



Governing Board

Thursday, August 25, 2011, 7:30 A.M.
Historic Utah County Courthouse, Ballroom, Suite 319
51 South University Avenue, Provo, Utah

ATTENDEES:

Chair and Commissioner Larry Ellertson, Utah County
 Gene Shawcroft, Central Utah Water Conservancy District
 Mayor James Hadfield, American Fork City
 Mayor John Curtis, Provo City
 Councilman James Linford, Santaquin City
 Councilman Cecil Tuley, Saratoga Springs City
 Councilman Dean F. Olsen, Springville City
 Mayor Randy Farnworth, Vineyard Town
 Robyn Pearson, Utah Dept. of Natural Resources
 Leah Ann Lamb, Utah Dept. of Environmental Quality

ATTENDEES:

Dick Buehler, Utah Division of Forestry, Fire, and State Lands
 Representative Mike Morley, Utah State Legislature

INTERESTED PARTIES / VISITORS

Greg Beckstrom, Provo City
 Aaron Eagar, Utah County Weed Supervisor
 Rob Baskin, Supervisory Hydrologist, USGS
 Rick Cox, URS Corporation
 Bob Trombly, Provo City
 Todd Frye, Bonneville School of Sailing
 Dee Chamberlain, Saratoga Springs HOA
 Mike Mills, JSRIP
 Dan Bolke, FCE
 Jim O’Neal, Citizen

ABSENT:

Absent municipalities included Lehi City, Lindon City, Mapleton City, Orem City, Pleasant Grove City, and Woodland Hills Town.

1. Welcome and call to order.

1 Commissioner and Chairman Larry Ellertson called the meeting to order at 7:39 a.m. He welcomed the
 2 members of the Governing Board, municipal leaders, and public visitors.
 3

2. Review and approve the Utah Lake Technical Committee minutes from meeting of May 26, 2011.

4
 5 Commissioner Ellertson asked for discussion, comments, or corrections for the minutes of the meeting
 6 held May 26, 2011. It was motioned by Mayor James Hadfield to approve the minutes of May 26, 2011. It
 7 was seconded by Councilman Cecil Tuley; the motion carried and was unanimously approved.
 8

3. Review and approve the monthly financial report of the Commission for May, June and July 2011.

9
 10 Mr. Price gave the May, June, and July monthly financial reports, stating May and June ended the 2011
 11 fiscal year and July 2011 beginning fiscal year 2012:

12 **May:** The financial report for the month ending May 31, 2011, shows 8.3 percent of the fiscal year
 13 remaining. The Zions checking account balance was \$1,325.31; the money market account balance was

1 \$185,073.81; and the Public Treasurers Investment Fund balance was \$22,468.62. The money market
2 account balance received an annual rate of return of 0.75 percent, and the PTIF received a return of 0.54
3 percent. There were two transfers to checking for \$10,000 on May 4, 2011, and \$7,500 on May 18, 2011.
4 Interest earned in was \$131.34, bringing year-to-date interest earned to \$2,038.98. The expenses for the
5 month are listed in the middle totaling \$17,279.63. The General Fund Budget Report is listed at the
6 bottom, showing account balances and percents remaining in each of the budgeted accounts. There is an
7 overall General Fund balance of \$65,491.03, showing 25 percent of the budget remaining.

8 **June:** The financial report for the month ending June 30, 2011, shows 0 percent of the fiscal year
9 remaining. The Zions checking account balance was \$1,818.26; the money market account balance was
10 \$161,066.96; and the Public Treasurers Investment Fund balance was \$22,478.71. The money market
11 account balance received a rate of return of 0.75 percent, and the PTIF received a return of 0.55 percent.
12 There were three transfers to checking, because it was a three-pay-check month for employees. Transfers
13 were made for \$7,500.00 on June 1, \$10,000 on June 15, and \$7,500 on June 29, 2011. Interest earned in
14 June was \$116.15, bringing year-to-date interest earned to \$2,155.13. The expenses for the month are
15 listed in the middle totaling \$24,525.55. The General Fund Budget Report is listed at the bottom, showing
16 account balances and percents remaining in each of the budgeted accounts. There is an overall General
17 Fund balance of \$40,965.48, showing 16 percent of the budget remaining.

18 Mayor Hadfield said Mr. Price's accounting showed the Commission ended with a zero or unused
19 portion in every account balance for the fiscal year 2011 and congratulated Mr. Price for the end of fiscal
20 year balances. Mr. Price said he tries to be conscientious of the budget.

21 **July:** The financial report for the month ending July 31, 2011, shows 91.7 percent of the fiscal year
22 remaining, beginning the fiscal year of 2012. The Zions checking account balance was \$1,659.76; the
23 money market account balance was \$235,519.37; and the Public Treasurers Investment Fund balance was
24 \$22,489.12. The money market account balance is beginning to increase because of the contributions from
25 members were beginning to be paid. The money market account balance received a rate of return at 0.71
26 percent, and the PTIF received a return of 0.55 percent. There were two transfers to checking for \$7,000
27 on July 13, 2011, and \$6,500 on July 29, 2011. Interest earned in July and year-to-date was \$116.14. The
28 expenses for the month are listed in the middle totaling \$13,658.50. The General Fund Budget Report is
29 listed at the bottom, showing account balances percents remaining in each of the budgeted accounts. An
30 overall General Fund balance of \$242,591.50, showing 95 percent of the budget remains.

31 Mayor Hadfield moved all the financial reports for May, June, and July 2011 be approved as presented;
32 it was seconded by Mr. Tuley.

33 Councilman Jim Linford had several questions. He noted the account balance remaining was
34 \$40,965.48. On the budget for the Utah Lake Festival for FY2012, he noted the Commission had doubled
35 the amount from the previous year from \$5,000 to \$10,000. The phragmites removal was actually cut in
36 half from \$20,000 to \$10,000. He wondered why the amount was doubled for the Utah Lake Festival; why
37 was the phragmites cut in half. He also asked where the \$40,000 funds came from.

38 Mr. Price said the \$20,000 was budgeted in FY2011 because at budget approval time, it was unclear
39 whether grant money would be approved or not. In order to continue the phragmites work, the
40 Commission budgeted money for the project. Then the Phragmites Removal Team (PRT) received the
41 \$30,000 grant. Now a \$10,000 buffer is in place for the phragmites project, and if additional work is
42 identified, the \$10,000 could be used.

43 Mr. Linford asked about the increase in Utah Lake Festival appropriated funds. Mr. Price explained the
44 Utah Lake Festival was cancelled for FY 2011 year. When the FY2012 budget was approved in May, there
45 was discussion of possibly rescheduling the Festival. Mr. Price asked the Board to roll the unused portion
46 of the Festival budget of 2011 into the budget of 2012, because Utah Lake Commission would essentially be
47 holding two festivals during the fiscal year 2012. Mr. Linford restated the budget would only use half of the
48 allotted \$10,000 if the festival was not rescheduled in 2011 and Mr. Price confirmed the statement.

1 Mr. Linford asked if Santaquin had paid their membership dues. Mr. Price said yes. The two
2 outstanding entities are Lindon City and the Department of Natural Resources (DNR). Mr. Price sent
3 reminders to Mr. Styler of DNR and Mayor Jim Dain of Lindon. Commissioner Ellertson said Mayor Dain
4 had been out town.

5 Mr. Ellertson called for further questions concerning the financial reports and there were none. He
6 called for a vote on the motion. Voting was unanimous in favor of the motion.

7
8 **4. Report from the Technical Committee.**

9 Technical Committee Chairman Greg Beckstrom presented the report of the Technical Committee:

10 The Technical Committee met with the primary function to discuss the proposed rule of the
11 Transportation Commission regarding the approval of transportation facilities on sovereign lake beds. In
12 reviewing the proposal, the Committee found it met the objectives. A number of minor questions and
13 suggestions were made, and Mr. Price forwarded a letter to the Transportation Commission. Mr. Price also
14 attended the Transportation Commission meeting where they considered the rule. After the
15 Transportation Commission reviewed their rule, they were unable to approve it. They are expected to
16 approve it at their September meeting.

17 The high run off and elevation of Utah Lake was of significant interest to the Technical Committee.
18 Utah Lake peaked at nearly 2.5 feet above compromise, which is the highest it has been in 25 years. In
19 many respects, it was good fortune it did not get higher and there was not more flooding damage
20 associated with the runoff around the lake this year. It is surprising how long the lake elevation
21 maintained at 2.25 to 2.5 feet above compromise, maintaining this level from Memorial Day until the
22 middle of July. It has quickly receded over the last six weeks by about 2.5 inches a week. At present, it is
23 about 1.1 feet above compromise. At the rate of recession, it is expected to be back near compromise
24 elevation around early October, but it could change with the weather.

25 When Chris Keleher, Vice Chairman, Mr. Price, and Mr. Beckstrom recently met, they discussed the lack
26 of funding to do more studies in Utah Lake water levels. This has been a disappointment to the Technical
27 Committee. There is a lot of curiosity among the Technical Committee and others who are interested in
28 what the impact of the lake's high and fluctuating elevation had on water quality issues, the fish
29 population, phragmites, and other impacts. The Technical Committee does not have any significant
30 documented or reliable baseline data on a lot of these questions. That type of information would be
31 helpful to pursue various programs as the Board considers trying to promote varied interests, the
32 improvement of, and magnifying the capabilities of Utah Lake. It is such a large, significant body of water,
33 and so much information could be gleaned if money were available to do research. Commissioner
34 Ellertson concurred Utah Lake has so many possible projects but there is little time and money. He called
35 for questions of Mr. Beckstrom. He asked if the decision to restrict flow into the Jordan River was made.
36 Mr. Beckstrom said the restriction never went into place. One weekend storm in June and hot weather
37 flows did cause the flow to go above the 3400 cfs threshold. But the decision-makers determined it was
38 storm-generated and in time would recede below the level. The decision was made not to make
39 modifications on Utah Lake. Mr. Dick Buehler concurred with Mr. Beckstrom. Commissioner Ellertson was
40 aware it came close, but did not know the final decision.

41 Mr. Linford asked if the high water level affected phragmites removal, or if it increased the phragmites.
42 Mr. Beckstrom said Mr. Aaron Eagar would be able to give information in his report. Mr. Eagar said on the
43 different areas around the lake, the phragmites has moved inland in a lot of areas and did not go out
44 further. The water depth was holding it. The phragmites had been impacted by the high water. Mr.
45 Beckstrom observed similar effects in areas west of Provo and the state park where the encroachment
46 came in a bit and suspected it occurred on some agricultural lands in South Provo.

47 Commissioner Ellertson noted his appreciation for Mr. Beckstrom and the Technical Committee in
48 working on the things of the lake for the Governing Board who relies heavily on the Technical Committee.

1 **5. Report from the Executive Director.**

2 Mr. Price reported on the activities of the Utah Lake Commission.

3 **A. Daily Herald Editorial Response:** In May, the *Daily Herald* published an editorial expressing the
4 Commission should look at both the good side of a potential bridge crossing of Utah Lake as well as the
5 impacts. The *Herald* felt the Commission was looking at only the negative impacts. Mr. Price was
6 requested to write a response to the *Herald's* editorial. He felt the Commission was able to make their
7 point to the *Herald* to let them know the Commission is neutral at this point, and is concerned about the
8 impacts it can have. However, if the impacts of the bridge can be overcome, it is not something the
9 Commission is against, but it is early in the process to make a determination at this point.

10 **B. Seventh Grade Curriculum:** Another curriculum project for junior high students was completed in
11 one week in July, using teachers from Alpine, Provo, and Nebo School Districts. Carin Green, Executive
12 Assistant, and Mr. Price are fine tuning them to get them ready to be used in junior high science, history,
13 and English classes. He noted, the fourth grade curriculum was a success and had great participation.

14 **C. Update of Proposed Bridge:** After discussing the rules of the Transportation Commission in the
15 Technical Meeting, Mr. Price drafted a letter responding to the rules. He suggested areas the Technical
16 Committee and Governing Board felt should be addressed. In early August, the Transportation
17 Commission reviewed the issues at a public meeting in Coalville. They appreciated the comments they
18 received, but felt most of the comments were already addressed in their rules. A few issues to be
19 addressed are, "What mechanism is in place for a public safety response? Who would respond to
20 emergencies? Is there an agreement in place?" Another question the Committee had was to insure
21 proper planning at the local level with adequate tie-ins on the termination points of the bridge. As they
22 reviewed those and commented on the suggestions the Commission made, they felt the drafted rules
23 would address it. At their next meeting in September, they will probably approve the rules, which would
24 give the current proposer information he needs in order to be able to respond. At the same time, Forestry,
25 Fire, and State Lands (FFSL) provided information to the current proposer to respond and address the
26 environmental impacts. The Utah Lake Commission will continue to be involved in listening, offering
27 expertise, and giving input as needed and/or requested.

28 **D. Lake Level:** The lake level is receding and it will be another month or so before the gates are
29 closed, if the trend continues with the water going out to the Jordan River.

30 **E. Salt Lake County Watershed Symposium:** Mr. Price was able to attend the Salt Lake County
31 Watershed Symposium. A panel consisting of Laura Hanson, Executive Director of the Jordan River
32 Commission, Leland Myers the Great Salt Lake Commission, and himself was organized to discuss the value
33 of a coordinated management of water bodies. The message was well received and Mr. Price was able to
34 promote the Utah Lake Commission's message.

35 **F. Shoreline Ordinance:** A reminder was given to the members concerning the Shoreline Ordinance.
36 He complimented American Fork for completing their ordinance. Mr. Price will be contacting land planners
37 of several cities to offer assistance in understanding issues as they review the model ordinance. He asked
38 the members to touch base with their planning commissions and staff to evaluate the progress. With
39 available funding, the Commission has their consultant ready to help on any particular issues.

40 **G. Phragmites Removal/Shoreline Restoration:** Mr. Aaron Eagar will explain the Commission's plans.

41 **H. Utah Lake Symposium:** The June Sucker Recovery Program and UVU will host their annual Utah
42 Lake Symposium on Tuesday, October 25, 2011 at Utah Valley University. No agenda has been prepared
43 yet. The all-day event will have presentations and reports about research and projects on Utah Lake. A
44 presentation will be given from a graduate PhD student at the University of Utah who has been working
45 with Utah Lake sedimentation pulling core samples and dating them to see how old the core samples are.

46 Commissioner Ellertson called for questions of Mr. Price and his report, and there were none.
47

1 **6. Phragmites removal report from Aaron Eagar, Utah County Weed Supervisor.**

2 Mr. Price introduced Mr. Aaron Eagar, Utah County Weed Supervisor. He said Mr. Eagar was the brains
3 behind the phragmites removal team's (PRT) operation and it was great to work with him. Mr. Eagar was
4 to report on the progress and plans for the removal of the phragmites over the next year.

5 Mr. Eagar explained the pilot section of the phragmites removal was near Vineyard by the Lindon Boat
6 Harbor near Gammon Lane. PRT has been working for the past three years in this location. Commissioner
7 Ellertson stated the location could be accessed off of Geneva Road at 200 South in Lindon or 400 South in
8 Orem. Mr. Eagar said the county has a park next to the cooling ponds. There is a beach located there and
9 it is the best access point to the lake. The road goes south from the park and makes a bend to the east.
10 The last mile south has minimal access into the area, until Gammon Lane.

11 About 95 percent removal in the target area has been achieved. He was pleased with the success of
12 the airplane and ground spray. Before purchasing the Land Tamer, and where previous equipment could
13 not get in, a section of land had recurrent growth. In other areas, no growth was noted. Other
14 improvements included having the beach cleaned up and the beach line completely open. Part of the
15 project removed tamarisk and Russian olive. When he walked the entire length, he did not see any new
16 growth. The contractor did a good job in chipping, removing it, and completing stump treatments.
17 Extensive bulrush restoration was completed planting 3000 bulrushes in areas where bulrushes were
18 already located. It is unknown if they were already established or ones that were planted. These are
19 under water at present. A joint seeding project with DWR and a seeding test area are also under water. At
20 this time, it is unknown how well the bulrushes and seeding projects are going to work. The pilot area will
21 be closely followed. Overall, the pilot area looks good and he was pleased with how well the project has
22 gone. Thistles also grew along where the cooling ponds were and they were cleaned up. Overall
23 evaluation reveals the pilot area looks good.

24 In 2011, PRT started Section One that goes from the inlet of Jordan River, down around the Saratoga
25 Bay to the Eagle Park at the south end of Saratoga Bay and is about 248 acres. A helicopter scheduled for
26 the first week of September, will spray 248 acres. A ground spray of 30 acres will possibly grow into 60
27 acres because of path alteration from the original plan. These two sprays will be done at the same time.

28 About 1.6 acres of bulrush restoration is scheduled in areas where the bulrushes are already
29 established, and PRT will add more. Tamarisk and Russian olive removal is planned for 2.1 acres along the
30 bay area. Initial work was completed in winter 2010 with county equipment pushing down into the bay
31 area, creating breaks. Creating the break made it easier for PRT to begin other work. A wall was formed
32 where the preparation ended so the 2010 work was not lost due to the water elevation.

33 Pictures were shown of what the Land Tamer could do. A 200 foot barrier was created away from
34 trees, cottonwoods, houses, and anywhere the helicopter shouldn't spray. The helicopter will have a visual
35 of what should be sprayed and what will be sprayed by hand. Alteration of the original path was
36 necessitated because a beaver did extensive damage with a lot of dead fall. The alteration increases the
37 ground spray having to go on foot to get through all of the dead growth. The average water depth in with
38 the lake with phragmites growth is 1-4 feet and this is the first time PRT has encountered this.

39 On the south end of the marina, equipment was not able to get into the area and every time PRT tried,
40 the equipment got stuck. Even a private contractor was hired to try and push the phragmites away from
41 the houses -- his equipment also got stuck. The Land Tamer did really well, with no problems pushing
42 through the area. The area was scary having a lot of springs coming through with hot springs. It was
43 hoped the Land Tamer could get through it and it did. It was able to push and create a break from the
44 houses as PRT moved around the bay with the Land Tamer. They encountered a lot of landscaping
45 material -- culverts, pipes, etc. When PRT came across the items, they tried to work around them and/or
46 move them inland and move the debris there. When the restoration is started, the area will be cleaned up.

47 A few pictures of the removal and restoration in the various areas were shown. Mr. Eagar thanked the
48 Governing Board for their wise choice of equipment. In the areas the Land Tamer goes in, it pushes right
49 through. In winter when it freezes, after the chemical has been working on the phragmites, PRT will start

1 pushing all the way out of the bay and try to knock as much as they can out into the bay. The goal is to get
2 it all down to speed up the process of decomposition. This will be the first year with the restoration
3 component will begin in 2012.

4 Commissioner Ellertson called for questions. Mr. Jim O’Neal, a private citizen, asked what chemical PRT
5 would be using in the application. Mr. Eagar said Aqua-Neat, which is an aquatic glyphosate. Mr. O’Neal
6 asked if it was the same as the previous year. Mr. Eagar confirmed it was the same. Mr. O’Neal asked if
7 Mr. Eagar had considered the air spray might not be in compliance. Mr. Eagar replied that since the label
8 allows spraying from aircraft, he believed it would be fine with spraying. Mr. O’Neal asked if he saw the
9 warning of spraying in extremely shallow areas. Mr. Eagar said no. Mr. O’Neal asked if scientists at the
10 state level had looked at the chemical. Mr. Eagar said he had not asked any to look at the chemical. He
11 has had a lot of experience with it and added PRT was using the same treatment method and profile as
12 many other state agencies used to treat phragmites, using the same pilot, the same chemicals, and the
13 same profile. Mr. O’Neal inquired if the chemical was registered in the state of Utah. Mr. Eagar said yes.
14 Mr. O’Neal contradicted Mr. Eagar saying he had been to the state’s website, and it was not registered.
15 Mr. Eagar asked Mr. Price if Aqua-neat was registered, and Mr. Price replied Aqua-Neat was purchased
16 through a state contract, which he would assume would not be allowed if not registered. Mr. O’Neal asked
17 if Mr. Eagar was familiar with the company that provides the chemical and the source company, the
18 manufacturer. Mr. Eagar said no. Mr. O’Neal said the manufacturer was from Australia. Mr. O’Neal asked
19 if the manufacturer assumed any liability of any kind. Mr. Eagar said he was not aware of it. Mr. O’Neal
20 concluded his questions.

21 Commissioner Ellertson asked for further questions. Mr. Todd Frye, Bonneville School of Sailing, asked
22 if spraying would affect the concentration of mosquitoes and bugs. Mr. Eagar said he did not know, but he
23 worked with Robert Mower who is over mosquito abatement. He said the phragmites was a huge
24 deterrent to mosquito abatement efforts. The abatement team does a lot of aerial sprays along the lake
25 edges. Along the Geneva Beach area, Mr. Mower and his associate have looked at how it was removed.
26 After the weed is removed, it starts to get wave action that actually hits against the shore and the
27 mosquito population went down. The adult traps are put right by the cooling ponds. The cooling ponds
28 are producing a lot of mosquitoes and the population has moved in. From Mr. Mower’s perspective, he is
29 encouraged with the pilot area and allows the abatement team to do granule treatment.

30 Mr. Price asked Mr. Cecil Tuley from Saratoga Springs for his feelings on treating in the marina and bay
31 area. Mr. Price noted the project area was in the city and representatives were supportive of the removal.
32 Mr. Tuley said the city was anxious to see how the spraying worked, especially in the large area near the
33 inlet and along the houses. Saratoga Springs had a huge fire a few years back causing a problems burning
34 fences and came close to taking some houses out. He told the city representatives about the Land Tamer
35 and the work PRT is doing. He informed the city council PRT would be spraying, but exact dates had not
36 been known, but he could now give them specific information. They are anxious to see when the marina is
37 treated how it exposes the old Utah Canal partially filled in mud from previous floods. People are
38 interested in trying to develop some shoreline park land, if the removal works. Grants have been written,
39 but the city is watching and waiting to see if it can do anything with park areas along the lake, open access
40 for fishermen, etc.

41 Mayor Hadfield asked if phragmites were found around water bodies associated with Utah Lake such as
42 Spring Creek and areas around the Mill Pond. Mr. Eagar confirmed the statement. Phragmites is running
43 up most of the freeways and some areas have become infested. Mayor Hadfield concurred saying he had
44 seen phragmites along tributaries and the mill pond, which runs through the Meadow Shopping Center in
45 American Fork along I-15. Mr. Eagar said there are other projects with various cities where they will go in
46 and spray. Some of the county right-of-way areas can be sprayed as part of their regular job duties, where
47 they spray and mow. PRT will start pushing the other way, but it is a slower process.

48

1 **7. Presentation from Rob Baskin, Supervisory Hydrologist, USGS about his geologic research on Utah**
2 **Lake.**

3 Mr. Price introduced Mr. Robert Baskin, supervisory hydrologist from US Geological Survey (USGS). He
4 has been studying Utah Lake and the Great Salt Lake for many years, collecting data. He has presented his
5 findings to the Technical Committee, who felt it would be interesting for him to show the results of the
6 sediments at Utah Lake and the geological features of Utah Lake over the years.

7 Mr. Baskin said he has been involved in various lake studies throughout the western US including Utah
8 Lake. He showed the techniques used, the findings of his studies, and data available for use to the public.
9 General information is available on how Utah Lake developed and what the future holds.

10 He said Utah Lake is a fascinating place. In 2010, he completed a seismic survey of the subsurface of
11 Utah Lake with Dr. David Dinter, of the University Of Utah. Historical information about Utah Lake showed
12 the original name was Lake Timpanogos. It is the largest freshwater lake in Utah at is 24 miles long and
13 about 13 miles wide with 902,000 acre feet of water. It averages 9.5 feet in depth with a maximum depth
14 of about 14 feet. At some locations, it is about 63 feet deep. Utah Lake is eutrophic, where more organic
15 matter is generated than consumed. It is prone to wind-generated mixing. The bottom of the lake is
16 above what is called wave-based; the area the wave action affects, so the wind comes in and mixes up the
17 lake bottom. The energy transported into the waves from the wind stirs up the bottom and it looks muddy
18 and gives off a brown color. The lake is a man-made reservoir but without the dam, it would be a dry area
19 or swampy if the water was not controlled.

20 In 1884, the first chemical analyses of Utah Lake were done. In 1903, they started regulating the lake.
21 In 1906, USGS did a water supply study paper that discussed ground water contributions to the lake. There
22 was a water-study paper done in 1910 that discusses the waters of Utah Valley inflows from Hobble Creek.
23 In 1926, the first biological study was done by Cottam, from the University of Chicago. The first systematic
24 research began in 1933. Interest in Utah Lake dropped with no documented studies on Utah Lake between
25 1933 until the 1960s.

26 During the 1960s, the Bureau of Reclamation (BOR) wanted to work on the Goshen Bay Dike. They
27 wanted to dike off from West Mountain/Lincoln Beach, to the west shore and make Utah Lake deeper and
28 to get rid of all salty inflow found in Goshen Bay. A lot of unpublished studies were done and the findings
29 are in a BOR file. He went through the information getting copies of the original work. In 1960s through
30 1970s, the USGS did further studies, and in the early 1980s they have the last report.

31 Brigham Young University's engineering department, through Brimhall and Merritt, started working on
32 hydro-geology of Utah Lake with emphasis on Goshen Bay. BYU started doing water chemistry of the lake
33 and are continuing through this year. In the 1990s, Mr. Baskin was contacted to study the springs' inflow
34 into the lake, wanting to control the water because of the high salt content. They wanted to find out if the
35 spring water from coming into the lake could be stopped, primarily for salinity control issues. In 1995,
36 Mountainland Association of Governments (MAG) did a Clean Lake Phase One Study, a Provo River Delta
37 study and the June Sucker Recovery Program is working on studies on the lake.

38 Mr. Baskin's research pertained to locating springs coming into the lake, chemistry, and volume. The
39 second study was to locate various springs. Through research, the studies showed why springs are located
40 where they are and why they are warm, the source of the water, the quality of the water, how the springs
41 are connected, and this allows USGS to estimate the dissolved solids content coming into the lake.

42 He has used a Thermal Infrared Multispectral Scanner (TIMS) using temperature to discover the springs
43 entering into Utah Lake from underneath. He used a plane and flew above the lake to see springs from
44 above in the air. They found hot springs, depth, and location of individual springs in Utah Lake through the
45 thermal testing. Water chemistry testing was done on the springs around Bird Island and Lincoln Point.

46 He utilized a boat with meter equipment to identify the location of the springs. He has dived into the
47 lake and found springs at least 63 feet deep. He couldn't go any farther because of the heat and darkness
48 of the springs. He explained there was a study to see if the springs could be plugged or grouted to stop
49 them from flowing into the lake. They tried this on an old well, but the well kept filling up. The seismic

1 study looked at the sub-bottom of the lake for travertine deposits and faults. Some of the faults were
2 discovered through echo or acoustic means.

3 Through his and other research, Mr. Baskin discovered the history of the lake, the faults, various hot
4 springs, chemistry, other vital information pertaining to Utah Lake. He showed graphs, examples, and
5 pictures of his findings as well as the published information from the studies including travertine
6 structures, which are deposits of calcium carbonate. The lake is not laying sediment flat on the lake floor,
7 possibly secondary to liquefaction. Liquefaction is a disturbance of the sediments by a sudden movement,
8 like an earthquake. He found a springs coming up from 7.5 meters, and it is at least 45 feet deep and still
9 has disturbance.

10 In 2010, Mr. Baskin and Dr. Dinter, went out on the lake to begin a seismic study of the lake. It was
11 funded by the USGS. The information may be used to show how often an earthquake occurs, how big the
12 earthquake was, substrate classification of what is on the bottom of the lake, sediment characterization,
13 and historical reconstruction of what the lake was like. It also can be used to get a general idea of
14 engineering parameters if a structure were to be built in the lake.

15 Mr. Price asked him to give the Board some ideas of how the sound is penetrating. He showed a
16 picture of the lake bottom, how the sediments are layered, faults, and travertine deposits. Commissioner
17 Ellertson asked if the upper line was the water and the bottom line was sediments, and if the top of the
18 water is level but underneath is not. Mr. Baskin concurred with the Commissioner's perception. The water
19 is warm because of the depth, but when it rises to the surface, it degasses and produces travertine, calcium
20 carbonate. By using sound, the lake history and lake formation can be reconstructed.

21 Commissioner Ellertson asked what the line was on the visual. Mr. Baskin said as the sound was
22 measuring down, only a certain depth could be measured by sound. In diving, he had to weight himself
23 down because of his buoyancy, as well as wear a wetsuit to protect himself from the 108 degree
24 temperature. He said the deeper the water, the hotter it became. A lot of water enters the lake, which is
25 unaccounted for because it is too hard to measure or find. Ms. Leah Ann Lamb asked what the TDS was
26 from the spring he described. Mr. Baskin said it was in the thousands, 1500 to 2000.

27 The USGS recently completed two reports on hydrology and the Northern Utah Valley Model. Bob
28 Squall at Utah State University has worked on a lake model for Utah Lake. BYU has been doing budget
29 tables for years with inflow and outflow of the lake, TDS, etc. USGS just received a project of looking at the
30 southern Utah Valley Model, and how successful the model was in predicting ground water withdrawals
31 and water levels. There are other projects going on with Utah Lake.

32 Mr. Baskin listed many uses and interests of Utah Lake including scenic views, water source, water
33 storage, food source, power generator, waste dump, provide jobs, etc. He said there is a lot of available
34 data about the lake with a lot of possibilities.

35 Mr. Gene Shawcroft asked how the public could obtain access to the data, such as on a website. Mr.
36 Baskin said he could direct him. Mr. Shawcroft asked if anything is published if the public could have
37 access to it. Mr. Baskin said yes. He said Mr. Price also had copies of the information in the office.

38 Mr. Rick Cox asked if Mr. Baskin identified the water quality between the east and west sides of the
39 faults. Mr. Baskin said he did look at it but did not publish anything on it. There is a well on the east side
40 of West Mountain used for water supply, which is relatively fresh. As people move to the west side of
41 West Mountain, to the fault and across the fault, the water gets hotter and the dissolved solids content
42 increases. People can build a mixing model on the freshwater located on the Spanish Fork side to the
43 hydro-saline water like on the west side. There is fresh water mixing with the water that is coming up out
44 of the fault. That is very evident as you look at the water quality that changes as you move to the west
45 side. In terms of the main body of the lake, the faults found major topographic changes in the lake. There
46 is very little extent of land on either side of the fault before you are out of the water. There is no map able
47 change, which can be done. The fault continues all the way up through the area of where the springs are.
48 Dr. Dinter is working on the data and other things at present. When Dr. Dinter is through within the year,
49 there will be a new fault map of Utah Lake.

1 Mr. Cox asked if the study looked at how much was contributed to Utah Lake. Mr. Baskin said he did
2 not do the entire lake, but he could only do what the funding agency requested of him. They were funded
3 by projects and could only do what the project allowed, unless federal funding was obtained or funding
4 from someone else was used to extend it. BOR was concerned about where the springs were, to see if
5 they could divert them, plug them up or stop them from coming into the lake to improve the water quality
6 of the lake. The main contributing area was West Mountain, Bird Island and Lincoln Point areas, which
7 were the funded areas. They funded Mr. Baskin's study because of NASA and the idea of utilizing all the
8 springs of the lake to find where they are. NASA funded the Thermal Imaging Core, which he had actually
9 done thermal energy work for his master's degree before that time. I proved the theory, but it was
10 completed at the Great Salt Lake. Mr. O'Neal asked if there was a geothermal map for the lake. Mr. Baskin
11 said he started a map in the 1990s, but has no current map.

12 Commissioner Ellertson thanked Mr. Baskin for his presentation.
13

14 **8. Other Business or Public Comments.**

15 Commissioner Ellertson called for other business issues and public comments and there were none.
16

17 **9. Confirm the next meeting of the Governing Board to be held at the Historic Utah County Courthouse**
18 **Ballroom on Thursday, September 22, 2011 at 7:30 a.m.**

19 Commissioner Ellertson reminded everyone the next meeting would be held on Thursday, September
20 22, 2011, at the Historic Utah County Courthouse at 7:30 a.m.
21

22 **10. Adjourn.**

23 It was motioned by Mayor Hadfield, it was seconded by Mayor John Curtis; the motion carried and was
24 unanimously approved. Meeting adjourned at 9:10 a.m.