

State of Colorado Oil and Gas Conservation Commission

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Receive Date:

Report taken by:

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>1700 LINCOLN ST STE 4550</u>		Phone: <u>(720) 868-9848</u>
City: <u>DENVER</u>	State: <u>CO</u>	Zip: <u>80203</u>
Contact Person: <u>John Peterson</u>	Email: <u>jpeterson@kpk.com</u>	Mobile: <u>(303) 550-8872</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 25978 Initial Form 27 Document #: 403166227

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>482821</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Koch Tank Battery</u>		Latitude: <u>40.079624</u>	Longitude: <u>-105.037601</u>
		** correct Lat/Long if needed: Latitude: _____	Longitude: _____
QtrQtr: <u>NENE</u>	Sec: <u>6</u>	Twp: <u>1n</u>	Range: <u>68w</u>
		Meridian: <u>6</u>	Sensitive Area? <u>Yes</u>

SITE CONDITIONS

General soil type - USCS Classifications CL

Most Sensitive Adjacent Land Use Open space

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

Other Potential Receptors within 1/4 mile

Approximately 8 habitable structures are within ¼ mile of the Koch Tank Battery. County Road 3 is 80 feet to the east; the nearest surface water is approximately 115' northeast of the spill site. High Priority habitat is not present within ¼ mile; there is no Bald Eagle Roost site within a ¼ mile; there is no Bald Eagle Active Nest site within ½ mile. There are 3 water wells within ¼ mile of the spill site. A Freshwater Emergent Wetland Habitat borders the northwest, west, southwest, and southeast boundaries of the Tank Battery, approximately 90' from the spill site.

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	TBD	laboratory analytical results
Yes	SOILS	3090 ft2	laboratory analytical results

INITIAL ACTION SUMMARY

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

During plugging and abandonment of the KOCH Tank Battery, associated onsite flowline, separator, and produced water vessel, historical crude oil and produced water impacts were noted. Soil was screened with a PID and confirmation soil samples were analyzed. Per the approved Form 271 prepared for this site (document #403166227), if impacts were not noted during field screening soil samples were submitted for laboratory analysis of BTEX, TMBs, naphthalene, and TPH, pH, specific conductance (EC), SAR, and boron. If impacts were detected, soil samples were analyzed for the full COGCC Table 915-1 analytical suite.

Impacts were noted by the crude and produced water tanks so additional excavation resulted in a pit roughly 80'x38'x6'. Sidewall and floor samples were submitted for Table 915-1 analysis. Benzo(a)anthracene, SAR, pH and selenium exceeded Table 915-1 levels and site-specific levels in the remaining soil. Groundwater was noted in the excavation and a grab groundwater sample was submitted for Table 915-1 analysis. Chloride and sulfate exceeded Table 915-1 levels in the groundwater.

Approximately 835 yds3 of soil was excavated from 11/19/22 through 12/15/22 and properly disposed of at Front Range Landfill in Erie, CO. Following the receipt of analytical results, sample SS-1@3' was submitted for the Table 915-1 analysis on 1/27/23. Manifests are attached. See attached figure for excavation and sampling locations and attached tables and laboratory reports for PID readings and analytical results.

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):

Additional soil will be excavated at SS-1 to remove benzo(a)anthracene impacts, by SW-11 and SW-15 (as practical since close to Kerr McGee infrastructure) to address SAR and pH impacts, and at SW-12 to remove selenium impacts. 1 soil sample will be collected from each location (3 discrete total) after additional excavation & analyzed for Table 915-1 analytes.

6 discrete soil samples will be collected from 3 background locations at depths of 4' and 6' bgs and analyzed for Table 915-1 inorganics.

4 monitoring wells will be installed surrounding the tank excavation to delineate chloride & sulfate impacts in the groundwater. Soil from each borehole will be screened with a PID & the interval reporting the highest reading will be submitted for Table 915-1 analysis (4 discrete samples total). If impacts are not noted using the PID then the soil interval immediately above the water table will be submitted for analysis. See attached figures for sampling locations.

Proposed Groundwater Sampling

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

After the installation and development of 4 proposed wells, groundwater samples will be collected from each well and analyzed for Table 915-1 analytes. See attached figure for proposed well locations.

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 31

Number of soil samples exceeding 915-1 29

Was the areal and vertical extent of soil contamination delineated? No

Approximate areal extent (square feet) 3090

NA / ND

-- Highest concentration of TPH (mg/kg) 937

-- Highest concentration of SAR 19.9

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 6

Groundwater

Number of groundwater samples collected 1

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 6

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 1

ND Highest concentration of Benzene (µg/l)

ND Highest concentration of Toluene (µg/l)

-- Highest concentration of Ethylbenzene (µg/l) 1.2

-- Highest concentration of Xylene (µg/l) 6.59

NA Highest concentration of Methane (mg/l)

Surface Water

0 Number of surface water samples collected

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?

The soil source sample exceeded Table 915-1 concentration levels for 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, naphthalene, TPH, 1-methylnaphthalene, & 2-methylnaphthalene. SS-1@2' exceeded the TPH Table 915-1 standard. Soil surrounding both samples was excavated & disposed of offsite. SS-1@3', submitted after excavation, exceeded the Table 915-1 standard for benzo(a)anthracene.

SAR & pH were detected above maximum background values in BH-1@6', SW-11@4', & SW-4@4'. Soil surrounding SW-4@4' was excavated & disposed of offsite. SAR was also detected above its site-specific standard in SW-15@4'.

Arsenic was detected above the Table 915-1 level in every soil sample collected at the site, including all 6 background samples. Arsenic & barium exceeded site-specific standards (maximum background x1.25) in SW-1@4', & surrounding soil was excavated. Selenium exceeded its site-specific standard in SW-12@4'.

Groundwater sampled from the excavation exceeded for chloride & sulfate levels.

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

On 1/26/23, 6 background samples were collected at depths of 4' and 6' bgs from 3 locations surrounding the Koch Tank Battery and submitted for analysis of Table 915-1 soil suitability for reclamation and metals parameters. All 6 samples exceeded Table 915-1 concentration levels for arsenic and barium. Cadmium, lead and selenium also exceeded Table 915-1 levels in 1 background sample. See attached figure for sampling locations and attached table for analytical results.

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

Volume of solid waste (cubic yards) 835

Volume of liquid waste (barrels) 0

☒ Is further site investigation required?

- Additional soil will be excavated at SS-1 to address the benzo(a)anthracene exceedance, at SW-11 and SW-15 (as practical since it is close to Kerr McGee infrastructure) to remove SAR and pH impacts, and by SW-12 to remove selenium exceedances.
- Six soil samples will be collected from 3 background locations at depths of 4' and 6' bgs and analyzed for Table 915-1 soil suitability for reclamation and metals.
- Four monitoring wells will be installed surrounding the tank excavation to delineate chloride and sulfate impacts in the groundwater.

REMEDIAL ACTION PLAN

Does this Supplemental Form 27A include changes to a previously approved Remedial Action Plan? No _____

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Approximately 835 yds³ of soil was excavated from tank battery, associated onsite flowline, separator, and produced water vessel from 11/19/22 through 12/15/22 and properly disposed of at Front Range Landfill in Erie. Manifests are attached.

REMEDIATION 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.

Additional soil will be excavated at SS-1 to address the benzo(a)anthracene exceedance, at SW-11 and SW-15 (as practical since it is close to Kerr McGee infrastructure) to remove SAR and pH impacts, and by SW-12 to remove selenium exceedances.

Four monitoring wells will be installed surrounding the tank excavation to delineate chloride and sulfate impacts in the groundwater. Once the impacts to groundwater are delineated, remediation alternatives will be evaluated.

Soil Remediation Summary

☐ In Situ

_____ Bioremediation (or enhanced bioremediation)
_____ Chemical oxidation
_____ Air sparge / Soil vapor extraction
_____ Natural Attenuation
_____ Other _____

☒ Ex Situ

Yes _____ Excavate and offsite disposal
If Yes: Estimated Volume (Cubic Yards) _____ 835
Name of Licensed Disposal Facility or COGCC Facility ID # _____
_____ Excavate and onsite remediation
_____ Land Treatment
_____ Bioremediation (or enhanced bioremediation)
_____ Chemical oxidation
_____ Other _____

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.

After the installation and development of 4 proposed wells, groundwater samples will be collected from each well and analyzed for Table 915-1 analytes to determine impacts. See attached figure for proposed well locations.

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

Adequacy of Operator's General Liability Insurance and Financial Assurance

Describe the adequacy of the Operator's general liability insurance and Financial Assurance to fully address the anticipated costs of Remediation, including the estimated remaining cost for this project (below).

If this information has been provided on a Form 27 within the last 12 months, provide the Document Number of that form.

KPK has sufficient insurance and bonding to fully address the anticipated costs of Remediation, including the remaining estimated costs for this project. KPK has general liability insurance and financial assurance in compliance with COGCC rules.

- Project is 60% complete. Additional excavation/reclamation, soil sampling and installation/sampling of 4 monitoring wells is tentatively scheduled for Summer 2023.

The cost for remediation is a preliminary estimate only, costs may change upwards or downward based on site-specific information. KPK makes no representation or guarantees as to the accuracy of the preliminary estimate.

Operator anticipates the remaining cost for this project to be: \$ 10000

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:

NA

Volume of E&P Waste (solid) in cubic yards 835

E&P waste (solid) description Petroleum impacted soil

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility: Front Range Landfill

Volume of E&P Waste (liquid) in barrels 0

E&P waste (liquid) description NA

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility:

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? Yes _____

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.

Excavations surrounding the tank battery, associated onsite flowline, separator, and produced water vessel will be backfilled to grade using clean fill. The soil will be compacted by driving over the filled excavation with equipment. Stormwater best management practices will be implemented instead of reseeding. The landowner will be developing the site and will be excavating, replacing, and compacting all soil at the site for geotechnical engineering purposes prior to construction.

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? No _____

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

Did the local soil conservation district provide the seed mix? No _____

SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. 07/31/2023

Proposed date of completion of Reclamation. 09/29/2023

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. 12/05/2022

Actual Spill or Release date, or date of discovery. 12/05/2022

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 11/19/2022

Proposed site investigation commencement. 12/05/2022

Proposed completion of site investigation. 09/29/2023

REMEDIAL ACTION DATES

Proposed start date of Remediation. 11/19/2022

Proposed date of completion of Remediation. 09/29/2023

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

Responses below address the COAs listed in the approved Form 27I prepared for the Koch Tank Battery (document #403166227).

- Implementation schedule has been updated to reflect the actual start dates of the work performed at the site.
- Soil sampling complied with COGCC Table 915-1 analytes listed in the Form 27I COA. Select organic compounds and metals were not analyzed if field screening did not indicate impacts. If impacts were noted during field screening, samples were submitted for the entire Table 915-1 suite of analytes.
- Field notes and a table summarizing field screening readings are attached to this Form 27S.
- Operations have not encroached upon surrounding wetlands at this time so contacting the US Army Corps is not necessary.
- Soil borings have not been advanced at this point in the investigation. Boring logs/monitoring well completion details following the installation of proposed wells will be attached to the next Form 27S.
- Operator will submit the next update for this site within 90 days, on a quarterly schedule.

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

Signed: Katherine Kahn

Title: Senior Hydrogeologist

Submit Date: _____

Email: kkahn@cdhconsult.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: _____

Date: _____

Remediation Project Number: 25978

COA Type

Description

0 COA	

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.

Att Doc Num

Name

403463228	DISPOSAL MANIFESTS
403463229	DISPOSAL MANIFESTS
403463264	OTHER
403463269	ANALYTICAL RESULTS
403463273	ANALYTICAL RESULTS
403463275	ANALYTICAL RESULTS
403463276	ANALYTICAL RESULTS
403463277	ANALYTICAL RESULTS
403463278	ANALYTICAL RESULTS
403463372	SOIL SAMPLE LOCATION MAP
403463373	SOIL SAMPLE LOCATION MAP
403463375	SOIL SAMPLE LOCATION MAP

Total Attach: 12 Files

General Comments

User Group

Comment

Comment Date

		Stamp Upon Approval
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Total: 0 comment(s)