

State of Colorado
Oil and Gas Conservation Commission

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



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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 Operator Number: _____	Contact Name and Telephone: _____
Name of Operator: _____	_____
Address: _____	No: _____
City: _____ State: _____ Zip: _____	Fax: _____
API Number: _____	County: _____
Facility Name: _____	Facility Number: _____
Well Name: _____	Well Number: _____
Location: (QtrQtr, Sec, Twp, Rng, Meridian): _____ Latitude: _____ Longitude: _____	

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): _____

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.): _____

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: _____

Potential receptors (water wells within 1/4 mi, surface waters, etc.): _____

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

Impacted Media (check):	Extent of Impact:	How Determined:
Soils	_____	_____
Vegetation	_____	_____
Groundwater	_____	_____
Surface Water	_____	_____

REMEDIALTION WORKPLAN

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

Describe how source is to be removed:

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.:



Tracking Number: _____
Name of Operator: _____
OGCC Operator No: _____
Received Date: _____
Well Name & No: _____
Facility Name & No: _____

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REMEDIAL WORKPLAN (Cont.)

OGCC Employee: _____

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

If groundwater is encountered, water samples will be collected from the open excavation and tested per Rule 910.b.(4). If groundwater is not encountered during excavation, KPK has agreed to drill a boring to collect a water sample as described in work plan attached.

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.

The contaminated soil near the flowline failure will be excavated and disposed of at a certified facility. The line will be replaced with poly line. Further details of the reclamation plan can be found in the attached work plan generated by Apex Consulting Services, Inc.

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:

Excavation of soil around the flowline leak area will be required to verify the extent of fluids released. Samples will be collected and analyzed to verify excavation limits as described in work plan attached prepared by APEX and reviewed and agreed upon by the surface owner representative.

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

Contaminated soil will be disposed of at a certified disposal facility. Soil manifests will be provided with the Notice of Completion.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: <u>04-15-2015</u>	Date Site Investigation Completed: _____	Date Remediation Plan Submitted: <u>04-24-2014</u>
Remediation Start Date: _____	Anticipated Completion Date: <u>05-31-2015</u>	Actual Completion Date: _____

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

Print Name: Susana Lara-Mesa

Signed: _____

Title: VP of Engineering

Date: 04-24-2015

OGCC Approved: Chris Canfield, P.G.

Title: _____

Digitally signed by Chris Canfield, P.G.
DN: cn=Chris Canfield, P.G., o=Colorado Oil & Gas Conservation Commission, ou=Environmental Protection Department, email=chris.canfield@state.co.us, c=US
Date: 2015.04.29 07:45:08 -0500

Date: _____

FRANK J VOGL #2
FLOW LINE LEAK WORK PLAN

Apex Consulting Services, Inc. (APEX) will serve as the environmental professional (EP) and will direct and will be present during all investigative and/or remedial activities performed at the Property. Excavation services will be performed by Kauffman Well Service, Inc. (KWS), a wholly owned subsidiary of K.P. Kauffman Company, Inc. (KPK), with KWS personnel and KWS equipment.

The Utility Notification Center of Colorado will be contacted to identify utilities in the vicinity of the spill at the Property prior to commencing with investigative and/or remedial operations.

Soils in the vicinity of the spill and flow line will be excavated. The excavated soils and soils in the excavation will be screened for petroleum compounds using the following field screening techniques:

- Visual Observations (discoloration/staining);
- Olfactory observations (petroleum odors); and
- Use of a hand held photoionization detector (PID) to measure for the presence of volatile Vapors with a 10.8 mv lamp. Ambient temperature headspace screening of the soils will be performed.

Soils exhibiting discoloration/staining, petroleum odors and/or volatile vapors shall be classified as contaminated and shall be stockpiled separately on and covered with plastic sheeting. The stockpile shall be bermed and placed appropriately at the Property to contain direct precipitation on the stockpiled soils and prevent the material from impacting storm water runoff. Contaminated soil will be hauled to a permitted waste disposal facility. Soil disposal manifests will be submitted with the final report of completion once remediation operations are complete in order to demonstrate appropriate disposal of contaminated soil.

Soil shall be classified as clean based on the lack of any discoloration/staining, petroleum odors and PID headspace sample results (greater than background). Clean soils shall be stockpiled on native soils at the Property and bermed to contain direct precipitation on the stockpiled soils. The clean soil shall be used as backfill.

If field screening techniques indicate that contaminated soils are localized and have been excavated, confirmatory samples will be collected from the excavation (clean soils) and submitted to Accutest Laboratories in Wheat Ridge, Colorado for analysis. Analytical testing will be in accordance with Rule 910.b.(3).

The landowner has requested a 5 ug/kg benzene and 50 mg/kg total volatile and extractable petroleum hydrocarbon (TPH) standard in soils, including DRO, GRO, and ORO (C₆-C₃₆). A background soil sample (location to be determined by the land owner and/or representative) will be collected and analyzed for benzene and TPH in accordance with Rule 910.b.(3). The aforementioned standards will be applied above the background concentrations. Additionally, the landowner has requested the collection of a groundwater sample from the spill area even if the contamination does not come in contact with groundwater. A boring will be installed in the vicinity of the spill using a truck mounted percussion-hammer drilling rig. A temporary sampling piezometer will be completed in the boring. The temporary sampling piezometer will be constructed of poly-vinyl chloride (PVC) well screen and riser pipe. The sampling piezometer will be sampled with a bailer or a low flow peristaltic pump. The groundwater sample from the sampling piezometer will be analyzed for BTEX compounds.

FRANK J VOGL #2
FLOW LINE LEAK WORK PLAN

If analytical testing of soil indicates that contaminated soils have been successfully excavated, then the excavation will be backfilled and compacted with clean imported fill.

If field screening techniques indicate that contaminated soils are not localized, the excavation will be backfilled with clean imported fill. Thereafter, a subsurface investigation will be initiated. The investigation will include drilling borings to the north, south, east and west of the backfilled excavation. The borings will be installed using a truck mounted percussion-hammer drilling rig. The soil borings will be advanced to a depth of 12 feet, bedrock refusal or until aforementioned field screening techniques indicate soils are clean. Soil samples (continuous core) will be collected using a two-inch diameter, four-foot long, core barrel lined with acetate sleeves. The borings will continue in an outward direction (north, south, east and west) until field screening techniques indicate that soils are clean. Confirmatory samples will be collected from each boring and analyzed in accordance with Rule 910.b.(3). Additionally, each boring will be completed as a temporary sampling piezometer. The temporary sampling piezometer will be constructed of poly-vinyl chloride (PVC) well screen and riser pipe. The sampling piezometer will be sampled with a bailer or a low flow peristaltic pump. Groundwater samples from the sampling piezometer will be analyzed for BTEX compounds.

Following the collection of soil and groundwater samples, each boring will be backfilled with the soils collected during drilling and/or with bentonite chips (hydrated) and resurfaced to match the surrounding area.

The results from the analytical testing of soil and groundwater samples from the borings will be used to develop a remedial plan in accordance with Rule 909.

The landowner acknowledges receipt of this Work Plan and has no revisions or additional requests regarding the investigation and/or remediation activities outlined herein.