COLORADO
Colorado Water Conservation Board
Department of Natural Resources
1313 Sherman Street, Room 718
Denver, CO 80203

WSRF – Historical Analysis of SP River Salinity to Identify Severity, Trends, & Potential Sources
POGG1 2019-2856

April 23, 2019

Colorado Corn Administrative Committee
Attn: Mark Sponsler, Executive Director
127 22nd Street
Greeley, CO 80631

Dear Grantee:

We are pleased to inform you that the Colorado Department of Natural Resources, Colorado Water Conservation Board (CWCB) has approved your grant request for funding pursuant to the WSRF Grant Program ("Program"). This letter authorizes you to proceed with the Historical Analysis of SP River Salinity to Identify Severity, Trends, & Potential Sources Project ("Project") in accordance with the terms of this Grant Award Letter.

Attached to this letter are the terms and conditions of your Grant. Please review these terms and conditions, as they are requirements of this Grant to which you, Colorado Corn Administrative Committee, agree by accepting the Grant Funds.

If you have any questions or concerns regarding the project, please contact Craig Godbout, Project Manager at 303-866-3441 or at Craig.Godbout@state.co.us. Please send all grant correspondence directly to Craig and cc me on your invoice billing requests.

Thank you.

Sincerely,

//s//

Doriann Vigil
Program Assistant II
O 303-866-3441 ext. 3250
1313 Sherman Street, Rm. 719, Denver, CO 80203
Dori.vigil@state.co.us / cwcb.state.co.com

STATE OF COLORADO

Department of Natural Resources

ORDER

Number: POGG1,PDAA,201900002856

Date: 4/23/19

Description:

PDAA 500 WSRF SALINITY TO IDENTIFY SEVERTIY, TRENDS, SOURCES

Effective Date: 04/23/19

Expiration Date: 06/30/19

*****IMPORTANT*****

The order number and line number must appear on all invoices, packing slips, cartons, and correspondence.

BILL TO

COLORADO WATER BOARD CONSERVATION
1313 SHERMAN STREET, ROOM 718
DENVER, CO 80203

BUYER

Buyer:

Email:

VENDOR

COLORADO CORN ADMINISTRATIVE COMMITTEE
127 22ND STREET
GREELEY, CO 80631

Contact: .

Phone: .

SHIP TO

COLORADO WATER BOARD CONSERVATION
1313 SHERMAN STREET, ROOM 718
DENVER, CO 80203

SHIPPING INSTRUCTIONS

Delivery/Install Date: -

FOB: FOB Dest, Freight Allowed

VENDOR INSTRUCTIONS

EXTENDED DESCRIPTION

Line Item	Commodity/Item Code	UOM	QTY	Unit Cost	Total Cost	MSDS Req.
1	G1000		0	0.00	$39,000.00	☐

Description: PDAA 500 WSRF SALINITY TO IDENTIFY SEVERTIY, TRENDS, SOURCES

Service From: 04/23/19 Service To: 06/30/19

TERMS AND CONDITIONS

https://www.colorado.gov/pacific/osc/small-dollar-grant-award-terms-conditions

DOCUMENT TOTAL = $39,000.00

Last Update: January 9, 2018

Colorado Water Conservation Board	
Water Supply Reserve Fund	
Exhibit A - Statement of Work	
Date:	**February 1, 2019**
Water Activity Name:	**Historical Analysis of South Platte River Salinity to Identify Severity, Trends, and Potential Sources**
Grant Recipient:	**Colorado Corn Administrative Committee**
Funding Source:	**Water Supply Reserve Fund, South Platte Basin**

Water Activity Overview: (Please provide brief description of the proposed water activity (no more than 200 words). Include a description of the overall water activity and specifically what the WSRF funding will be used for.

This activity investigates the current salinity and the historical salinity trends along the South Platte River (SPR). Total Dissolved Solids (TDS) is an indicator of salts in irrigation water that can damage soils. reduce crop yields, and negatively impact the sustainability of irrigated agriculture. SPR sampling in September 2018 confirmed that TDS concentrations increase dramatically through the Denver Metro area and reach levels that can damage crops. Potential salinity sources include Municipal waste water treatment facility (WWTF) sewage effluent, agricultural return flows, road deicing solutions, geologic formations, livestock waste, and produced water from oil and gas development.

Project objectives are to determine if salinity concentrations are a concern for irrigated agriculture, identify salinity severity and trends, evaluate the influence of historical water management practices, and to identify potential salinity sources. This project will analyze historical TDS concentrations to identify trends over time and along the SPR. Long-term, seasonal, and spatial trends will be used to identify potential salinity sources. Trends will be analyzed for correlations with major water-management policies.

The Colorado South Platte River Basin data sources for this study will include Central and Northern Colorado Water Conservation Districts, Colorado Department of Public Health and Environment (CDPHE), U.S. Geological Survey, U.S. Environmental Protection Agency, and the Colorado Department of Agriculture. Additional data sources may be used if the data can be readily obtained.

Objectives: (List the objectives of the project)

1. Obtain concurrent water samples from upstream of the Denver Metro area to the state line near Julesburg to determine if salinity concentrations are a concern for irrigated agriculture sustainability
2. Identify salinity severity and trends in the South Platte River from approximately 1990 through 2017, or a period feasible with the available data
3. Correlate salinity trends with changes in water-management policy
4. Use long-term, seasonal, and spatial salinity trends to identify potential salinity sources.

Last Update: January 9, 2018

Tasks
Provide a detailed description of each task using the following format:
Task 1 - Water-quality Sampling
Description of Task:
South Platte River sampling from upstream of Denver Metro area to near State line at Julesburg, including major tributaries. Field parameters (EC, Specific Conductance, pH, RDO, temperature) measured with a multiparameter sonde. Water-samples collected and analyzed by a laboratory for TDS, cations, anions, and Sodium Absorption Ratio. (Completed, September 2018)
Method/Procedure:
• Sampling site selection • Daily multiparameter sonde calibration • GPS location and photographs at each site • Field parameter data collection at sampling sites • Obtain water grab sample, filter, and ice sample • Water-samples shipped to laboratory for chemical analysis • Data processing and analysis, including piper diagrams, Stiff diagrams, maps, tables, and graphs
Grantee Deliverable: (Describe the deliverable the grantee expects from this task)
Database with compiled and organized data (Excel spreadsheets). Table(s), graphs, and map(s) illustrating data collected.
CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)
Completion of this task will be documented in the project status reports. Working copies of table(s), graphs, and map(s) illustrating data collected.

Last Update: January 9, 2018

Tasks
Provide a detailed description of each task using the following format:
Task 2 - Data Compilation & Evaluation
Description of Task:
TDS, electrical conductivity, and equivalent data from sources listed below will be compiled. Based on data availability and quality, monitoring locations will be selected for detailed analysis in task 3. 1. Central Colorado Water Conservation District (CCWCD); 2. Northern Colorado Water Conservation District (NCWCD); 3. Colorado Department of Public Health and Environment (CDPHE); 4. U.S. Geological Survey (USGS; and 5. Colorado Department of Agriculture.
Method/Procedure:
• Obtain data from agency staff or on-line databases. Data to include water quality, stream flows, groundwater levels, precipitation; • Evaluate data period of record, data quality, and completeness • Identify monitoring locations that can be used to identify salinity sources (e.g. near WWTF, agricultural return flows, geologic formation outcrops, stormwater runoff, de-icing runoff, tributaries) • Convert database values to common units and measurements (e.g. electrical conductivity converted to Total Dissolved Solids)
Grantee Deliverable: (Describe the deliverable the grantee expects from this task)
Database with compiled and organized data (MS Access or Excel spreadsheets). Table(s), graphs, and map(s) illustrating data availability and data quality.
CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)
Completion of this task will be documented in the project status reports. Working copies of table(s), graphs, and map(s) illustrating data availability and data quality.

Last Update: January 9, 2018

Tasks
Provide a detailed description of each task using the following format:
Task 3 – Data Analysis
Description of Task:
TDS from the selected sites will be analyzed for trends and correlations. Seasonal influences may include precipitation, streamflows (spring runoff, stormwater runoff), road de-icing, irrigation season (ditch flows, river diversions, infiltration), groundwater recharge. Long-term trends will be analyzed for correlations with historic water management policies (e.g. curtailing groundwater pumping, augmentation plans, water reuse, water conservation, etc.). Results will be presented in maps, graphs, and tables. Basic statistics will be computed.
Method/Procedure:
• Data will be analyzed statistically on a site-by-site basis, spatially, and temporally to identify the salinity severity and trends; • Geographic Information System software, graphing software, and statistical software will be used; • Maps, graphs, and tables will be created to illustrate the analysis results and trends.
Grantee Deliverable: (Describe the deliverable the grantee expects from this task)
Tables, graphs, and maps illustrating trends and correlations.
CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)
Completion of this task will be documented in the project status reports. Working copies of table(s), graphs, and map(s) illustrating trends and correlations.

Last Update: January 9, 2018

Tasks
Provide a detailed description of each task using the following format:
Task 4 – Final Report
Description of Task:
A final report (electronic format) will be prepared and submitted to the SPBRT and contributing entities, including recommendations for future actions.
Method/Procedure:
• Results of Tasks 1, 2, and 3 will be finalized • Salinity severity, trends, and spatial distribution will illustrated using maps, graphs, and tables • Descriptive text will be prepared to explain the results • Recommendations for future actions will be prepared • Report will be provided in electronic format for distribution
Grantee Deliverable: (Describe the deliverable the grantee expects from this task)
Report (electronic format) with text, maps, tables, and graphs documenting TDS concentrations, trends, and correlations in the Basin.
CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)
Completion of this task will be documented in the project status report and an electronic copy of the final report.

Last Update: January 9, 2018

Tasks
Provide a detailed description of each task using the following format:
Task 5 – Grant Administration
Description of Task:
Administrative tasks required to obtain grant funding, meet reporting requirements, and distributing funding. Specific tasks may include: • Grant contract documentation submittals; • Creating reimbursement invoices; • Submitting contractor payments; • Preparation and submittal of reporting documents; and • CWCB staff correspondence.
Method/Procedure:
• Compiling organization documents; • Processing invoices for payment; • Preparing and compiling activity reports; • Coordination between Colorado Corn, CWCB, South Platte Basin Roundtable, and contractors
Grantee Deliverable: (Describe the deliverable the grantee expects from this task)
• Submittal of contracting documents; • Submittal of invoices for reimbursement; • Confirmation that all grant conditions have been met with each invoice; and • Progress Report submittal at least once every 6 months.
CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)
A Final Report indicating that the project has been completed will be submitted to the CWCB. Report documentation may include: • Summarizes the project and how the project was completed. • Description of obstacles encountered, and how these obstacles were overcome. • Confirmation that all matching commitments have been fulfilled.

Last Update: January 9, 2018

Budget and Schedule

Exhibit B - Budget and Schedule: This Statement of Work shall be accompanied by a combined Budget and Schedule that reflects the Tasks identified in the Statement of Work and shall be submitted to CWCB in excel format. A separate excel formatted Budget is required for engineering costs to include rate and unit costs.

Reporting Requirements

Progress Reports: The grantee shall provide the CWCB a progress report every 6 months, beginning from the date of issuance of a purchase order, or the execution of a contract. The progress report shall describe the status of the tasks identified in the statement of work, including a description of any major issues that have occurred and any corrective action taken to address these issues. The CWCB may withhold reimbursement until satisfactory progress reports have been submitted.

Final Report: At completion of the project, the grantee shall provide the CWCB a Final Report on the grantee's letterhead that:

- Summarizes the project and how the project was completed.
- Describes any obstacles encountered, and how these obstacles were overcome.
- Confirms that all matching commitments have been fulfilled.
- Includes photographs, summaries of meetings and engineering reports/designs.

Payments

Payment will be made based on actual expenditures, must include invoices for all work completed and must be on grantee's letterhead. The request for payment must include a description of the work accomplished by task, an estimate of the percent completion for individual tasks and the entire Project in relation to the percentage of budget spent, identification of any major issues, and proposed or implemented corrective actions.

The CWCB will pay the last 10% of the entire water activity budget when the Final Report is completed to the satisfaction of CWCB staff. Once the Final Report has been accepted, and final payment has been issued, the water activity and purchase order or contract will be closed without any further payment. Any entity that fails to complete a satisfactory Final Report and submit to CWCB within 90 days of the expiration of a purchase order or contract may be denied consideration for future funding of any type from CWCB.

Performance Requirements

Performance measures for this contract shall include the following:
(a) Performance standards and evaluation: Grantee will produce detailed deliverables for each task as specified. Grantee shall maintain receipts for all project expenses and documentation of the minimum in-kind contributions (if applicable) per the budget in Exhibit B. Per Grant Guidelines, the CWCB will pay out the last 10% of the budget when the final deliverable is completed to the satisfaction of CWCB staff. Once the final deliverable has been accepted, and final payment has been issued, the purchase order or grant will be closed without any further payment.
(b) Accountability: Per the Grant Guidelines full documentation of project progress must be submitted with each invoice for reimbursement. Grantee must confirm that all grant conditions have been complied with on each invoice. In addition, per the Grant Guidelines, Progress Reports must be submitted at least once every 6 months. A Final Report must be submitted and approved before final project payment.
(c) Monitoring Requirements: Grantee is responsible for ongoing monitoring of project progress per Exhibit A. Progress shall be detailed in each invoice and in each Progress Report, as detailed above. Additional inspections or field consultations will be arranged as may be necessary.
(d) Noncompliance Resolution: Payment will be withheld if grantee is not current on all grant conditions. Flagrant disregard for grant conditions will result in a stop work order and cancellation of the Grant Agreement.

Last Update: 10/17/17

COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Colorado Water Conservation Board

Water Supply Reserve Fund

EXHIBIT B - BUDGET AND SCHEDULE

Date: February 1, 2019

Water Activity Name: Historical Analysis of South Platte River Salinity to Identify Severity, Trends, and Potential Sources

Grantee Name: Colorado Corn Administrative Committee

Task No.[1]	Description	Start Date[2]	End Date	Matching Funds (cash & in-kind)[3]	WSRF Funds (Basin & Statewide combined)[3]	Total
1	Water-quality Sampling	--	--	$15,000	$0	$15,000
2	Data Compilation & Evaluation	4/23/2019	6/30/2019	$2,500	$10,000	$12,500
3	Data Analysis	7/1/2019	8/31/2019		$20,000	$20,000
4	Final Report	9/1/2019	6/30/2020		$6,500	$6,500
5	Grant Administration	4/23/2019	6/30/2020		$2,500	$2,500
			Totals	$17,500	$39,000	$56,500

(1) The single task that include costs for Grant Administration must provide a labor breakdown (see Indirect Costs tab below) where the total WSRF Grant contribution towards that task does not exceed 15% of the total WSRF Grant amount.

(2) Start Date for funding under $100K - 45 Days from Board Approval; Start Date for funding over $100K - 90 Days from Board Approval.

(3) Round values up to the nearest hundred dollars.

• Reimbursement eligibility commences upon the grantee's receipt of a Notice to Proceed (NTP)

• NTP will not be accepted as a start date. Project activities may commence as soon as the grantee enters contract and receives formal signed State Agreement.

The CWCB will pay the last 10% of the entire water activity budget when the Final Report is completed to the satisfaction of the CWCB staff project manager. Once the Final Report has been accepted, the final payment has been issued, the water activity and purchase order (PO) or contract will be closed without any futher payment. Any entity that fails to complete a satisfactory Final Report and submit to the CWCB with 90 days of the expiration of the PO or contract may be denied consideration for future funding of any type from the CWCB.

• Additonally, the applicant shall provide a progress report every 6 months, beginning from the date of contract execution