

State of Colorado
Oil and Gas Conservation Commission



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

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>10083</u>	Contact Name and Telephone: <u>Andrew Richmond</u>
Name of Operator: <u>East Resources, Inc.</u>	No: <u>303-865-5957, ext 209</u>
Address: <u>370 Interlocken Blvd., Suite 550</u>	Fax: <u>303-865-5961</u>
City: <u>Broomfield</u> State: <u>CO</u> Zip: <u>80021</u>	
API Number: <u>05-081-06935</u>	County: <u>MOFFAT</u>
Facility Name: _____	Facility Number: _____
Well Name: <u>WT DURHAM</u>	Well Number: <u>#4</u>
Location: (QtrQtr, Sec, Twp, Rng, Meridian): <u>SE SE, Sec 31, T5N, R90W, 6PM</u> Latitude: <u>40.334701</u> Longitude: <u>-107.529062</u>	

TECHNICAL CONDITIONS

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

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.): cultivated land (hay field)

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

Potential receptors (water wells within 1/4 mi, surface waters, etc.): Surface water (Tributary to Waddle Creek) located 550' East, residence located 705' West, water well located 3,400' north. Depth to groundwater estimated to be 6' bgs.

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>surface soil impact estimated (see attached map)</u>	<u>Visual extent</u>
<input checked="" type="checkbox"/> Vegetation	<u>hay field impacted where release occurred</u>	<u>Visual extent</u>
<input type="checkbox"/> Groundwater	<u>unknown at this time</u>	_____
<input type="checkbox"/> Surface Water	<u>NA</u>	_____

REMEDIALTION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):
Please refer to Form 19 submitted April 27, 2010.

Describe how source is to be removed:
Excavation of impacted soil and off site disposal in approved landfill. Sumps will be excavated and equipped with pumps to remove free product that has accumulated on the surface before excavation activities begin.

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.:
Oil absorbent booms and straw bales will be used to contain the oil in the contaminated area. DURA-BASE composite mats will be installed to provide access to the site, sections of mat will be moved around the contaminated area to minimize surface disturbance. Each section of DURA-BASE mat is 8' x 14' x 4-1/4" in height with a useable surface area of 7' x 13'. An excavator with a 50' reach will rest on the mats and be used to remove the contaminated soil. Areas not accessible by the excavator will be removed using light weight tracked skid steer loaders and mini excavators. Contaminated soil will be hauled off site to Twin Enviro Services, Milner landfill near Steamboat Springs. As contaminated soil is removed, samples will be taken of the excavated area for analysis to ensure that all contamination has been removed to COGCC Table 910-1 levels. Clean top soil will be placed in the clean excavated areas. The entire area will be reseeded once back fill and leveling is completed with clean soil. See attached Figure 2 for site layout and planned remediation.



Tracking Number: _____
 Name of Operator: East Resources, Inc.
 OGCC Operator No: 10083
 Received Date: _____
 Well Name & No: WT Durham #4
 Facility Name & No: _____

REMEDIATION WORKPLAN (Cont.)

OGCC Employee: _____

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

Unknown at this time. Evaluation of potential impact to groundwater will occur during soil excavation activities. Plans also include the installation of temporary monitoring wells using excavation and pothole techniques and the collection of grab groundwater samples at points between the source area and the downgradient creek located approximately 550' east of the site. A surface water sample from the creek will also be collected. All water samples will be analyzed for BTEX only.

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.

Backfill will be compacted in a minimum of 2-feet lifts. The ground surface will be contoured to match existing grade. Clean topsoil will be placed at the upper 2 feet of the ground surface such that the area can be revegetated. The planned seed mix is based on landowner request (see attached for seed mix details). Straw will be crimped into the ground following seeding to reduce surface erosion while revegetation takes hold.

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:

A representative number of confirmation soil samples will be collected to document that impacted soil above the levels specified in Table 910-1 of the COGCC rules has been removed. If groundwater is encountered during excavation activities, a grab groundwater sample will be collected from the excavation to determine if groundwater has been impacted above the levels specified in Table 910-1. The soil samples will be analyzed for BTEX, PAHs, and TPH only. Groundwater samples will be analyzed for BTEX only. At the start of the excavation, a source area sample will be collected and analyzed for PAHs. If PAHs are not detected above the levels specified in Table 910-1, analysis of PAHs in soil will be discontinued for all samples. All BTEX and TPH analyses will be performed using an accredited mobile laboratory, ChemSolutions of Larkspur, Colorado.

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

Impacted soil above the COGCC Table 910-1 levels will be transported to the Milner Landfill near Steamboat Springs, Colorado.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: <u>4/18/10</u>	Date Site Investigation Completed: _____	Date Remediation Plan Submitted: <u>4/30/10</u>
Remediation Start Date: <u>5/3/10</u>	Anticipated Completion Date: <u>5/7/10</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: Andrew Richmond

Signed: _____

Title: Production Manager

Date: 4/30/10

OGCC Approved: _____ Title: _____ Date: _____

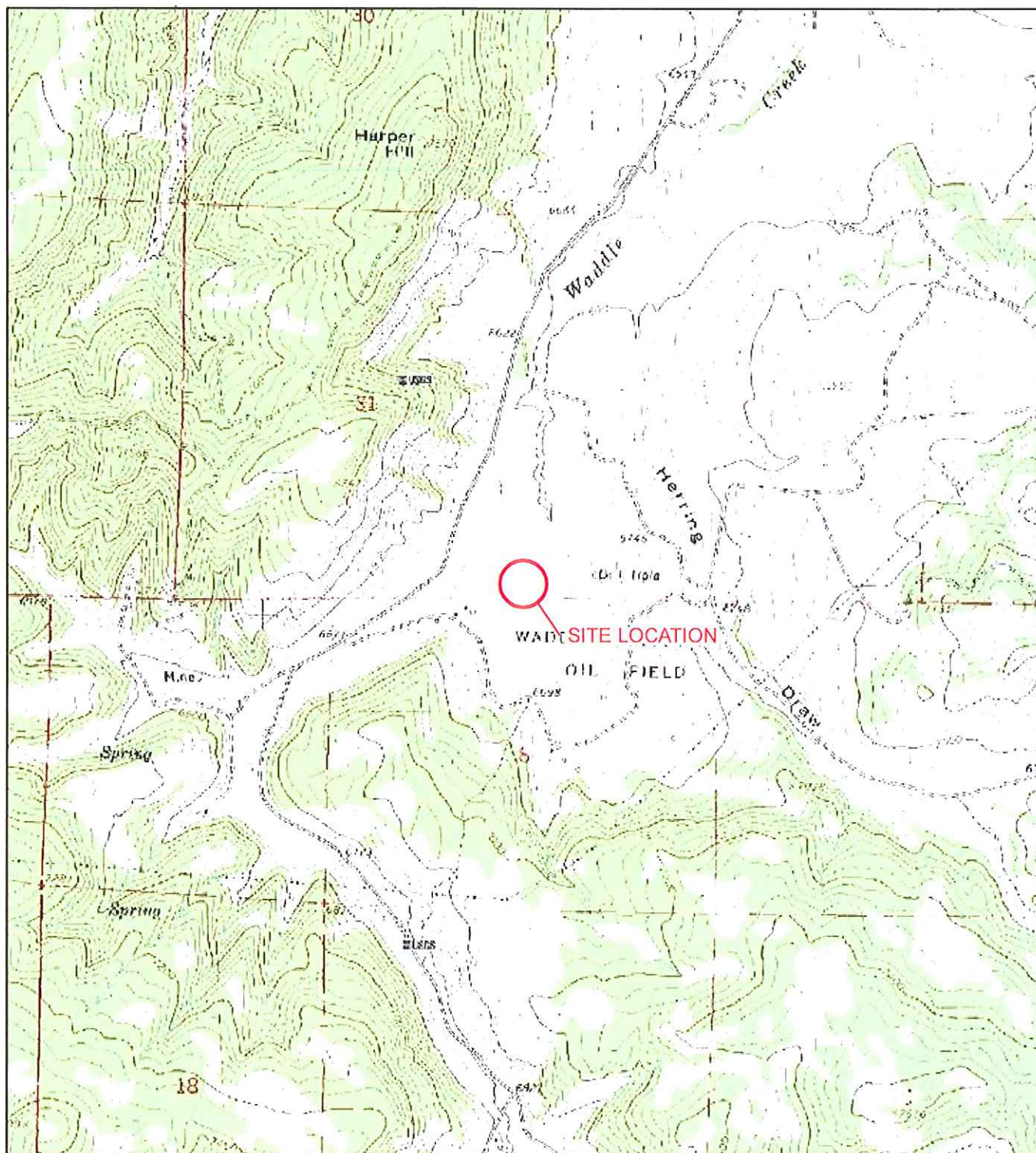


IMAGE COURTESY OF WWW.TERRASERVER.COM/USGS, 1966

LEGEND



SITE LOCATION

SESE SEC 31 T5N R90W 6PM

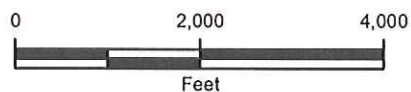


FIGURE 1
SITE LOCATION MAP
WT DURHAM #4 (API 05-081-06935)
MOFFAT COUNTY, CO

EAST RESOURCES, INC.



Spill Clean-up Plan for WT Durham #4 Flow Line

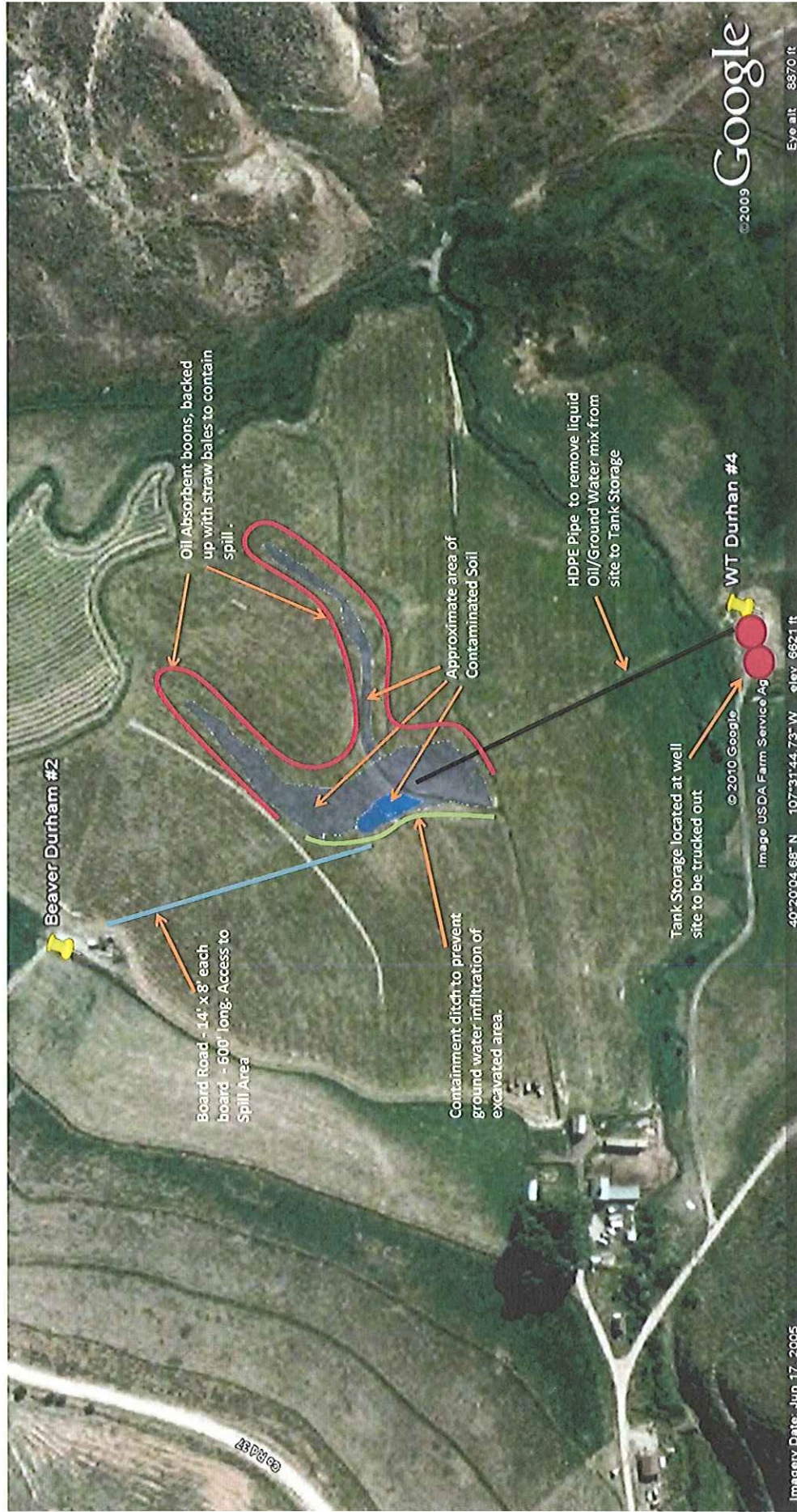


FIGURE 2
SITE MAP
WT DURHAM #4 (API 05-081-06935)
MOFFAT COUNTY, CO