

State of Colorado  
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303)894-2100 Fax:(303)894-2109



#6774

FOR OGCC USE ONLY

SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

Spill or Release  Plug & Abandon  Central Facility Closure  Site/Facility Closure  Other (describe): \_\_\_\_\_

OGCC Employee:

Spill  Complaint  
 Inspection  NOAV

Tracking No:

OGCC Operator Number: <u>62340</u>	Contact Name and Telephone: <u>Andrew Busch</u>
Name of Operator: <u>National Fuel Corporation</u>	No: <u>970-858-7490</u>
Address: <u>8400 E Prentice Ave, Suite 1100</u>	Fax: <u>970-858-7490</u>
City: <u>Greenwood Village</u> State: <u>Co</u> Zip: <u>80111</u>	

API Number: <u>05-045-06392</u>	County: <u>Garfield</u>
Facility Name: <u>Bridle Field #2-10 Pit</u>	Facility Number: <u>119464</u>
Well Name: <u>Federal No. 2-10-84</u>	Well Number: <u>322497</u>
Location: (QtrQtr, Sec, Twp, Rng, Meridian): <u>NWNE, Sec 10 - T8S - R104W, 6th PM</u> Latitude: <u>39.38806553</u> Longitude: <u>108.9729042</u>	

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc): Produced water/blow down fluids.

Site Conditions: Is location within a sensitive area (according to Rule 901e)?  Y  N If yes, attach evaluation.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Range Land, multi-use BLM.

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Billings Silty Clay Loam, Mancos Shale

Potential receptors (water wells within 1/4 mi, surface waters, etc.): No water wells within 1/4 mile. Intermittent unnamed drainage 500 feet downgradient (SSE) of the site.

Description of Impact (if previously provided, refer to that form or document):

Impacted Media (check):	Extent of Impact:	How Determined:
<input checked="" type="checkbox"/> Soils	<u>Approximately 250 cubic yards</u>	<u>Soil sampling</u>
<input type="checkbox"/> Vegetation	_____	_____
<input type="checkbox"/> Groundwater	_____	_____
<input type="checkbox"/> Surface Water	_____	_____

REMEDATION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):

This Form 27 is being submitted as an update for remediation progress on the Federal #2-10-84. National Fuel Corporation (NFC) submitted soil samples to Confluence Energy for testing with their product named "Ecosponge". A 28 day test was conducted with the Ecosponge product. After the 28 day test, the soil samples were found to be within the range of acceptable level of contaminants listed in the COGCC 910 series rules.

Describe how source is to be removed:

Insitu Bioremediation.

Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:

Insitu Bioremediation. See attached Confluence Energy proposal.



Tracking Number: \_\_\_\_\_  
Name of Operator: NFC  
OGCC Operator No: Location ID # 322 497  
Received Date: \_\_\_\_\_  
Well Name & No: API # 045 06392 / Facility ID #  
Facility Name & No: Bridle Field #2-10pt/ 119 464

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**REMEDIATION WORKPLAN (Cont.)**

OGCC Employee: \_\_\_\_\_

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.

In situ Bioremediation. See attached proposal provided by Confluence Energy.

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.

Is further site investigation required?  Y  N If yes, describe:

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):

**IMPLEMENTATION SCHEDULE**

Date Site Investigation Began: 11/01/2011 Date Site Investigation Completed: 7/01/2012 Date Remediation Plan Submitted: 10/16/2012  
Remediation Start Date: 11/01/2012 Anticipated Completion Date: TBD Actual Completion Date: TBD

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

Print Name: Andrew Busch Signed: Andrew Busch  
Title: VP of Operations Date: 10/16/2012

OGCC Approved: [Signature] Title: EPS II NW Region Date: 04/26/2013

COA: Protect pit bottom and wall with impervious material before installing perforated pipes at the bottom of the pit and before backfilling with treated impacted material to be remediated on site.  
NOTE: COMPOSITE SAMPLE TPH U 4300 mg/L

## Proposal to Supply Bioremediation of Federal #2-10-82 Pit

**Project Description:** National Fuel Corporation's (NFC) Federal #2-10-84 has a legacy pit where the impacted material has been removed from the pit. The material has above COGCC acceptable levels of Hydrocarbons and SAR.

### **Proposed Solution:**

Confluence Energy (CE) will supply a complete bioremediation project to the NFC location. CE will deliver Eco-Sponge, equipment and personnel. The impacted soils and material have already been removed from the unlined pit area. CE will add 24 tons of Eco-Sponge to the impacted material. The Eco-Sponge will be homogenized with the impacted material. CE will add water to the material to provide enough moisture to ensure the micro-organisms will colonize and consume the Hydrocarbon contamination. CE will also provide additives to reduce the SAR levels of the impacted material.

CE will utilize an in-situ bioremediation process to reduce the toxicity and SAR of the impacted material. CE will place aeration hoses into the pit area. The hoses will be spread approx. 6 ft. apart (top to bottom and side to side) as the impacted material is being backfilled into the excavated pit area.

After the pit is backfilled with the treated material, with the aeration hose layered through the impacted material, a 75 watt solar powered air pump will be attached to the embedded hose extending from the ground surface level. The solar powered pump system will have a battery system that will provide a small amount of continuous oxygen to the impacted soil which will facilitate bio remediation process.

### **Testing Monitoring:**

Testing and monitoring will be done approximately every 30 days, and will continue until the contaminated soil meets the acceptable levels according to the COGCC 910 series rules.

#### **Testing for:**

- Hydrocarbons
- SAR
- PH

#### **Materials:**

- 24 tons of Eco-Sponge in bulk super sacks
- Site specific amount of additive to enhance bioremediation and SAR reduction.

#### **Equipment:**

- Wheel Loader
- Aeration Hose /Solar Power / Pump / Battery

#### **Staff:**

- CE will provide staff to install Solar unit and Aeration hose
- Operator for loader

#### **Testing and Analysis:**

- Initial lab test has been run on a sample of the cuttings 30 days after treatment, and it has been determined the required pre-mixture of Eco-Sponge and Baseline have successfully remediated the soil.

- After entire spoil pile is treated and placed in pit, 1<sup>st</sup> Lab test will be done on material 30 days after treatment.
- Field testing on the material will be completed every 30 days, for 4 consecutive tests or until impacted material meets COGCC specifications agreed upon. (Not winter months).
- Field test will ensure project is tracking as planned
- A matrix with starting contaminates and ending goals will be structured and tracked. Parties will agree on elements to be tracked.
- Parties will openly share all results from the projects. Monthly results will be shared with COGCC.

Thank you for your consideration Mark Mathis