

1. INTRODUCTION

The purpose of this Field Sampling Plan (FSP) is to direct the collection of samples from existing vegetation in the area of North Walnut Creek and Rock Creek drainages. This activity supports the field evaluations in and around the area of the Solar Ponds Plume and the Interceptor Trench System. This specific task will provide preliminary information on the potential for native plants at the Rocky Flats Environmental Technology Site (the Site) to uptake and store uranium. The objective of this FSP is to describe the specific data needs, sampling and analysis requirements, data handling procedures, and associated Quality Assurance/Quality Control (QA/QC) requirements for this investigation. All work will be performed in accordance with the RMRS Quality Assurance Program Description (QAPD) (RMRS 1997a).

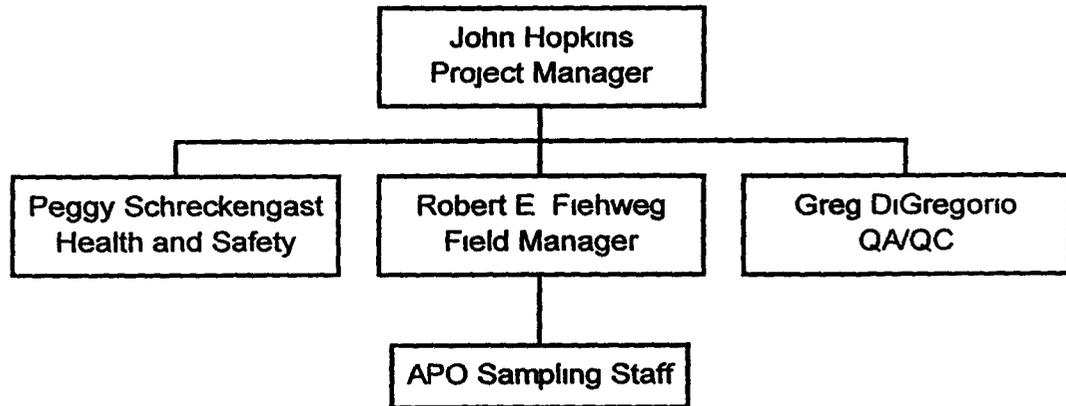
1.1 Background

The area of the Solar Ponds Plume is known to be contaminated with high levels of nitrate due to past waste storage practices in the Solar Evaporation Ponds. Other contaminants have been found in the Solar Ponds Plume area in the past, but on-going data evaluations and groundwater monitoring show levels generally consistent with background levels established for the Site. Currently, groundwater from the Solar Ponds Plume is collected in the Interceptor Trench System (ITS) and stored in the Modular Storage Tanks (MSTs) prior to treatment in the Site's process waste facility, Building 374. An alternative to the current treatment method is being sought. A recently completed alternatives evaluation (RMRS 1997b) identified four cost-effective alternatives to address contamination in the area of the plume. One of the alternatives is phytoremediation, the use of deep rooted perennial plants *in situ* to remove contaminants. It is well known that plants use nitrate as a nutrient, but the uptake of uranium is less understood. In an effort to address potential concerns about the transfer of uranium from the groundwater matrix to plant materials, including tree leaves, stems, branches and roots, a limited survey is being conducted to look for evidence of uranium uptake by native vegetation in the area of the Solar Ponds Plume.

5. PROJECT ORGANIZATION

The project organization chart is presented in Figure 1. The ER Projects Group is responsible for management and coordination of resources dedicated to the project. Other organizations assisting with the implementation of this project are RMRS Program Compliance, RMRS Health and Safety, and RMRS Quality Assurance.

Figure 1 ITS Investigation Organization

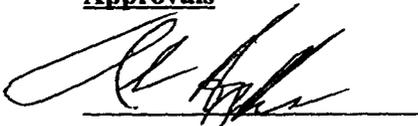


6. REFERENCES

RMRS, 1997a, *RMRS Quality Assurance Program Description*, RMRS-QAPD-001, Rev 1, January

RMRS, 1997b, *Solar Ponds Plume Remediation and Interceptor Trench System Water Treatment Study*, RF/RMRS-97-093 UN, September, 1997

Approvals



John Hopkins



Date



Greg DiGregorio



Date

locations on the trees selected for sampling. Two trees shall be sampled at each location, one from a tree less than 20 inches DBH (diameter at breast height) and one from a tree greater than 20 inches DBH. All sampled materials must be reachable by a person of average height from ground level. Approximately 50 grams of plant tissue shall be collected from each location and placed in a Ziploc™ bag. Once placed in the bag, the sample shall be sprayed with a dilute chlorine bleach solution (approximately 5% bleach) before the bag is sealed to control fungal growth and minimize sample degradation. Sample numbers for the tree material shall include a code to identify the drainage, tree material, and the tree size (i.e., NWCT20+, RCT20-)

2.2 Sampling of Grass

Grass will be sampled along two transects, one transect will be in the North Walnut Creek drainage in the area of the ITS south of the Interceptor Trench Pump House, and one will be in the Rock Creek drainage north of the holding pond at Lindsey Ranch. Two groundwater monitoring wells approximately 100 feet apart will be selected to serve as end points for the transect in the ITS area, noticeable landmarks or wood stakes shall be used to delineate the transect, also approximately 100 feet in length, in the Lindsey Ranch area. Each transect shall be divided into eight equal sections, providing nine sampling nodes (including the endpoints). Grass samples will be collected from three consecutive sampling nodes and composited to form one sample. The samplers shall draw each transect in the logbook and indicate which nodes were composited for each sample. The resulting sample shall contain approximately 50 grams of material. The sample shall be sprayed with the dilute chlorine bleach solution prior to being sealed in the Ziploc™ bag. Sample numbers for grass shall include a code to identify the drainage, type of plant material, and the nodes composited (i.e., NWCG1-3)

3. SAMPLING AND ANALYSES

The analytical requirements for the samples to be collected under this FSP are described in Table 1, and special sample handling requirements have been detailed. Samples will be handled in accordance with FO 10 Receiving, Labeling, and Handling Environmental Material Containers, and recommendations by the selected analytical laboratory.

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