

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

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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)

ATTACHMENT 2 – CHAIN OF CUSTODY AND SAMPLE ID FORMS

ATTACHMENT 3 – ANALYTICAL REPORT FROM EMA, INC.