. R	ROUTINE	COMP-PART	1/25/2013	1/25/2013	1/25/2013	WSS-III	OPS-EAST	N/A	3092
C130105	03-PS-04	Chlorine BP #2 mecha	TROUBLE	SCHEDULED	1/25/2013	1/24/2013		ELECT-TII	OPS	N/A	1529
C130104	99-V-CK1792	Vehicle cranks but do		ISSUED	1/24/2013	1/24/2013		AUTO-II	OPS	N/A	1529
C130103	99-V-CK2067	Driver states while dri		ISSUED	1/24/2013	1/23/2013		AUTO-II	OPS	N/A	1529
C130102	99-V-CK2128	Performed 10K service		ISSUED	1/24/2013	1/22/2013		AUTO-II	OPS	N/A	1529
C130101	01-PS-01	Install latch for chlorir	AS-REQ	SCHEDULED	1/24/2013	1/23/2013		MAINT-II	OPS	N/A	1529
C130100	99-ME-BHL-BH4	ar;jjg;pozsrj		PLANNING	1/24/2013			AUTO-II	OPS	N/A	1529
C130099	09--WAI/KAP SYS	Kuhio Hwy, Waipouli.	ROUTINE	COMPLETED	1/24/2013	1/16/2013	1/16/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130098	99-V-CK2047	Compressor not work		ISSUED	1/24/2013	1/24/2013		AUTO-II	OPS	N/A	1529
C130097	09--WAI/KAP SYS	4997 Ohu Rd, Kapaa	ROUTINE	COMPLETED	1/24/2013	1/24/2013	1/24/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130096	04--KALAHEO SYS	1/23/13- 2684B Onu	TROUBLE	COMPLETED	1/23/2013	1/23/2013	1/24/2013	PF	OPS-WEST	COMPLETED	1806
C130095	04--KALAHEO SYS	1/23/13- 4451 Papali	TROUBLE	COMPLETED	1/23/2013	1/23/2013	1/24/2013	PF	OPS-WEST	COMPLETED	1806
C130094	06-PS-04	Repair road between	AS-REQ	SCHEDULED	1/23/2013	1/23/2013		EQUIP-II	OPS	N/A	1529
C130093	06--KOL/POI SYS	1/22/13- 5351 Malino	PRIORITY	PLANNED	1/23/2013	1/22/2013		PF	OPS-WEST	N/A	1806
C130092	01--KEKAHA SYS	1/22/13- Call Out. St.	EMERGENCY	COMP-PART	1/23/2013	1/22/2013	1/22/2013	PF	OPS-WEST	N/A	1806
C130091	09--WAI/KAP SYS	1/20/13- Wailua Com	EMERGENCY	COMP-PART	1/23/2013	1/20/2013	1/20/2013	PF	OPS-WEST	N/A	1806
C130090	12--KILAUEA SYS	1/20/13- Kuhio Hyw.,I	EMERGENCY	COMP-PART	1/23/2013	1/20/2013	1/20/2013	PF	OPS	N/A	1529
C130089	99-V-CK1816	Replace broken driver		SCHEDULED	1/23/2013	1/23/2013		AUTO-II	OPS	N/A	1529
C130088	02--WAIMEA SYS	1/19/13- Waimea Can	EMERGENCY	COMPLETED	1/23/2013	1/19/2013	1/19/2013	PF	OPS-WEST	COMPLETED	1806
C130087	08--LIH/HAN SYS	3094 Aukele St, Lihue	ROUTINE	PLANNING	1/23/2013			WSS-III	OPS-EAST	N/A	3092
C130086	05--LAW/OMO SYS	1/18/13- Lauoho Rd.,I	PRIORITY	COMPLETED	1/23/2013	1/18/2013	1/19/2013	PF	OPS-WEST	COMPLETED	1806
C130085	09--WAI/KAP SYS	5282-A Kawaihau Rd,	ROUTINE	COMPLETED	1/23/2013	1/22/2013	1/22/2013	WSS-III	OPS-EAST	COMPLETED	3106
C130084	06--KOL/POI SYS	1/17/13- Mahaulepu.	PRIORITY	COMPLETED	1/22/2013	1/17/2013	1/28/2013	PF	OPS-WEST	COMPLETED	1806
C130083	02-PS-02	Waimea Well B flow n	TRBL-SHOOT	SCHEDULED	1/22/2013	1/16/2013		WPO-I	OPS	N/A	1529
C130082	09-PS-03	Repair Nonou Well C	TRBL-SHOOT	SCHEDULED	1/22/2013	1/21/2013		WPO-I	OPS	N/A	1529
C130081	99-ADM--STRU	Fix loose panel in ceili	TROUBLE	SCHEDULED	1/22/2013	1/22/2013		MAINT-II	OPS	N/A	1529

Job ID	Object ID	Step Title	Priority	Status	Requested	Starting	Completed	Labor Class	Group	Outcome	Supervisor
C130080	15--HAE/WAI SYS	Wainiha bridge, Wair	PRIORITY	COMPLETED	1/22/2013	1/22/2013	1/22/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130079	99-LAB-MENS	2nd floor restroom ne	TROUBLE	SCHEDULED	1/18/2013	1/14/2013		MAINT-II	OPS	N/A	1529
C130078	04-BPS-01	Kalaheo Nursery Tank	AS-REQ	SCHEDULED	1/18/2013	1/7/2013		WPO-I	OPS	N/A	1529
C130077	05--LAW/OMO SYS	1/18/13- 4561 Aulima	AS-REQ	COMPLETED	1/18/2013	1/18/2013	1/18/2013	PF	OPS-WEST	COMPLETED	1806
C130076	09--WAI/KAP SYS	1/17/13- Call Out. Ha	EMERGENCY	COMPLETED	1/18/2013	1/17/2013	1/18/2013	PF	OPS-EAST	COMPLETED	1806
C130075	09--WAI/KAP SYS	1/17/13- Call Out. 492	EMERGENCY	SCHEDULED	1/18/2013	1/17/2013		PF	OPS-WEST	N/A	1806
C130074	08--LIH/HAN SYS	Hehi Rd, Hanamaulu.	ROUTINE	COMPLETED	1/17/2013	1/15/2013	1/15/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130073	02-HYD-B-008	1/16/13- Check leak.	PRIORITY	SCHEDULED	1/17/2013	1/16/2013		PF	OPS-WEST	N/A	1806
C130072	06--KOL/POI SYS	1/16/13- Kukuiula Sub	TROUBLE	SCHEDULED	1/17/2013	1/16/2013		PF	OPS-WEST	N/A	1806
C130070	09--WAI/KAP SYS	Call out. Kaapuni Rd,	TROUBLE	COMPLETED	1/17/2013	1/13/2013	1/13/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130069	08--LIH/HAN SYS	FH K- 83 Pua Nani St	ROUTINE	COMP-PART	1/17/2013	1/17/2013	1/17/2013	WSS-III	OPS-EAST	N/A	3092
C130068	08--LIH/HAN SYS	2889 Mokoi St, Lihue	ROUTINE	COMP-PART	1/17/2013	1/28/2013	1/28/2013	WSS-III	OPS-EAST	N/A	3092
C130067	09--WAI/KAP SYS	4822 Nonou Rd, W.H	ROUTINE	COMPLETED	1/17/2013	1/25/2013	1/25/2013	PF-L	OPS-EAST	COMPLETED	3092
C130065	04-PS-02	Place Kalaheo DW #2	AS-REQ	SCHEDULED	1/16/2013	1/16/2013		WPO-I	OPS	N/A	1529
C130064	99--LIHUE SHOP	clean-up back of gara	SAFETY	SCHEDULED	1/16/2013	1/9/2013		MAINT-II		N/A	1529
C130063	09--WAI/KAP SYS	Call out. Kapaa town	TROUBLE	COMPLETED	1/16/2013	1/12/2013	1/12/2013	WSS-III	OPS-EAST	N/A	3106
C130062	09--WAI/KAP SYS	Kuhio Hwy, Waipouli.	PRIORITY	COMPLETED	1/16/2013	1/15/2013	1/16/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130059	05--LAW/OMO SYS	1/11/13- 411K Koloa	TROUBLE	COMP-PART	1/15/2013	1/11/2013	1/11/2013	PF	OPS-WEST	N/A	1806
C130058	08--LIH/HAN SYS	Pikaki Rd, Pua loke. F	ROUTINE	COMPLETED	1/15/2013	1/11/2013	1/11/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130057	10--ANAHOLA SYS	Aliomanu Rd, Anahol	ROUTINE	COMPLETED	1/15/2013	1/11/2013	1/11/2013	WSS-III	OPS-EAST	COMPLETED	3106
C130055	05--LAW/OMO SYS	1/9/13- Lawai, Meneh	TROUBLE	COMP-PART	1/15/2013	1/9/2013	1/9/2013	PF	OPS-WEST	N/A	1806
C130054	09--WAI/KAP SYS	Puuopae rd, W.hmsto	ROUTINE	COMPLETED	1/15/2013	1/15/2013	1/15/2013	WSS-III	OPS-EAST	COMPLETED	3106
C130053	14--HANALEI SYS	5 Hanalei Plantation I	ROUTINE	COMPLETED	1/15/2013	2/4/2013	2/4/2013	PF-L	OPS-EAST	COMPLETED	3092
C130050	09--WAI/KAP SYS	Kuhio Hwy, Kapaa. R	TROUBLE	COMPLETED	1/14/2013	1/14/2013	1/14/2013	WSS-III	OPS-EAST	COMPLETED	3106
C130049	04--KALAHEO SYS	OPS to make 2-inch li	AS-REQ	ACCT-1836	1/14/2013	1/17/2013	1/31/2013	OPS-CHIEF	OPS	COMPLETED	1529
C130048	01--KEKAHA SYS	1/8/13- Hyd. A-117, N	AS-REQ	COMP-PART	1/11/2013	1/8/2013	1/8/2013	PF	OPS-WEST	N/A	1806
C130047	01-HYD-A-064R	1/8/13- Hyd. Maint.	AS-REQ	COMP-PART	1/11/2013	1/8/2013	1/8/2013	PF	OPS-WEST	N/A	1806
C130045	04--KALAHEO SYS	1/7/13- 4530 Kuli Rd.	AS-REQ	COMPLETED	1/11/2013	1/7/2013	1/7/2013	PF	OPS-WEST	COMPLETED	1806
C130043	09--WAI/KAP SYS	Nonou Tank, W.hslot	ROUTINE	COMPLETED	1/10/2013	1/15/2013	1/15/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130042	09--WAI/KAP SYS	Ops to perform one (	AS-REQ	COMPLETED	1/10/2013	1/15/2013	1/15/2013	OPS-CHIEF	OPS	COMPLETED	1529
C130040	09--WAI/KAP SYS	Panihi Rd & Kuhio H	TROUBLE	COMPLETED	1/10/2013	1/10/2013	1/10/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130037	03--HAN/ELE SYS	1/6/13- 3900 Koula R	EMERGENCY	ACCT-1836	1/9/2013	1/6/2013	1/6/2013	PF	OPS-WEST	COMPLETED	1806
C130036	04--KALAHEO SYS	1/5/13- 4162 Pai Rd.,	TROUBLE	COMPLETED	1/9/2013	1/3/2013	1/8/2013	PF	OPS-WEST	COMPLETED	1806
C130035	09--WAI/KAP SYS	1/5/13- 5801 Kaapun	EMERGENCY	COMPLETED	1/9/2013	1/5/2013	1/5/2013	PF	OPS-WEST	COMPLETED	1806
C130034	09--WAI/KAP SYS	5016 Haleilio Rd, W.I	ROUTINE	COMPLETED	1/9/2013	1/9/2013	1/9/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130032	99-V-CK1602	Loud grinding noise c		ISSUED	1/8/2013	1/8/2013		AUTO-II	OPS	N/A	1529
C130030	06--KOL/POI SYS	1/3/13- Mahaulepu, b	EMERGENCY	COMPLETED	1/8/2013	1/3/2013	1/4/2013	PF	OPS-WEST	COMPLETED	1806
C130029	01--KEKAHA SYS	1/3/13- 8171 Kekaha	EMERGENCY	COMPLETED	1/8/2013	1/3/2013	1/3/2013	PF	OPS-WEST	COMPLETED	1806

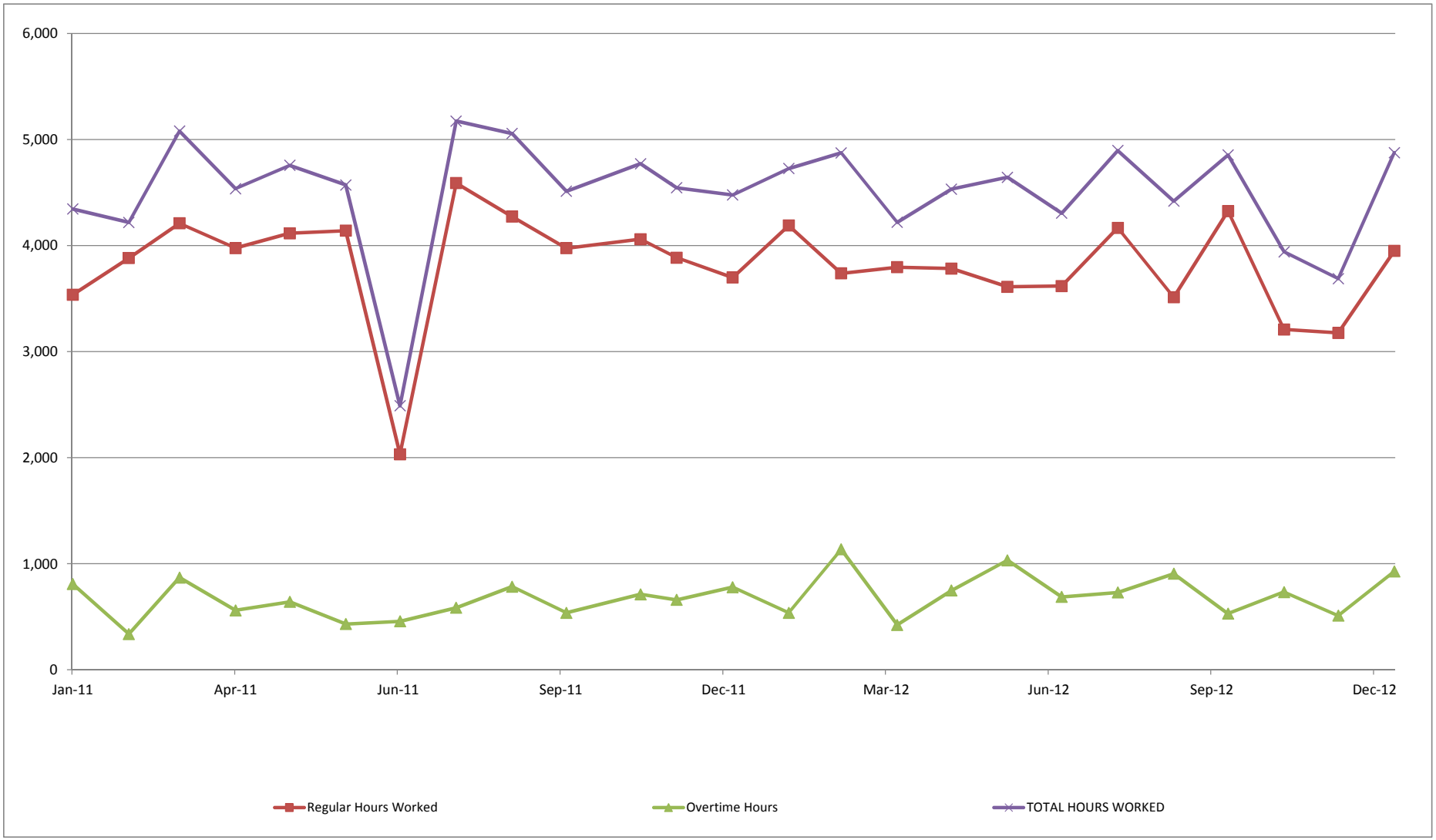
Job ID	Object ID	Step Title	Priority	Status	Requested	Starting	Completed	Labor Class	Group	Outcome	Supervisor
C130028	05--LAW/OMO SYS	1/3/13- 22099A Iwip	PRIORITY	COMPLETED	1/8/2013	1/3/2013	1/3/2013	PF	OPS-WEST	COMPLETED	1806
C130027	09--WAI/KAP SYS	4814 Nonou Rd, W.h	ROUTINE	COMP-PART	1/8/2013	1/9/2013	1/9/2013	WSS-III	OPS-EAST	N/A	3092
C130026	02--WAIMEA SYS	12/31/12- Hyd. Maint	AS-REQ	COMPLETED	1/8/2013	12/31/2012	12/31/2012	PF	OPS-WEST	COMPLETED	1806
C130025	02-HYD-B-082	12/31/12- Hyd. Maint	AS-REQ	COMPLETED	1/8/2013	12/31/2012	12/31/2012	PF	OPS-WEST	COMPLETED	1806
C130024	08--LIH/HAN SYS	12/29/12- Call Out. Cl	EMERGENCY	COMPLETED	1/7/2013	12/29/2012	12/29/2012	PF	OPS-WEST	COMPLETED	1806
C130023	12--KILAUEA SYS	12/29/12- Call Out. Cl	EMERGENCY	COMPLETED	1/7/2013	12/29/2012	12/29/2012	PF	OPS-WEST	COMPLETED	1806
C130022	09-HYD-S-003R	12/29/12- Call Out. H	EMERGENCY	COMPLETED	1/7/2013	12/29/2012	1/8/2013	PF	OPS-WEST	COMPLETED	1806
C130021	09--WAI/KAP SYS	5900 Waipouli Rd, W	TROUBLE	COMPLETED	1/7/2013	1/7/2013	1/7/2013	WSS-III	OPS-EAST	COMPLETED	3092
C130020	05-HYD-E-009	12/29/12- Call Out. Cl	EMERGENCY	SCHEDULED	1/7/2013	12/29/2012		PF	OPS-WEST	N/A	1806
C130019	09-HYD-R-047	1/5/13- Call Out. Che	EMERGENCY	COMPLETED	1/7/2013	1/5/2013	1/7/2013	PF	OPS-WEST	COMPLETED	1806
C130017	12--KILAUEA SYS	Locate Missing Hydra	ROUTINE	COMPLETED	1/4/2013	1/3/2013	1/28/2013	EQUIP-II	OPS-WEST	COMPLETED	1806
C130016	09--WAI/KAP SYS	Call Out, 101 Melia St	TROUBLE	COMPLETED	1/4/2013	1/3/2013	1/4/2013	EQUIP-II	OPS-WEST	COMPLETED	1806
C130015	99-V-CK1602	Water still leaking in c		ISSUED	1/4/2013	1/2/2013		AUTO-II	OPS	N/A	1529
C130014	02--WAIMEA SYS	12/28/12- Menehune	AS-REQ	COMPLETED	1/3/2013	12/28/2012	12/28/2012	PF	OPS-WEST	COMP-HYD	1806
C130013	03--HAN/ELE SYS	12/28/12- Lokokai Rd	TRBL-SHOOT	SCHEDULED	1/3/2013	12/28/2012		PF	OPS-WEST	N/A	1806
C130009	99-V-CK1602	Short in circuit fried ir		ISSUED	1/2/2013	12/27/2012		AUTO-II	OPS	N/A	1529
C130008	06--KOL/POI SYS	1/2/13- 1831 Pee Rd.	TROUBLE	COMPLETED	1/2/2013	1/2/2013	1/2/2013	PF-L	OPS	COMPLETED	1300
C130007	99-V-CK1786	When trying to start t		ISSUED	1/2/2013	12/18/2012		AUTO-II	OPS	N/A	1529
C130006	99-V-CK1679	Power steering not wo		ISSUED	1/2/2013	12/31/2012		AUTO-II	OPS	N/A	1529
C130005	08--LIH/HAN SYS	1/2/13- 2895 Hoolak	TROUBLE	COMP-PART	1/2/2013	1/2/2013	1/2/2013	PF	OPS	N/A	1806
C130004	99-V-CK1786	Turbo is acting up and		ISSUED	1/2/2013	12/31/2012		AUTO-II	OPS	N/A	1529
C130003	06-HYD-I-035R	12/20/12- Hyd. Maint		COMPLETED	1/2/2013	12/20/2012	12/20/2012	PF	OPS-WEST	COMP-HYD	3090
C130002	09--WAI/KAP SYS	12/28/12- 5688 Olohe	EMERGENCY	COMPLETED	1/2/2013	12/28/2012	12/29/2012	PF	OPS-WEST	COMPLETED	1806
C130001	03--HAN/ELE SYS	1/2/13- 4592 Eleele R	TROUBLE	COMPLETED	1/2/2013	1/2/2013	1/2/2013	PF-L	OPS	COMPLETED	1300

County Of Kauai **- DEPARTMENT OF WATER**
Operations Division: Plant & Field
Total Hours for the Month
For the Period: January 2011 to January 2013

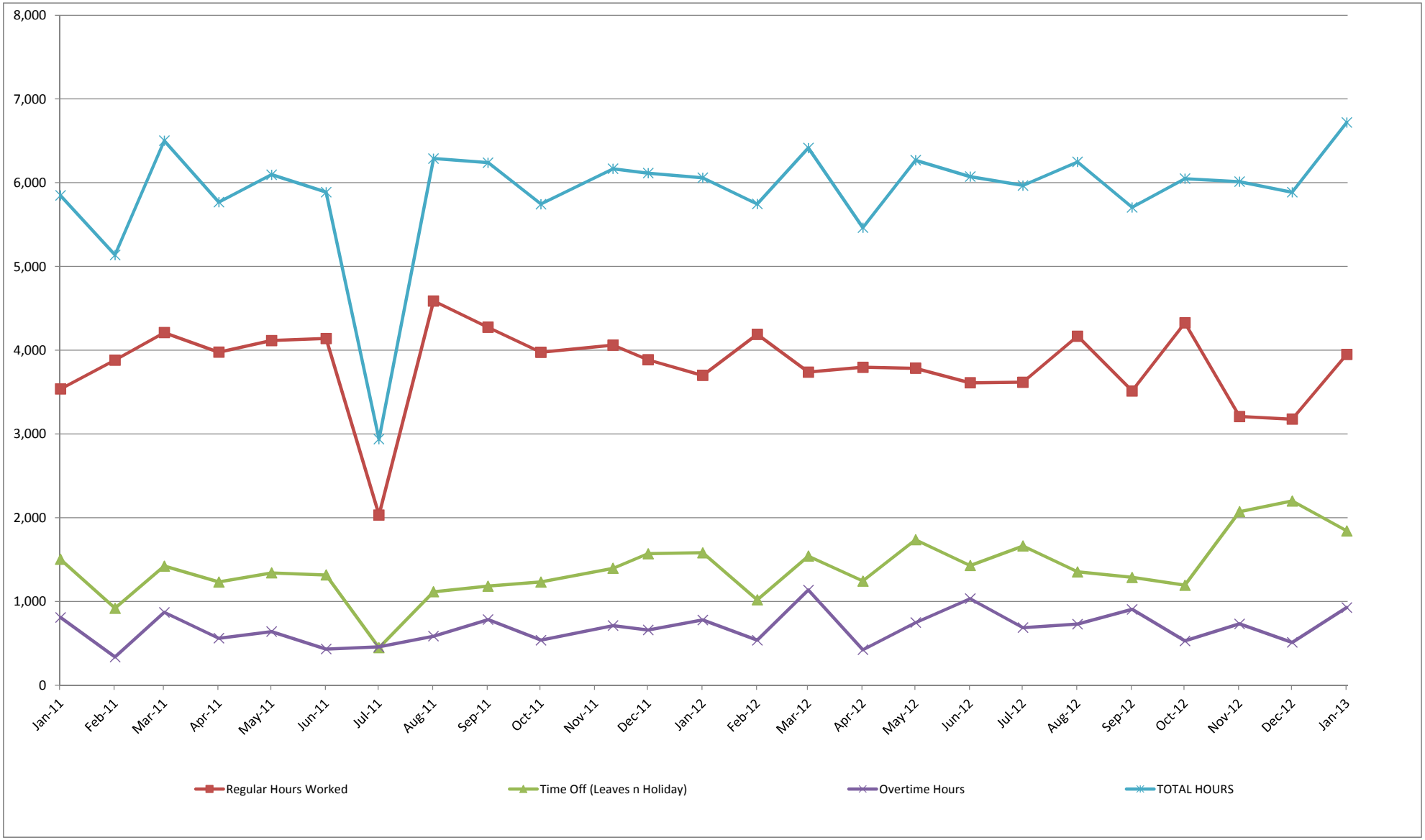
	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13
Regular Hours Worked	3,536	3,882	4,210	3,976	4,116	4,140	2,033	4,589	4,273	3,975	4,060	3,886	3,699	4,189	3,738	3,797	3,784	3,611	3,618	4,167	3,513	4,326	3,209	3,177	3,949
Time Off (Leaves n Holiday)	1,504	919	1,422	1,232	1,340	1,316	447	1,116	1,183	1,233	1,396	1,570	1,582	1,019	1,542	1,244	1,736	1,429	1,662	1,353	1,287	1,195	2,071	2,199	1,843
Overtime Hours	809	337	870	561	640	431	457	585	783	537	711	659	779	538	1,136	423	748	1,033	687	730	906	529	733	511	927
TOTAL HOURS	5,849	5,137	6,502	5,769	6,096	5,887	2,937	6,289	6,239	5,745	6,167	6,115	6,059	5,746	6,416	5,463	6,268	6,073	5,967	6,250	5,706	6,049	6,013	5,887	6,719



County Of Kauai **- DEPARTMENT OF WATER**
Operations Division: Plant & Field
Total Hours Worked for the Month
For the Period: January 2011 to January 2013



County Of Kauai **- DEPARTMENT OF WATER**
Operations Division: Plant & Field
Total Hours for the Month
For the Period: January 2011 to January 2013



DEPARTMENT OF WATER

County of Kaua`i

"Water has no Substitute - Conserve It!"

February 28, 2013

RE: MONTHLY SUBDIVISION SUMMARY

January 2013 Updates/Recommendations

Subdivision Number	TMK Number	Applicant	Received	Response Date	Subject	DOW Response to Planning
S-2013-11	5-4-04:001; 5-4-04:013	Ohana Hanalei, LLC.	1/7/2013	1/22/2013	Application	Tentative Approval Recommended
S-2012-9	1-9-10:013	Gail Shimokawa; Gordon Kireto; Lori Shimokawa Caporus	1/17/2013	1/23/2013	Pre-Final Map Review	Final Approval Recommended
S-2009-17	2-8-12:001; 2-8-12:011	Aukahi Farm, LLC.	1/23/2013	1/25/2013	Pre-Final Map Review	Final Approval Recommended
S-2007-38	2-8-15:043; 2-8-15:044; 2-8-15:082; 2-8-16:004	SVO Pacific	1/7/2013	1/28/2013	5th Time Extension	No Objection/Approve Extension Request

GF/loo
WR/P Report (1/31/2013)
Mgrrp/Monthly Subdivision Summary Report

Respectfully submitted,

Gregg Fujikawa
Chief of Water Resources and Planning

Approved:

David R. Craddick, P. E., C. E. M.
Manager and Chief Engineer

MANAGER'S UPDATE

February 28, 2013

MANAGER'S UPDATE for January 2013

Contracts Awarded:

RE: Fukunaga & Associates for Water Plan 2020 Job No. WK-25a, Job No. 12-6, Kuhio Highway 16" and 12" Water Main Replacement, Kauai, Hawai'i in the amount of $139,800.00

FUNDING:

Water Plan 2020 Job No. WK-25a, Kuhio Highway 16" and 12" WM Replacement …..…	$ 139,800.00
Contingency (~5%)……..……..……..……..	$ 6,990.00
Total Requested from Account 101 CRPL ……..……....	$ 146,790.00

BALANCE REMAINING (prior to subject fund request)

Account 101 CRPL Water Plan 2020 Job No. WK-25a, Kuhio Highway 16" and 12" Water Main Replacement, Kauai, Hawaii……	$250,000.00
Total Requested from Project Fund Balance	<$146,790.00>
New Project Fund Balance	$103,210.00

BACKGROUND:

There is currently a 12" water main on Kuhio Highway from near the Kapaa Bypass road to the north side of Aleka Loop Road. This water main is called out to be upsized to a 16" water main in WP2020. Additionally, the DOT has informed the DOW that they intend to repave this area of highway by early next year. This project serves to avoid having to repave the road twice within a relatively short time frame. The line is not reliable enough as it is A/C pipe to remain in place for the next ten years or so before it would have to be replaced due to demand issues.

We reviewed Fukunaga and Associates, Inc. proposal of $139,800.00 for the work and found it acceptable.

PUMP INSTALLATION PERMITS:
None

WAIVER, RELEASE AND INDEMNITY AGREEMENTS SIGNED BY THE MANAGER:
None

PERSONNEL MATTERS UPDATE

February 15, 2013

RECRUITMENT AND POSITION CHANGES

Operations Division

1. Assistant Chief of Operations #2400. Approved at December 2012 Board Meeting. No action.

2. Assistant Water Plant Operator #2312. Pending referred list of eligibles from the Department of Personnel Services (DPS).
3. Lead Pipefitter #2481. Pending referred list.
4. Power Generator Repairer reallocated to Heavy Vehicle and Equipment Mechanic I #2469. Beginning recruitment.
5. Utility Worker #2438. Pending referred list.
6. Water Plant Operator II #2496. Pending referred list.
7. Water Service Investigator II #2486. DOW reviewing position duties.
8. Waterworks Electronics/Plant Electrical Tradesperson I #2311. Pending referred list.
9. Meter Mech position Vacant pending reorg

Fiscal Division

1. Accountant II #2435 (Accounting). Interviews held 2/15/2013.
2. Accountant II #New Position (Billing). Pending DPS review.
3. Accountant IV #2303 & #2304. Pending DPS review.
4. Billing Section Position Re-descriptions. Pending DPS review.
5. Billing Services Assistant - Short Term position #10103. Interview held 2/14/2013.
6. Procurement Specialist IV #New Position. Pending DPS review.

Engineering Division, Construction Management (CM)Division, Water Quality Division and Water Resources & Planning Division

1. Civil Engineer II #2458. DOW reviewing duties.
2. Civil Engineer III #2360 - Water Resources and Planning Division. Pending Manager's approval to proceed with recruitment.
3. Civil Engineer VI (EM-5) #2430- Engineering Division. Pending referred list.
4. Waterworks Project Manager #2351. Pending referred list.
5. Water Inspector II #2483. No action.

Administration

1. Commission Support Clerk #2493. Pending DPS review.
2. Departmental Public Relations Specialist #2478. Position filled effective 2/1/2013.
3. Deputy Manager-Engineer #E-30. Position filled effective 2/8/2013.
4. Engineering Program Assistant - Short Term position #9105. Position filled effective 2/19/2013.
5. Private Secretary #E-35. Pending DPS review.
6. Secretary #2354. Requesting a list of candidates.

SUMMARY OF WARRANT VOUCHERS PAID – December 31, 2012

Warrant vouchers were paid in the amount of $ 3,317,148.07
Please see attached Warrant Vouchers Report.

STAFF REPORTS - FY 13:

CONVEYANCE OF WATER FACILITY:

None

QUARTERLY REPORT ON MANAGER'S GOALS:

WATER QUALITY REPORT
COUNTY ATTORNEY QUARTERLY REPORT

The next update will be in April 2013.

RECAP OF MANAGER'S MEETINGS AT NRWA, Washington DC

All Representatives and Senators are waiting to see what happens with the sequestration provision in the Fed budget that will kick in March 1. All support training for the water and wastewater operators. The Source Protection Program in the USDA budget may be held to current funding levels which do not include Hawaii.

WATER SYSTEM DEVELOPMENT FEE Update:

(7) Seven community meetings have been done in the month of January throughout the island from Kekaha to Kilauea. Since then we have issued a press release to ask the community and stakeholders for comments with a deadline of March 8, 2013.

The DOW met with Chamber on 2/21/13 and will meet with the Kaua'i Board of Realtors in the upcoming weeks. Minutes of the meeting are being taken and will be made available to the Board.

C&B BILLING SYSTEM UPDATE:

February 28, 2013

The new billing system (CC&B) went into Production on January 22nd, so far there have been minor issues with the system and the reports. We are working closely with HBWS to resolve these issues.

The billing staff has been working hard with the new monthly billing system which added additional work to their busy schedule.

Tentatively Credit & Collections (C&C) and Late Payment Charge (LPC) (pending testing) is scheduled to be turned on in May 2013. Staff is looking into Lock Box options, eBill Presentment and Statements, as well as ePayment to provide better customer service and reduce the work load.

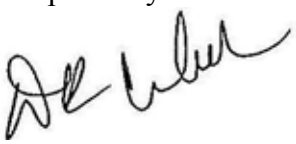
IT STRATEGIC PLAN UPDATE:

There are some expensive fixes. It will assist in helping to make the staff more productive and reduce costs in some areas. One notable exception is the accounting program section where we are seeing a less than 1 benefit to cost ratio. However I believe in this area the fiscal responsibility of the Board to the community to provide timely information would override a less than 1 benefit to cost ratio.

AFFORDABLE HOUSING UPDATE:

Update will be provided after the next Task Force Meeting is held.

Respectfully submitted,



David Craddick, P.E., C.E.M.
Manager and Chief Engineer

DRC:mjg

Attached: 2010 BAB Spend Down Report as of January 2013
Summary of Warrant Vouchers Paid as of January 2013

Mgrrp/Manager's Update (02-28-13):mjg

February 28, 2013 BOARD MEETING

DEPARTMENT OF WATER
Summary of Warrant Vouchers Paid
January 31, 2013

WATER UTILITY FUND		
Other Expenses, Department of Water		
Capital Expenditures	$ 380,972.50	
Other Expenses, Department of Water		
Normal Expenditures	$ 2,398,000.54	
TOTAL WATER UTILITY FUND	$ 2,778,973.04	**$ 2,778,973.04**
BOND FUND		
	$ -	
TOTAL BOND FUND		**$ -**
F R C FUND		
FRC REFUNDS	$ -	
TOTAL FRC FUND	$ -	**$ -**
BOND - BAB		
UNLIMITED BUILDERS, LLC.	$ 7,566.74	
R. ELECTRIC, INC. (FINAL)	$ 38,988.46	
GOODFELLOW BROTHERS, INC. (FINAL)	$ 374,219.67	
MEI CORPORATION	$ 36,965.45	
OCEANIT LABORATORIES	$ 7,581.00	
ESAKI SURVEYING & MAPPING, INC.	$ 15,755.50	
ARCHITECTS HAWAII, LTD.	$ 22,233.76	
KODANI & ASSOCIATES, INC.	$ 34,864.45	
TOTAL BAB BOND FUND	$ 538,175.03	**$ 538,175.03**
TOTAL CLAIMS PAYABLE		**$ 3,317,148.07**
WATER UTILITY FUND		
1/31/13 AP	$ 2,778,973.04	
		$ 2,778,973.04
BOND FUND		**$ -**
F R C FUND		**$ -**
BOND - BAB:		
1/31/13 AP	$ 538,175.03	
		$ 538,175.03
BANK TRANSFER -		**$ 3,317,148.07**

Bank Transfer Adjustments:
Due to W/U - Transfer Adjustment

DEPARTMENT OF WATER

WATER UTILITY FUND

RECAP OF NORMAL EXPENDITURES

January 31, 2013

	BUDGET CODE		AMOUNT
REFUND - REVENUES FROM WATER SALES	1	$	1,461.68
UTILITIES - ADMINSTRATION & OFFICE	21	$	15,089.86
POSTAGE & PRINTING	22	$	658.85
OFFICE EQUIPMENT MAINTENANCE	24	$	659.19
CONTRACTUAL SERVICES - ADMINISTRATION & OFFICE	27	$	11,674.65
UNIVERSITY OF HAWAII-OFFICE OF RESEARCH SERVICES	27.6	$	3,922.30
TRAVEL & INCIDENTALS -STAFF	29	$	1,775.45
MISCELLANEOUS - ADMINISTRATION & OFFICE	31	$	786.89
IN-SERVICE TRAINING	33	$	610.00
SUPPLIES - OFFICE & JANITORIAL	34	$	4,721.33
COMPUTER SUPPORT & SUPPLIES	37	$	3,252.10
VEHICLE & EQUIPMENT MAINTENANCE	40	$	9,926.88
VEHICLE - FUEL	41	$	8,596.72
UTILITIES	42	$	6,351.60
ELECTRICAL PARTS	43.1	$	6,879.86
CONTRACTUAL SERVICES - OPERATIONS	45	$	33,804.00
MATERIALS & SUPPLIES - OPERATIONS	47	$	8,204.43
COLLECTIVE BARGAINING ITEMS	48	$	621.67
PUMP ELECTRICAL	51	$	238,019.61
WATER PURCHASE	55	$	2,326.24
CHEMICALS	58	$	4,178.88
MWH LABORATORIES	59	$	154.59
Workmen's Compensation Insurance	61	$	23,783.48
SRF - 16" WATERLINE ALONG KUHIO HWY, LEHO RD.	85	$	88,387.31
The Bank of New York Mellon-Bond	86	$	5,356.25
The Bank of New York Mellon-Bond SR 2005A	87	$	58,450.00
SRF-Kekaha-Elepaio to Huakai Road	90	$	162,821.84
SRF-Waha, Wawae and Niho Rds Main replacement	91	$	79,315.79
The Bank of New York Mellon-BAB	92	$	1,460,440.34
USDA Rural Development	93	$	17,275.00
The Bank of New York Mellon - KAUAI 11A	97.1	$	81,400.00
The Bank of New York Mellon - 2012A	97.2	$	57,093.75
TOTAL NORMAL EXPENDITURES		**$**	**2,398,000.54**

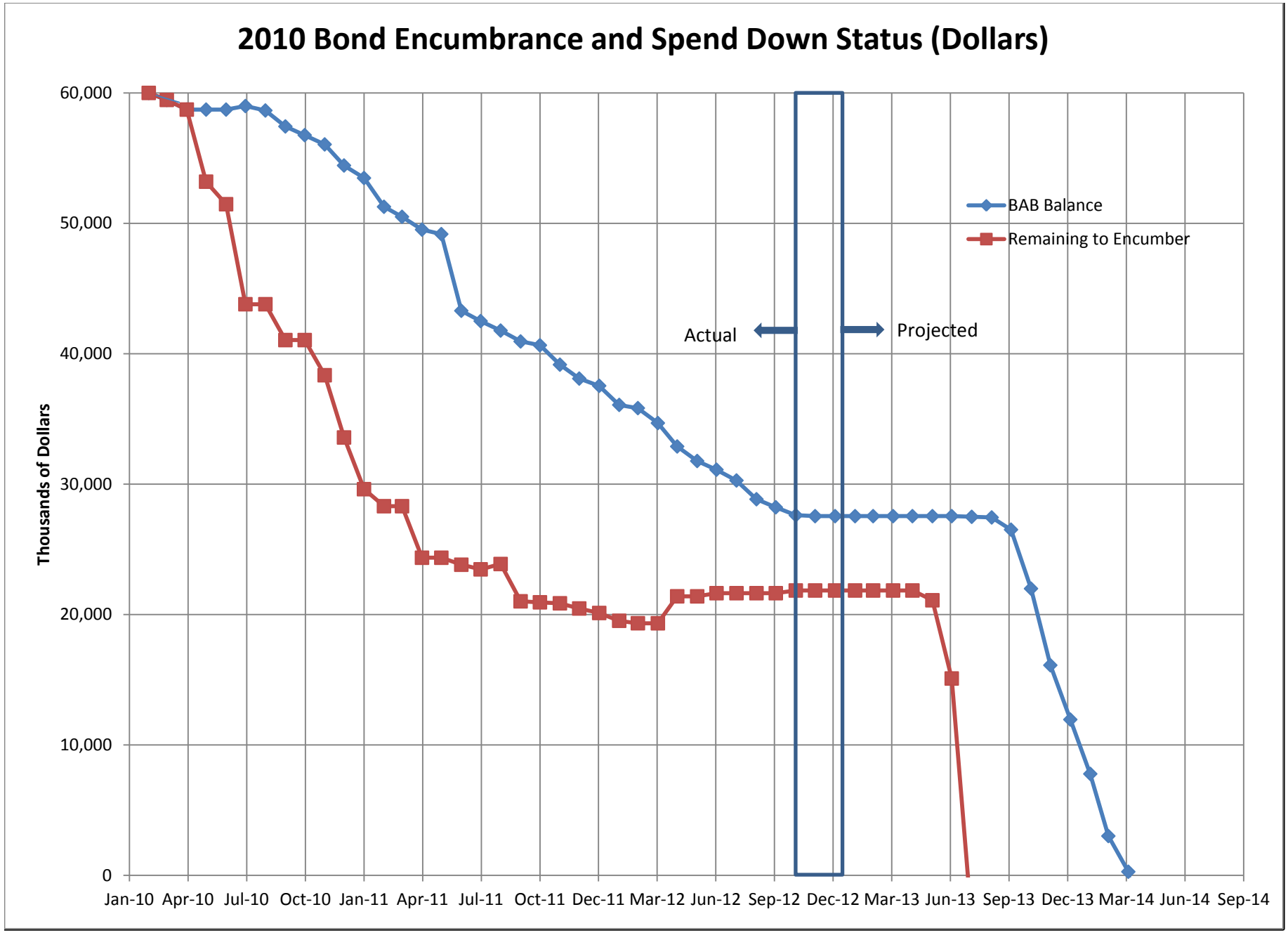
DEPARTMENT OF WATER

WATER UTILITY FUND

RECAP OF CAPITAL EXPENDITURES

January 31, 2013

CAPITAL EXPENDITURES:			**BUDGET CODE**		**AMOUNT**
CAPITAL IMPROVEMENT PROJECTS			101		
MISCELLANEOUS CAPITAL EXPENDITURES			102	$	13,371.58
OFFICE & ENGINEERING EQUIPMENT			103	$	21,748.21
VEHICLES & EQUIPMENT			106	$	2,773.25
CIP RESERVE			106B		
PURCHASE OF METER & METER BOXES			107		
SUB-TOTAL				**$**	**37,893.04**
WATER UTILITY FUND					
CON	462	KENNEDY/JENKS CONSULTANTS	647	$	1,560.40
CON	555	LYON ASSOCIATES, INC.	699	$	7,541.00
CON	539	MEARS GROUP, INC.	702	$	28,730.00
CON	558	R. ELECTRIC, INC.	710	$	4,227.06
CON	13-1	KUKUIULA DEVELOPMENT CO. LLC (FINAL)	716	$	301,021.00
CONTRACT PAYMENTS - WU				**$**	**343,079.46**
TOTAL WATER UTILITY -CAPITAL EXPENDITURES				**$**	**380,972.50**
BOND					
CONTRACT PAYMENTS - BOND:				**$**	**-**
FRC					
		Frc Refund -	4a		
FRC PAYMENTS				**$**	**-**
BOND - BAB					
CON	516	UNLIMITED BUILDERS, LLC.	220	$	7,566.74
CON	525	R. ELECTRIC, INC. (FINAL)	227	$	38,988.46
CON	534	GOODFELLOW BROTHERS, INC. (FINAL)	235	$	374,219.67
CON	542	MEI CORPORATION	239	$	36,965.45
CON	543	OCEANIT LABORATORIES	240	$	7,581.00
CON	409	ESAKI SURVEYING & MAPPING, INC.	592	$	15,755.50
CON	692	ARCHITECTS HAWAII, LTD.	692	$	22,233.76
CON	440	KODANI & ASSOCIATES, INC.	621	$	34,864.45
CONTRACT PAYMENTS - BAB				**$**	**538,175.03**
TOTAL CAPITAL EXPENDITURES				**$**	**919,147.53**


2010 Bond Encumbrance and Spend Down Status (Dollars)
Thousands of Dollars
60,000
50,000
40,000
30,000
20,000
10,000
0
Jan-10
Apr-10
Jul-10
Oct-10
Jan-11
Apr-11
Jul-11
Oct-11
Dec-11
Mar-12
Jun-12
Sep-12
Dec-12
Mar-13
Jun-13
Sep-13
Dec-13
Mar-14
Jun-14
Sep-14
BAB Balance
Remaining to Encumber
Actual
Projected