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November 23, 2015

Mary Kauffman
Caribou-Targhee National Forest
1405 Hollipark Dr.
Idaho Falls, Idaho 83401

Subject: Biological Selenium Removal Treatment Technology Fluidized Bed Bioreactor Pilot Study October 2015 Progress Report

Dear Mary,

This progress report summarizes key activities in October 2015 associated with the fluidized bed bioreactor (FBR) pilot study located near Hoopes Spring. This pilot study is being conducted as part of the Smoky Canyon Mine Remedial Investigation/Feasibility Study (RI/FS) to provide information on the effectiveness of the active biological treatment system in removing selenium and other COPCs from South Fork Sage Creek Springs and Hoopes Spring. Operation and monitoring of the pilot study follows the *Pilot Study Work Plan and Sampling and Analysis Plan (Work Plan/SAP), Biological Selenium Removal Treatment Technology Fluidized Bed Bioreactor* (prepared by Formation Environmental, dated September 2014, with revised text and tables dated March 5, 2015), along with Work Plan/SAP Addenda 01, 02, and 03 which Simplot submitted to the Agencies (and were subsequently approved) in the summer of 2015.

The FBR system was offline from August 3, 2015 through the second week of October. As described in the August and September monthly reports, during the shutdown the FBR unit was isolated while untreated creek water was allowed to flow through the aeration tank and sand filter to keep the filter media fluidized. During the shutdown period, a hydrogen peroxide injection oxidation system was installed to remove sulfides prior to the aeration tank. The oxidation step consists of dosing the water with 27% hydrogen peroxide as it leaves the FBR unit. The removal of sulfides will reduce the nutrient source for the filamentous sulfide oxidizing bacteria that have been growing in the aeration tank, and fouling the sand filter.

During the shutdown it was discovered that one of the FBR underdrains was cracked. While the system was offline, the damaged underdrain was replaced.

The system was restarted during the week of October 11, and startup testing was conducted during this startup week. The monitoring schedule for Week 0 was subsequently initiated during the week of October 18, with collection of the first routine samples on October 21. Week 1 samples were collected on October 28.

Identification of Deliverables and Data Transmittals

October laboratory data have not been received at this time. Therefore, Table 1 presents a summary only of the field parameters for the two October sampling events.

Upcoming Activities

The following activities associated with the fluidized bed bioreactor pilot study are scheduled through December 2015:

- Monitoring of the FBR system, according to Work Plan/SAP Addendum 01, will continue.
- After review of the data collected from Weeks 0 through 4, Simplot will meet with the Agencies to discuss identification of interim water quality target parameters. This discussion is anticipated in early December.

Please contact me if there are questions regarding this monthly progress report.

Sincerely,

Monty Johnson
Environmental Engineering Manager
J. R. Simplot Company

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Table 1
Field Water Quality Data

	Sample Week >>	Week 0			Week 1	
	Station >>	Influent	Bioreactor	Effluent	Influent	Effluent
	Sample ID >>	SC1015-LSSHS-IN001	SC1015-LSSHS-BE001	SC1015-LSSHS-EF001	SC1015-LSSHS-IN002	SC1015-LSSHS-EF002
	Date >>	10/21/2015	10/21/2015	10/21/2015	10/28/2015	10/28/2015
Analyte	**Units**					
DO	mg/L	6.32	4.55	8.85	7.42	10.74
ORP	mV	105	-146	55	120	124
pH	SU	7.44	6.92	6.79	7.36	8.3
SC	umhos/cm	444	447	444	427	435
Temperature	C	12.08	12.26	12.33	12.28	12.47
Turbidity	NTU	1.1	7	5.3	1.6	6.9