

**SAMPLING AND ANALYSIS PLAN
NATIONAL FUEL CORPORATION**

December 8, 2011

Project: NFC Bridle Field #2-10-84 Pit Investigation

Objectives

To characterize the nature and extent of impact to soil and groundwater in the area of the Bridle Field #2-10-84 Pit (PIT) due to operations at the Federal No. 2-10-84 well site, which is operated by National Fuel Corporation (NFC).

The data provided by this sampling will help to identify:

- any potential impacts to soil and groundwater that may have occurred,
- the general extent of any impacts found, and
- to indicate if any remediation may be necessary.

Schedule

The sampling will begin as soon as practicable following approval of the Form 27, Remediation Workplan, by the Colorado Oil and Gas Conservation Commission (COGCC). A fluid sample from the PIT was collected on November 1, 2011. The analytical report for this sample is enclosed. This data along with sub-liner soil and potential boring data will be used to assess whether impacts to area groundwater exist.

Location Information

A topographic map of the well site and surrounding area is attached as Figure 1. A geological assessment map of the area is attached as Figure 2.

Qualifications

The sampling and oversight work will be performed by personnel whom are proficient in appropriate soil sampling and analytical methodologies, including those methodologies appropriate for obtaining representative soil samples.

Soil Sampling Methodology

Soil samples will be collected from the excavated area after the affected soil is removed from the current pit. Initial excavation and removal of soil will be based upon visual indication of impacted soil. Proposed soil sample locations are shown on Figure 3 and are, roughly, a sample point in each cardinal direction around the extent of the current pit. If additional samples



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Sampling and Analysis Plan
NFC Bridle Field #2-10-84 Pit

are determined to be necessary, an addendum to this sampling plan will be submitted with specific information regarding objectives and sampling frequency.

It is anticipated that excavation equipment (i.e. backhoe) will be present at the site to assist with sampling activities. This equipment will be used to reach depths of 5-10 feet below ground surface(bgs), depending on soil conditions and subsurface obstacles. Soil samples will be collected from the surface, at regular intervals bgs, and at the final depth of each sample location.

In addition, a background soil sample will be collected from an undisturbed adjacent location for comparison.

The soil at each sampling location and depth will be field screened for volatile organic hydrocarbons (VOCs) using a photoionization detector.

The individual collecting the samples will wear disposable nitrile gloves to prevent cross contamination of the samples. The gloves should be changed following the collection of each sample from each sample location. Any equipment used in collecting the sample or other parameters will be decontaminated between each sample location.

Each sample will be given a distinct ID and labeled with the requested analyses, date, time and initials of the sampler. All pertinent sample information will be entered onto a chain-of-custody (COC) form and detailed in a field log book or site specific sampling form.

Samples will be placed in appropriate sample containers, preserved, sealed, and shipped under strict COC protocol via overnight delivery to Accutest Mountain States, of Wheat Ridge, Colorado, for analysis.

Laboratory Analysis

Soil samples will be analyzed in accordance with the COGCC Table 910-1 contaminant list.

Surface Water Investigation

A survey of the surrounding drainage and surface water features will be conducted to assess the potential impacts from the pit operations. This will consist of walking along area drainages and streams up to 500 yards from the well pad boundary while inspecting soil and vegetation conditions. Conditions will be documented in writing and with photographs.

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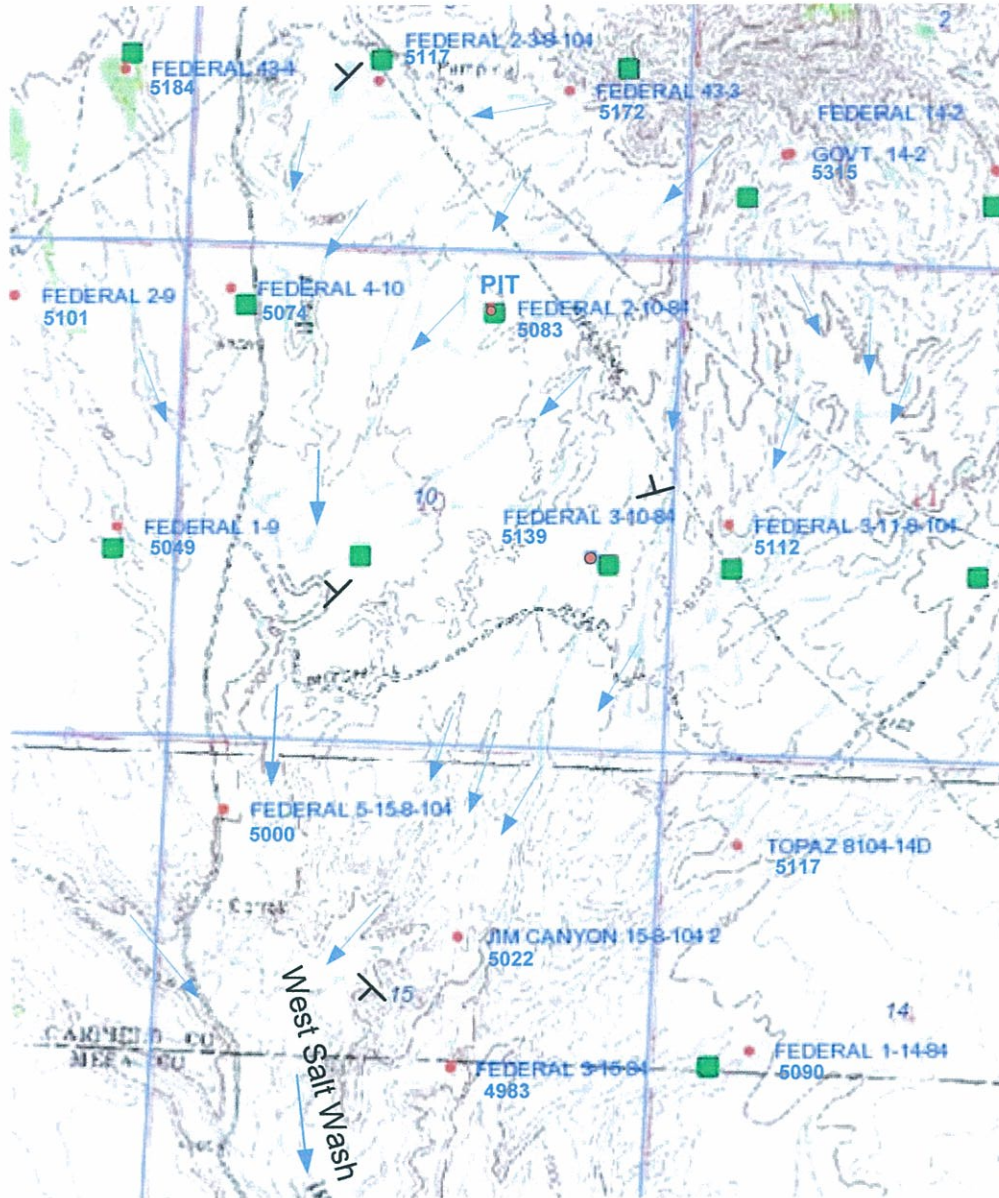
Dion Plsek, PE
Senior Engineer

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LEGEND:

Federal 2-10-84

- Well Location
- 5083 Surface Elevation of Well
- Pit Location
- Expected Surface Water Flow Direction Based on Topography and Intermittent Drainages
- ⌵ Strike and Dip Symbol Based on Top of the Cretaceous Dakota Sandstone (Kd)



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The Federal # 2-10-84 well is located in the NW ¼ NE ¼, Section 10, Township 8 South, Range 104 West of the Sixth Principal Meridian, near the Garfield County and Mesa County line in Western Colorado.



Base Map is adapted from the COGCC Online Copy of the USGS Carbonera 7.5-Minute Topographic Map, Scale 1:24,000

Figure 1
Topography Assessment
National Fuel Corporation
Federal No. 2-10-84, Bridle Field #2-10 Pit
Garfield County, Colorado

Revision Date:	
Revision Number	
Revised by:	
Prepared by:	JWH
Project Number:	011-2426
Scale: Approx	1" = 2000'





Federal No. 2-10-84
 API# 05-045-06392
 Bridle Field #2-10 Pit
 (Pit ID#113542)

Google earth

Base Map Adapted from Google Earth 2011

- Proposed Soil Test Hole Location
- Surface Water and Expected Groundwater Flow Direction



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PROJECT NO: 011-2426		National Fuel Corp Federal #2-10-84 Bridle Field #2-10 Pit (Pit Id #113542) Garfield County, Colorado	FIGURE
DRAWN BY: JWH			3
DATE: 11/30/11			

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