WORK ORDER NO. D091
UNDER GLO CONTRACT NO. 21-113-001

Pursuant to **GLO CONTRACT NO. 21-113-001** ("Contract") between the **GENERAL LAND OFFICE** ("the GLO") and **EASTEX ENVIRONMENTAL LABORATORY, INC.** ("Provider"), each a "Party" and collectively "the Parties," Provider is authorized to perform the services described herein, subject to the terms of this Work Order No. D091 ("Work Order"). This Work Order amends the Contract, all provisions of which not amended herein remain in force and effect.

PROJECT DESCRIPTION

Provider shall perform, or cause to be performed: collection and analysis of water samples from designated sampling stations in Brazoria County, Harris County and Matagorda County, Texas, in accordance with the Quality Assurance Project Plan (QAPP), incorporated herein by reference in its entirety for all purposes, as if physically attached; and notification of the public of water quality advisories (the "Project"). Provider shall perform the Project in accordance with the Contract, this Work Order and all Attachments, including the Work Order Work Plan, attached hereto as **Attachment A,** and the QAPP.

If the Contract, this Work Order, or Attachments to this Work Order conflict, such conflicts shall be resolved in the following order of precedence: first, the Contract; then attachments to the Contract in this order: Attachment A, Attachment B, Attachment C; then the Work Order, the QAPP, and Attachment A to the Work Order.

TASKS AND DELIVERABLES

Provider must perform all tasks and submit all deliverables, in accordance with the due dates and schedule, in strict conformance with **Attachment A.**

COMPENSATION

The total compensation due to Provider for services performed and costs incurred pursuant to this Work Order is not to exceed **$135,000.00,** which includes pre-approved travel, pre-approved supplies, and all other pre-approved expenses related to the performance of the Project.

Provider will be reimbursed **$35.00** per base sample taken in Brazoria County, and repeat samples will be reimbursed as follows: **$400.00** for one repeat sample; **$225.00** for each two repeat samples; **$150.00** for each three repeat samples; **$120.00** for each four repeat samples; **$100.00** for each five repeat samples; and **$85.00** for each six or greater repeat samples.

Provider will be reimbursed **$34.00** per base sample taken in Matagorda County, and repeat samples will be reimbursed as follows: **$400.00** for one repeat sample; **$225.00** for each two repeat samples; **$150.00** for each three repeat samples; **$120.00** for each four repeat samples; **$100.00** for each five repeat samples; and **$85.00** for each six or greater repeat samples.

Provider will be reimbursed **$50.00** per base sample taken in Harris County, and repeat samples will be reimbursed as follows: **$125.00** for one repeat sample; and **$75.00** for each two repeat samples.

SUBMISSION OF INVOICES

Provider must submit invoices to the GLO in accordance with the Contract, this Work Order and **Attachment A**. Failure to submit invoices as instructed may significantly delay payment under the Work Order.

PERFORMANCE PERIOD: This Work Order is effective on September 1, 2021 and shall terminate upon the earlier of the completion of the Project, in the GLO's sole determination, or August 31, 2022 ("Performance Period").

TERMINATION OR INTERRUPTION OF WORK: The GLO reserves the right to, at any time during the Performance Period, terminate, halt, or defer all or any portion of the work included in the Scope of Services of this Work Order. If such an event occurs: (1) Provider must follow all directions included in the GLO's notice; and (2) the Parties agree that the Work Order may require revision by written Amendment.

AMENDMENTS TO WORK ORDER: Material changes to this Work Order may be made only by written agreement of the Parties. **Notwithstanding the preceding,** the GLO Project Manager may approve extensions to Deliverable Due Dates within the confines of the Performance Period. Such approvals must be in writing, and may be delivered by regular mail, electronic mail, or facsimile transmission; and shall become part of the GLO's Project file.

SIGNATURE PAGE FOLLOWS

SIGNATURE PAGE FOR WORK ORDER NO. D091
UNDER GLO CONTRACT NO. 21-113-001

GENERAL LAND OFFICE

DocuSigned by:
7C299F4374E7497...

Mark A. Havens, Chief Clerk /
Deputy Land Commissioner

Date of execution: 8/31/2021

EASTEX ENVIRONMENTAL LABORATORY, INC.

DocuSigned by:
0F743B[illegible]496

By: _____

Name: Susan Cogar-Daniels

Title: CEO | CFO

Date of execution: 8/31/2021

OGC DS

PM DS

DIV DS

DIR DS

DD DS

SDD DS

DGC DS

GC DS

ATTACHMENT TO THIS WORK ORDER:

ATTACHMENT A – WORK ORDER WORK PLAN

INCORPORATED BY REFERENCE:

QUALITY ASSURANCE PROJECT PLAN

ATTACHMENTS FOLLOWS

Work Order Work Plan

Introduction

As the lead state agency charged with implementing the Beaches Environmental Assessment and Coastal Health Act of 2000 (BEACH Act), the Texas General Land Office (GLO) issues Work Order D091, to which this Work Plan is attached, under GLO Contract No. 21-113-001 to **Eastex Environmental Laboratory, Inc.** (Provider) to collect and analyze water samples, notify the public of beach water quality, and recommend and/or issue water quality advisories when warranted.

Beach Watch Coordinator

Lucy Flores
Texas General Land Office
P. O. Box 12873
Austin, Texas 78711-2873
(512) 463-5134
lucy.flores@glo.texas.gov

I. QUALITY ASSURANCE PROJECT PLAN

All monitoring data Provider collects must be collected according to the EPA approved Quality Assurance Project Plan (QAPP). Provider must adhere to the QAPP. **Provider's Project Manager is required to download and read the document and return the signature page (Appendix D of the QAPP) to the GLO Beach Watch Coordinator.** If any conflicts arise between this work plan and the QAPP, the requirements of the QAPP shall take precedence. The QAPP can be downloaded at www.texasbeachwatch.com or accessed directly at http://cgis.glo.texas.gov/Beachwatch/docs/QAPP2020-2021.pdf.

II. SAMPLING STATIONS AND SCHEDULE

Provider shall collect all samples in accordance with the Procedures for Providers set forth below and in the QAPP.

Sampling Stations. The Provider shall collect water samples from fixed sampling stations, depicted on the maps and station lists in Appendix C of the QAPP for **Brazoria County, Harris County, and Matagorda County**. The Provider shall follow the attached Sampling Schedule (Exhibit 1 of this Work Plan) and shall conduct additional sampling as required in Section V of this Work Plan. Based upon the contract amount, Provider shall collect samples for **Brazoria County, Harris County, and Matagorda County** over **38** sampling weeks between **September 1, 2021 and August 31, 2022**.

Sampling Depth. Provider must sample at a depth of approximately two feet (~2 ft.). The two-foot sampling depth will apply unless:

- The majority of recreational activity occurs at a depth significantly different than two feet, in which case Provider may collect samples at the location of greatest swimmer activity; or
- The two-foot sampling depth occurs more than 50 meters from shore, measured from the approximate water line at the time of sampling, in which case Provider may collect samples at 50 meters from shore or at the location of greatest swimmer activity.

Sampling Schedule. Exhibit 1 lists the weeks when sampling must be conducted. Provider must collect samples on Mondays or Tuesdays. If Provider cannot collect samples on a Monday or Tuesday, Provider

may collect samples on a Wednesday. This schedule allows time for re-sampling to occur, before the next regular sampling period, when elevated bacteria levels are detected. Depending on the number of beaches and stations, local contractors may require several days to collect samples. Collection may occur over a three-day period, upon prior written approval from the Beach Watch Coordinator.

III. LABORATORY TESTING

The Provider will analyze water samples for Enterococci bacteria using Method 1600: Enterococci in Water by Membrane Filtration Using membrane-Enterococcus Indoxyl-$-D-Glucoside Agar (mEI) July 2006 (http://www.epa.gov/waterscience/methods/method/biological/1600.pdf) or the IDEXX Enterolert™ system. The entity performing laboratory testing shall have a Quality Assurance/Quality Control (QA/QC) Plan. Plans approved by other entities (state/federal/commercial) and adopted by the Provider may be considered. Upon execution of this Contract, the Provider shall provide the GLO Beach Watch Coordinator with the name, address, phone and fax numbers, and point of contact (with e-mail) for the laboratory, if separate from the Provider.

IV. SAMPLING PROCEDURES

Equipment and Supplies. The following equipment and supplies will be necessary for the collection of water samples by the Provider:

- Insulated cooler for storage and transportation of the samples to the laboratory
- Thermometer
- Sample bottles – The bacteriological samples will be collected in polypropylene bottles with a capacity between 125 and 1000 milliliters (ml) to allow for adequate sample mixing. Polypropylene bottles are recommended as they may be autoclaved and will keep sample costs down.
- Ice packs to keep samples cool
- Waterproof adhesive labels for sample bottles
- Black indelible marker to label samples
- All paperwork including but not limited to Chain of Custody forms and Field Observation Forms (FOF) (Exhibit 2). Information collected on the FOF must be submitted electronically, once a month in a spreadsheet format supplied by the Beach Watch Coordinator, with the invoice reimbursement request.

Sample Collection Training. Provider shall ensure only trained individuals perform the collection of samples. Within 15 days after Work Order execution, Provider must submit a brief description of the training of the individuals to the Beach Watch Coordinator.

Sample Collection. One sample will be collected at each station. For every 10 stations sampled on any given day, a second sample must be collected at one of the stations as required by the QAPP. Samples shall be collected within arm's length of each other. Sample collection may be done side-by-side or concurrently. All water samples shall be collected as follows:

1. Identify the sampling site on a chain of custody tag, if required, or on the bottle label and on a field log sheet.
2. Remove the bottle covering and closure just before obtaining each sample and protect them from contamination. Be careful not to touch the inside of the bottle itself or the inside of the cover.

3. The first sample to be prepared is the trip blank (at least one per sampling day for routine sampling is recommended). Open the sampling bottle and fill it with 100 ml of sterile buffered dilution solution when collecting freshwater, estuarine, or marine water samples. Cap the bottle and place it in a cooler. The trip blank will be used to verify samples have been maintained at the correct temperature for transportation.
4. To collect the water samples, carefully move to the first sampling location. If wading in the water, try to avoid kicking up bottom material at the sampling station. The sampler should be positioned downstream of any water current to take the sample from the incoming flow. Samples shall be collected in approximately two feet of water.
5. Open a sampling bottle, grasp it at the base with one hand, and plunge the bottle mouth downward at 90 degrees into the water to avoid introducing surface scum. Position the mouth of the bottle into the current away from the hand of the sampler. The sampling depth should be 15 to 30 centimeters (6 to 12 inches) below the water surface, depending on the depth from which the sample must be taken. Samples collected in less than the two-foot standing depth will collect the sample at the 15-centimeter (six inch) sampling depth to avoid the collection of sedimentation. Allow time for sediment settling prior to collecting the sample. If the water body is static, an artificial current can be created by moving the bottle horizontally with the direction of the bottle pointed away from the sampler. Tip the bottle slightly upward to allow air to exit and the bottle to fill.
6. Remove the bottle from the water body.
7. Pour out a small portion of the sample to allow an air space of 2.5 centimeters (1 to 2 inches) above each sample for proper mixing of the sample before analysis. [NOTE: If the bottle contains any debris, contaminants, or excessive sediment/sand, a new bottle must be used. Do not discard the water sample and refill the bottle.]
8. Tightly close the stopper and label the bottle.
9. Enter specific details to identify the sample on a permanent label. Take care in transcribing sampling information to the label. The label should be clean, waterproof, non-smearing, and large enough for the necessary information. The label must be securely attached to the sample bottle but removable when necessary. Preprinting standard information on the label can save time in the field. The marking pen or other device must be non-smearing and maintain a permanent legible mark.
10. Complete a Field Observation Form (FOF) for each beach to record the full details on sampling and other pertinent remarks, such as flooding, rain, or extreme temperature, that are relevant to interpretation of the results. This record also provides a back-up record of sample identification.
11. Place the samples in a suitable container and transport them to the laboratory as soon as possible. Adhering to sample preservation and holding time limits is critical to the production of valid data. Bacteriological samples should be iced or refrigerated at <10°C during transit to the laboratory. Use insulated containers such as plastic or Styrofoam coolers, if possible, to ensure proper maintenance of storage temperature. Take care to ensure sample bottles are not totally immersed in water during transit or storage. Process samples as soon as possible after collection. Do not hold samples longer than six hours between collection and initiation of analysis (US Environmental Protection Agency, 2000). Do not analyze samples that exceed holding time limits.
12. Collect water samples for analyses of other parameters in separate appropriate containers at the same time and perform analyses as specified in the methods.
13. After collecting samples from a station, wash hands and arms with alcohol wipes, a disinfectant lotion, or soap and water, and dry to reduce exposure to potentially harmful bacteria or other microorganisms.

Labeling the Samples. Each sample bottle shall be labeled with the following information:

- Date and time of sample collection
- Sampler's name
- Sample letters and station number as identified in Appendix C of the QAPP (identify the first sample with the letter "A" after the station number, the second sample with the letter "B" and so forth)

Delivery of Samples to the Laboratory. Upon completion of sample collection, Provider must deliver the samples to the designated laboratory for testing within 6 (six) hours of collection. During transport to the laboratory, all samples must remain in a cooler packed in ice. If necessary, additional ice packs may be added during the course of the sampling day.

Sampling Documentation. Provider must complete a FOF for each station. Multiple stations may be included on a single FOF if all the data is the same. Provider must supply a copy of each completed FOF to the designated laboratory (if different than the Provider). The Provider shall retain all FOFs. Provider must submit data from the FOFs electronically, once a month, in a spreadsheet format supplied by the Beach Watch Coordinator, with the invoice reimbursement request.

Other indicators to be noted on the FOF shall include:

- Dead fish, birds, or other animals on beach
- Number of people at the site
- Submerged debris in water (e.g., sargassum, dead fish, flood debris)
- Debris on beach (e.g., sargassum, algae, flood debris, trash, tar balls)
- Water color and water odor
- Longshore current (speed and direction)

V. PUBLIC NOTICE/ISSUING ADVISORIES

Determining Bacteria Levels. One sample will be collected at each station and will be used to determine when an advisory shall be recommended. Where two samples are collected at a station as required in the QAPP for QA/QC purposes, the average of the two samples shall be used.

Recommending/Issuing Advisories. If the average of the one (or two) samples exceeds the Single Sample Maximum Density value of 104 cfu/100ml, an advisory shall be recommended to the local government contact(s). Sampling shall continue daily until the values are back below the standard. This includes weekends and summer holidays.

Public Advisory. If the Provider is a local government, the Provider must issue a public advisory and post advisory signs. If Provider fails to post advisory signs, in the GLO may immediately terminate the contract.

If the Provider is not a local government, the GLO will notify the local government. The Provider may post the advisories signs if authorized by the local government.

VI. DATA ENTRY

The Provider must submit sampling results through the Beach Watch Program's data entry website (https://s3.glo.texas.gov/beaches2009/login.cfm) within two hours of receiving the results. Only extenuating circumstances such as power outage or Internet connectivity problems will preclude this

requirement. If extenuating circumstances occur that preclude entering the data within two hours, the Provider shall notify the Beach Watch Coordinator by any means possible.

VII. DELIVERABLES

Provider must submit the following deliverables on or before the due dates listed:

1. Budget breakdown by category
   Due Date: 09/30/2021
2. Review, sign and return QAPP
   Due Date: 10/31/2021
3. Inventory of signs, including locations and photos
   Due Date: 11/30/2021
4. Reimbursement requests
   Due Date: Monthly
5. Field Observation Forms
   Due Date: Monthly

VIII. SPECIAL CONDITIONS

1. This project must be completed as described in this work plan.
2. The GLO must approve any changes in the scope of work and budget requests that change the total project cost.
3. GLO and Texas Beach Watch logos, must be printed on education/outreach materials, signs, and clothing when referencing information from the Texas Beach Watch program.
4. The Provider must coordinate with the GLO prior to issuing press releases, conducting media events, or otherwise engaging in media related communications for this project.

EXHIBIT 1

Sampling Schedule

Sampling Schedule

September 1, 2021 through August 31, 2022

Sample Week	Sample	Event #		Sample Week	Sample	Event #
09/01/2021	Yes	1		03/07/2022	Yes	15
09/06/2021	Yes	2		03/14/2022	Yes	16
09/13/2021	No			03/21/2022	Yes	17
09/22/2021	Yes	3		03/28/2022	Yes	18
09/27/2021	No			04/04/2022	No	
10/04/2021	Yes	4		04/11/2022	Yes	19
10/11/2021	No			04/18/2022	No	
10/18/2021	Yes	5		04/25/2022	Yes	20
10/25/2021	No			05/02/2022	Yes	21
11/01/2021	Yes	6		05/09/2022	Yes	22
11/08/2021	N0			05/16/2022	Yes	23
11/15/2021	Yes	7		05/23/2022	Yes	24
11/22/2021	No			05/30/2022	Yes	25
11/29/2021	Yes	8		06/06/2022	Yes	26
12/06/2021	No			06/13/2022	Yes	27
12/13/2021	Yes	9		06/20/2022	Yes	28
12/20/2021	No			06/27/2022	Yes	29
12/27/2021	Yes	10		07/04/2022	Yes	30
01/03/2022	No			07/11/2022	Yes	31
01/10/2022	Yes	11		07/18/2022	Yes	32
01/17/2022	No			07/25/2022	Yes	33
01/25/2022	Yes	12		08/01/2022	Yes	34
01/31/2022	No			08/08/2022	Yes	35
02/07/2022	Yes	13		08/15/2022	Yes	36
02/14/2022	No			08/22/2022	Yes	37
02/21/2022	Yes	14		08/29/2022	Yes	38
02/28/2022	No					

EXHIBIT 2

Field Observation Form

Texas Beach Watch Field Observation Form

Date:_____

Field Staff Name:_____ **Beach Name:**_____

_____

Sampling location(s):_____

_____

Time Samples Collected: Start:_____ **Finish:** _____

Time Samples Delivered to Lab: _____ **Collection Depth:** _____

SITE CONDITIONS:

Contact Recreation Observed: Yes _____ **No** _____ **Number of People:**_____

If yes, Heavy: _____ **Moderate:** _____ **Light:** _____

Wind: Calm _____ Slight Breeze _____ Moderate Breeze _____ Windy _____

Weather: Clear ____ Partly Cloudy ____ Overcast ____ Rainy ____ Drizzle ____ Fog _____

Wind Direction: N_____NE_____E_____SE_____S_____SW_____W_____NW_____

Air Temperature: _____ **Water Temperature**: _____

Rainfall: Last 7 days: _____ _____Last 3 days:_____ Last 24 hours:_____

Tidal Stage: Flooding _____High Slack _____ Ebbing ___Low Slack _____

Water Surface: Calm _____ Ripples _____ Chop _____Swells _____ Other _____

Water Color: Medium Brown _____ Dk. Brown_____Red-Brown_____
Green-Brown_____ Green_____Yellow-Brown _____ Other _____

Smell: Sewage __ Oily _____Fishy_____Rotten Egg_____None_____

Beach Debris: Dead Fish _____ Algae_____None _____
Sargassum: Heavy:_____Moderate:_____Light:_____ Other: _____

Signage is present **Yes** _____ **No** _____ and appropriately positioned **Yes** _____ **No** _____

General Comments (including observations of domestic animals and wildlife):

_____
_____
_____