Notice and Agenda of a Meeting of the Beaumont Basin Watermaster

Wednesday, August 7, 2013 at 10:00 a.m.

Meeting Location:

Beaumont Cherry Valley Water District
560 Magnolia Avenue
Beaumont, California 92223
(951) 845-9581

Watermaster Members:

City of Banning
City of Beaumont
Beaumont Cherry Valley Water District
South Mesa Water Company
Yucaipa Valley Water District

I. Call to Order

II. Roll Call

City of Banning: Duane Burk (Alternate: Arturo Vela)

City of Beaumont: Dave Dillon (Alternate: Kyle Warsinski)

Beaumont Cherry Valley Water District: Eric Fraser (Alternate: Tony Lara)

South Mesa Water Company: George Jorritsma (Alternate: Dave Armstrong)

Yucaipa Valley Water District: Joseph Zoba (Alternate: Jack Nelson)

III. Pledge of Allegiance

IV. Public Comments

At this time, members of the public may address the Beaumont Basin Watermaster on matters within its jurisdiction; however, no action or discussion may take place on any item not on the agenda. To provide comments on specific agenda items, please complete a Request to Speak form and provide that form to the Secretary prior to the commencement of the meeting.

V. Consent Calendar

A. Meeting Minutes

1. Approval of Meeting Minutes for June 5, 2013

VI. Reports

A. Report from Engineering Consultant - Hannibal Blandon, ALDA Engineering

B. Report from Legal Counsel - Keith McCullough, Alvarado Smith

VII. Discussion Items

A. Independent Accountant's Financial Report of Agreed-Upon Procedures for the Beaumont Basin Watermaster [Memorandum No. 13-17, Page 10 of 42]

Recommendation: That the Watermaster Committee receives and files the Independent Accountant's Financial Report for the period ending June 30, 2013.

B. Status Report on the Preparation of the 2012 Annual Report [Memorandum No. 13-18, Page 16 of 42]

Recommendation: No recommendation.

C. Review of the Draft Application for Groundwater Storage Agreement [Memorandum No. 13-19, Page 21 of 42]

Recommendation: No recommendation.

D. Overview of Data Collection for Groundwater Monitoring [Memorandum No. 13-20, Page 28 of 42]

Recommendation: No recommendation.

VIII. Topics for Future Meetings

A. Other Topics

IX. Comments from the Watermaster Committee Members

X. Announcements

A. The next regular meeting of the Beaumont Basin Watermaster is scheduled for Wednesday, October 2, 2013 at 10:00 a.m.

XI. Recess the Meeting to a Beaumont Basin Watermaster Special Project Committee

- - - - - Meeting Recess- - - - -

XII. Reconvene the Meeting of the Beaumont Basin Watermaster - Special Project Committee of Beaumont Cherry Valley Water District, City of Banning, Yucaipa Valley Water District, and South Mesa Mutual Water Company

A. Status Report on the Groundwater Model Update and Redetermination of Safe Yield [Memorandum No. 13-21, Page 30 of 42]

XIII. Adjournment

Consent Calendar

Record of the Minutes of the
Beaumont Basin Watermaster
June 5, 2013

Meeting Location:

Beaumont-Cherry Valley Water District
560 Magnolia Avenue
Beaumont, CA 92223

I. Call to Order

Chairman Duane Burk called the meeting to order at 10:00 a.m.

II. Roll Call

City of Banning	Duane Burk	Present
City of Beaumont	Dave Dillon	Absent
Beaumont-Cherry Valley Water District	Eric Fraser	Present
South Mesa Water Company	George Jorritsma	Present
Yucaipa Valley Water District	Joseph Zoba	Present

Kyle Warsinski was present as the alternate representing the City of Beaumont in the absence of Member Dave Dillon. Thierry Montoya was present representing legal counsel for the Watermaster.

Members of the public who registered their attendance were: John Ohanian, John Covington, Carl Kym L.A., Barbara Voigt, Bob Wall, Mary Ann Melleby, Ron Duncan, John Jeter, Ken Munoz, Patsy Reeley, Cameton McCook, Mark St. Angelo, Charles Martin, Betty Beckman, Ted Haring, Jack Nelson, Jan Leja, Vicky Elisalda, Tom Linton, Brie Dickson, and Ray Morris.

III. Pledge of Allegiance

George Jorritsma led the pledge of allegiance.

IV. Public Comments

Judy Bingham advised the Committee of a proposed warehouse to be located in the City of Beaumont to be the largest ever seen in this region.

Fran Flanders also commented on the proposed warehouses to be brought to Beaumont and advised the Committee of water quality issues that are being questioned within the report on the proposal.

John Ohanian wanted to let the Committee know that the overlyers are interested in the safe yield study, they wish to participate in the choosing of methodology and be involved in the process.

V. Consent Calendar

A. Meeting Minutes

1. Approval of Meeting Minutes April 10, 2013

Member Joseph Zoba motioned to approve the item of the consent calendar. Chairman Duane Burk seconded the motion. The motion passed 5-0.

VI. Reports

A. Report from Engineering Consultant – Hannibal Blandon, Alda Engineering

Mr. Blandon wished to remind the Committee Members that there are monitoring wells throughout the Basin that have data that have not been collected and may be overridden.

B. Report from Legal Counsel – Thierry Montoya, Alvarado Smith

Mr. Montoya reported that on May 3rd the Court ruled in favor of the City of Beaumont's Motion and that the safe yield expenses are to be considered special project expenses.

VII. Discussion Items

A. Amended Budget for Fiscal Year 2012-2013 [Memorandum No. 13-10]

Recommendation: That the Watermaster Committee approves the amended budget as presented for Fiscal Year 2012-2013.

Member Joseph Zoba provided an overview of the amended budget, including the special project costs as ruled by the Court. Chairman Duane Burk motioned to approve the amended budget; Member Kyle Warsinksi seconded the motion; the motion passed 5-0.

B. Proposed Budget for Fiscal Year 2013-2014 [Memorandum No. 13-11]

Recommendation: That the Watermaster Committee approves the proposed budget as presented for Fiscal Year 2013-2014.

Member Joseph Zoba provided an overview of the 2013-2014 Proposed Budget. Member Joseph Zoba motioned to approve the Proposed Budget; Chairman Duane Burk seconded the motion; the motion passed 5-0.

C. Amendment No. 1 to Task Order No. 4 with Alda, Inc. for On Call Technical Support Services [Memorandum 13-12]

Recommendation: That the Watermaster Committee approves Amendment No. 1 to Task Order No. 4.

Member Joseph Zoba provided an overview of the Amendment. Member Joseph Zoba motioned to approve Amendment No. 1 to Task Order No. 4; Member Eric Fraser seconded the motion; the motion passed 5-0.

D. Review of the Draft Application for Groundwater Storage Agreement [Memorandum No. 13-13]

Recommendation: No recommendation.

Mr. Blandon and Mr. Montoya provided an overview of the Draft Application for Groundwater Storage Agreement. After discussion, Member Eric Fraser motioned to accept the Draft Application as presented; Member Joseph Zoba seconded the motion; the motion failed to pass 2-3 with Member Kyle Warsinski, Member George Jorritsma, and Chairman Duane Burk dissenting.

E. Application for Groundwater Storage Agreement from the Morongo Band of Mission Indians [Memorandum No. 13-14]

Recommendation: No recommendation.

Chairman Duane Burk provided an overview of the Application from the Morongo Band of Mission Indians. The application was discussed by the Committee Members, representatives of the Morongo Band of Mission Indians and the Watermaster legal counsel.

Public Comments on Item:

Dr. Blair Ball commented that he views the Committee as protectors of the water quality and that it is prudent to revise an application with current changes after it has been dormant for 10 years.

John Jeter stated that the application is a simple document that needs to be taken and moved forward.

Chairman Duane Burk motioned to approve the application with 20,000 acre feet of storage; Member Kyle Warsinski seconded the motion; the motion passed 3-2 with Member Eric Fraser and Member Joseph Zoba dissenting.

F. Status Report on the Preparation of the 2012 Annual Report and Operating Safe Yield [Memorandum 13-15]

Recommendation: No recommendation.

Public Comment on Item:

John Covington commented on some discrepancies found within the report that he has provided to the Watermaster Engineering consultant, Mr. Blandon.

Mr. Blandon stated that the Draft report has been presented to the Committee. The only comments that have been received so far were from Mr. Covington. Additional comments are to be presented to Mr. Blandon for the next meeting.

Mr. Blandon also stated that the Beaumont-Cherry Valley Water District has provided information regarding overlyers that they have been serving. However, the other agencies have not presented any of this information.

VIII. Topics for Future Meetings

A. Monitoring Wells Data Collection Issues
B. Audit
C. Other Topics

Chairman Duane Burk requested the Draft Application for Water Storage Agreement to be brought back. Member Joseph Zoba requested the 2012 Draft Annual Report back.

IX. Comments from the Watermaster Committee Members

No comments from the Watermaster Committee Members were made.

X. Announcements

A. The next regular meeting of the Beaumont Basin Watermaster is scheduled for Wednesday, August 7, 2013 at 10:00 a.m.

Chairman Duane Burk made the announcement above.

XI. Recess the Meeting to a Beaumont Basin Watermaster Special Project Committee

Chairman Duane Burk recessed the meeting to the study session at 12:01 p.m.

- - - - - Meeting Recess - - - - -

XII. Reconvene the Meeting of the Beaumont Basin Watermaster – Special Project Committee (Beaumont Cherry Valley Water District, City of Banning, Yucaipa Valley Water District, South Mesa Mutual Water Company)

A. Status Report on the Groundwater Model Update and Redetermination of Safe Yield [Memorandum No. 13-16]

Public Comment:

Judy Bingham inquired as to why the City of Beaumont was still present for the Special Committee meeting.

Mr. Blandon and Mr. Thomas Harder provided an overview of the report and items of the report were discussed by the Committee.

XIII. Adjournment

Chairman Duane Burk adjourned the meeting at 12:42 p.m.

_____

Duane Burk, Chairman
Beaumont Basin Watermaster

Reports

Discussion Items

BEAUMONT BASIN WATERMASTER
MEMORANDUM NO. 13-17

Date: **August 7, 2013**

From: **Joseph Zoba, Treasurer**

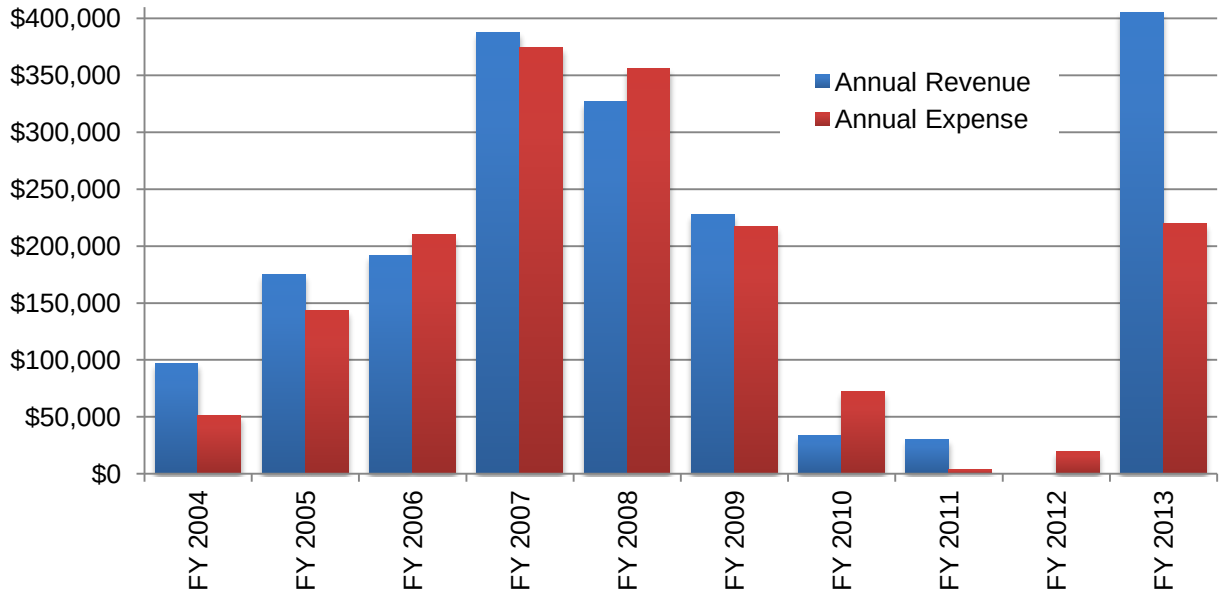
Subject: **Independent Accountant's Financial Report of Agreed-Upon Procedures for the Beaumont Basin Watermaster**

Recommendation: **That the Watermaster Committee receives and files the Independent Accountant's Financial Report for the period ending June 30, 2013.**

The Beaumont Basin Watermaster has engaged the firm of Rogers, Anderson, Malody & Scott to perform an independent financial review of the Watermaster activities for the fiscal year ending June 30, 2013. The independent financial review was conducted under the same terms as the prior fiscal year.

At the beginning of the 2012-2013 fiscal year, the Beaumont Basin Watermaster had unrestricted net assets in the amount of $20,158. During the fiscal year, the Watermaster collected $405,155 in revenues and expended $205,760. As of June 30, 2013, the Watermaster had unrestricted net assets in the amount of $219,553.

The following illustration provides a summary of the annual revenues and expenses of the Beaumont Basin Watermaster since its formation in 2004.



BEAUMONT BASIN WATERMASTER

INDEPENDENT ACCOUNTANT'S REPORT ON APPLYING AGREED-UPON PROCEDURES ON THE BEAUMONT BASIN WATERMASTER SCHEDULES

June 30, 2013

ROGERS, ANDERSON, MALODY & SCOTT, LLP
CERTIFIED PUBLIC ACCOUNTANTS, SINCE 1948

ROGERS, ANDERSON, MALODY & SCOTT, LLP
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Phillip H. Waller, CPA (Partner Emeritus)

MANAGERS / STAFF
Nancy O'Rafferty, CPA, MBA
Bradferd A. Welebir, CPA, MBA
Jenny Liu, CPA, MST
Papa Matar Thiaw, CPA, MBA
Maya S. Ivanova, CPA, MBA
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Seong-Hyea Lee, CPA, MBA
Charles De Simoni, CPA

MEMBERS
American Institute of
Certified Public Accountants

PCPS The AICPA Alliance for CPA Firms

Governmental Audit Quality Center

California Society of
Certified Public Accountants

INDEPENDENT ACCOUNTANT'S REPORT ON APPLYING AGREED-UPON PROCEDURES

Yucaipa Valley Water District as treasurer
of the Beaumont Basin Watermaster
Yucaipa, California

We have performed the procedures enumerated below, which were agreed to by the Yucaipa Valley Water District (District), as treasurer of the Beaumont Basin Watermaster (Watermaster), solely to assist the District in evaluating certain amounts reported in the Watermaster Schedules (Schedules), attached as Exhibit A and Exhibit B, on the full accrual basis of accounting as of June 30, 2013 and for the year then ended. The District and Watermaster are responsible for the accuracy of the Schedules. This agreed-upon procedures engagement was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants. The sufficiency of the procedures is solely the responsibility of those parties specified in the report. Consequently, we make no representations regarding the sufficiency of the procedures described below, either for the purpose for which this report has been requested or for any other purpose.

Our procedures and findings are as follows:

1. **Procedure**

   Agree the opening equity on Exhibit B to the ending equity noted on the trial balance for the fiscal year ended June 30, 2012.

   Finding

   No exceptions were noted as a result of applying the procedure.

2. **Procedure**

   Agree the cash balance reported on Exhibit A to the bank reconciliation, bank statement and trial balance. Select all of the deposits in transit and outstanding checks and trace their clearing to the subsequent month's bank statement.

   Finding

   No exceptions were noted as a result of applying the procedure.

3. **Procedure**

   Trace all member agency assessments recorded in the schedule to invoices and the bank statements.

   Finding

   No exceptions were noted as a result of applying the procedure.

4. **Procedure**

   Compare the ending check number for the fiscal year ended June 30, 2012 to the beginning check number for the period beginning on July 1, 2012. Note any breaks in check sequence for the period of July 1, 2012 through June 30, 2013.

   Finding

   No exceptions were noted as a result of applying the procedure. No breaks in check sequence were noted during the period of July 1, 2012 through June 30, 2013.

5. **Procedure**

   Based on the population of checks issued during July 1, 2012 through June 30, 2013, select all payments and trace the check to supporting invoice noting whether the activity pertains to the Watermaster. Agree the dollar amount and vendor on the invoice to the check for accuracy.

   Finding

   No exceptions were noted as a result of applying the procedure.

6. **Procedure**

   Obtain the general ledger detail for the period of July 1, 2012 to June 30, 2013. Select all journal entries and trace the transaction to an approved journal entry and documentation supporting the nature and rationale of the journal entry.

   Finding

   No exceptions were noted as a result of applying the procedure.

We were not engaged to, and did not conduct an audit, the objective of which would be the expression of an opinion on the schedules of assets, liabilities and equity (Exhibit A) and assessments and expenses (Exhibit B) or the related internal control structure. Accordingly, we do not express such an opinion. Had we performed additional procedures, other matters might have come to our attention that would have been reported to you.

This report is intended solely for the use of the Watermaster and the District and is not intended to be and should not be used by anyone other than the specified party.

Rogers Anderson Malody & Scott, LLP

July 16, 2013

Exhibit A

Beaumont Basin Watermaster
Schedule of Assets, Liabilities and Net Assets
(Unaudited)
June 30, 2013

Assets	
Cash and cash equivalents	$ 219,553
Liabilities	
Accounts payable	-
Net assets	
Unrestricted	$ 219,553

Exhibit B

Beaumont Basin Watermaster
Schedule of Assessments and Expenses
(Unaudited)
For the year ended June 30, 2013

Revenues	
Assessments	$ 405,080
Interest	75
Total revenues	405,155
Expenses	
Special projects	
Acquisition/computation and annual report	118,943
Engineering	50,621
Litigation	7,466
Administrative	
Meetings and miscellaneous	289
Legal and professional	28,436
Bank charges	5
Total expenses	205,760
Change in net assets	199,395
Unrestricted net assets, beginning of year	20,158
Unrestricted net assets, end of year	$ 219,553

BEAUMONT BASIN WATERMASTER
MEMORANDUM NO. 13-18

Date: **August 7, 2013**

From: **Joseph Zoba, Treasurer**

Subject: **Status Report on the Preparation of the 2012 Annual Report**

Recommendation: **No recommendation**

At the Beaumont Basin Watermaster meeting on January 9, 2013, the Watermaster Committee approved Task Order No. 2 from Alda, Inc. for professional engineering services related to the preparation of the 2012 Annual Report and Operating Safe Yield.

On April 10, 2013 and June 5, 2013, Mr. Hannibal Blandon provided an overview of the status of the 2012 Annual Report for the Beaumont Basin Watermaster and solicited comments.

A copy of the draft 2012 Annual Report is available at the following link:

http://documents.yvwd.dst.ca.us/bbwm/documents/2012annualreport130408.pdf

Comments and questions regarding this report should be provided to Hannibal Blandon so the report can be finalized at the regular meeting in October 2013.

Beaumont Basin Watermaster – Task Order No. 2
2012 Annual Report and Operating Safe Yield 3-Jan-13

TASK OBJECTIVES

The objectives of Task No. 2 are as follows:

A. Conduct the annual report for Calendar Year 2012

B. Estimate the Operating Safe Yield for Calendar Year 2012

SCOPE OF SERVICES

Task 1 – Data Collection

The ALDA/TH&Co team will collect, compile, and tabulate the following data:

- ✓ Monthly water production from member agencies
- ✓ Monthly imported water recharge by each party
- ✓ Monthly rainfall from the USGS, Army Corps, and National Weather Service
- ✓ Monthly static groundwater levels at dedicated monitoring wells and selected production wells from the water agencies
- ✓ Monthly deliveries of imported water, groundwater from other basins, and surface water diversions from various water agencies
- ✓ Semi-annual static groundwater levels from production wells
- ✓ Annual water quality from production wells from the water agencies

It should be noted that field collection of static water levels at dedicated monitoring wells and/or production wells is not part of this scope of services.

Task 2 – Preparation of Annual Report

The ALDA/TH&Co team will prepare a draft and a final annual report documenting the operations of the Beaumont Basin Watermaster. This includes water levels, water transfers between agencies, water production, assessment of basin conditions, carryovers, and replenishment obligations. In addition, the report will incorporate the results of the Operating Safe Yield analysis, conducted under Task 3. The report will also include the annual independent financial reports (prepared by others) and a description of Watermaster activities and Board actions.

Ten color copies of the draft and final annual reports will be provided along with a digital file of the report. In addition, an editable database will be provided that includes all supporting information for the annual report.

Task 3 – Annual Determination of the Operating Safe Yield

The ALDA/TH&Co team will review groundwater levels, groundwater production, groundwater recharge and groundwater quality data for the Beaumont Basin area as a basis for determining the annual operating safe yield (OSY) of the basin for the Calendar Year 2012. The focus of the review will be groundwater level trends at the eight monitoring wells previously reported in the

annual reports. Groundwater level trends will be evaluated in the context of groundwater production and basin and artificial recharge in order to make a determination of OSY.

The ALDA/TH&Co team will generate an Annual OSY Technical Memorandum (TM) that summarizes the analysis and provides a recommended OSY for the upcoming year. The TM will be suitable for incorporation into the Annual Report.

Task 4 – Review of Rules and Regulations

The ALDA/TH&Co team will review the existing Rules and Regulations annually to determine whether it reflects current policies/practices and will make recommendations that will be documented as part of the annual report.

Task 5 – Meeting Attendance and Agenda Assistance

The ALDA/TH&Co team will prepare for, attend, and participate in up to six (6) Watermaster meetings in 2013. In addition, the ALDA/TH&Co team will assist in agenda preparation as required by Watermaster.

SCHEDULE

A draft of the annual report and operating safe yield will be presented to the Beaumont Basin Watermaster at the April 2013 Board meeting. Comments on the draft annual report will be addressed and presented at the June 2013 Board meeting.

COST ESTIMATE

Our estimated cost to perform the scope of work as outlined herein is estimated at $51,800.00; this estimate is based on 414 technical and administrative hours and is summarized in the attached table by task and sub-task.

Beaumont Basin Watermaster – Task Order No. 2
2012 Annual Report and Operating Safe Yield 3-Jan-13

Beaumont Basin Watermaster - Task Order No. 2
Preparation of Annual Report and Operating Safe Yield

Task / Subtask	ALDA Inc.					Thomas Harder & Co.				Total Hours	Cost ($)
	Project Manager	Project Engineer	Staff Engineer	Graphics	Clerical	Principal Hydro-geologist	Staff Hydro-geologist	Graphics	Clerical		
Task 1 - Data Collection	16	24	32							72	$ 9,160
Task 2 - Annual Report										178	$ 20,040
2.1 - Pumping for metered wells	4	8								12	$ 1,680
2.2 - Pumping for parties with non-metered wells	4	16	8							28	$ 3,640
2.3 - Document basin activities	4	8								12	$ 1,680
2.4 - Prepare draft report	16	16	6	20	24			16		98	$ 9,940
2.5 - Prepare final report	4	12		4	8					28	$ 3,100
Task 3 - Operating Safe Yield										60	$ 7,200
3.1 - Review of data for 2011-12						8	12			20	$ 2,360
3.2 - Preparation of OSY TMs for 2011-12	4					16	12	4	4	40	$ 4,840
Task 4 - Rules and Regulations	16									16	$ 2,400
Task 5 - Meeting Attendance										88	$ 13,000
5.1 - Assistance with agenda preparation	12	8	8							28	$ 3,760
5.2 - Attend Watermaster meetings	36					24				60	$ 9,240
TOTALS:	116	92	54	24	32	48	24	20	4	414	$ 51,800

Beaumont Basin Watermaster – Task Order No. 2
2012 Annual Report and Operating Safe Yield 3-Jan-13

BILLING RATES

Billing Rates for ALDA Inc. for Calendar Year 2013

Position	Hourly Rate
Project Manager	$150.00
Project Engineer	$135.00
Staff Engineer	$110.00
Graphics / Designer Drafter	$ 90.00
Drafter	$ 75.00
Clerical	$ 65.00

Billing Rates for Thomas Harder and Company for Calendar Year 2013

Position	Hourly Rate
Principal Hydro-geologist	$160.00
Staff Hydro-geologist	$ 90.00
Field Technician	$ 70.00
Graphics	$ 85.00
Clerical	$ 65.00
Expert Witness	$ 320.00

BEAUMONT BASIN WATERMASTER
MEMORANDUM NO. 13-19

Date: **August 7, 2013**

From: **Joseph Zoba, Treasurer**

Subject: **Review of the Draft Application for Groundwater Storage Agreement**

Recommendation: **No recommendation.**

At the Beaumont Basin Watermaster meeting on January 9, 2013, legal counsel reported on the preparation of an Application for Groundwater Storage Agreement.

On April 10, 2013, the Watermaster Committee provided comments on the proposed Application. During this meeting, the Watermaster provided direction for Keith McCullough to work together with Hannibal Blandon and Tom Harder to further revise a draft Application for Groundwater Storage Agreement. In general, this application would require specific information about the source, character, quality, quantity and other items concerning the water to be placed in storage with sufficient information to be provided directly on the application and through a number of referenced attachments.

On June 5, 2013, the Watermaster Committee reviewed the Application, but the document was not approved.

Attached is the latest version of the application for review by the Watermaster Committee members.

BEAUMONT BASIN WATERMASTER

APPLICATION
FOR
GROUNDWATER STORAGE AGREEMENT

1.- APPLICANT INFORMATION

Name of Applicant: _____

Address for Notice: _____

Contact Name: _____

Title: _____

Telephone: _____

Fax: _____

E-mail Address:

_____

Date of Application: _____

For Staff Use Only	
Date Requested:	_____
Date Approved:	_____
Amount Requested:	_____ ac-ft
Amount Approved:	_____ ac-ft
Agreement No.	_____
Yes [ ] - No [ ]	Analysis and Written Summary Fee Collected

2.- PROJECT DESCRIPTION – Provide a general description of the groundwater storage project sought under this application including potential impacts and benefits. (Use additional pages if necessary).

_____

_____

_____

_____

_____

_____

_____

_____

THIS APPLICATION IS SUBJECT TO REVIEW AND FURTHER CONSIDERATION BY WATERMASTER; APPLICANT IS SOLELY RESPONSIBLE TO PROVIDE WATERMASTER WITH COMPREHENSIVE INFORMATION

3.– AMOUNT REQUESTED: _____ acre feet.

4.- PURPOSE OF STORAGE

[ ] Stabilize or reduce future water cost / assessments

[ ] Facilitate utilization of other available sources of supply

[ ] Facilitate replenishment under certain well sites

[ ] Preserve pumping right for a changed future potential use

[ ] Other, explain _____

_____

5.- METHOD OF PLACEMENT IN STORAGE

[ ] Artificial Recharge

[ ] Transfer of Water from One Storage Account to Another Storage Account (If checked, proceed to No. 16 below)

6.- SOURCE OF WATER FOR RECHARGE

[ ] State Water Project [ ] Colorado River

[ ] Captured Storm Water [ ] Recycled Water

[ ] Other, explain _____

Has any portion of the water proposed for storage been characterized as reclaimed water, production from the Beaumont Basin, production from another basin, or in any way claimed as part of a water right or entitlement of any other person or entity? Yes [ ] – No [ ]. If YES, please explain in detail.

_____

_____

_____

_____

_____

_____

THIS APPLICATION IS SUBJECT TO REVIEW AND FURTHER CONSIDERATION BY WATERMASTER; APPLICANT IS SOLELY RESPONSIBLE TO PROVIDE WATERMASTER WITH COMPREHENSIVE INFORMATION

7.- RECHARGE SOURCE WATER QUALITY – Provide a copy of the latest full Title 22 drinking water analysis report documenting the quality of water to be stored as **Attachment A** to this Application.

8.- METHOD OF RECHARGE

[ ] Surface Spreading Basin(s)

[ ] Injection Well(s)

9.- METHOD OF CONVEYANCE FROM SOURCE TO RECHARGE FACILITY

[ ] Open Unlined Channel

[ ] Open Lined Channel

[ ] Pipeline

10.- LOCATION VICINITY MAP – Include as an **Attachment B** to this Application a project location map at a scale of 1-inch = 2,000 ft or larger. Map shall include, as a minimum, the following, where applicable:

- ✓ Proposed recharge facilities
- ✓ Existing production, monitoring, and abandoned wells within one mile of project site
- ✓ Existing or proposed raw water conveyance facilities
- ✓ Existing creeks and other water features

11.- CURRENT GROUNDWATER LEVELS – Provide quantitative 5-yr history of static (non-pumping) groundwater levels in the vicinity of proposed storage location. Include groundwater level hydrographs for two or more existing wells located down-gradient of recharge site and within a one-mile radius of proposed storage site. Attach responses as **Attachment C** to this Application.

12.- CURRENT GROUNDWATER QUALITY – Provide quantitative description of current groundwater quality conditions in the vicinity of proposed storage location including water quality trends for TDS and Nitrate over the last five years. Include copies of the most recent drinking water quality reports for two or more existing wells located down-gradient of recharge site and within a one-mile radius of proposed storage site. Attach responses as **Attachment D** to this Application.

THIS APPLICATION IS SUBJECT TO REVIEW AND FURTHER CONSIDERATION BY WATERMASTER; APPLICANT IS SOLELY RESPONSIBLE TO PROVIDE WATERMASTER WITH COMPREHENSIVE INFORMATION

13.- WATER QUANTITY – Provide an estimate of the quantity of water to be stored on an annual basis including estimates for maximum and minimum annual amounts. (Provide attachments to this Application as **Attachment E** for full response as necessary)

14.- IMPACTS TO OTHERS – Describe in detail any potential positive/negative impacts to any party to the Stipulated Judgment or any person, entity or property located within or outside the Beaumont Basin that may result from the implementation of this project. (Provide attachments to this Application as **Attachment F** for full response as necessary)

15.- ENVIRONMENTAL REVIEW – Indicate whether the proposed water storage operation is subject to review under the California Environmental Quality Act? If so, describe the means of CEQA compliance and attach environmental review documentation and any responsive written review as **Attachment G** to this Application. If not, identify the basis for non-application and/or exemption.

THIS APPLICATION IS SUBJECT TO REVIEW AND FURTHER CONSIDERATION BY WATERMASTER; APPLICANT IS SOLELY RESPONSIBLE TO PROVIDE WATERMASTER WITH COMPREHENSIVE INFORMATION

16.– TRANSFERS OF WATER FROM ONE STORAGE ACCOUNT TO ANOTHER

From: _____

To: _____

17. – CRITERIA ESTABLISHED BY WATERMASTER RESOLUTION 2005-01 – If the Applicant is not an Appropriator pursuant to Exhibit C of the 2004 Stipulated Judgment in Riverside Superior Court Case No. RIC 389197 that created Watermaster, provide a complete, narrative response to each of the criteria identified in Section 2 Preferred Groundwater Storage and Section 3 Types of Groundwater Storage Programs of Watermaster Resolution No. 2005-01, which can be found on the website: www.beaumontbasinwatermaster.org under the tab "Documents & Publications" (Provide attachments to this Application as **Attachment H** for full response as necessary)

_____

_____

_____

_____

_____

_____

_____

THIS APPLICATION IS SUBJECT TO REVIEW AND FURTHER CONSIDERATION BY WATERMASTER; APPLICANT IS SOLELY RESPONSIBLE TO PROVIDE WATERMASTER WITH COMPREHENSIVE INFORMATION

18. LIST OF ATTACHMENTS

Required Attachments

A.- Complete Title 22 Drinking Water Analysis (Per Section 7)

B.- Vicinity Map – Minimum Scale: 1"=2,000 ft (Per Section 10)

C.- 5-year history of static water levels in the vicinity of project recharge facilities (Per Section 11)

D.- Current groundwater quality in the vicinity of project recharge facilities (Per Section 12)

E.- Annual estimates of water to be recharged (Per Section 13)

F.- Description of positive or negative impacts resulting from project implementation (Per Section 14)

G.- Environmental Review Documentation (Per Section 15)

Additional Attachments (as Applicable and/or Necessary)

H.- Watermaster Resolution No. 2005-01 Supporting Documentation (Per Section 17)

I.- _____

J.- _____

K.- _____

L.- _____

M.- _____

N.- _____

THIS APPLICATION IS SUBJECT TO REVIEW AND FURTHER CONSIDERATION BY WATERMASTER; APPLICANT IS SOLELY RESPONSIBLE TO PROVIDE WATERMASTER WITH COMPREHENSIVE INFORMATION

BEAUMONT BASIN WATERMASTER
MEMORANDUM NO. 13-20

Date: **August 7, 2013**

From: **Joseph Zoba, Treasurer**

Subject: **Overview of Data Collection for Groundwater Monitoring**

Recommendation: **No recommendation.**

At the Beaumont Basin Watermaster meeting on June 5, 2013, Hannibal Blandon, Alda Engineering provided comments that monitoring wells throughout the Basin have data that has not been collected, or the data may be overridden.

The purpose of this agenda item will be to discuss the overall data collection efforts for groundwater extraction and monitoring wells.

Special Project Committee

BEAUMONT BASIN WATERMASTER
MEMORANDUM NO. 13-21

Date: **August 7, 2013**

From: **Joseph Zoba, Treasurer**

Subject: **Status Report on the Groundwater Model Update and Redetermination of Safe Yield**

Recommendation: **No recommendation.**

At the Beaumont Basin Watermaster meeting on December 5, 2012, the Watermaster Committee requested the attached Task Order No. 3 from Alda, Inc. for professional engineering services related to the update of the groundwater model and redetermination of safe yield.

This project has been determined to be a Special Project of the Watermaster to include only the following Watermaster Committee Members:

Beaumont Cherry Valley Water District
City of Banning
Yucaipa Valley Waetr District
South Mesa Mutual Water Company

The purpose of this agenda item is to receive an update on the status of the work performed by Alda, Inc.

Beaumont Basin Watermaster

INDEPENDENT CONTRACTOR'S TASK ORDER ISSUED TO ALDA, INC.

TASK ORDER NO. 3

Project Title: Professional Engineering Services - Groundwater Model Update and Redetermination of Safe Yield

Task Order Authorization Date: January 9, 2013

Contractor Name: Alda, Inc.
Contact: Mr. F. Anibal Blandon
Address: 5928 Vineyard Avenue
Alta Loma, California 91701
Telephone: (909) 587-99160
Fed. Tax ID #: _____

SUMMARY OF TASK ORDER:

Description	Amount	Reference
Original Contract Amount	$229,210	Watermaster Memorandum No. 13-02

This TASK ORDER No. 3 is issued pursuant to that certain Agreement for Services by Independent Contractor between the BEAUMONT BASIN WATERMASTER ("OWNER") and ALDA, INC. (CONTRACTOR") dated May 16, 2012 (the "AGREEMENT").

The OWNER and CONTRACTOR have entered into this TASK ORDER as specifically set forth herein below, and except as specifically provided herein, the AGREEMENT shall remain in full force and effect as originally stated.

1. Tasks to be Performed & Compensation. CONTRACTOR shall provide all labor, materials and equipment to perform the following tasks as fully described in the attached Task Order No. 3 Scope of Services dated January 3, 2013 and the proposal to Provide Professional Engineering Services by the CONTRACTOR dated April 16, 2012.

2. Term. This Task Order shall remain in full effect until the proposed project is completed which is estimated to be by December 31, 2013.

IN WITNESS WHEREOF, the parties have executed this Task Order No. 3 on the date indicated below.

Beaumont Basin Watermaster		**Alda, Inc.**
By: _____		By: _____
Dated: January 9, 2013		Dated: _____
Name: Duane Burk, Chairman		Name: _____

Beaumont Basin Watermaster – Task Order No. 3
GW Model Update and Re-determination of Safe Yield 3-Jan-13

Task Objectives

The objectives of Task No. 3 are as follows:

A. Update the existing surface and groundwater flow models and calibrate them through 2012

B. Re-evaluate the Safe Yield of the Beaumont Basin in accordance to the Judgment

C. Develop methodologies for addressing other important Watermaster functions, including recharge from recycled water discharges by the City of Beaumont, new yield, and groundwater losses from the basin.

Background and Approach

Although there are multiple methods available for estimating the safe yield of a groundwater basin, the most comprehensive evaluation is through a calibrated, distributed parameter, numerical surface and groundwater flow model. As presented at our December 2012 workshop, the analysis necessary to complete and calibrate a model provides the most complete representation of the water balance of the basin. Further, the model will provide a valuable tool to address other aspects of the Judgment including:

- ✓ New yield estimates
- ✓ Groundwater losses from the basin
- ✓ Potential changes in safe yield over time from past and future land use changes
- ✓ Optimum management of groundwater resources from planned operation
- ✓ Identification of data gaps

Fortunately, a surface and groundwater flow model has already been developed for the Beaumont Basin and is available for use. The United States Geological Survey (USGS) developed a surface and groundwater flow model for the Beaumont Basin and published the results in 2006.[1] This model was developed using the USGS code MODFLOW, a three-dimensional numerical finite difference modeling code. The model is public domain, encompasses the entire Beaumont Basin and simulates hydrological and hydrogeological conditions from 1927 through 2003.

Although the existing model provides a good basis for evaluating groundwater resources in the Beaumont Basin, it will need to be updated and refined for the purpose of re-determining the safe yield of the basin. The following updates/refinements are necessary:

[1] Rewis, D.L., Christensen, A.H., Matti, J.C., Hevesi, J.A., Nishikawa, T., Martin, P., 2006. *Geology, Ground-Water Hydrology, Geochemistry, and Ground-Water Simulation of the Beaumont and Banning Storage Units, San Gorgonio Pass Area, Riverside County, California.* USGS Scientific Investigations Report 2006-5026.

- ✓ The existing model simulates hydrological and hydrogeological conditions through 2003. The model will need to be updated with pumping, recharge and other data from 2003 through 2012.
- ✓ The grid in the USGS model consists of approximate 820-ft squares. While this grid spacing met the objectives of the USGS for a regional analysis of groundwater recharge and flow characteristics, it will be necessary to refine the grid to provide better resolution for simulating groundwater pumping, artificial recharge, return flow recharge, stream bed infiltration and other processes. We are recommending 200-ft grid cells throughout the model area.
- ✓ Pumping and recharge stresses in the current USGS model are varied on an annual basis. While this met the USGS's original objectives for the model, it will be necessary to create monthly stress periods for the latter parts of the transient model calibration in order to simulate seasonal changes in recharge and pumping. Based on our review of available data, it is proposed to maintain annual stress periods from 1927 through 1999 and create monthly stress periods from 2000 to 2012.
- ✓ Finally, it would be beneficial to reevaluate some of the simplifying land use and hydrogeological assumptions that were incorporated into the existing model. We are proposing to vary land use over time (the existing model does not). We are also proposing to reevaluate aquifer parameters in the model area (the existing model uses one specific yield value for the entire model area).

Regardless of these necessary changes, updating and refining the existing model tool will save both time and money over developing a new model.

Our recommended approach to updating the USGS model includes the following main tasks:

1. Obtain and Compile Data to Update the Model
2. Update and Refine the Existing USGS Groundwater Flow Model
3. Update and Refine the Existing USGS Surface Water Model
4. Calibrate the Surface and Groundwater Flow Model through December 2012
5. Reevaluate the Safe Yield of the Beaumont Basin Using the Calibrated Model
6. Prepare a Report Summarizing the Findings

In addition, we have included a task to develop the methodologies for addressing other important Watermaster functions, including recharge from recycled water discharges by the City of Beaumont, new yield resulting from surface water capture and recharge, and groundwater losses from the basin. As part of this task, we will contact the administrative staff for other groundwater basins in Southern California to obtain information related to their methodologies used for addressing these issues.

SCOPE OF WORK

Task 1 – Obtain and Compile Data

The first task will be to obtain and compile the data necessary to refine and update the USGS model. The specific types of data to be compiled will include:

- ✓ Geological Data
  - Reports and studies on faults in the Beaumont Basin
  - Detailed borehole lithologic logs
  - Driller's logs
  - Geophysical logs
  - Surficial soil type maps
- ✓ Hydrogeological Data
  - Pumping test data/aquifer parameters (transmissivity, hydraulic conductivity, and storativity/specific yield)
  - Groundwater levels
- ✓ Basin Operational Data
  - Groundwater production
  - Artificial recharge
  - Imported water deliveries
  - Wastewater treatment plant inflows/outflows
- ✓ Surface Water Hydrological Data
  - Precipitation
  - Evapotranspiration
  - Stream flow
- ✓ Land Use Data
  - Land use/land cover maps
  - Crop data
  - Satellite imagery

Sources of data will include online databases, previous Beaumont Basin Annual Reports, and the various agencies in the basin. Letter requests for this information will be forwarded to all applicable agencies. It will also be necessary to send a request for driller's logs to the California Department of Water Resources (CDWR). Where possible, data will be obtained in electronic format as database or spreadsheet files. Maps and aerial coverage will be obtained as Geographic Information System (GIS) files to expedite the analysis. The budget for this task includes two trips to the Beaumont area to assist local agencies, as necessary, to obtain the data, reports and maps.

Task 2 – Refine the Groundwater Flow Model

Subtask 2.1 Model Grid and Boundary Conditions

It is recommended to refine the model grid spacing from the current 820-ft square cells to 200-ft square grid cells throughout the model area. In refining the grids, it will be necessary to adjust boundary conditions to accommodate the refined grid spacing. In addition, given that most of the model edge is constructed of General Head Boundaries, it will be necessary to update the reference head in these areas from 2003 through 2012. The ALDA/TH&Co team will refine the grid spacing, adjust the boundary conditions to accommodate the new grid spacing, and update the reference heads at the boundary.

Subtask 2.2 Update Calibration Target Well Hydrographs

Groundwater levels for wells used as calibration targets in the USGS model will be updated from 2003 through 2012. This will include updates to the groundwater level hydrographs for up to 12 wells.

Subtask 2.3 Update Aquifer Properties

Although the USGS model already has spatially distributed aquifer properties (hydraulic conductivity and specific yield), data has been collected since 2003 that can be used to refine the previous distribution (e.g. BCVWD Wells 24, 25 and 26 have been drilled and tested since 2003 and the Noble Creek Recharge Basins have gone into service providing information). Utilizing new data from Task 1, the ALDA/TH&Co team will update, as appropriate, the hydraulic conductivity distribution in the model.

In addition, the USGS model uses simplifying assumptions with respect to the specific yield characteristics of the aquifer sediments (it uses one value for the model). Specific yield is a measure of the ability of sediments to take water into storage or release water from storage. A representative specific yield distribution is important in developing a reliable safe yield estimate for the basin. Other studies have provided specific yield distribution but the bases for the results have not been available to review. Accordingly, it is proposed to reevaluate the specific yield distribution within the Beaumont Basin. This will be conducted through an analysis of detailed borehole lithologic logs, driller's logs, and geophysical logs.

Subtask 2.4 Evaluate Fault Characteristics

The Beaumont Basin is bounded by faults, which act as barriers to groundwater flow. There has been uncertainty as to the amount of groundwater that flows across the faults and into the basin, particularly along the Banning Fault on the north side of the basin. The amount of flow that enters the basin affects the safe yield. Multiple studies have been conducted in the past to understand groundwater flow across the faults. The ALDA/TH&Co team will review these studies as well as recent data collected by the USGS. Any new findings will be incorporated into the model.

It is noted that this task consists of a "paper" study only and no additional field work to investigate the faults is proposed. In the event that the study identifies areas and methods for

further investigation, they will be specified in the summary report for potential investigation at a later time.

Task 3 – Refine the Surface Water Model

Surface water flow was addressed by the USGS using a precipitation/runoff model code called Infil v.3. The original model was calibrated through 2003 and will need to be updated through December 2012. In addition, there are a number of refinements necessary for the purpose of safe yield determination. The updated USGS model is constructed with a single land use designation through time. Given that land use in the Beaumont area has changed significantly in the last 40 years and given that these changes affect return flow and, therefore, the safe yield, it is proposed to incorporate land use changes into the model. It is also recommended to reevaluate the return flow assumptions for the various land use conditions for the model.

Subtask 3.1 Land Use Evaluation

The ALDA/TH&Co team will generate land use distribution maps for up to seven representative time periods since 1970. Electronic versions of land use maps are available for 1990, 1993, 2000, and 2006. The ALDA/TH&Co team will generate two additional land use maps representative of 1970s land use conditions, 1980s land use conditions and a recent time period (since 2006). Return flow values will be assigned to each of the land use conditions based on the analysis in Subtask 3.2 below.

Subtask 3.2 Return Flow Analysis

There are multiple sources of return flow to the groundwater system in the Basin, including agricultural irrigation, individual septic systems, and municipal irrigation (e.g. homeowner lawns and golf courses). The ALDA/TH&Co team will evaluate return flow over time in conjunction with the land use changes determined from Subtask 3.1. For example, agricultural irrigation return flow will be assigned values consistent with the crop type and irrigation efficiency. Return flow from septic systems and municipal irrigation will be evaluated with respect to water delivery records and, if necessary, pumping records, which provide an indication of the amount of water used on each parcel, consistent with its land use.

For this purpose of this task, it is assumed that the billing system used by the BCVWD identifies individual accounts in the Cherry Valley area by street address of the parcel served and assessor parcel number (APN).

Subtask 3.3 Update Stream Flow Records

Stream flow data for stream gages that will be used as calibration targets in the USGS model will be updated from 2003 through 2012. For cost estimating purposes, daily stream records will be updated for up to three stream gages.

Subtask 3.4 Analysis of Return Flow from Wastewater Discharge

The City of Beaumont operates a wastewater treatment plant in the southern part of the Beaumont Basin. Recycled water from the treatment plant is discharged into Cooper's Creek where a portion of it infiltrates into the subsurface. While most of the stream channel is located outside the Beaumont Basin, a portion of the channel extends over the adjudicated basin. Any infiltration in the channel segment that overlies the Beaumont Basin would become recharge in the Beaumont Basin, thus contributing to the safe yield.

The purpose of this subtask is to estimate the amount of recharge attributable to infiltration of discharge runoff from the wastewater treatment plant. As part of the analysis, the ALDA/TH&Co team will evaluate the previous method for estimating recharge to the Beaumont Basin from wastewater treatment plant discharge and determine if changes are necessary.

Task 4 – Update Surface Water Model Input Files

The ALDA/TH&Co team will update the Infil v.4 input files with daily precipitation and air temperature data from 2009 through 2012. Where necessary, historical precipitation data for the 102 weather stations used in the USGS model will be refined based on Doppler radar data (available since 2002) which will provide a more accurate spatial precipitation distribution.

Task 5 – Calibrate the Surface Water Model

The surface water model will be calibrated using the history-matching technique whereby model input parameters will be adjusted until model-generated stream flow at selected calibration points provide an acceptable match with measured stream flow.

Task 6 – Update Groundwater Flow Model Input Files

Pumping and recharge stresses in the current USGS model are varied on an annual basis. While this met the USGS's original objectives for the model, it will be necessary to create monthly stress periods for the latter parts of the transient model calibration in order to simulate seasonal changes in recharge and pumping. Based on our review of available data, it is proposed to maintain annual stress periods from 1927 through 1999 and create monthly stress periods from 2000 to 2012.

Monthly input files will be created for groundwater production and artificial recharge for the period January 2000 through December 2012. The cost estimate assumes creation of monthly input files for approximately 42 wells, two artificial recharge facilities (SGPWA spreading ponds and the Noble Creek artificial recharge facility), and recycled water discharges by the City of Beaumont.

Monthly areal recharge, mountain-front recharge, and return-flow recharge will be input for the same time period (January 2003 through December 2012) based on output from the surface water model. In addition, stream channel flow output from the surface water model will be

incorporated into the Stream Flow Routing package in the MODFLOW groundwater model to simulate recharge within unlined stream channels.

Task 7 – Calibrate Groundwater Model and Perform Sensitivity Analysis

The groundwater flow model will be calibrated using the history-matching technique whereby model input parameters will be adjusted until model-generated groundwater levels provide an acceptable match with measured groundwater levels. During calibration, the ALDA/TH&Co team will perform a sensitivity analysis to test the effects of varying certain model parameters on calibration. The results of the sensitivity analysis will be plotted on graphs and presented in the summary report described in Task 9. The final model calibration will also be presented in Task 9.

Task 8 – Analysis of Safe Yield

The ALDA/TH&Co team will use the updated and calibrated groundwater flow model to re-determine the safe yield of the Beaumont Basin. The analysis will involve a predictive simulation using the model to assess the combination of artificial recharge and pumping that result in stable groundwater levels over a 30-yr period of time (i.e. no net change in groundwater storage). Preliminarily, it is proposed to conduct the simulation using an average hydrology developed from a 40-yr base period. Land use will be maintained at 2012 conditions. Initial groundwater production and artificial recharge will be input based on planned pumping and recharge rates. The ALDA/TH&Co team will then adjust pumping and recharge in order to achieve equilibrium within the basin. The safe yield will be estimated from the water budget that results in long-term hydrologic equilibrium within the basin.

Task 9 – Prepare a Report on the Safe Yield of the Beaumont Basin

The results of the safe yield analysis using the calibrated groundwater flow model will be summarized in a report. The report will include:

- ✓ A background and purpose for the analysis
- ✓ A description of the original USGS model
- ✓ A description of the sources of data used to refine and update the USGS model
- ✓ A description of the hydrogeologic setting and updated conceptual model
- ✓ A description of the refined numerical model
- ✓ Results of the updated model calibration and sensitivity analyses
- ✓ A description of the methodology and assumptions used to analyze the safe yield of the basin using the model
- ✓ Results of the safe yield analysis
- ✓ Identification of data gaps for future collection and analysis

The report will include maps showing the model area, hydrogeologic setting, wells and recharge basins, boundary conditions, input parameter distribution and model analysis results. Supporting data and information will be provided in appendices as appropriate.

The budget for this task includes development and submittal of one draft version of the safe yield report for review and comment (ten hard copies with electronic files). Upon incorporation of comments, the ALDA/TH&Co team will generate one final version of the report (ten hard copies with electronic files).

Task 10 – Develop Methodologies for Addressing Recycled Water Recharge, Groundwater Losses and New Yield

The ALDA/TH&Co team will use the updated surface and groundwater models as the basis for developing methodologies to be used by the Beaumont Basin Watermaster in evaluating a) groundwater recharge credits resulting from the recycled water discharges by the City of Beaumont, b) New Yield that may result from the implementation of new surface water diversion and recharge projects, and c) potential groundwater losses resulting from the implementation of various groundwater recharge projects.

In addition, the ALDA/TH&Co team will contact the watermaster administrative staff for other groundwater basins in Southern California to obtain information related to their methodologies for addressing the above mentioned issues; up to three groundwater basin watermasters will be contacted by our team.

Task 11 – Project Management and Meetings

During the course of preparing the groundwater flow model, it is recommended to have meetings/workshops to provide model progress updates, present the methodology and assumptions for re-determining the safe yield, and present preliminary results of the analyses. The workshops will provide a forum for answering questions and obtaining feedback on assumptions. The budget for this task assumes four meetings/workshops in Beaumont between the time the scope of work is approved and the time the final report is submitted. Overall project management activities are also included as part of the budget for this task.

SCHEDULE

The attached Figure 1 shows the proposed schedule to perform Tasks 1 through 11 of this scope of work. The schedule assumes that all necessary data for developing the model can be obtained by the end of March, 2013. Based on this schedule, a draft report on the safe yield of the Beaumont Basin would be submitted to the Watermaster Board in October 2013.

COST ESTIMATE

Our estimated cost to perform the scope of work as outlined herein is estimated at $229,210.00; this estimate is based on 2,032 technical and administrative hours and is summarized in the attached table by task and sub-task.

Beaumont Basin Watermaster - Task Order No. 3

Update of the USGS Beaumont Basin Model and Re-Determine the Safe Yield of the Basin

Task	Description	Project Manager	Hydro-geologist	Project Engineer	Staff Engineer	Staff Geologist	Graphics	Clerical	Total Hours	Total Cost
Task 1 - Obtain and Compile Data		0	10	24	0	92	0	6	132	**$ 13,510**
Task 2 - Refine the Groundwater Model										**$ 35,060**
2.1	Refine Model Grid and Boundary Conditions	2	12	0	0	80	0	0	94	$ 9,420
2.2	Update Hydrographs (assume 12)	0	2	0	0	48	0	0	50	$ 4,640
2.3	Aquifer Properties									
	Transmissivity and Hydraulic Conductivity	2	4	0	0	24	0	0	30	$ 3,100
	Specific Yield Distribution Analysis	2	18	0	0	120	0	0	140	$ 13,980
2.4	Evaluation of Fault Characteristics	0	20	0	0	8	0	0	28	$ 3,920
Task 3 - Refine the Surface Water Model										**$ 38,640**
3.1	Land Use Evaluation	0	18	0	40	80	0	0	138	$ 14,480
3.2	Refine Return Flow Factors - Land Use	4	24	24	40	8	0	0	100	$ 12,800
3.3	Update Stream Flow Records	2	2	0	0	24	0	0	28	$ 2,780
3.4	Return Flow from Waste Water Discharge	2	6	24	24	16	0	0	72	$ 8,580
Task 4 - Update Surface Water Model Input Files		0	6	0	0	80	0	0	86	**$ 8,160**
Task 5 - Calibrate Surface Water Model		4	32	12	0	40	0	0	88	**$ 10,940**
Task 6 - Update Groundwater Model Input Files		0	22	12	12	140	0	0	186	**$ 19,060**
Task 7 - GW Model Calibration & Sensitivity Analysis		4	60	16	0	96	0	0	176	**$ 21,000**
Task 8 - Analysis of Safe Yield		0	60	24	0	120	0	0	204	**$ 23,640**
Task 9 - Prepare Safe Yield Report		4	60	16	16	72	60	16	244	**$ 26,740**
Task 10 - Development of Methodologies										**$ 18,060**
	Recycled Water Recharge	4	6	24	8	0	4	0	46	$ 6,020
	Groundwater Losses	4	6	24	8	0	4	0	46	$ 6,020
	New Yield	4	6	24	8	0	4	0	46	$ 6,020
Task 11 - Project Management and Meetings		32	42	16	0	8	0	0	98	**$ 14,400**
	TOTALS:	**70**	**416**	**240**	**156**	**1056**	**72**	**22**	**2032**	**$ 229,210**

BILLING RATES

Billing Rates for ALDA Inc. for Calendar Year 2013

Position	Hourly Rate
Project Manager	$150.00
Project Engineer	$135.00
Staff Engineer	$110.00
Graphics / Designer Drafter	$ 90.00
Drafter	$ 75.00
Clerical	$ 65.00

Billing Rates for Thomas Harder and Company for Calendar Year 2013

Position	Hourly Rate
Principal Hydro-geologist	$160.00
Staff Hydro-geologist	$ 90.00
Field Technician	$ 70.00
Graphics	$ 85.00
Clerical	$ 65.00
Expert Witness	$320.00

Beaumont Basin Watermaster
Alda, Inc.

FIGURE 1

Proposed Schedule to Update the USGS Beaumont Basin Groundwater Model and Re-Determine the Safe Yield of the Basin

Task	Subtask	Task Description	Duration (Business Days)	Start	Finish
1		Obtain and Compile Data	50	14-Jan-13	22-Mar-13
		Workshop #1	1	3-Apr-13	3-Apr-13
2		Refine the Groundwater Model	45	11-Feb-13	12-Apr-13
	2.1	Refine Model Grid and Boundary Conditions	10	11-Feb-13	22-Feb-13
	2.2	Update Hydrographs (assume 12)	10	19-Feb-13	8-Mar-13
	2.3	Aquifer Properties	25	11-Mar-13	12-Apr-13
	2.4	Evaluation of Fault Characteristics	5	25-Mar-13	29-Mar-13
3		Refine the Surface Water Model	25	15-Apr-13	17-May-13
	3.1	Land Use Evaluation	20	15-Apr-13	10-May-13
	3.2	Refine Return Flow Factors for Various Land Use Conditions	10	15-Apr-13	26-Apr-13
	3.3	Update Stream Flow Records	5	29-Apr-13	3-May-13
	3.4	Analyze Return Flow from Waste Water Discharge	15	29-Apr-13	17-May-13
		Workshop #2	1	5-Jun-13	5-Jun-13
4		Update Surface Water Model Input Files	14	20-May-13	8-Jun-13
5		Calibrate Surface Water Model	15	11-Jun-13	28-Jun-13
6		Update Groundwater Model Input Files	19	18-Jun-13	12-Jul-13
7		Calibrate the Groundwater Flow Model and Perform Sensitivity Analysis	20	15-Jul-13	9-Aug-13
		Workshop #3	1	7-Aug-13	7-Aug-13
8		Analysis of Safe Yield	19	12-Aug-13	6-Sep-13
9		Prepare Draft Report on the Safe Yield of the Beaumont Basin	20	9-Sep-13	4-Oct-13
		Workshop #4	1	2-Oct-13	2-Oct-13
		Incorporate Comments and Prepare Final Report on the Safe Yield of the Beaumont Basin	20	7-Oct-13	15-Nov-13
		Submit Final Report	1	18-Nov-13	18-Nov-13
10		Develop Methodologies for Addressing Recycled Water Recharge, Groundwater Losses and New Yield	99	14-Jan-13	31-May-13

Thomas Harder & Co.
Groundwater Consulting

4-Jan-12