



Memorandum

To: Ms. Veronica Mardis, Los Angeles County Department of Public Works

From: Ms. Mari Quillman, ECORP Consulting, Inc.

Date: May 6, 2019

Subject: Results of Soil Sample Analysis for the Devil's Gate Reservoir Restoration Project

Cc:

INTRODUCTION

The purpose of this memorandum is to provide the results of an analysis of soil samples taken from the sediments that will be removed during Year 1 of the Devil's Gate Reservoir Restoration Project (Project). On April 22, 2019, the Los Angeles County Flood Control District (LACFCD) contacted ECORP Consulting, Inc. (ECORP) about conducting an analysis of soil samples from the Project's Year 1 sediment removal area for the presence of Glyphosate, an herbicide more commonly known as Roundup.

A version of Roundup, called Roundup Custom, which is approved for use in aquatic environments, was applied to invasive and nonnative plants and weeds in the Project's mitigation areas. The mitigation areas, which are located outside of the Project's sediment removal area, are being restored to native plant communities to satisfy the mitigation requirements of the Project's Environmental Impact Report (EIR), Recirculated Final EIR, and the permits issued by the California Department of Fish and Wildlife (CDFW), the U.S. Army Corps of Engineers (USACE), and the Regional Water Quality Control Board (RWQCB). The CDFW approved Habitat Restoration Plan (HRP) and the USACE approved Habitat Mitigation and Monitoring Plan (HMMP) both include application of herbicide as the first phase of the approved restoration project to eliminate weeds and nonnative and invasive plants prior to the installation of native plant and seed materials. The use of Glyphosate (Roundup Custom) was approved by CDFW for use in the restoration Project prior to any herbicide applications in the mitigation areas. The application of the Glyphosate (Roundup Custom) was limited to areas within the boundaries of the mitigation areas. Herbicides were not applied within the boundaries of the sediment removal area.

ECORP contacted Environmental Micro Analysis, Inc. (EMA, Inc.), which is a certified and accredited laboratory (ISO 17025 accreditation, ELAP Certificate # 2819) in Woodland, California, about conducting testing for Glyphosate in soils. Information was gathered from EMA, Inc. about the appropriate sampling methodology, the shipping methods, and the processing time for the samples.

Sampling Methodology

EMA, Inc. provided information about appropriate soil sampling and shipment methods to ensure the integrity of each of the samples. The EMA, Inc. staff stated Glyphosate binds to metal and glass so care had to be taken when taking the samples to minimize the contact with these materials. The EMA, Inc. staff member stated that using a shovel to take the sample was acceptable but mixing the soil samples using a metal implement, such as a trowel, was unacceptable. Direction was given by EMA, Inc. staff to collect the samples and then immediately place them in individual plastic bags for storage in a freezer until they could be shipped to the laboratory. EMA, Inc. also suggested shipping the samples with cold packs in the box to preserve the samples for analysis. A Sample ID form and the Chain of Custody form were both downloaded from the EMA, Inc. website (<http://www.emalab.com/>) for use in recording the sample identifications and other information.

Sampling Locations

To get a broad range of samples from the area where sediment will be removed during the first year of the Project, ten sampling locations were systematically selected within the approximately 25-acre area (first year removal area) identified by LACPW (Figure 1 in Attachment 1). The locations were programmed into the ESRI Collector Classic App on an iPhone prior to conducting the sampling to ensure the samples were taken from the selected locations. Sampling locations were purposefully not selected in areas where sediment had been manipulated by heavy equipment or removed for the purpose of building access roads.

Equipment

The equipment and supplies used to collect, store, and ship the soils samples included the following:

- Shovel
- Narrow trowel (6 to 7 inches long)
- 5-Gallon bucket
- Water
- Rags for cleaning the shovel and trowel (10 separate rags)
- Sample bags (such as Zip Lok and labelled with sample numbers)
- Ice chest with cold packs
- Weight scale
- Sample ID Data Sheets
- Chain of Custody form

Sampling Protocol

A specific sampling protocol was used to avoid cross-contamination between samples and to ensure each sample was collected in the same manner. The sampling protocol steps are listed below.

- Thoroughly clean dirt off the shovel and trowel prior to going to field.
- Clear any organic debris from the soil surface at the sampling location.
- Jam the shovel down into the ground at the sample location and pull the soil to the side to expose a vertical column of soil at least seven (7) inches deep.

- Use the trowel to take a vertical sample of soil from the surface down to 6 or 7 inches and place a hand against the soil to hold the sample against the trowel.
- Place the soil sample into a labeled bag.
- Weigh the sample to ensure the volume is at least 200 grams.
- Clean the trowel and the shovel in the bucket of water after each sample is taken and scrape off any dirt or clays that may be stuck to the trowel or shovel.
- Raise the shovel or trowel out of the bucket and rinse off entire surface with water by trickling water from a bottle.
- Dry both sides of the shovel and the trowel with a rag using a separate rag after each sample is taken.
- Record the information about the sample on the Sample ID Form (sample ID and weight).
- Record the information on the Chain of Custody Form.
- Place the sample bags into a cooler with cold packs.
- Repeat the sampling protocol for each sample at each location until ten samples are collected.

Sample Collection, Storage, and Shipment

ECORP collected the ten soil samples on Friday, April 26, 2019. The Sample ID forms and the Chain of Custody forms submitted with the samples are included as Attachment 2. EMA, Inc. suggested if the samples were going to be collected on a Friday, then they should be placed in a freezer over the weekend and shipped on Monday. The sample bags were placed in a freezer over the weekend to preserve the integrity of each sample. On Monday morning, April 29, 2019, the samples were placed in a box with ice packs along with a copy of the Sample ID form and the Chain of Custody form. The samples were shipped via FedEx and arrived at EMA, Inc. on Tuesday morning, April 30, 2019.

Results

On Thursday, May 2, 2019, ECORP received an email from EMA, Inc. with the results of the analysis for Glyphosate for each of the ten samples. The results table includes the following information for each sample:

- ECORP's sample ID number
- EMA, Inc. sample ID number
- Sample material
- Date Analyzed
- Method used
- Target chemical
- Amount detected,
- Reporting limit
- Units of measure

Each individual sample provided by ECORP was given a unique sampling identification number by EMA, Inc. prior to the analysis. The samples were identified as soil samples and all ten samples were analyzed on May 1, 2019. The method used to conduct the analysis of the soil samples for Glyphosate was identified as Specific LC/MS/MS and the reporting limit for the Glyphosate in soil samples is 0.05 parts per million (ppm).

Table 1 summarizes the results provided by EMA, Inc. on May 2, 2019. Attachment 3 includes the Analytical Report provided by EMA, Inc. As shown in Table 1 and Attachment 3, all ten of the soil samples from the Project's first year

sediment removal area that were analyzed for Glyphosate contained non-detectable amounts of Glyphosate at the reporting limit of 0.05 ppm.

Table 1 – Glyphosate Analysis Results for Soil Samples from Project’s First Year Sediment Removal Area

ECORP Sample ID	EMA Sample No.	Chemical	Amount Detected*	Reporting Limit (ppm)
1	19043001-01	Glyphosate	ND	0.05
2	19043001-02	Glyphosate	ND	0.05
3	19043001-03	Glyphosate	ND	0.05
4	19043001-04	Glyphosate	ND	0.05
5	19043001-05	Glyphosate	ND	0.05
6	19043001-06	Glyphosate	ND	0.05
7	19043001-07	Glyphosate	ND	0.05
8	19043001-08	Glyphosate	ND	0.05
9	19043001-09	Glyphosate	ND	0.05
10	19043001-10	Glyphosate	ND	0.05

*ND = None Detected at the Reporting Limit (RL)

ATTACHMENT 1 – SAMPLING LOCATIONS (FIGURE 1)

Location: N:\2014\2014-003.008 Devils Gate Mitigation Plan\MAPS\Soils_and_mitigation_monitoring\monitoring\2018_Sediment_Removal\VG_Soil_Sampling_20190426.mxd (MAG)imguidry_5/7/2019



Figure 1
Soil Sample Locations

Map Features

-  Project Sediment Removal Area
-  1st Year Sediment Removal Area
-  Soil Sample Location

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



ATTACHMENT 2 – CHAIN OF CUSTODY AND SAMPLE ID FORMS

CHAIN OF CUSTODY RECORD

ENVIRONMENTAL MICRO ANALYSIS, INC.
 460 N. EAST STREET
 WOODLAND, CA 95776
 PHONE: (530) 666-6890 FAX: (530) 666-2987

Client Ecosp Consulting, Inc Contact Mari Guillman
 Street Address 1801 Park Court Place B103
 City Santa Ana State CA Zip 92701
 Phone 714-222-5932 FAX 714-648-0935

Project No.:	Project Name:		# Containers & Type	Requested Test	Remarks								
PA7-297.14	Devil's Gate Restoration Project												
Samplers: (Signature) <u>Adam Schroeder</u>													
Sample ID:	EMA Sample #:	Date	Time	Com- posite	Grab	Received By							Received By
Devil's Gate Sample #1		4/26/19	09:31	Soil	1	Time and Date							Time and Date
Devil's Gate Sample #2		4/26/19	09:13	Soil	1	Company							Company
Devil's Gate Sample #3		4/26/19	09:01	Soil	1	Released By							Released By
Devil's Gate Sample #4		4/26/19	08:46	Soil	1	Time and Date							Time and Date
Devil's Gate Sample #5		4/26/19	09:45	Soil	1	Company							Company
Devil's Gate Sample #6		4/26/19	09:58	Soil	1	Released By							Released By
Devil's Gate Sample #7		4/26/19	10:18	Soil	1	Time and Date							Time and Date
Devil's Gate Sample #8		4/26/19	10:31	Soil	1	Company							Company

Released By Adam Schroeder
 Time and Date 4/26/19 12:05
 Company Ecosp

Received By _____
 Time and Date _____
 Company EMA, Inc.
 Released By _____
 Time and Date _____

CHAIN OF CUSTODY RECORD

ENVIRONMENTAL MICRO ANALYSIS, INC.
 460 N. EAST STREET
 WOODLAND, CA 95776
 PHONE: (530) 666-6890 FAX: (530) 666-2987

Client Ecopp Consulting, Inc Contact Mari Guillman
 Street Address 1801 Park Coast Place B-103
 City Santa Ana State CA Zip 92701
 Phone 714-545-1598 FAX 714-648-0935
714-222-5932

Project No.:	Project Name:		EMA Sample #:	Date	Time	Com- posite	Grab	# Containers & Type	Requested Test	Remarks							
	R17-297.14	Devil's Gate Restoration Project															
Samplers: (Signature) <i>Alan Schroeder</i>	<i>Alan Schroeder</i>																
Sample ID: Devil's Gate Sample #9				4/26/19	10:59	Soil	1	Plastic Bags	7								Glyphosate
Devil's Gate Sample #10				4/26/19	08:30	Soil	1	Plastic Bags	1								Glyphosate

SIGNATURES

Released By <u><i>Alan Schroeder</i></u> Time and Date <u>4/26/19 12:05</u> Company <u>Ecopp</u>	Received By _____ Time and Date _____ Company _____ Released By _____ Time and Date _____
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Ship Samples to: **Environmental Micro Analysis, Inc.**
 460 N. East Street Woodland, CA 95776
 (530) 666-6890 Fax (530) 666-2987
 e-mail: emalab@emalab.com

Report To:

Invoice To:

First Name: Masi Last Name: Quillman
 Company: ECORP Consulting, Inc.
 Address: 1801 Park Court Place B103
 City, State, Zip: Santa Ana, CA 92701
 Phone: 714-222-5932 Fax: 714-648-0935
 e-mail: mquillman@ecorpconsulting.com

First Name: Masi Last Name: Quillman
 Company: ECORP Consulting, Inc.
 Address: 1801 Park Court Place B103
 City, State, Zip: Santa Ana, CA 92701
 Phone: 714-222-5932 Fax: 714-648-0935
 e-mail: mquillman@ecorpconsulting.com

P. O. No: P17-29714 Project: Devil's Gate Restoration Project

Return Cooler? Yes No

(A \$20 shipping charge will apply, please check one)

Report via (Check desired): Fax E-Mail

Sample ID	Matrix	Test Requested	Other Identifier	Sample Date
Devil's Gate Sample #1	Soil	Glyphosate	N/A	4/26/19
Devil's Gate Sample #2	Soil	Glyphosate	N/A	4/26/19
Devil's Gate Sample #3	Soil	Glyphosate	N/A	4/26/19
Devil's Gate Sample #4	Soil	Glyphosate	N/A	4/26/19
Devil's Gate Sample #5	Soil	Glyphosate	N/A	4/26/19
Devil's Gate Sample #6	Soil	Glyphosate	N/A	4/26/19
Devil's Gate Sample #7	Soil	Glyphosate	N/A	4/26/19
Devil's Gate Sample #8	Soil	Glyphosate	N/A	4/26/19
Devil's Gate Sample #9	Soil	Glyphosate	N/A	4/26/19

In submitting samples to Environmental Micro Analysis, Inc. I agree to pay all associated charges within 30 days of receipt of invoice.

Special Instructions: NA

Ship Samples to: **Environmental Micro Analysis, Inc.**
 460 N. East Street Woodland, CA 95776
 (530) 666-6890 Fax (530) 666-2987
 e-mail: emalab@emalab.com

Report To:

Invoice To:

First Name: Masi Last Name: Quillman First Name: Masi Last Name: Quillman
 Company: ECORP Consulting, Inc. Company: ECORP Consulting, Inc.
 Address: 1801 Park Court Place B103 Address: 1801 Park Court Place B103
 City, State, Zip: Santa Ana, CA 92701 City, State, Zip: Santa Ana, CA 92701
 Phone: 714-222-5932 Fax: 714-648-0935 Phone: 714-222-5932 Fax: 714-648-0935
 e-mail: mquillman@ecorpconsulting.com e-mail: mquillman@ecorpconsulting.com

P. O. No: P17-297.14 Project: Devil's Gate Restoration Project

Return Cooler? Yes No (A \$20 shipping charge will apply, please check one) Report via (Check desired): Fax E-Mail

Sample ID	Matrix	Test Requested	Other Identifier	Sample Date
Devil's Gate Sample #10	Soil	Glyphosate	N/A	4/26/19

In submitting samples to Environmental Micro Analysis, Inc. I agree to pay all associated charges within 30 days of receipt of invoice.

Special Instructions: N/A

ATTACHMENT 3 – ANALYTICAL REPORT FROM EMA, INC.

ENVIRONMENTAL MICRO ANALYSIS, INC.
ANALYTICAL REPORT

CLIENT: Mari Quillman
Ecorp Consulting, Inc.
1801 Park Court Places B103
Santa Ana, CA 92701

May 2, 2019

Phone: (714) 222-5932
Fax: (714) 648-0935

mquillman@ecorpc consulting.com

Project: Devil's Gate Restoration Project

P. O. No: P17-297.14

Client Sample	EMA Sample No	Sample	Date Analyzed	Method	Chemical	Amount	RL	Units
Devil's Gate Sample #1	19043001-01	Soil	05/01/19	Specific LC/MS/MS	Glyphosate	ND	0.05	ppm
Devil's Gate Sample #2	19043001-02	Soil	05/01/19	Specific LC/MS/MS	Glyphosate	ND	0.05	ppm
Devil's Gate Sample #3	19043001-03	Soil	05/01/19	Specific LC/MS/MS	Glyphosate	ND	0.05	ppm
Devil's Gate Sample #4	19043001-04	Soil	05/01/19	Specific LC/MS/MS	Glyphosate	ND	0.05	ppm
Devil's Gate Sample #5	19043001-05	Soil	05/01/19	Specific LC/MS/MS	Glyphosate	ND	0.05	ppm
Devil's Gate Sample #6	19043001-06	Soil	05/01/19	Specific LC/MS/MS	Glyphosate	ND	0.05	ppm
Devil's Gate Sample #7	19043001-07	Soil	05/01/19	Specific LC/MS/MS	Glyphosate	ND	0.05	ppm
Devil's Gate Sample #8	19043001-08	Soil	05/01/19	Specific LC/MS/MS	Glyphosate	ND	0.05	ppm
Devil's Gate Sample #9	19043001-09	Soil	05/01/19	Specific LC/MS/MS	Glyphosate	ND	0.05	ppm
Devil's Gate Sample #10	19043001-10	Soil	05/01/19	Specific LC/MS/MS	Glyphosate	ND	0.05	ppm

ENVIRONMENTAL MICRO ANALYSIS, INC.
ANALYTICAL REPORT

CLIENT: Mari Quillman
Ecorp Consulting, Inc.
1801 Park Court Places B103
Santa Ana, CA 92701
mquillman@ecorpc consulting.com

May 2, 2019

Phone: (714) 222-5932
Fax: (714) 648-0935

P. O. No: P17-297.14 Project: Devil's Gate Restoration Project

<u>Client Sample</u>	<u>EMA Sample No</u>	<u>Sample</u>	<u>Date Analyzed</u>	<u>Method</u>	<u>Chemical</u>	<u>Amount</u>	<u>RL</u>	<u>Units</u>
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ND = None Detected at the Reporting Limit (RL)
RL = Reporting Limit.
Excess sample and extracts are stored for a minimum 30 of days from the date of analytical report. Special storage arrangements possible.
Results relate only to items tested.
Samples are analyzed as received.
Reports should not be reproduced, except in full, without written consent by Environmental Micro Analysis, Inc.
To see the scope of our ISO 17025 accreditation go to <http://emalab.com/ISO17025.pdf>