

State of Colorado Oil and Gas Conservation Commission

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Report taken by:

RICK ALLISON

Site Investigation and Remediation Workplan (Supplemental Form)

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. However, this shall not preclude the Operator from taking immediate action to protect public health or safety, the environment, wildlife, or livestock.

This Form 27 describes site conditions as currently understood by the Operator; approval of this Form 27 by COGCC is based on the site conditions accurately described herein; any changes in site conditions identified during or subsequent to the performance of the approved workplan may necessitate additional investigation or remediation which shall be described on a supplemental Form 27. This Form 27 is intended to provide basic information regarding the proposed site investigation and remediation actions, but the workplan may be more fully described in attached documentation.

Closure request is not available for an Initial Site Investigation and Remediation Workplan.

OPERATOR INFORMATION

Name of Operator: <u>KP KAUFFMAN COMPANY INC</u>	Operator No: <u>46290</u>	Phone Numbers
Address: <u>1675 BROADWAY, STE 2800</u>		Phone: <u>(303) 825-4822</u>
City: <u>DENVER</u>	State: <u>CO</u>	Zip: <u>80202</u>
Contact Person: <u>Max Knop</u>	Email: <u>mknop@kpk.com</u>	Mobile: <u>()</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 12158 Initial Form 27 Document #: 401839887

PURPOSE INFORMATION

- ☐ Rule 913.c.(1): Pit or Cuttings Trench closure.
- ☐ Rule 913.c.(2): Buried or partially buried vessel closure, which will be by removal.
- ☒ Rule 913.c.(3): Remediation of Spill and Releases pursuant to Rule 912.
- ☐ Rule 913.c.(4): Land treatment of Oily Waste pursuant to Rule 905.e.
- ☐ Rule 913.c.(5): Closure of Centralized E&P Waste Management Facilities pursuant to Rule 907.h.
- ☒ Rule 913.c.(6): Remediation of impacted Groundwater pursuant to Rule 915.e.(3).D, and the contaminant concentrations in Table 915-1.
- ☐ Rule 913.c.(7): Investigation and remediation of natural gas in soil or Groundwater.
- ☐ Rule 913.c.(8): When requested by the Director due to any potential risk to soil, Groundwater, or surface water.
- ☐ Rule 913.c.(9): Decommissioning of Oil and Gas Facilities.
- ☐ Rule 913.g: Changes of Operator.
- ☐ Rule 915.b: Request to leave elevated inorganics in situ.
- ☐ Other: _____

SITE INFORMATION

No Multiple Facilities

Facility Type: <u>TANK BATTERY</u>	Facility ID: <u>446608</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>GRANT</u>	Latitude: <u>40.116700</u>	Longitude: <u>-104.967740</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NWNE</u>	Sec: <u>26</u>	Twp: <u>2N</u>	Range: <u>68W</u>
Meridian: <u>6</u>	Sensitive Area? <u>Yes</u>		

SITE CONDITIONS

General soil type - USCS Classifications SM Most Sensitive Adjacent Land Use Residential

Is domestic water well within 1/4 mile? Yes Is surface water within 1/4 mile? Yes

Is groundwater less than 20 feet below ground surface? Yes

SITE INVESTIGATION PLAN

TYPE OF WASTE:

☒ E&P Waste ☐ Other E&P Waste ☐ Non-E&P Waste

☒ Produced Water

☐ Workover Fluids

☒ Oil

☐ Tank Bottoms

☐ Condensate

☐ Pigging Waste

☐ Drilling Fluids

☐ Rig Wash

☐ Drill Cuttings

☐ Spent Filters

☐ Pit Bottoms

☐ Other (as described by EPA)

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	GROUNDWATER	Unknown	Lab Analysis
Yes	SOILS	Unknown	Lab Analysis

INITIAL ACTION SUMMARY

Description of initial action or emergency response measures take to abate, investigate, and/or remediate impacts associated with E&P Waste.

KPK located the flowline closest to the sample collected by the complainant and drilled a boring to sample groundwater at 15' and soil at 17'. A sample for each was collected and tested for BTEX (water and soil) and TPH (soil). 6 additional 2" temporary piezometers will be drilled in order to collect samples and evaluate the current condition of the soil and groundwater. See proposed locations in map attached, which includes an upgradient piezometer. All piezometers will be marked. Field logs and soil description will be provided once the borings have been completed. Soil samples will be analyzed for BTEX and TPH. Groundwater, if encountered will be analyzed for BTEX, Sulfate, Chloride and TDS.

PROPOSED SAMPLING PLAN

Proposed Soil Sampling

☒ Will soil samples be collected as part of this investigation? (Number, type (grab/composite), analyses, and locations of samples):

In an effort to determine the northerextent of contamination, 6 probe borings will be made to depths of approximately 15 feet. The soils encountered in each boring will be logged by a geologist in the field using USCS soil descriptions and field screening results. Each core will be screened for the presence of contamination utilizing visual and odor indications, and by screening for volatile organic compounds (VOC=s) with a photoionization detector (PID). A least one soil sample will be collected from the unsaturated zone in each boring. The samples will be stored on ice in a cooler and delivered to Summit Scientific of Golden, Colorado under chain-of-custody documentation. The soil samples will be analyzed for benzene, toluene, ethylbenzene and total xylenes (total) (BTEX) and total petroleum hydrocarbons (TPH - C6-C36), Naphthalene, 1,2,4-Trimethylbenzene, and 1,3,5-Trimethylbenzene.

Proposed Groundwater Sampling

☐ Will groundwater samples be collected as part of this investigation? (Number, analyses, and locations of samples):

Proposed Surface Water Sampling

☐ Will surface water samples be collected as part of this investigation? (Number, analyses, and locations of samples):

Additional Investigative Actions

☐ Additional alternative investigative actions described in attached Site Investigation Plan (summary):

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 4
Number of soil samples exceeding 915-1 0
Was the areal and vertical extent of soil contamination delineated? No
Approximate areal extent (square feet) 648

NA / ND

ND Highest concentration of TPH (mg/kg) _____
-- Highest concentration of SAR 0.551
BTEX > 915-1 No
Vertical Extent > 915-1 (in feet) 8

Groundwater

Number of groundwater samples collected 6
Was extent of groundwater contaminated delineated? No
Depth to groundwater (below ground surface, in feet) 7
Number of groundwater monitoring wells installed 7
Number of groundwater samples exceeding 915-1 5

-- Highest concentration of Benzene (µg/l) 49
ND Highest concentration of Toluene (µg/l) _____
ND Highest concentration of Ethylbenzene (µg/l) _____
ND Highest concentration of Xylene (µg/l) _____
NA Highest concentration of Methane (mg/l) _____

Surface Water

1 Number of surface water samples collected
1 Number of surface water samples exceeding 915-1
If surface water is impacted, other agency notification may be required.

OTHER INVESTIGATION INFORMATION

☐ Were impacts to adjacent property or offsite impacts identified?

☒ Were background samples collected as part of this site investigation?

Based on measured groundwater elevations, monitoring well MW-1 is upgradient. Consequently, chlorides, sulfates and TDS concentrations in the samples collected from monitoring well MW-1 are considered to be background concentrations for this monitoring period.

☐ Was investigation derived waste (IDW) generated as part of this investigation?

Volume of solid waste (cubic yards) _____ Volume of liquid waste (barrels) _____

☒ Is further site investigation required?

In an effort to determine the northern and western extent of contamination, up to 16 probe borings will be completed to depths of approximately 15 feet on August 23, 2021 (or at a later date upon approval). A map illustrating the boring locations is attached. The soils encountered in each boring will be logged by a geologist in the field using USCS soil descriptions and field screening results. Each core will be screened for the presence of contamination utilizing visual and odor indications, and by screening for volatile organic compounds (VOC's) with a photoionization detector (PID). At least one soil sample will be collected from the unsaturated zone in each boring. The samples will be stored on ice in a cooler and delivered to Summit Scientific of Golden, Colorado under chain-of-custody documentation. The soil samples will be analyzed for benzene, toluene, ethylbenzene and total xylenes (BTEX), Naphthalene, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene and total petroleum hydrocarbons (TPH - C6-C36). If soil contamination is present in the borings located to the east of MW-2 and just South of Godding Hollow Parkway, one of the borings will be completed as a 2-inch diameter groundwater monitoring well. Finally, MW-4 was damaged during the excavation of contaminated soils. It appears that the solid PVC casing has been damaged and can possibly be replaced. Repairs to the casing will be attempted. If repairs are not possible, a replacement well will be drilled at a future date.

REMEDIAL ACTION PLAN

Does this Supplemental Form 27A include changes to a previously approved Remedial Action Plan? Yes

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

KPK will begin excavation using known points of contamination based on February 25, 2019 samples from exploratory borings. KPK will continue soil excavation until horizontal extent of contamination is determined. Excavation activities will continue based on the results field screening results from ambient temperature head space measurements within the excavation area. All contaminated soil will be removed from the location. Vertical extent is believed to be below groundwater level.

REMEDATION SUMMARY

Describe how remediation of existing impacts to soil and groundwater is to be accomplished (i.e. summarize remedial action plan). Provide a brief narrative description including: technical justification, schedule for implementation, estimated time to attain NFA status, plus plans and specifications for the selected remedial action technology.

Following the removal of contaminated soil, grab samples will be collected to verify the completion of excavation activities. Analysis for grab samples included TPH -DRO, GRO & ORO, BTEX, pH, EC, and SAR. Upon verification that sample concentrations are below Table 910-1 thresholds, the excavation area will be backfilled with clean fill dirt. A groundwater monitoring plan will be submitted in a Supplemental Form 27 to address known groundwater contamination. Groundwater monitoring plan will include placement of piezometers, frequency of sampling, analysis of samples, and potential groundwater treatment timeline.

Remedial actions of impacted soil will commence on May 6, 2020 and will conclude as soon as practicable pending availability of necessary resources (e.g., dump trucks). Upon completion of the removal of impacted soil, impact to groundwater will be delineated to the north, east and south. If excavation activities require the removal of currently installed monitoring wells to the west, quarterly groundwater sampling and reporting will be suspended until monitoring wells can be reinstalled.

Soil Remediation Summary

<input type="checkbox"/> In Situ	<input checked="" type="checkbox"/> Ex Situ
<input type="checkbox"/> Bioremediation (or enhanced bioremediation)	<input type="checkbox"/> Yes <input type="checkbox"/> Excavate and offsite disposal
<input type="checkbox"/> Chemical oxidation	<input type="checkbox"/> If Yes: Estimated Volume (Cubic Yards) <input type="text" value="3065"/>
<input type="checkbox"/> Air sparge / Soil vapor extraction	<input type="checkbox"/> Name of Licensed Disposal Facility or COGCC Facility ID # <input type="text"/>
<input type="checkbox"/> Natural Attenuation	<input type="checkbox"/> Excavate and onsite remediation
<input type="checkbox"/> Other <input type="text"/>	<input type="checkbox"/> Land Treatment
	<input type="checkbox"/> Bioremediation (or enhanced bioremediation)
	<input type="checkbox"/> Chemical oxidation
	<input type="checkbox"/> Other <input type="text"/>

Groundwater Remediation Summary

☐ Bioremediation (or enhanced bioremediation)

☐ Chemical oxidation

☐ Air sparge / Soil vapor extraction

☐ Natural Attenuation

☐ Other

GROUNDWATER MONITORING

If groundwater has been impacted, describe proposed monitoring plan, including # of wells or sample points, monitoring schedule, analytical methods, points of compliance. Attach a groundwater monitoring location diagram.

Groundwater monitoring plan will be provided via supplemental Form 27 upon the completion contaminated soil excavation. Groundwater will continued to be sampled on a quarterly basis with the existng groundwater monitoring wells. Groundwater sampling will continue until monitoring wells are removed for excavation activities.

11/02/2020 Update - In an effort to delineate groundwater impacts, a monitoring well needs to be installed upgradient of MW-2. A map with the proposed location of the new monitoring well has been provided.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

☒ Quarterly☐ Semi-Annually☐ Annually☐ Other

☐ Request Alternative Reporting Schedule:

☐ Semi-Annually☐ Annually☐ Other

Rule 913.e:

After initial approval of a Form 27, the Operator will provide quarterly update reports in a Supplemental Form 27 to document progress of site investigation and remediation, unless an alternative reporting schedule has been requested by the Operator and approved by the Director. The Director may request a more frequent reporting schedule based on site-specific conditions.

Report Type:

☒ Groundwater Monitoring☐ Land Treatment Progress Report☐ O&M Report☐ Other

WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? Yes

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

None

Volume of E&P Waste (solid) in cubic yards 3065

E&P waste (solid) description Impacted soil

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility: Front Range Landfill

Volume of E&P Waste (liquid) in barrels 3280

E&P waste (liquid) description Impacted groundwater

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility: NGL Water Disposal Solutions

REMEDIATION COMPLETION REPORT

REMEDIATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? No

If YES:

☐ Compliant with Rule 913.h.(1).

☐ Compliant with Rule 913.h.(2).

☐ Compliant with Rule 913.h.(3).

Do all soils meet Table 915-1 standards? No

Does the previous reply indicate consideration of background concentrations?

Does Groundwater meet Table 915-1 standards? No

Is additional groundwater monitoring to be conducted?

Operator shall comply with the COGCC 1000-Series Reclamation Requirements for all impacted and disturbed areas.

RECLAMATION PLAN

RECLAMATION PLANNING

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.

Area disturbed outside tank battery location be re-contoured to match surrounding contour, ripped and reseeded. Area within tank battery location will be reconstructed for operational use.

Is the described reclamation complete? No _____

Does the reclamation described herein constitute interim or final reclamation of the Oil and Gas Location?

☐ Interim ☐ Final

Did the Surface Owner provide the seed mix? _____

If YES, does the seed mix comply with local soil conservation district recommendations? _____

Did the local soil conservation district provide the seed mix? _____

SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. _____

Proposed date of completion of Reclamation. _____

IMPLEMENTATION SCHEDULE

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

PRIOR DATES

Date of Surface Owner notification/consultation, if required. 02/08/2019

Actual Spill or Release date, or date of discovery. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 11/14/2018

Proposed site investigation commencement. 11/26/2018

Proposed completion of site investigation. _____

REMEDIAL ACTION DATES

Proposed start date of Remediation. 05/06/2020

Proposed date of completion of Remediation. _____

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

☐ Change from approved implementation schedule per Rule 913.d.(2).

Basis for change in implementation schedule:

OPERATOR COMMENT

Proposed boring investigation is scheduled for August 23, 2021.

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

Signed: Max Knop

Title: Gen Magr of Air Quality

Submit Date: 07/28/2021

Email: mknop@kpk.com

Based on the information provided herein, this Application for Site Investigation and Remediation Workplan complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved: CHRIS CANFIELD

Date: 08/13/2021

Remediation Project Number: 12158

Condition of Approval**COA Type****Description**

	COGCC denies the Operator's request for approval of additional soil borings at the subject location. The Operator has not provided a valid technical basis for proposing the number and locations of the additional borings. Figures submitted by the operator to illustrate the locations of the proposed soil borings do not depict current conditions, specifically the limits of the excavation. Further, previous soil borings are not labeled or located in a consistent manner. Analytical results listed in data boxes on the figures are inconsistent with information previously submitted by the operator.
	Operator shall continue quarterly groundwater monitoring for the duration of the remediation project. All groundwater samples shall be analyzed for Table 915-1 Organic Compounds in Groundwater and Groundwater Inorganic Parameters.
	Operator will submit a Form 27 Supplemental with a revised proposal that addresses the following requirements to provide a technical basis for proposed additional work: 1. Provide a scale site map that shows all previously installed soil borings and monitoring wells, locations of soil samples collected and surveyed boundaries of current excavation limits. 2. In addition to proposed soil borings, Operator will collect soil samples to adequately characterize the eastern and southern walls and floor of the excavation in accordance with procedures detailed in the Rule 915.e.(2) Soil Sampling and Analysis Guidance. https://drive.google.com/file/d/1g1ZmnEadVKhitn7aqR2IR4-8vpil-f6g/view 3. Operator has not characterized the crude oil, produced water or contaminated soil at the site for the contaminants of concern in Table 915-1. Therefore, all soil samples shall be analyzed for the contaminants of concern in Table 915-1. 4. Operator will install one or more additional upgradient monitoring wells to document upgradient groundwater conditions and provide additional data to confirm the groundwater flow direction at the site. 5. Supply historical and recent summary groundwater elevation data in a table format in future Form 27 Supplemental Reports. Summary tables shall include monitoring well GPS location, reference elevation, depth to water, depth to free phase hydrocarbons and calculated groundwater elevation. 6. Supply historical and recent summary groundwater analytical data in a tabular format in future Form 27 Supplemental Reports. 7. Operator shall include a current implementation schedule as required by COGCC Rule 913.d. in quarterly updates. The schedule must include all field activities, e.g. quarterly groundwater monitoring. 8. Include an updated date of Surface Owner consultation on Form 27 Supplemental for any proposed site assessment or remediation work.
	Operator shall submit Quarterly Updates every 90 days including a detailed project summary and status, as required by Rule 913.e. Quarterly updates shall include a current map of the subject location including current excavation limits, soil boring locations, and monitoring well locations. GPS data used to create the map must comply with COGCC Rule 216. Operator will include historical and recent soil analytical data in a table format in Quarterly updates. Operator shall submit field notes of all field activities reported during a Quarterly Update.

	All work must be performed by a qualified environmental technician experienced in USCS logging of soil borings, field screening methods, monitor well/piezometer construction and soil, ground water, and surface water sampling.
	Provide a minimum of 72-hrs notice to COGCC area EPS prior to performing field work so they can witness assessment work.
6 COAs	

Attachment Check List

Upon approval, the approved Form 27 and all listed attachments will be indexed to the Remediation Project file. Only the approved Form 27 will also be indexed to the related Facilities.

<u>Att Doc Num</u>	<u>Name</u>
402763207	FORM 27-SUPPLEMENTAL-SUBMITTED
402763215	SOIL SAMPLE LOCATION MAP

Total Attach: 2 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
		Stamp Upon Approval

Total: 0 comment(s)