



Dave Neslin  
303 892 7401  
david.neslin@dgsllaw.com

December 30, 2014

Matt Lepore  
Director  
Colorado Oil and Gas Conservation Commission  
1120 Lincoln Street, Suite 801  
Denver, CO 80203

Dear Director Lepore:

On behalf of our client, the Stelbar Oil Corporation ("Stelbar"), I am writing to request written confirmation from the Colorado Oil and Gas Conservation Commission ("Commission") that Stelbar, its successor, the Great Western Oil and Gas Company ("Great Western"), and any subsequent owner of the property in question need not undertake any remedial work, mitigation, or other action regarding elevated total petroleum hydrocarbon ("TPH") and pH soil levels that were recently found at depths of up to 28 feet and liquid hydrocarbons found in perched water samples in certain portions of the central battery sites for the Pierce and Black Hollow Units in Weld County, Colorado.

Water flood operations have occurred at the Pierce Unit since 1967 and at the Black Hollow Unit since 1960. Stelbar has owned and operated the two units since July 1990, when it acquired them from Chevron Oil Company, the original owner and operator of the units. In connection with the pending sale of these units from Stelbar to Great Western, environmental sampling at the two tank battery sites found elevated TPH, pH, and liquid hydrocarbon levels in locations that appear to correspond to historic pits at each site. Stelbar attributes all of the elevated TPH, pH, and liquid hydrocarbon findings at the Pierce site to the historic Pierce pits, all of which were closed by 1989; Stelbar similarly attributes four of the six elevated TPH findings and all of the elevated pH findings at the Black Hollow site to the historic Black Hollow pits, most of which were closed by the early-to-mid 1980s. The evidence indicates that all of these pits were operated and closed in compliance with then-existing Commission requirements. Stelbar attributes the other two elevated TPH findings at the Black Hollow site to historic spills that occurred in 1984 and 1998; these spills were likewise controlled, reported, and remediated in compliance with then-existing Commission requirements as interpreted by the Commission.

These environmental conditions do not appear to pose a significant risk to public health, safety, or welfare or the environment or wildlife resources due to their depth, hydrologic isolation, lack of historic migration, and degradation over time. Under current Rule 524, a party can be held responsible for and required to mitigate such conditions only if the Commission can demonstrate that the party caused the conditions by conducting operations in contravention of then applicable provisions of the Oil and Gas Conservation Act or its implementing regulations. As noted, the conditions here were caused by historic operations that were consistent with the Act and regulations as they then existed and were applied by the Commission. Accordingly, Stelbar and its successors are not responsible for these conditions and should not be required to remediate or mitigate them.

### History of the Pierce and Black Hollow Pits

The Pierce central tank battery is located in the NE  $\frac{1}{4}$  of the SE  $\frac{1}{4}$  of Section 22, Township 8 North, Range 66 West, and the Black Hollow central tank battery is located in the NE  $\frac{1}{4}$  of the SW  $\frac{1}{4}$  of Section 31, Township 8 North, Range 66 West. There are historic records for both sites, as well as United States Department of Agriculture ("USDA") aerial photographs taken in September 1977, October 1984, and July 1988. These records and photographs document the history of the pits at each site beginning in late 1971, when the Commission began requiring pit permits. During the entire 60-year operating history of these sites, there have been only two operators: Chevron before July 1990, and Stelbar after July 1990.

In late 1971, the historic records indicate that two pits existed at the Pierce central tank battery and three pits existed at the Black Hollow central tank battery. At that time, two of the three existing Black Hollow pits were closed and replaced with a new pit, leaving two pits at each site. By 1974, the number of pits had grown to three at the Pierce site and five at the Black Hollow site. The three Pierce pits were lined, while the five Black Hollow pits were unlined. All three of the then-existing Pierce pits were closed with written notice to and approval by the Commission in 1989. Three of the five then-existing Black Hollow pits were closed and reclaimed during the early-to-mid 1980s, while the other two pits were closed by Stelbar with written notice to and approval by the Commission in 2011 and 2012. Both sites continue to operate today with producing wells, injection wells, and various other facilities.

It is probable that additional pits existed at the two sites and were closed prior to late 1971, when the Commission's permitting requirement took effect. Exploratory and production wells were drilled in these areas beginning in the 1950s, while water flood operations began in the Black Hollow Unit in 1960 and in the Pierce Unit in 1967. At that time, production pits were common, and there were no Commission requirements governing their construction or closure. Just as Chevron closed two of the Black Hollow pits rather than permit them in 1971, it may have closed one or more Pierce pits at the same time and for the same reason. Other pits at either or both sites may have operated and closed prior to that time.

The following is a brief chronology of the pits based upon the historic record:

October 1971: Three pits existed at the Black Hollow site: a backwash pit; a drain pit; and a clear water pit.<sup>1</sup> An authorization for expenditure proposed to close the clear water pit, to retain the backwash and drain pits, and to construct a new backwash pit for the water treating plant. The existing and new pits would be lined with bentonite clay. Subsequently, it was decided to close the drain pit as well. The locations of the clear water and drain pits are unknown.

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<sup>1</sup> See 1971 AFE for construction and maintenance work, Attachment 1.

December 1971: The Commission approved earthen pit permit applications for two existing pits at the Pierce site, the Pierce Central Battery Pits #1 and #2, and one existing pit and one new pit at the Black Hollow site, the Black Hollow Central Battery Pits #1 and #2.<sup>2</sup> All of these pits were described as settling pits for “backwash” water plus “produced water” from the Pierce and Black Hollow fields. The two Pierce pits were lined with neoprene and polyethylene, respectively, while the two Black Hollow pits were sealed with bentonite clay. The two Pierce pits were located in the southwest quarter of the Pierce site approximately 100 feet or more south of the existing tanks and facilities; the two Black Hollow pits were located in the southwest quarter of the Black Hollow site approximately 100 feet or more west of the existing treaters and separators.<sup>3</sup>

March 1974: The Commission approved earthen pit permit applications for another existing pit at the Pierce site, the Pierce Central Battery Pit #3, and three existing pits at the Black Hollow site, the Black Hollow Central Battery Pits #3, #4, and #5.<sup>4</sup> The Pierce Central Battery Pit #3 was described as an overflow pit in case of upset and as temporary storage for oil from a skimmer tank. The Black Hollow Central Battery Pit #3 was described as an overflow pit for treater upsets, the Black Hollow Central Battery Pit #4 was described as an evaporation pit for iron sulfide waste, and the Black Hollow Central Battery Pit #5 was described as an emergency pit for treater or tank leaks or other pit failures. The Pierce pit was lined with neoprene, the Black Hollow #3 pit was unsealed, and the Black Hollow #4 and #5 pits were sealed with iron sulfide. All of these additional pits were located adjacent to the existing pits in the southwest quarter of each site.<sup>5</sup>

October 1984: USDA aerial photographs indicate that Black Hollow Central Battery Pits #1 and #5 were filled prior to October 1984, leaving Pits #2, #3, and #4 remaining at the Black Hollow site.<sup>6</sup>

July 1988: USDA aerial photographs indicate that Black Hollow Central Battery Pit #4 was filled prior to July 1988, leaving Pits #2 and #3 remaining at the Black Hollow site.<sup>7</sup>

June 1989: The Commission approved Chevron’s plans to close the three Pierce pits as part of a revamping of the oil storage facilities.<sup>8</sup> The sundry notice stated that two of the pits were dry and had not been used for several years, except that excess drilling mud had been dumped into one of these pits. The third pit was still used as an emergency pit; it contained five to ten barrels of oily water, which was removed, as well as pit bottom sludge, which was mixed with fresh fill dirt, compacted, and left in place.

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<sup>2</sup> See 1971 permit applications for earthen pits, Attachment 2.

<sup>3</sup> See 1977 aerial photographs, Attachment 3.

<sup>4</sup> See 1974 permit applications for earthen pits, Attachment 4.

<sup>5</sup> See 1977 aerial photographs, supra.

<sup>6</sup> See 1984 aerial photographs, Attachment 5.

<sup>7</sup> See 1988 aerial photographs, Attachment 6.

<sup>8</sup> See 1989 sundry notice for pit closures, Attachment 7.

November 1995: Stelbar submitted to the Commission a written pit inventory for the Black Hollow site listing two emergency overflow produced water pits; the pits were described as fenced and netted, but unlined.<sup>9</sup>

June 1997: Stelbar submitted to the Commission a sensitive area determination by Joseph D. Stewart, P.E. for the two remaining Black Hollow pits.<sup>10</sup> Mr. Stewart determined that the Black Hollow site is not a sensitive area as defined by the Commission because it sits on top of a hill and is not underlain by an alluvial aquifer or recharge zone. He also noted that the site is not classified for domestic water use by the Water Quality Control Commission and that the pits are located more than 1/8 mile from the closest domestic water well.

August to September 2011: Stelbar closed Black Hollow Central Battery Pit #2 pursuant to a Form 27 Site Investigation and Remediation Workplan approved by the Commission. As part of this process, Stelbar removed approximately 1880 cubic yards of impacted soil to a landfill off site. No groundwater was encountered, and soil sampling verified compliance with Table 910-1. The Colorado Oil and Gas Information System ("COGIS") summary states that no further action is required.<sup>11</sup>

December 2012: Stelbar closed Black Hollow Central Battery Pit #3 pursuant to a Form 27 Site Investigation and Remediation Workplan approved by the Commission. As part of this process, Stelbar removed approximately 6,972 cubic yards of impacted soil to a landfill off site. No groundwater was encountered, and soil sampling verified compliance with Table 910-1. Both the COGIS remediation summary and a December 17, 2012 email from John Axelson state that no further action is required.<sup>12</sup>

The following is a brief chronology of spills based upon the historic record:

May 1984: Chevron reported a spill of approximately 200 barrels of oil due to the failure of a pipeline coupling near the crude oil storage tanks in the northeastern portion of the Black Hollow site.<sup>13</sup> This pipeline spill was controlled and contained within the dike around the tanks, and approximately 150 barrels of oil were recovered. It was verbally reported to the Commission on the day it occurred, and a written report was submitted to the Commission five days later.

June 1989: Chevron reported a spill of approximately 650 barrels of oil from an overflow tank on the east side of the Pierce site.<sup>14</sup> Approximately 600 barrels of oil were reportedly recovered from the

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<sup>9</sup> See 1995 sundry notice for pit inventory, Attachment 8.

<sup>10</sup> See 1997 sensitive area determination, Attachment 9.

<sup>11</sup> See 2011 pit closure correspondence, Attachment 10.

<sup>12</sup> See 2012 pit closure correspondence, Attachment 11.

<sup>13</sup> See 1984 spill correspondence, Attachment 12.

<sup>14</sup> See 1989 spill correspondence, Attachment 13.

ground and a pit. This spill too was controlled and reported to the Commission on the day it occurred, and no evidence of it remained when the Commission conducted a follow-up inspection that December.

January 1998: Stelbar reported a spill of approximately 330 barrels of oil on the east side of the Black Hollow site due to a flow line leak between the heater treater and a stock tank.<sup>15</sup> The oil drained downhill to a nearby well location, where it was contained by a dike. Approximately 110 barrels of oil were subsequently recovered, and the contaminated soil was removed and replaced with clean soil. Stelbar verbally reported this pipeline spill to the Commission on the day it occurred, and submitted a Form 19 Spill/Release Report three days later. The COGIS summary indicates that the Commission has closed this case.

#### Historic Regulatory Requirements

Pit Operation and Closure: Prior to 1971, the Commission had no regulations governing pits. During the 1970s and 1980s, the regulations imposed only minimal requirements regarding the operation and closure of pits. A review of the pit regulations indicates that:

- permits for pits were first required in 1971;
- construction standards for pits were first adopted in 1984;
- closure standards for pits were first adopted in 1986, but initially required only backfilling and debris removal;
- notice to the Commission for pit closure was added in 1995, and existing pits had to be inventoried by the end of that year;
- other regulations adopted in 1995 provided that pits closed by July 1, 1997 need only comply with surface reclamation standards, while pits closed after that date would also have to comply with new waste management requirements, and that existing unlined pits remaining in service after July 1, 1997 must be subject to a sensitive area determination;
- soil and ground water standards for pit closures were added in 1998; and
- the current soil and ground water standards for closures were adopted in 2008, and are not intended to apply to previously closed pits.<sup>16</sup>

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<sup>15</sup> See 1998 spill correspondence, Attachment 14.

<sup>16</sup> See regulatory chronology for pit operation and closure, Attachment 15.

Former Commission staff members have verbally confirmed that in 1995 the Commission sought to eliminate many then-existing pits in northern Colorado by giving operators approximately 18 months to close them without having to comply with the new waste management requirements. In granting operators this dispensation, the Commission understood that it would result in pit sludge and solids remaining in place and in potentially increased hydrocarbon levels in soils. One of the former staff members also confirmed that during the 1980s the Commission typically did not inspect closed pits to evaluate the reclamation or issue further documentation on this subject after approving the closure sundry.

Thus, the identified Pierce and Black Hollow pits were operated and closed in compliance with then-existing Commission regulations and, in most cases, with the Commission's express approval. When Black Hollow Central Battery Pits #1, #4, and #5 were closed in the early-to-mid 1980s, notice to and approval by the Commission were not required. Nor did any closure standards exist. When Pierce Central Battery Pits #1, #2, and #3 were closed in 1989, written notice was provided to and approved by the Commission as required. At that time, the regulations required only surface reclamation, which occurred. There were still no soil or ground water standards for pit closure, nor did requirements for the disposition of exploration and production waste exist. When Black Hollow Pits #2 and #3 were closed in 2011 and 2012, Site Investigation and Remediation Workplans were submitted to and approved by the Commission as required. Consistent with the applicable regulations, contaminated soils were removed, groundwater was assessed, and soils were sampled. Based upon this work, the Commission determined that no further action would be required.

To the extent that unidentified Pierce and Black Hollow pits were closed prior to or during late 1971, they too would have operated and been closed in compliance with then-existing Commission regulations. At that time, no permit, notice, or approval from the Commission was required for the construction or closure of pits, and no operating or closure standards existed.

Spill Reporting and Response: During this period, there were likewise few regulatory requirements governing spill reporting and response. A review of the relevant spill regulations indicates that:

- reporting of spills to the Commission was first required in 1986, with operators directed to submit a spill report within 15 days, to take immediate steps to control the spill, and to report the spill immediately if public health or safety is jeopardized;
- broader spill reporting and response requirements were added in 1993, and they required remediation for spills of exploration and production ("E&P") waste, crude oil, or water-based bentonitic drilling fluids, ten-day written reporting of all such spills exceeding five barrels, and 24-hour verbal reporting of all such spills exceeding 20 barrels;

- remediation plans were first required in 1994, but only where the Commission mandated additional remediation;
- other regulations added in 1994 required the use of Spill/Release Report Forms and established TPH cleanup levels of 1,000 parts per million (“ppm”) in sensitive areas and 10,000 ppm outside sensitive areas;
- the Commission was given authority to require Site Investigation and Remediation Workplans on a case-by-case basis and the Table 910-1 standards were made applicable to spills in 1998; and
- Other requirements adopted in 1998 mandated soil and groundwater sampling and notice of completion of remediation for spills exceeding 20 barrels net loss of E&P waste.<sup>17</sup>

All of the identified Pierce and Black Hollow spills were immediately reported to the Commission and were controlled and remediated in a manner that the Commission approved expressly or implicitly. When the 1984 Black Hollow spill occurred, it was immediately controlled and reported to the Commission and most of the oil was recovered, even though reporting and remedial action were not yet obligatory. When the 1989 Pierce spill occurred, it too was immediately controlled and reported to the Commission and most of the oil was recovered. This satisfied the reporting and remedial action requirements under the regulations, even though there was no determination that public health or safety was jeopardized. When the 1998 Black Hollow spill occurred, it was verbally reported to the Commission within 24 hours and a Spill/Release Report was submitted to the Commission within 10 days as required by the regulations. As further required by the regulations, the spill was promptly contained and remediated. Although the Commission did not require a Site Investigation and Remedial Workplan or soil or groundwater sampling, Stelbar recovered much of the oil and removed the contaminated soils and the Commission closed the matter. Thus, these spills were reported and remedied in compliance with the Commission’s then-existing regulations as interpreted by the Commission.

#### Recent Sampling Results

In connection with the pending sale of the Pierce and Black Hollow Units to Great Western, certain environmental studies were recently undertaken at the Pierce and Black Hollow sites. As part of this process, elevated levels of TPH and pH were found in soil bores taken at both sites during July and August of this year.<sup>18</sup>

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<sup>17</sup> See regulatory chronology for spill reporting and response, Attachment 16.

<sup>18</sup> See maps of and other information on soil and ground water samples, Attachment 17.

At the Pierce Central Battery, six soil samples taken in the southwest quarter of the site had elevated TPH levels ranging from 1892 mg/kg to 8360 mg/kg, while the pH for one sample was 9.4. These samples were taken from depths ranging from 11 to 28 feet, with most of them taken from depths of at least 20 feet. Two of these samples, SB 10 and SB 11, were taken from locations that correspond to the site of Pierce Central Battery Pits #1, #2, and #3. The depth at which the elevated TPH levels were found, 15 feet for SB 10 and 25 feet for SB 11, is likewise consistent with the former pits. Another sample, SB 4, where elevated TPH was found at a depth of 11 feet, appears to correspond to either the site of the easternmost of Pits #1, #2, and #3 or the site of the 1989 surface spill. The other three samples, SB 5, SB 7, and SB 9, were taken from a depression along the southern boundary of the site. The topography of this area and the depths at which the elevated TPH levels were found, 28 feet for SB 5, 24 feet for SB 7, and 15 feet for SB 9, suggest it is the site of a former pit that closed before or during 1971.

At the Black Hollow Central Battery, four soil samples taken in the southwest quarter of the site had elevated TPH levels ranging from 591 mg/kg to 7044 mg/kg, while the pH for three samples ranged from 9.17 to 9.67. All of these samples were taken from depths ranging from 14 to 19 feet. Two of these samples, SB 14 and SB 16, were taken from locations that correspond to the site of Black Hollow Central Battery Pit #4. The other two samples, SB 3 and SB 4, were taken from a location east of Pit #4 and north of Pits #2 and #3. The depths at which the elevated TPH levels were found, 14 feet for SB 3 and 16 feet for SB 4, suggest that this was the site of a former pit that closed during or prior to 1971. Two additional samples taken from the eastern edge of the site, SB 1 and SB 9, had elevated TPH levels of 9970 mg/kg at a depth of 28 feet and 914 mg/kg at a depth of 19 feet, respectively. These two samples correspond in location and depth to the site of the 1984 and 1998 pipeline leaks.

Small amounts of water with hydrocarbon content were recovered from four of the bore holes with elevated TPH levels at the Pierce Central Battery, SB 5, SB 7, SB 10, and SB 11. Three of these water samples required two to four days before enough water entered the bore hole to obtain a sample. Only one bore hole encountered water when initially drilled. No water was recovered from any of the bore holes with elevated TPH levels at the Black Hollow Central Battery, which is not surprising given the topography of the site and the prior determination that it is not a sensitive area.

Because of the water sampling results at the Pierce Central Battery additional testing was undertaken to assess the quality of the aquifer underlying that site. In September, a water sample was taken from an existing water supply well located approximately 150 feet north of the area where the elevated TPH levels were found. The well is completed in the aquifer at a depth of 40 to 50 feet and has produced millions of barrels of water at rates as high as 1,000 barrels per day. Analysis of this sample found no evidence of hydrocarbons. In October, two new monitoring wells were drilled adjacent to the area where elevated TPH levels were found, one in a southwesterly direction and one in a northeasterly direction. These wells were drilled to depths of 40 and 50 feet. Samples collected from these wells likewise showed no evidence of hydrocarbons.

Thus, elevated TPH and pH soil levels were found at several places in the southwest portion of the Pierce and Black Hollow sites that correspond closely with the known or suspected location of historic pits that were closed more than 25 years ago and at depths that are likewise consistent with such pits and unlikely to affect the public. Several water samples taken from the Pierce bore holes also had hydrocarbon content, but this appears to reflect small volumes of perched water that are much shallower than and separate from the aquifer, which has not been affected. Elevated TPH levels were also found in one boring along the eastern edge of the Pierce site that corresponds to one of the closed pits or to a historic spill that occurred about 25 years ago, and in two borings along the eastern edge of the Black Hollow site that correspond to historic pipeline leaks that occurred about 30 and 16 years ago, respectively.

#### Request

Commission Rule 524 provides that a party is responsible for and required to mitigate environmental conditions only if the Commission can demonstrate that such conditions were caused by operations that contravened then applicable provisions of the Oil and Gas Conservation Act or its implementing regulations. Here, most of the elevated TPH levels and all of the elevated pH and liquid hydrocarbon levels in the soil and water samples for the Pierce and Black Hollow sites were caused by historic pits that were operated and closed decades ago consistent with then applicable statutory and regulatory requirements. One of the elevated TPH levels in a soil sample for the Pierce site and two of the elevated TPH levels in soil samples for the Black Hollow site were caused by historic spills that were duly reported to and remediated consistent with applicable statutory and regulatory requirements as applied by the Commission. Accordingly, neither Stelbar nor its successors are responsible for these conditions. In addition, these soil and perched water conditions should not pose a significant risk to public health, safety, or welfare or the environment or wildlife resources due to their depth, hydrologic isolation, lack of historic migration, and degradation over time.

Under these circumstances, Stelbar respectfully requests that the Commission confirm in writing that Stelbar, Great Western, and any subsequent owner of the property in question need not undertake any remedial work, mitigation, or other action regarding the elevated TPH and pH soil levels at the Pierce and Black Hollow sites and the hydrocarbons found in the water samples at the Pierce site. Stelbar would like to receive this confirmation at your earliest opportunity and, in any event, by February 6, 2015.

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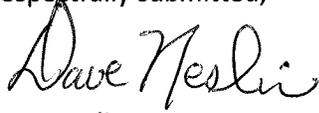
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If you have any questions regarding this letter or the attached materials, please do not hesitate to call me. Stelbar looks forward to meeting with you, Greg Deranleau, and John Axelson regarding this request on January 7.

Matt Lepore  
Colorado Oil and Gas Conservation Commission  
December 30, 2014  
Page 10

Respectfully submitted,

A handwritten signature in black ink that reads "Dave Neslin". The signature is written in a cursive style with a large, prominent initial "D".

Dave Neslin  
Partner  
for  
DAVIS GRAHAM & STUBBS LLP

Attachments

cc with attachments:

Greg Deranleau  
John Axelson

## ATTACHMENT 1

1971 AFE for Construction and Maintenance Work

**CHEVRON OIL COMPANY - WESTERN DIVISION  
PROPOSAL FOR CONSTRUCTION AND MAINTENANCE WORK**

**P 2551**

AFE - Approp. No. \_\_\_\_\_

Division Rocky Mountain Field Black Hollow Location or Property Central Battery

**Work Proposed and Justification:**

To meet regulations set forth by the Colorado Oil & Gas Conservation Commission concerning retaining pits, the following is proposed for the three pits at the Black Hollow Central Battery:

1. Construct a new 60' x 40' x 8' pit and line with bentonite clay for use as backwash pit for water treating plant.
2. Clean and line with bentonite clay existing 60' x 40' x 8' backwash pit for use as clear water pit.
3. Clean and line with bentonite clay existing 30' x 30' x 8' drain pit.
4. Fill in existing 80' x 60' x 16' clear water pit.
5. Make appropriate changes in pit lines.

As the Colorado Oil & Gas Conservation Commission does not specify the type of liner to use in its regulations, we feel

Amount Requested \$ 7,570

Previous Authorizations Original \$ -

Supplement(s) \$ -

Total Including This Supplement \$ 7,570

Company Interest 100 %

Assisted Recovery - %

Rate of Return - %

Payout Operating necessity

Profitability Index -

**Major Expense**

Budget: 1971 Yrs. Budget Category ~~XXXXXXXXXX~~

**ESTIMATED COST TO ACHIEVE RECOMMENDATION**

UNIT DESCRIPTION	INSTALLATION COST	MATERIAL	TOTAL
I. Capital II. Expense	6,840	530	7,370
Sub-Total	\$ 6,840	\$ 530	\$ 7,370
Dist. & Div. Expense	2.5 % or \$ 200		\$ 200
<b>TOTAL COST OF THIS REQUEST</b>			\$ <b>7,570</b>
PARTNER'S SHARE ( 0 % of Sub-Total Above)			\$ -
<b>CHEVRON'S COST - AMOUNT REQUESTED -</b>			<b>7,570</b>
Equipment already in Plant - Present Value (Chevron's Share)			-
<b>Total Involved in Project</b>			<b>7,570</b>

(For Accounting Use)

Reg. \_\_\_\_\_ 19 \_\_\_\_\_ Business By \_\_\_\_\_

Location Master \_\_\_\_\_

N.I.P. Job Log \_\_\_\_\_

N.I.P. Clearance \_\_\_\_\_

C.E. \_\_\_\_\_

Well Cost Report \_\_\_\_\_

Cap. \_\_\_\_\_ Exp. \_\_\_\_\_

Recommended By \_\_\_\_\_

Date \_\_\_\_\_

*[Handwritten signatures and dates]*  
 9-21-71  
 9/27/71  
 10/14/71

Approved By \_\_\_\_\_

Date 10/2/71

## Work Proposed and Justification (contd.)

that a properly applied layer of bentonite clay will give adequate protection against pollution considering the relatively impermeable condition of the soil in the area of the pits involved. As a matter of record, Chevron received the first pit permit issued by the State of North Dakota for a bentonite lined pit set in similar soil conditions.

Because of the pending permit date of October 1, 1971, additional work involved in the handling and disposal of floc material collected in the backwash pit will be postponed so that only work necessary to meet state regulations can be expedited.



**ATTACHMENT 2**

**1971 Permit Applications for Earthen Pits**

OGCC Form 15

STATE OF COLORADO  
OIL AND GAS CONSERVATION COMMISSION  
Department of Natural Resources

RECEIVED

OCT 15 1997

APPLICATION FOR PERMIT TO USE EARTHEN PIT COLO. OIL & GAS CONS. COMM.

1. CHECK ONE: NEW PIT  EXISTING PIT  TREATMENT FACILITY  OTHER

2. NAME OF OPERATOR: Chevron Oil Company - Western Division *Black Hollow*

3. ADDRESS OF OPERATOR: P. O. Box 599 Denver, Colorado 80201 PHONE NO. 292-1400

4. LEASE NAME: Black Hollow Central Battery Pit #1 5. PRODUCING FORMATION: Lyons 6. GROUND ELEVATION: 5190'

7. LOCATION (Report location clearly to the nearest 10 acres): SW 1/4 Sec. 31 T8N R66W 8. COUNTY: Weld 9. STATE: Colorado

10. SIZE OF PIT: LENGTH 60 FT. WIDTH 40 FT. DEPTH 8 FT.

11. CAPACITY: 2360 BBL.S. 12. ESTIMATED INFLOW: 200 BIS/DAY

13. DISPOSAL OF PIT CONTENT: HAULED \_\_\_\_\_ DISPOSAL WELL  EVAPORATION \_\_\_\_\_

14. MAXIMUM FLUID LEVEL ABOVE AVG. GROUND LEVEL: 2 FT.

15. DRAINAGE DISTANCE IN FEET TO CLOSEST FRESH WATER POND, STREAM OR LAKE: To nearest wash 1400 FT.

16. SUBSOIL TYPE: See attached drilling logs.

17. TYPE OF SEALING MATERIAL (Including specifications and Method of Application):  
Bentonite clay applied at 4 pounds per square foot with protective soil covering. See attached "Construction Procedure".

18. ADDITIONAL INFORMATION (By attachment include detailed plan of operation, chemical analysis of produced water, necessary maps, logs and other information as may be required by Rules 325 and 326 of the Rules and Regulations of the Oil and Gas Conservation Commission.)  
The 200 BPD backwash water which is temporarily stored in this pit for settling plus approximately 2700 BPD produced water from the Black Hollow Field is injected into the Lyons formation through the wells Balamonte 1 and Colorado State 4 as part of the Black Hollow Unit Assisted Recovery Project.  
*This Pit Eliminated*

DVR	
FIP	
NPK	✓
JAS	✓
JJD	

19. I HEREBY CERTIFY THAT THE FOREGOING IS TRUE AND CORRECT

SIGNED: *[Signature]* TITLE: *[Title]* DATE: *[Date]*

THIS SPACE FOR COMMISSION USE

APPROVED BY: *[Signature]* DIRECTOR TITLE: O & G CONS. COMM. DATE: DEC 14 1997

CONDITIONS OF APPROVAL, IF ANY:

*Checked with*

*[Signature]*

OGCC Form 15

STATE OF COLORADO  
OIL AND GAS CONSERVATION COMMISSION  
Department of Natural Resources

RECEIVED

OCT 15 1997

COLO. OIL & GAS CONS. COMM.

APPLICATION FOR PERMIT TO USE EARTHEN PIT

1. CHECK ONE: NEW PIT  EXISTING PIT  TREATMENT FACILITY  OTHER

2. NAME OF OPERATOR: Chevron Oil Company - Western Division Black Hollow

3. ADDRESS OF OPERATOR: P. O. Box 599 Denver, Colorado 80201 PHONE NO. 292-1400

4. LEASE NAME: Black Hollow Central Battery Pit #2 5. PRODUCING FORMATION: Lyons 6. GROUND ELEVATION: 5190'

7. LOCATION (Report location clearly to the nearest 10 acres): SW 1/4 SW 1/4 Sec. 31 T8N R66W 8. COUNTY: Weld 9. STATE: Colorado

10. SIZE OF PIT: LENGTH 60 FT. WIDTH 40 FT. DEPTH 8 FT.

11. CAPACITY: 2360 BBL.S. 12. ESTIMATED INFLOW: 200 BIS/DAY

13. DISPOSAL OF PIT CONTENT: HAILED \_\_\_\_\_ DISPOSAL WELL X EVAPORATION \_\_\_\_\_

14. MAXIMUM FLUID LEVEL ABOVE AVG. GROUND LEVEL: 2 FT.

15. DRAINAGE DISTANCE IN FEET TO CLOSEST FRESH WATER POND, STREAM OR LAKE: To nearest wash 1400 FT.

16. SUBSOIL TYPE: See attached drilling logs.

17. TYPE OF SEALING MATERIAL (Including specifications and Method of Application):  
Bentonite clay applied at 4 pounds per square foot with protective soil covering. See attached "Construction Procedure".

18. ADDITIONAL INFORMATION (By attachment include detailed plan of operation, chemical analysis of produced water, necessary maps, logs and other information as may be required by Rules 325 and 326 of the Rules and Regulations of the Oil and Gas Conservation Commission.)  
The 200 BPD backwash water which is temporarily stored in this pit after settling plus approximately 2700 BPD produced water from the Black Hollow Field is injected into the Lyons formation through the wells Baiamonte 1 and Colorado State 4 as part of the Black Hollow Unit Assisted Recovery Project.

DVR	
FIP	✓
NHM	✓
AV	✓
JE	

19. I HEREBY CERTIFY THAT THE FOREGOING IS TRUE AND CORRECT

SIGNED: [Signature] TITLE: [Title] DATE: [Date]

THIS SPACE FOR COMMISSION USE

APPROVED BY: [Signature] DIRECTOR TITLE: O & G CONS. COMM. DATE: DEC 14 1997

CONDITIONS OF APPROVAL, IF ANY:

*Checked OK*

*file*

MEMORANDUM

TO: D. V. Rogers

FROM: C. G. McDowell

On October 2, 1972, I drove to the Black Hollow Field, Weld County.

Chevron-Black Hollow Battery #1, NE SW 31-8N-66W. One pit 60' X 40' X 8', 100% covered oil. Bentonite sealed. TDS 27,228 per test Lyons Sand. Few water wells in the area. Nearest creek 1,400'. Laramie-Fox Hills on surface. Top of Pierre Shale approximately 200' to 300'. Produced water being reinjected. No problem.

MEMORANDUM

TO: D. V. Rogers

FROM: C. G. McDowell

On October 2, 1972, I drove to the Black Hollow Field, Weld County.

Chevron-Black Hollow Battery #2, NE SW 31-8N-66W. One pit 60' X 40' X 8', clean, water. TDS 27,228 per test Lyons Sand. Bentonite sealed. Few water wells in the area. Nearest creek 1,400'. Laramie-Fox Hills on the surface. Top of Pierre Shale approximately 200' to 300'. Produced water being reinjected. No problem.

STATE OF COLORADO  
OIL AND GAS CONSERVATION COMMISSION  
Department of Natural Resources

RECEIVED  
OCT 11 1972  
10 AM 15  
RECEIVED  
OCT 11 1972  
11 11 AM 1972

APPLICATION FOR PERMIT TO USE EARTHEN PIT

COLO. OIL & GAS CONS. COMM.

1. CHECK ONE: NEW PIT <input type="checkbox"/> EXISTING PIT <input checked="" type="checkbox"/> TREATMENT FACILITY <input type="checkbox"/> OTHER <input type="checkbox"/>			
2. NAME OF OPERATOR <b>Chevron Oil Company</b>			
3. ADDRESS OF OPERATOR <b>P. O. Box 599 Denver, Colorado 80201</b>		PHONE NO. <b>292-1400</b>	
4. LEASE NAME <b>Pierce Central Battery Pit #1</b>	5. PRODUCING FORMATION <b>Lyons</b>	6. GROUND ELEVATION <b>5090'</b>	
7. LOCATION (Report location clearly to the nearest 10 acres) <b>SW 1/4 Sec. 22 T6N R66W</b>		8. COUNTY <b>Weld</b>	9. STATE <b>Colorado</b>
10. SIZE OF PIT: LENGTH <u>50</u> FT. WIDTH <u>50</u> FT. DEPTH <u>10</u> FT.			
11. CAPACITY <u>2850</u> BBLs.		12. ESTIMATED INFLOW <u>100</u> BIS/DAY	
13. DISPOSAL OF PIT CONTENT: HAULED _____ DISPOSAL WELL <input checked="" type="checkbox"/> EVAPORATION _____			
14. MAXIMUM FLUID LEVEL ABOVE AVG. GROUND LEVEL <u>2</u> FT.			
15. DRAINAGE DISTANCE IN FEET TO CLOSEST FRESH WATER POND, STREAM OR LAKE <b>To nearest wash</b> <u>200</u> FT.			
16. SUBSOIL TYPE <b>0'-5' clay, 5-16' sand, Gravel, 16'-22' Sandy clay, water @ 23'</b>			
17. TYPE OF SEALING MATERIAL (Including specifications and Method of Application) <b>30 mil thick nylon reinforced neoprene liner. See attached specification sheets.</b>			
18. ADDITIONAL INFORMATION (By attachment include detailed plan of operation, chemical analysis of produced water, necessary maps, logs and other information as may be required by Rules 325 and 326 of the Rules and Regulations of the Oil and Gas Conservation Commission.)  <b>The 100 BPD backwash water which is temporarily stored in this pit for settling plus approximately 2000 BPD produced water from the Pierce Field is injected into the Lyons formation through the wells Pierce Unit 1, King 1 and Jones 2 as part of the Pierce Unit Assisted Recovery Project.</b>			
19. I HEREBY CERTIFY THAT THE FOREGOING IS TRUE AND CORRECT			
SIGNED <u><i>Paul Patterson</i></u>		TITLE <u><i>Area Supervisor</i></u> DATE <u><i>10/12/71</i></u>	
THIS SPACE FOR COMMISSION USE			
APPROVED BY <u><i>Al Rogier</i></u>		DIRECTOR DATE <u><i>DEC 14 1971</i></u>	
CONDITIONS OF APPROVAL, IF ANY:			

STATE OF COLORADO  
OIL AND GAS CONSERVATION COMMISSION  
Department of Natural Resources

RECEIVED

OCT 13 1971

APPLICATION FOR PERMIT TO USE EARTHEN PIT OIL & GAS CONS. COMM.

1. CHECK ONE:			
NEW PIT <input type="checkbox"/>	EXISTING PIT <input checked="" type="checkbox"/>	TREATMENT FACILITY <input type="checkbox"/>	OTHER
2. NAME OF OPERATOR <b>Chevron Oil Company</b>			
3. ADDRESS OF OPERATOR <b>P. O. Box 599 Denver, Colorado 80201</b>			1 PHONE NO. <b>292-1400</b>
4. LEASE NAME <b>Pierce Central Battery Pit #2</b>		5. PRODUCING FORMATION <b>Lyons</b>	6. GROUND ELEVATION <b>5050'</b>
7. LOCATION (Report location clearly to the nearest 10 acres) <b>Submerged Sec. 22 78N R66W</b>		8. COUNTY <b>Weld</b>	9. STATE <b>Colorado</b>
10. SIZE OF PIT: LENGTH <u>50</u> FT. WIDTH <u>50</u> FT. DEPTH <u>8</u> FT.			
11. CAPACITY <u>2500</u> BBL/S.		12. ESTIMATED INFLOW <u>100</u> BIS/DAY	
13. DISPOSAL OF PIT CONTENT: HAULED _____ DISPOSAL WELL <input checked="" type="checkbox"/> EVAPORATION _____			
14. MAXIMUM FLUID LEVEL ABOVE AVG. GROUND LEVEL <u>2</u> FT.			
15. DRAINAGE DISTANCE IN FEET TO CLOSEST FRESH WATER POND, STREAM OR LAKE <u>To nearest wash</u> <u>200</u> FT.			
16. SUBSOIL TYPE <b>0'-5' Clay, 5'-16' Sand &amp; Gravel, 16'-22' Sandy clay, water @ 23'</b>			
17. TYPE OF SEALING MATERIAL (Including specifications and Method of Application)  <b>3" thick gunited base with 20 mil thick chlorinated polyethylene liner supplied by Dupont.</b>			
18. ADDITIONAL INFORMATION (By attachment include detailed plan of operation, chemical analysis of produced water, necessary maps, logs and other information as may be required by Rules 325 and 326 of the Rules and Regulations of the Oil and Gas Conservation Commission.)  <b>The 100 BPD of backwash water which is temporarily stored in this pit after settling plus approximately 2000 BPD of produced water from the Pierce Field is injected into the Lyons formation through the wells Pierce Unit 1, King 1 and Jones 2 as part of the Pierce Unit Assisted Recovery Project.</b>			
19. I HEREBY CERTIFY THAT THE FOREGOING IS TRUE AND CORRECT			
SIGNED <u>Dw Patterson</u>		TITLE <u>Area Supervisor</u>	DATE <u>10/12/71</u>
THIS SPACE FOR COMMISSION USE			
APPROVED BY <u>[Signature]</u>		TITLE <u>DIRECTOR</u>	DATE <u>DEC 14 1971</u>
CONDITIONS OF APPROVAL, IF ANY:			

MEMORANDUM

TO: D. V. Rogers

FROM: G. G. McDowell

On October 2, 1972, I drove to the Pierce Field, Weld County.

Chevron-Pierce Battery #1, NE SE 22-8N-66W. One pit 50' X 50' X 10', about 1' to 2' of fluid in bottom. 100% covered with oil. TDS 95,867 per test Lyons Sand. Neoprene liner in use. Several water wells in area. Nearest creek 200'. Approximately 35' of alluvium on the surface. Underlain by approximately 500' of Laramie, and approximately 50' to 100' of Fox Hills. Top of Pierre Shale approximately 600'. Produced water being reinjected. No problem.

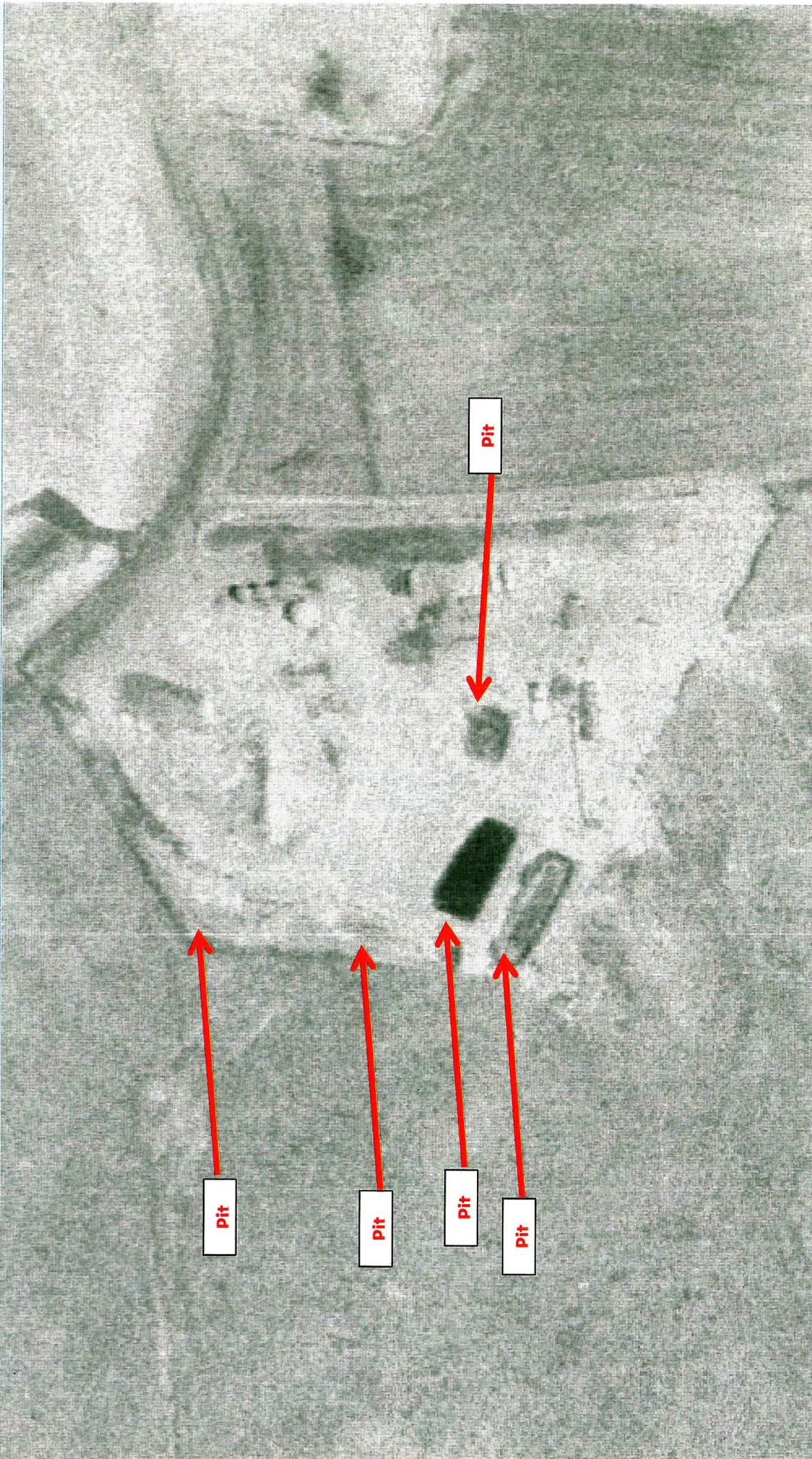
MEMORANDUM

TO: D. V. Rogers

FROM: C. G. McDowell

On October 2, 1972, I drove to the Pierce Field, Weld County. Chevron-Pierce Battery #2, NE SE 22-8N-66W. One pit 50' X 50' X 8', clean, water, lined with neoprene. TDS 95,867 per test Lyons Sand. Several water wells in the area. Nearest creek 200'. Approximately 35' of alluvium on the surface. Underlain by approximately 500' of Laramie, and approximately 50' to 100' of Fox Hills. Top of Pierre Shale approximately 600'. Produced water being re-injected. No problem.

**ATTACHMENT 3**  
**1977 Aerial Photographs**



Black Hollow Unit – Central Battery
Aerial Photos – September 1977



Pierce Unit – Central Battery
Aerial Photo – September 1977

**ATTACHMENT 4**

**1974 Permit Applications for Earthen Pits**

RECEIVED

MAR 6 1974

STATE OF COLORADO  
 AND GAS CONSERVATION COMMISSION  
 Department of Natural Resources

APPLICATION FOR PERMIT TO USE EARTHEN PIT

OIL & GAS CONS. COMM.

1. CHECK ONE: NEW PIT  EXISTING PIT  TREATMENT FACILITY  OTHER

2. NAME OF OPERATOR  
 Chevron Oil Company - Western Division

3. ADDRESS OF OPERATOR P. O. Box 599 Denver, Colorado 80201 PHONE NO. 292-1400

4. LEASE NAME Black Hollow Central Battery Pit #3 5. PRODUCING FORMATION Lyons 6. GROUND ELEVATION 5190'

7. LOCATION (Report location clearly to the nearest 10 acres) SW 1/4 Sec. 31 T8N R66W 8. COUNTY Weld 9. STATE Colorado

10. SIZE OF PIT: LENGTH 50 FT. WIDTH 50 FT. DEPTH 14 FT.

11. CAPACITY 3000 BBLs. 12. ESTIMATED INFLOW None - Emergency only BIS/DAY

13. DISPOSAL OF PIT CONTENT: Recycled thru treater HAULED DISPOSAL WELL EVAPORATION

14. MAXIMUM FLUID LEVEL ABOVE AVG. GROUND LEVEL 2 FT.

15. DRAINAGE DISTANCE IN FEET TO CLOSEST FRESH WATER POND, STREAM OR LAKE To nearest dry wash 1400 FT.

16. SUBSOIL TYPE Sandy clay

17. TYPE OF SEALING MATERIAL (Including specifications and Method of Application)  
 None

18. ADDITIONAL INFORMATION (By attachment include detailed plan of operation, chemical analysis of produced water, necessary maps, logs and other information as may be required by Rules 325 and 326 of the Rules and Regulations of the Oil and Gas Conservation Commission.)  
 Pit is to contain fluid overflow due to treater upset, tank overflow. Effluent is recycled thru treater with oil reclaimed and water disposed of by injection into the Lyons formation.

19. I HEREBY CERTIFY THAT THE FOREGOING IS TRUE AND CORRECT

SIGNED Bob Patterson TITLE Area Supervisor DATE 3-5-74

THIS SPACE FOR COMMISSION USE

APPROVED BY McRogers DIRECTOR TITLE DATE MAR 22 1974

CONDITIONS OF APPROVAL, IF ANY:  
 SEE ATTACHED MEMO

COCC-Form 75

STATE OF COLORADO  
OIL AND GAS CONSERVATION COMMISSION  
Department of Natural Resources

RECEIVED

MAR 6 1974

APPLICATION FOR PERMIT TO USE EARTHEN PIT FOR OIL & GAS CONS. COMM.

1. CHECK ONE: NEW PIT  EXISTING PIT  TREATMENT FACILITY  OTHER

2. NAME OF OPERATOR  
Chevron Oil Company - Western Division

3. ADDRESS OF OPERATOR P. O. Box 599 Denver, Colorado 80201 PHONE NO. 292-1400

4. LEASE NAME Black Hollow Central Battery Pit #4 5. PRODUCING FORMATION Lyons 6. GROUND ELEVATION 5180'

7. LOCATION (Report location clearly to the nearest 10 acres) Sec. 31 T8N R66W 8. COUNTY Weld 9. STATE Colorado

10. SIZE OF PIT: LENGTH 100 FT. WIDTH 15 FT. DEPTH 10 FT.

11. CAPACITY 3000 BBLs. 12. ESTIMATED INFLOW None BIS/DAY

13. DISPOSAL OF PIT CONTENT: HAULED  DISPOSAL WELL \_\_\_\_\_ EVAPORATION

14. MAXIMUM FLUID LEVEL ABOVE AVG. GROUND LEVEL 2 FT.

15. DRAINAGE DISTANCE IN FEET TO CLOSEST FRESH WATER POND, STREAM OR LAKE To nearest dry wash 1400 FT.

16. SUBSOIL TYPE Sandy clay

17. TYPE OF SEALING MATERIAL (Including specifications and Method of Application)  
Iron sulphide

18. ADDITIONAL INFORMATION (By attachment include detailed plan of operation, chemical analysis of produced water, necessary maps, logs and other information as may be required by Rules 325 and 326 of the Rules and Regulations of the Oil and Gas Conservation Commission.)  
After pumping water out of pits 1 and 2, iron sulphide is dumped into this pit to evaporate water and dry up so it can be hauled.

19. I HEREBY CERTIFY THAT THE FOREGOING IS TRUE AND CORRECT

SIGNED *Bob Patterson* TITLE Area Supervisor DATE 3-5-74

THIS SPACE FOR COMMISSION USE

APPROVED BY *Al Rogers* TITLE DIRECTOR DATE MAR 22 1974

CONDITIONS OF APPROVAL, IF ANY:  
SEE ATTACHED MEMO



MEMORANDUM  
\*\*\*\*\*

TO: D. V. Rogers

FROM: G. C. Hazenbush

SUBJECT: Chevron Oil Co. - Western Division                      Black Hollow Field  
          Black Hollow Central Battery Pit #3, SW NE SW 31-8N-66W  
   Weld County

On March 15, 1974, an office evaluation was made of this pit. The 50' X 50' X 14' pit is for emergency use only, to contain fluid overflow in the event of a treater malfunction or tank backover. In this event, fluid is to be recycled through the treater with oil reclaimed, and water disposed of by reinjection into the Lyons Formation. The wells on the lease produce oil from the Lyons. Distance to the nearest drywash is 1,400 feet.

The pit is in the Laramie Formation, which crops out at the surface. On the basis of electric logs of wells in section 31-8N-66W, the top of the Laramie-Fox Hills aquifer is estimated to be about 200 to 250 feet below the surface.

Pit should be kept free of oil.

MEMORANDUM  
\*\*\*\*\*

TO: D. V. Rogers

FROM: G. C. Hazenbush

SUBJECT: Chevron Oil Co. - Western Division                      Black Hollow Field  
          Black Hollow Central Battery Pit #4, SW NE SW 31-8N-66W  
   Weld Co.

On March 14, 1974, an office evaluation was made of this pit. The 100' X 15' X 10' pit is an auxilliary pit to pits 1 and 2 (previously approved), to treat and hold water produced from Lyons Formation oil wells. Water is evaporated and hauled away. Water from the Lyons runs 27,228 ppm in TDS. Distance to the nearest dry wash is 1,400'.

The pit is in the Laramie Formation which crops out at the surface. On the basis of electric logs of wells in Section 31-8N-66W, the top of the Laramie-Fox Hills aquifer is estimated to be about 200' to 250' below the surface.

Pit should be kept free of oil.

MEMORANDUM  
\*\*\*\*\*

TO: D. V. Rogers

FROM: G. C. Hazenbush

SUBJECT: Chevron Oil Company - Western Division Black Hollow Field  
Black Hollow Battery Pit #5, SW NE SW 31-8N-66W  
Weld County

On March 14, 1974, an office evaluation was made of this pit. The 120' X 10' X 6' pit is designed for emergency use only and is coated with iron sulphide. Distance to the nearest dry wash is 1,300 feet.

The pit is in the Laramie Formation, which crops out at the surface. On the basis of electric logs of wells in Section 31, Township 8 North, Range 66 West, the top of the Laramie-Fox Hills aquifer is estimated to be about 200' to 250' below the surface.

Pit should be kept free of oil.

STATE OF COLORADO  
OIL AND GAS CONSERVATION COMMISSION  
Department of Natural Resources

RECEIVED

MAR 6 1974

APPLICATION FOR PERMIT TO USE EARTHEN PIT FOR OIL & GAS CONSERVATION

CHECK ONE:

NEW PIT

EXISTING PIT

TREATMENT FACILITY

OTHER

2. NAME OF OPERATOR  
Chevron Oil Company - Western Division

3. ADDRESS OF OPERATOR  
P. O. Box 599 Denver, Colorado 80201  
PHONE NO. 292-1400

4. LEASE NAME  
Pierce Central Battery Pit #3  
5. PRODUCING FORMATION  
Lyons  
6. GROUND ELEVATION  
5050'

7. LOCATION (Report location clearly to the nearest 10 acres)  
SW 1/4 NE 1/4 Sec. 22 T8N R66W  
8. COUNTY  
Weld  
9. STATE  
Colorado

10. SIZE OF PIT:  
LENGTH 50 FT. WIDTH 50 FT. DEPTH 10 FT.

11. CAPACITY 2850 BBLs.  
12. ESTIMATED INFLOW 10 BIS/DAY

13. DISPOSAL OF PIT CONTENT:  
HAULED \_\_\_\_\_ DISPOSAL WELL  EVAPORATION \_\_\_\_\_

14. MAXIMUM FLUID LEVEL ABOVE AVG. GROUND LEVEL  
2 FT.

15. DRAINAGE DISTANCE IN FEET TO CLOSEST FRESH WATER POND, STREAM OR LAKE  
200 FT.

16. SUBSOIL TYPE  
0-5' clay, 5-16' sand, gravel, 16-22' sandy clay

17. TYPE OF SEALING MATERIAL (including specifications and Method of Application)  
30 mil thick nylon reinforced neoprene liner.

18. ADDITIONAL INFORMATION (By attachment include detailed plan of operation, chemical analysis of produced water, necessary maps, logs and other information as may be required by Rules 325 and 326 of the Rules and Regulations of the Oil and Gas Conservation Commission.)  
  
Oil from skimmer tank, drain from water plant bldg and treater. Drains and tank overflow lines. Drain lines from tanks - effluent is recycled through treater - oil reclaimed and water disposed of by injection into Lyons formation.

19. I HEREBY CERTIFY THAT THE FOREGOING IS TRUE AND CORRECT  
SIGNED Bob Patterson TITLE Area Supervisor DATE 3-5-74

THIS SPACE FOR COMMISSION USE

APPROVED BY Al Rogers TITLE DIRECTOR DATE MAR 22 1974

CONDITIONS OF APPROVAL, IF ANY:  
  
SEE ATTACHED MEMO

MEMORANDUM  
\*\*\*\*\*

TO: D. V. Rogers

FROM: G. C. Hazenbush

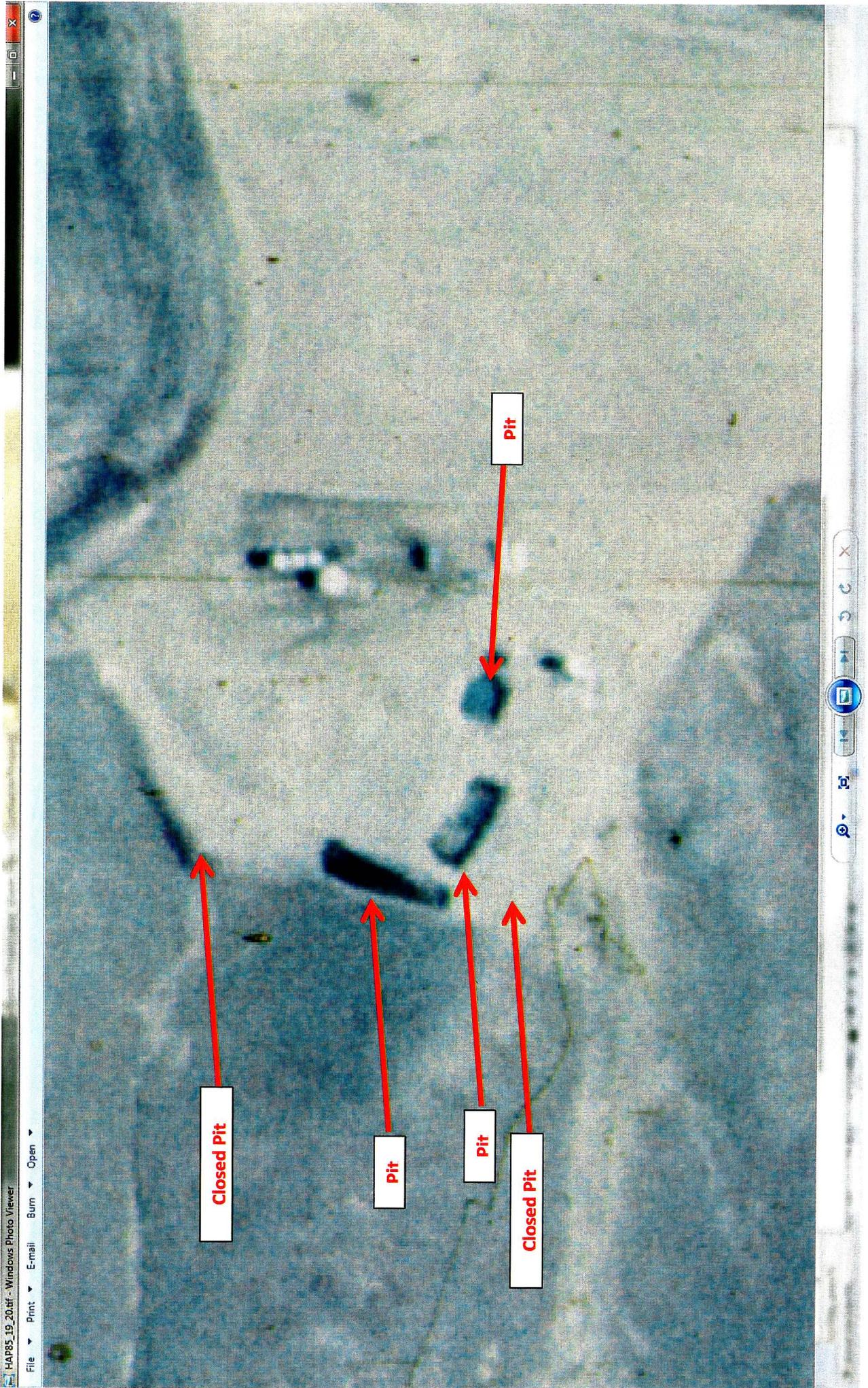
SUBJECT: Chevron Oil Co. - Western Division                      Pierce Field  
          Pierce Central Battery Pit #3, SW NE SE 22-8N-66W, Weld Co.

On March 15, 1974, an office evaluation was made of this pit. The 50' X 50' X 10' neoprene-lined pit handles an estimated inflow of 10 bbls. per day of water from Lyons Formation oil wells. The water runs 95,867 ppm in TDS. The fluid in the pit is recycled through the treater, and any oil reclaimed, and water reinjected into the Lyons Formation. Distance to nearest creek bed is 200 feet.

The pit is in the alluvium, which is about 35' to 40' thick in the area. The alluvium is underlain by approximately 500' of Laramie and 50' to 100' of Fox Hills. Top of the Pierre Shale is about 600' below the surface.

Pit should be kept free of oil.

**ATTACHMENT 5**  
**1984 Aerial Photographs**



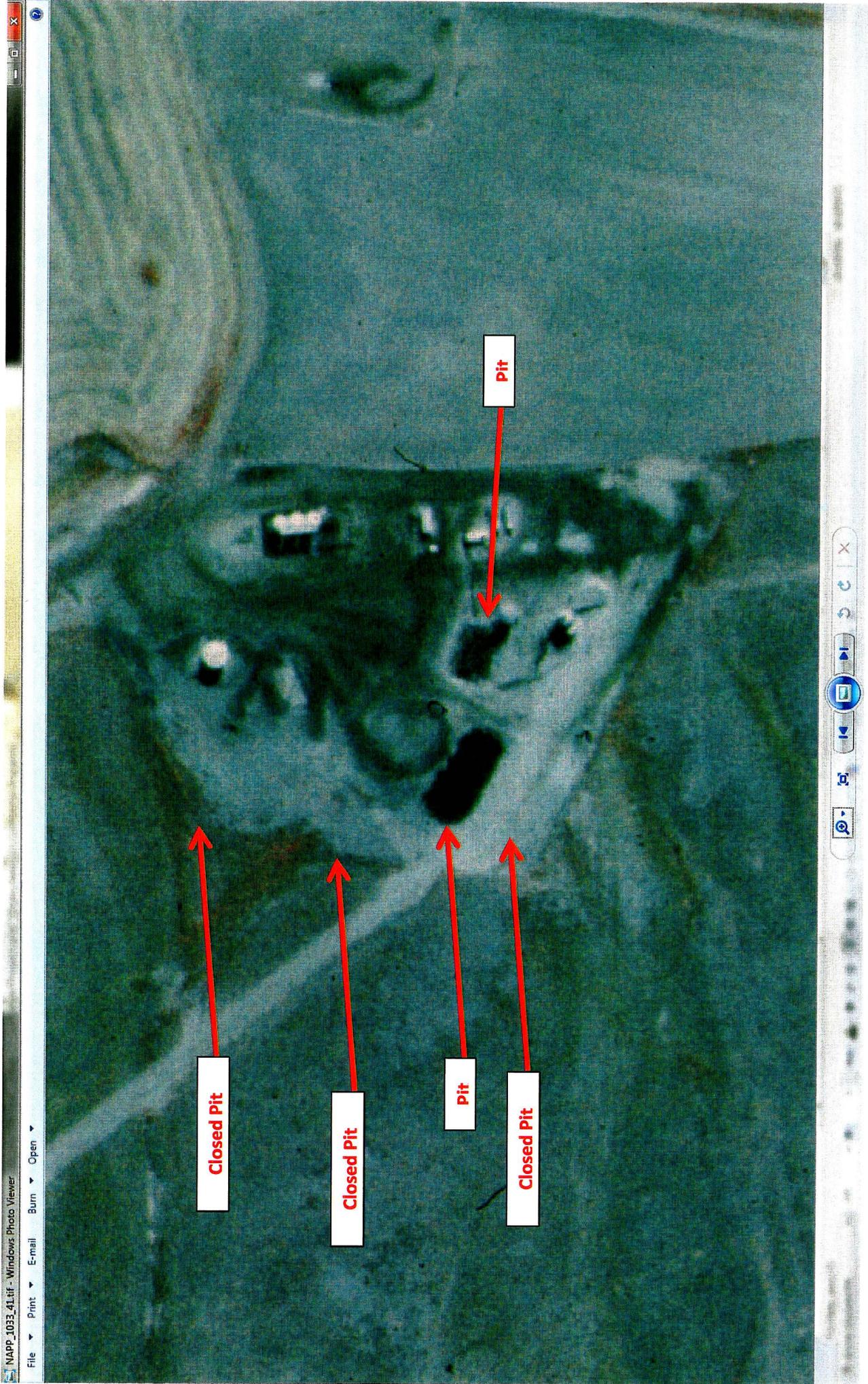
Black Hollow Unit – Central Battery
Aerial Photo – October 1984



Pierce Unit – Central Battery
Aerial Photo – October 1984

**ATTACHMENT 6**

**1988 Aerial Photographs**



Black Hollow Unit – Central Battery
Aerial Photo – July 1988



Pierce Unit - Central Battery

Aerial Photo - July 1988

**ATTACHMENT 7**

**1989 Sundry Notice for Pit Closures**



STATE OF COLORADO  
OIL AND GAS CONSERVATION COMMISSION  
DEPARTMENT OF NATURAL RESOURCES

File in duplicate for Patented and Federal lands.  
File in triplicate for State lands.

<p><b>SUNDRY NOTICES AND REPORTS ON WELLS</b> (Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)</p>		5. LEASE DESIGNATION & SERIAL NO. <b>Fee</b>
1. OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <b>Central Battery</b>		6. IF INDIAN, ALLOTTEE OR TRIBE NAME
2. NAME OF OPERATOR <b>CHEVRON U.S.A. INC., ROOM 13097</b>		7. UNIT AGREEMENT NAME <b>Pierce</b>
3. ADDRESS OF OPERATOR <b>P. O. BOX 599, DENVER, CO 80201</b>		8. FARM OR LEASE NAME <b>Pierce</b>
4. LOCATION OF WELL (Report location clearly and in accordance with any State regulations. See also space 17 below.) At surface <b>SW<math>\frac{1}{4}</math></b> At proposed prod. zone		9. WELL NO. <b>Central Battery</b>
14. PERMIT NO.		10. FIELD AND FOOT, OR WILDCAT <b>Sec. 22, T8N, R66W</b>
15. ELEVATIONS (Show whether DE, BT, OR, etc.)		11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
<b>SOLO. OIL &amp; GAS CONS. COMM.</b>		12. COUNTY <b>Weld</b>
		13. STATE <b>CO</b>

**RECEIVED**  
JUN 05 1989

18. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETE <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL. (Other) <b>Pit Closure</b>	CHANGE PLANS. <input type="checkbox"/>	(Other) _____	

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

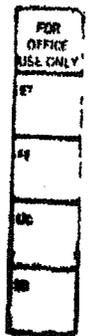
18. Date of work \_\_\_\_\_ \* Must be accompanied by a cement verification report.

All three pits at the Pierce Central Battery will be closed as part of the work to revamp oil storage facilities. One pit is approximately 45' x 55' by 3' deep. It is dry and has not been used for several years except for dumping excess drilling mud. This pit has a concrete apron around the perimeter and remnants of a polyethylene liner.

This pit will be closed as follows:

- 1) Cut and remove as much of the liner as possible so that no part of the liner remains buried less than 3' below final grade.
- 2) Break and remove the concrete apron and dispose in the remaining two 10' deep pits.
- 3) Fill pit with fresh fill dirt and compact with earth moving equipment. Mix dried drilling mud with the fill dirt as it is being spread.

The second pit is approximately 45' x 55' x 10' deep. This pit is dry and has not been used for several years.  
(Continued on attached sheet)



19. I hereby certify that the foregoing is true and correct

SIGNED *J. Robertson* TITLE Technical Assistant DATE 6-1-89  
(This space for Federal or State office use)

APPROVED BY *[Signature]* TITLE S.P.E. DATE 6/6/89  
CONDITIONS OF APPROVAL, IF ANY:

OBTAIN A LANDOWNER'S RELEASE FOR THE BURIAL OF DEBRIS. PLEASE SUBMIT A COPY OF THIS RELEASE. REMOVE ANY OIL ACCUMULATION PRIOR TO CLOSURE.

17. (Continued)

This pit will be closed as follows:

- 1) Cut and remove as much of the liner as possible so that no part of the liner remains buried less than 5' below final grade.
- 2) Dispose of concrete rubble from the first pit in the bottom, and add fresh fill dirt and compact as necessary to bring to final grade.

The third pit is approximately 45' x 55' x 10' deep and is currently being used as an emergency pit. Piping from equipment discharging to this pit will be rerouted to a new tank being installed to contain fluids discharged from emergency or operational upsets.

This pit will be closed as follows:

- 1) Pump out the 5-10 bbls oily water now in the pit and return to process equipment.
- 2) Cut and remove liner as for the second pit above.
- 3) Place fresh fill dirt in bottom 1-2' and mix with pit bottom sludge, and compact. Place any remaining concrete from pit 1 as necessary.
- 4) Remove all exposed pipelines into pit.
- 5) Complete filling and compacting with fresh fill dirt to final grade.
- 6) Remove fence around pit area, and reseed with native grasses.

3 - State  
3 - BLM  
1 - FSG  
1 - GA  
1 - DLR  
1 - File

**RECEIVED**

JUN 05 1989

**COLO. OIL & GAS CONS. COMM.**

**ATTACHMENT 8**

**1995 Sundry Notice for Pit Inventory**

STATE OF COLORADO  
OIL AND GAS CONSERVATION COMMISSION  
DEPARTMENT OF NATURAL RESOURCES

RECEIVED

NOV 24 1995 112087

SUBMIT ORIGINAL AND 1 COP



FOR OFFICE USE ONLY			
ET	FE	UC	SE

**SUNDRY NOTICES AND REPORTS ON WELLS**

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. <input type="checkbox"/> OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> COALBED METHANE <input type="checkbox"/> INJECTION WELL <input checked="" type="checkbox"/> OTHER		5. FEDERAL/INDIAN OR STATE LEASE NO.
2. NAME OF OPERATOR Stelbar Oil Corporation, Inc.		6. PERMIT NO.
3. ADDRESS OF OPERATOR 155 North Market, Suite #500 CITY STATE ZIP CODE Wichita, KS 67202		7. API NO.
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.) At surface  At proposed prod. zone		8. WELL NAME Black Hollow Unit
12. COUNTY Weld		9. WELL NUMBER Multiple
82470		10. FIELD OR WILDCAT Black Hollow Field
		11. QTR. QTR. SEC. T.R. AND MERIDIAN Section 31-T8N-R66W

Check Appropriate Box To Indicate Nature of Notice, Report or Notification

13A. NOTICE OF INTENTION TO: <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> MULTIPLE COMPLETION <input type="checkbox"/> COMMINGLE ZONES <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> REPAIR WELL <input type="checkbox"/> OTHER _____	13B. SUBSEQUENT REPORT OF: <input type="checkbox"/> FINAL PLUG AND ABANDONMENT (SUBMIT 3RD PARTY CEMENT VERIFICATION AND JOB LOG) <input type="checkbox"/> ABANDONED LOCATION (WELL NEVER DRILLED. SITE MUST BE RESTORED WITHIN 6 MONTHS) <input type="checkbox"/> REPAIRED WELL <input type="checkbox"/> OTHER _____ <small>*Use Form 5 - Well Completion or Recompletion Report and Log for subsequent reports of Multiple/Commingle Completions and Recompletions</small>	13C. NOTIFICATION OF: <input type="checkbox"/> SHUT-IN, TEMPORARILY ABANDONED (DATE _____) (REQUIRED EVERY 6 MONTHS) <input type="checkbox"/> PRODUCTION RESUMED (DATE _____) <input type="checkbox"/> LOCATION CHANGE (SUBMIT NEW PLAT) <input type="checkbox"/> WELL NAME CHANGE <input checked="" type="checkbox"/> OTHER <u>Pit Inventory</u>
--	---	--

14. DESCRIBE PROPOSED OR COMPLETED OPERATIONS ON THIS FORM (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent)

15. DATE OF WORK \_\_\_\_\_

Pit Inventory Information

Facility Name      Black Hollow Unit Emergency Overflow Produced Water Pits  
 Location            SW $\frac{1}{4}$  Section 31-T8N-R66W  
 Pit Type             Earthen Pits (2) - 50' x 50' x 15' and 65' x 44' x 15'  
 Pit Capacity        893 bbls. and 1,021 bbls.  
 Pits are fenced and netted, but are not lined.

16. I hereby certify that the foregoing is true and correct

SIGNED Roscoe L. Mendenhall TELEPHONE NO. 316/264-8378

NAME (PRINT) Roscoe L. Mendenhall TITLE Petroleum Engineer DATE 11/15/95

(This space for Federal or State office use)

APPROVED \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
CONDITIONS OF APPROVAL, IF ANY:

## ATTACHMENT 9

### 1997 Sensitive Area Determination

**STELBAR OIL CORPORATION, INC.**

**155 NORTH MARKET, SUITE #500  
WICHITA, KANSAS 67202**

Telephone : (316) 264-8378

Fax : (316) 264-0592

June 24, 1997

Colorado Oil and Gas Conservation Commission  
1120 Lincoln Street, Suite #801  
Denver, Colorado 80203

Re: Sensitive Area Determination for Production Pit  
Black Hollow Unit Production Pits  
Black Hollow Unit  
SW/4 Section 31-T8S-R66W

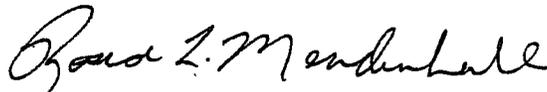
Dear Sir:

In accordance with Rule 904, a review of the groundwater conditions surrounding the above-referenced production pits was performed, and a determination made that the production pits used at the Unit production facilities are not located in a sensitive area. A report outlining the basis for this determination is attached for your reference.

Please contact the undersigned at (316) 264-8378 should you have any questions.

Sincerely,

STELBAR OIL CORPORATION, INC.



Roscoe L. Mendenhall  
Petroleum Engineer

RLM/np

enclosures

# Oil and Gas Conservation Commission

DEPARTMENT OF NATURAL RESOURCES

## SUNDRY NOTICE

This form is to be used for general, technical and environmental sundry information. For used or completed operations, describe in full on Technical Information Page (back of this form).

ET	OE	PR	ES
----	----	----	----

1. OGCC Operator Number: 82470		4. Contact Name & Phone	
2. Name of Operator: Stelbar Oil Corporation, Inc.		Roscoe L. Mendenhall	
3. Address: 155 North Market, Suite #500		No: (316) 264-8378	
City: Wichita	State: KS	Zip: 67202	Fax: (316) 264-0592
5. API Number: 05-		6. OGCC Lease No: 55328	
7. Well Name: Black Hollow Unit Number: Multiple (production pits)			
8. Location (QtrQtr, Sec, Twp, Rng, Meridian): SW/4 Section 31-T8S-R66W			
9. County: Weld		10. Field Name: Black Hollow Field	
11. Federal, Indian or State lease number:			

### Complete the Attachment Checklist

	Oper	OGCC
Survey Plat		
Directional Survey		
Surface Equipment Diagram		
Technical Information Page	X	
Other	X	

### 12. General Notice

Change well name from \_\_\_\_\_ to \_\_\_\_\_ Effective Date: \_\_\_\_\_

Change of location from \_\_\_\_\_ Attach new survey plat to \_\_\_\_\_

Abandoned Location. Is site ready for inspection?  Yes  No Effective Date: \_\_\_\_\_  
Was location ever built?  Yes  No Permit No: \_\_\_\_\_

Well first shut in or temporarily abandoned \_\_\_\_\_  Notice of continued shut-in status.  
Has production equipment been removed from site?  Yes  No  
MIT required if shut in longer than two years. Date of last MIT: \_\_\_\_\_

Well resumed production on \_\_\_\_\_

Request for Confidential Status (6 months).

Final reclamation will commence approximately on \_\_\_\_\_

Final reclamation is completed and site is ready for inspection. Attach technical page describing final reclamation procedures per Rule 1000c.4.

Change of Operator (prior to drilling). Effective Date: \_\_\_\_\_ Plugging bond:  Blanket  Individual

Spud Date \_\_\_\_\_

### 13. Technical Engineering/Environmental Notice

Notice of Intent Approximate Start Date: \_\_\_\_\_  Report of Work Done Date Work Completed: \_\_\_\_\_

Details of work must be described in full on Technical Information Page (Page 2 must be submitted).

<input type="checkbox"/> Commingle Zones <input type="checkbox"/> Intent to Recomplete (Submit Form 2) <input type="checkbox"/> Change Drilling Plans <input type="checkbox"/> Reservoir Stimulation <input type="checkbox"/> Perforating/Perfs Added Gross Interval Changed? <input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Request to Vent or Flare <input type="checkbox"/> Repair Well <input type="checkbox"/> Convert Well to Injection (In an Approved Secondary Project) <input type="checkbox"/> Additional Source Leases for Water Disposal Well <input checked="" type="checkbox"/> Other: Sensitive Area Determination	<input type="checkbox"/> E&P Waste Disposal <input type="checkbox"/> Beneficial Reuse of E&P Waste <input type="checkbox"/> New Pit <input type="checkbox"/> Landfarming <input type="checkbox"/> Status Update/Change of Remediation Plans for Spills and Releases
---	--	---

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

Print Name Roscoe Mendenhall

Signed Roscoe Mendenhall Title: Petroleum Engineer Date: 6-23-97

CC Approved: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

1. Operator Number: 82470	2. API Number: 05-
3. Name of Operator: Stelbar Oil Corporation, Inc.	
4. Well Name: Black Hollow Unit	Number: Multiple (production pits)
5. Location (QtrQtr, Sec, Twp, Rng, Meridian): SW/4 Sec 31-T8S-R66W	

This form is to be completed whenever a Sundry Notice is submitted requiring detailed report of work to be performed or completed. This form shall be transmitted within thirty (30) days of work completed as a "subsequent" report and must accompany Form 4, page 1.

ET	OE	PR	ES
----	----	----	----

6.

### DESCRIBE PROPOSED OR COMPLETED OPERATIONS

#### SENSITIVE AREA DETERMINATION

##### Pit Information:

Facility Name - Black Hollow Emergency Overflow Production Pits  
 Location - SW/4 Section 31-T8N-R66W  
 Pit Type - Earthen pits (2) 40'x80'x15' & 38'x45'x15'  
 Pit Capacity - 3000 bbls & 4500 bbls

Pits are fenced and netted.

##### Conclusion:

Pits are not located in sensitive area based on attached study.

**JOSEPH D. STEWART, P.E.**  
**Petroleum Consultant**  
**1019 8th St. Suite 304**  
**Golden, Colorado 80401**  
**(303)271-9663**

May 7, 1997

Roscoe L. Mendenhall  
Petroleum Engineer  
Stelbar Oil Corporation, Inc.  
155 N. Market Suite 500  
Wichita, Kansas 67202

Re: Overflow Pits  
Black Hollow Field  
Section 31 - T8N - R66W  
Weld County, Colorado

Dear Roscoe:

On Friday, May 2, 1997, the overflow pits located at the battery for the Black Hollow Field were inspected. The purpose of the inspection was to determine whether or not the pits are located in a sensitive area and consequently whether or not pit linings would be required.

My conclusion is that the pits are not located in a sensitive area and that the existing unlined pits are authorized by the rules of the Colorado Oil & Gas Conservation Commission. A discussion of the facts leading to this conclusion follows.

Background

The two pits are located at approximately 1700' FSL and 2100' FWL of Section 31 - T8N - R66W on the top of a hill with the tank battery for Black Hollow Waterflood Unit. The pits serve as overflow pits for produced water that is to be reinjected into the reservoir. Overflow from the produced water tank can occur if the injection facilities go down.

The pits are not lined, but Larry Blandin, Stelbar's employee in the field, suggested that they were lined with clay at the time of construction. There did not appear to be any seepage from either pit. Only the western pit had water in it. The capacity of the eastern pit is approximately 3000 bbls and the capacity of the western pit is approximately 4500 bbls. The netting in place over both pits appears to be in good shape.

The nearest water well is located in the NW/4 NW/4 of Section 7 - T7N - R66W, over 2000 ft to the south of the pits, on the Vernon Baiamonte property. The depth of that well as recorded in the State Engineer's Office, is 17 ft. Fluid level was measured at 10 ft. The source of the water for that is the alluvium, presumably along Coal Bank Creek.

According to the records in the State Engineer's Office, there are no water wells in Section 31. No principal aquifers, other than alluvial aquifers, exist in this portion of Weld County (see U.S.G.S. Hydrologic Investigations Atlas 730-C dated 1995). Soil types in the Section 31 are alluvial in nature (see SCS Soil Survey). The pit location does not appear to be underlain by the alluvial aquifer due to its location on top of the hill approximately 90 ft above Coal Bank Creek.

Decision Tree Analysis for Sensitive Area Identification

The decision tree provided by the COGCC should be used to determine whether an area is sensitive. Answers to the decisions points for this location are as follows:

Box 1: The discharge water is  $>1.25$  x background ppm TDS and  $>250$  ppm Chloride or background.

Box 2: The location is not underlain by an unconfined aquifer or recharge zone. Therefore the existing pit unlined pit is allowed and only needs to be identified on a Sundry Notice.

Even though the other parts of the decision tree do not apply, answers can be provided to the other boxes:

Box 3: The hydraulic conductivity of the underlying soils and geologic material is  $>10^{-6}$  cm/sec.

Box 4: The existing pits are not located within and area classified for domestic water use by WQCC.

Box 5: The pits are not located within 1/8 mile of a domestic water well.

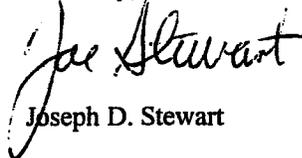
Box 6: From the pit bottoms, the distance to the average high groundwater table (using the water level from the nearest water well) is  $>20$  ft.

For your use I have attached a sketch of the pit location, a copy of the topographic map for Section 31, a copy of the soil map for Section 31, a summary of the information for the soils and a copy of the Decision Tree.

A source for pit liners, should you need any in the future is Mid West Canvas Corp in Denver. You can contact John Terry at (303)750-5450.

Thank you for the opportunity to assist you in this project. If I can be of further assistance, please let me know.

Sincerely,

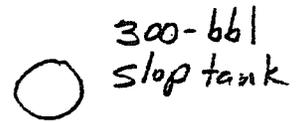
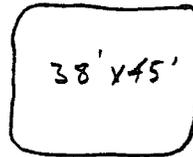
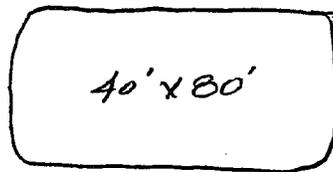


Joseph D. Stewart

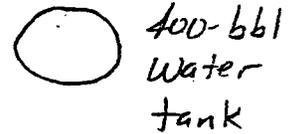
Stelbar  
Black Hollow Field  
Overflow Pits



Creek Bed



300-bbl  
slop tank

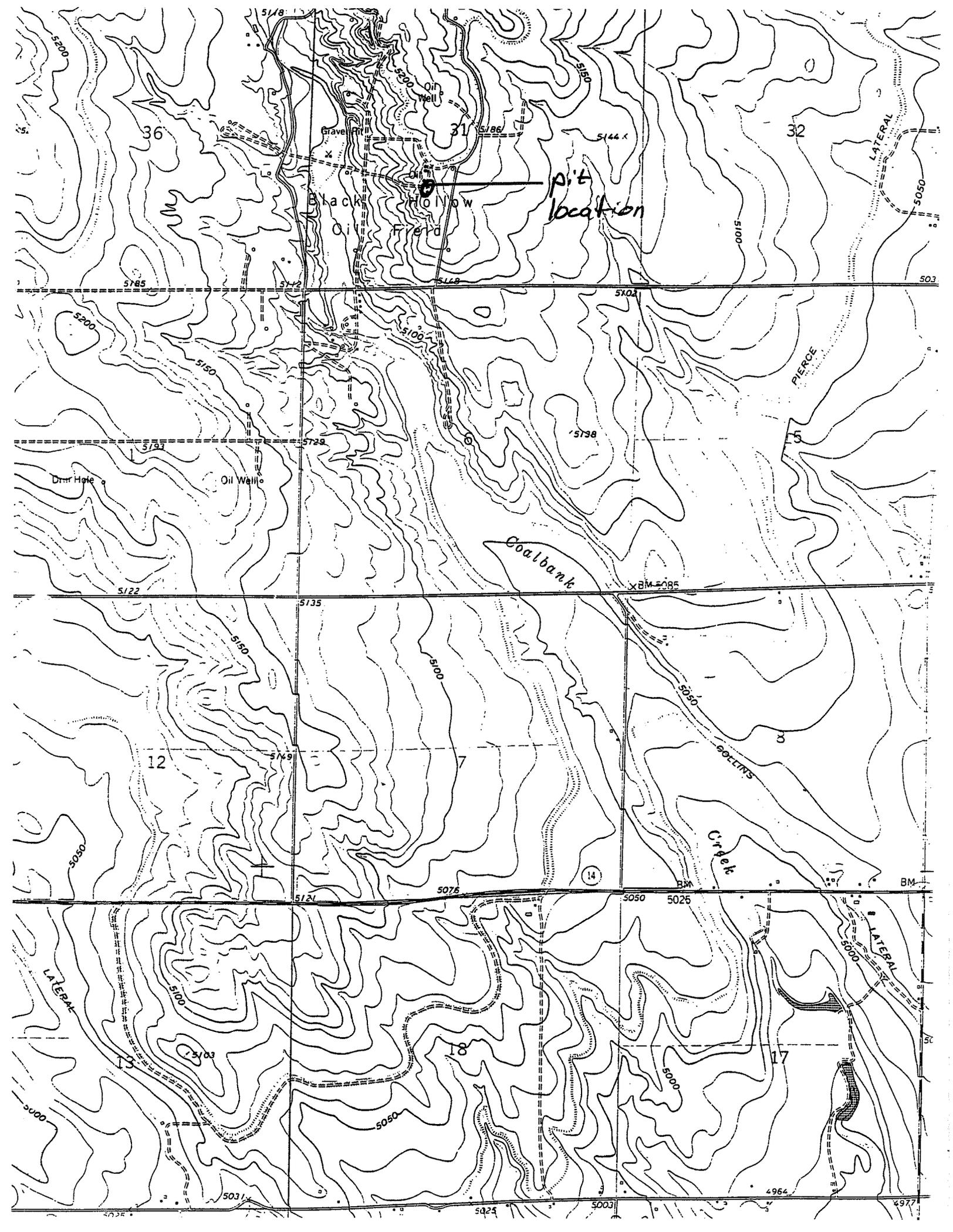


400-bbl  
Water  
tank



nearest water well

not to scale  
JDS 5/2/97



*pit location*

*Black Oil Field*

*Coalbank*

*Creek*

36

31

32

12

18

17

Drill Hole

Oil Well

Grave

Oil Well

Black Oil Road

LATERAL

PIERCE

LATERAL

5185

5172

5186

5144

503

5122

5135

5103

BM 5085

5149

5121

5076

BM

BM

5050

5026

5103

5050

5000

5000

5031

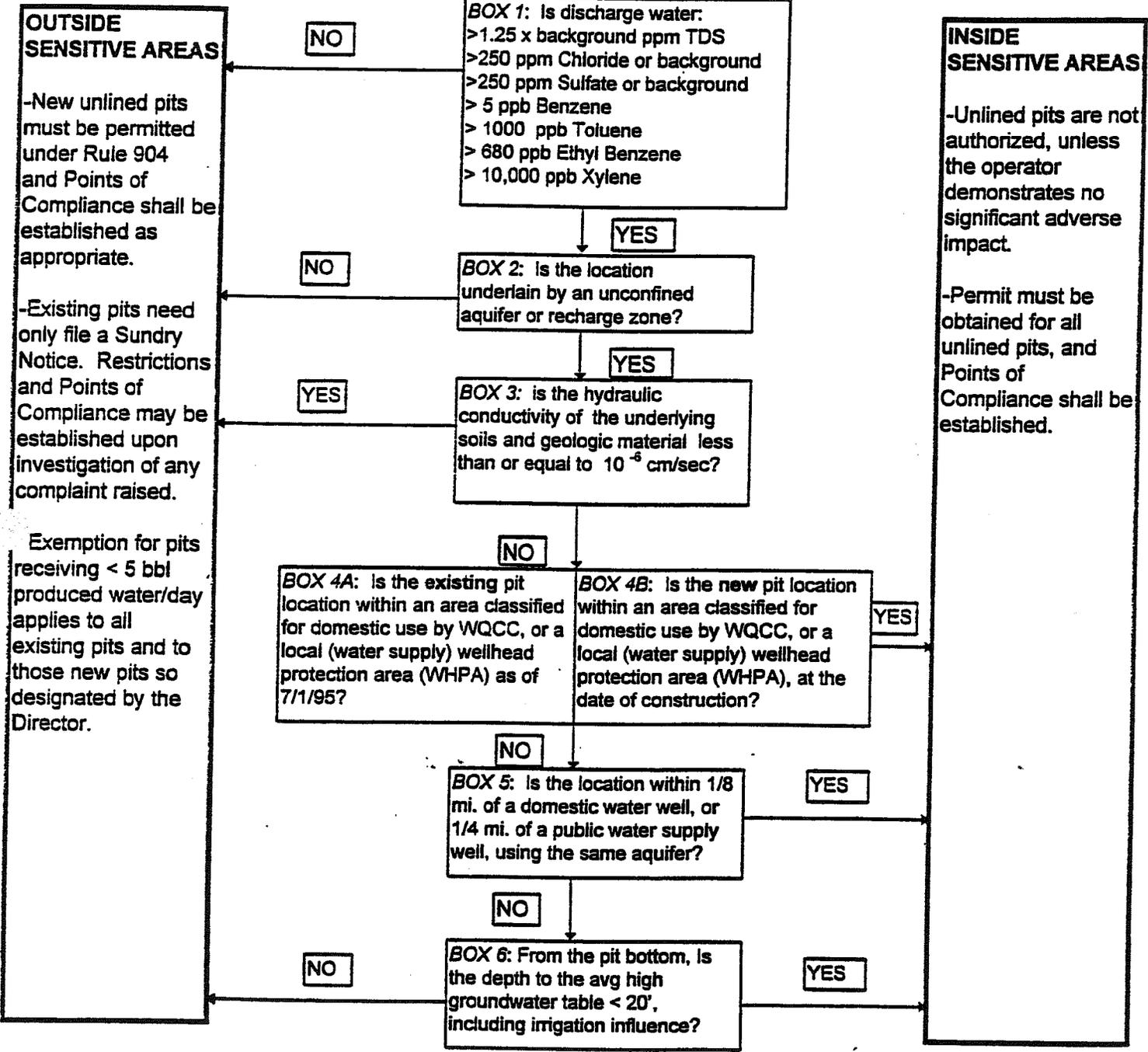
5024

5003

4964

4977

**SENSITIVE AREA IDENTIFICATION  
Decision Tree**



**OUTSIDE SENSITIVE AREAS**

-New unlined pits must be permitted under Rule 904 and Points of Compliance shall be established as appropriate.

-Existing pits need only file a Sundry Notice. Restrictions and Points of Compliance may be established upon investigation of any complaint raised.

Exemption for pits receiving < 5 bbl produced water/day applies to all existing pits and to those new pits so designated by the Director.

**INSIDE SENSITIVE AREAS**

-Unlined pits are not authorized, unless the operator demonstrates no significant adverse impact.

-Permit must be obtained for all unlined pits, and Points of Compliance shall be established.

**ATTACHMENT 10**

**2011 Pit Closure Correspondence**

## Roscoe Mendenhall

---

**From:** Axelson - DNR, John <john.axelson@state.co.us>  
**Sent:** Thursday, November 13, 2014 3:10 PM  
**To:** Roscoe Mendenhall  
**Subject:** Black Hollow Pits

Roscoe,

Just a follow up to our earlier conversation. Both pit facilities that Stelbar had (#s 112086 & 112087) were changed to closed status in COGIS. The related remediation projects were previously changed to closed status with notations that no further action was required (refer to remediation #s 6027 & 7456).

Also, because no pits currently exist at the location and the Chevron pits were previously closed, I changed all of those pit facilities to closed status. There aren't any pit facilities remaining at the location with an active status. COGCC does not require any additional documentation from Stelbar regarding pit closure status.

Hope this helps.

John

John E. Axelson, P.G.  
East Environmental Supervisor

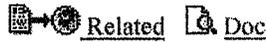


**COLORADO**  
Oil & Gas Conservation  
Commission  
Department of Natural Resources

P 303.894.2100 x5115 | F 303.894.2109 | C 303-916-0527  
1120 Lincoln Street, Suite 801, Denver, CO 80203  
[john.axelson@state.co.us](mailto:john.axelson@state.co.us) | [www.colorado.gov/cogcc](http://www.colorado.gov/cogcc)

**COGIS - Remediation Reports**

**Form 27/27A**



**Date Submitted:** 8/19/2011  
**Date Rec'd:** 8/19/2011  
**DocNum:** 1761281  
**Document Type:**

**Assigned by:** John Axelson  
**API number:** 05-123-05463  
**Project Number:** 6027

**Operator Information:**

**Operator:** STELBAR OIL CORP INC  
**Oper. No.** 82470  
**Address:** 1625 N WATERFRONT PKWY #200  
 WICHITA , KS 67206-6602  
**Type of Facility:** WELL  
**Fac. Name** UPRR  
**County Name:** WELD  
**Operator contact:** ROSCOE MENDENHALL  
**qtrqtr:** NESW **section:** 31 **township:** 8N **range:** 66W **meridian:** 6

**Remediation Details:**

**Impacted Media**

Media	Impacted	Extent	How Determined?
SOILS	Y	SOIL CONTAMINATED TO DEPTH OF ~14'	OBSERVED DURING EXCAVATION

**Reason for Report:** OTHER **Cause of Condition:** OTHER **Potential Receptors:** NONE.

**INITIAL ACTION:** ALL FREE FLUIDS REMOVED FROM PIT AND HAULED TO FACILITY. CONTAMINATED SOIL EXCAVATED AND HAUL LAND FILL.

**SOURCE REMOVED:** FLUIDS REMOVED WITH VACUUM TRUCK. SOIL EXCAVA WITH FRONT END LOADER AND HAULED IN DUMP TRUCK

**HOW REMEDIATE:** REMOVED 188 LOADS (1880 YARDS) OF CONTAMINATED ; AND HAULED TO WASTE MANAGEMENT NORTH WELD CO LANDFILL, AULT COLORADO. SUMMARY OF MANIFESTS I ATTACHED.

**MONITORING PLAN:** GROUNDWATER NOT IMPACTED.

**5-RECLAMATION PLAN:** PIT WILL BE FILLED WITH CLEAN SOIL AND ORIGINAL CONTOUR RESTORED. THE LOCATION OF THE PIT IS WITH THE CONFINES OF THE BLACK HOLLOW UNIT PRODUCTIC FACILITY AND WILL NOT BE RESEEDED UNTIL THE FACIL ABANDONED AND ALL OF THE SURFACE RESTORED.

**Conditions of Approval:**

**Correspondence Log:**

**Final Resolution**

<b>Date</b>	<b>Case Closed?</b>	<b>Letter Sent?</b>	<b>COGCC person</b>
9/12/2011	Y		John Axelson

Approximately 1880 cu yds impacted soil was removed and disposed off site at N Weld Landfill in Ault, CO. No groundwater was encountered. Confirmation soil sample verified compliance with Table 910-1. Pit was backfilled with clean material and surface grade restored. No Further Action Required.

Friday, December 19, 2014

## Roscoe Mendenhall

---

**From:** Axelson, John <John.Axelson@state.co.us>  
**Sent:** Monday, August 22, 2011 9:19 AM  
**To:** Roscoe Mendenhall  
**Cc:** Scan, OGCC  
**Subject:** Black Hollow Unit Pit Closure - Form 27 Approval Rem #6027  
**Attachments:** Stelbar Black Hollow Pit Form 27 Approval 8-19-11.pdf

Roscoe,

The Form 27 for the pit closure at the Black Hollow Unit is approved. A signed copy of the form is attached for your records. You can proceed with final closure and surface restoration according to the workplan. The related pit (Facility ID 112086) has been changed to closed status in the Colorado Oil & Gas Information System. Give me a call or send an email when the pit is backfilled and I'll close out the related Remediation #6027. Thank you,

John Axelson, P.G.  
Environmental Protection Specialist, Northeast Region Colorado Oil & Gas Conservation Commission  
Phone: 303-637-7178  
Cell: 303-877-9964  
Fax: 303-637-7179

Cc. Remediation #6027, Document #1761281

-----Original Message-----

**From:** Roscoe Mendenhall [mailto:roscoe@stelbar.com]  
**Sent:** Friday, August 19, 2011 8:20 AM  
**To:** Axelson, John  
**Subject:** Emailing: SKMBT\_C35111081908410

John - Attached is the form 27 and the diagram of the excavated pit. I think I will just mail the copies showing all the manifests because it is quite a few pages. You should have them early next week. If you need anything else or have questions please do not hesitate to call me at 316-440-7605 or email me. Thanks again.

Your message is ready to be sent with the following file or link attachments:

SKMBT\_C35111081908410

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

# Form 27A Site Investigation and Remediation Workplan Progress Report

This form shall be used by COGCC to track progress on Remediation Projects.		COGCC Representative: <b>AXELSON, JOHN</b>  Receive Date: 09/21/2011 Document #: 200321839 Status: <b>APPROVED</b> Project Number: 8027																																									
<b>Operator Information</b> Operator Number: 82470 Name & Address: <b>STELBAR OIL CORP INC</b> 1625 N WATERFRONT PKWY #200 WICHITA, 67206-6602	<b>Contact Name and Telephone</b> Name: <b>ROSCOE MENDENHALL</b> Phone Number: (316)440-7605 Fax Number: (316)264-0592 Email:	Facility_id 238600																																									
<b>Location Information:</b>																																											
Facility ID: 238600 Facility Name-Number: UPRR - 2																																											
QTRQTR: NESW	SEC: 31	TWP: 8N																																									
RNG: 66W	Meridian: 6																																										
OGCC Employee : <u>3002028</u> Tracking Number : <u>1761281</u> Project Name : _____ Title : _____ Author : _____ Report Date : _____ Received Date : <u>08/19/2011</u> Submitted By : _____ Report Type : _____ Summary : _____ Date Site Investigation Began : <u>08/01/2009</u> Remediation Start Date : <u>08/03/2009</u> Date Site Investigation Completed : <u>08/01/2009</u> Anticipated Completion Date : <u>09/30/2011</u> Remediation Plan Submitted Date : <u>08/18/2011</u> Actual Completion Date : _____  Date (Final Resolution) : <u>09/12/2011</u> Details (Final Resolution) : <u>Approximately 1880 cu yds impacted soil was removed and disposed off site at N Weld Landfill in Ault CO. No groundwater was encountered. Confirmation soil sample verified compliance with Table 910-1. Pit was backfilled with clean material and surface grade restored. No Further Action Required.</u> Check When Case Is Closed : <u>Y</u>																																											
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01761281

FORM 27 Rev 6/99

State of Colorado Oil and Gas Conservation Commission

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



RECEIVED AUG 19 2011 COGCC Tracking No: Pit Closure

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): Pit Closure

OGCC Operator Number: 62470 Name of Operator: Stelbar Oil Corporation, Inc. Address: 1625 N. Waterfront Parkway, Suite 200 City: Wichita State: KS Zip: 67206 Contact Name and Telephone: Roscoe Mendenhall No: 316-440-7605 Fax: 316-284-0592 API Number: MA-123-05463 County: Weld Facility Name: Black Hollow Unit Emergency Overflow Pit Facility Number: 112086 Well Name: Multiple UPRR 2 Well Number: Location: (Qtr Qtr, Sec, Twp, Rng, Meridian): NE SW Section 31-T8N-R66W, 06N Latitude: Longitude:

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): crude oil and saltwater 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.): Pasture Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Olney Potential receptors (water wells within 1/4 mi, surface waters, etc.): None Description of Impact (if previously provided, refer to that form or document): Impacted Media (check): Soils Extent of Impact: Soil was contaminated to a depth of approx. 14' How Determined: Observed during excavation.

REMEDIATION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document): All free fluids removed from pit and hauled to SWD facility. Contaminated soil excavated and hauled to land fill. Describe how source is to be removed: Fluids removed with vacuum truck. Soil excavated with front end loader and hauled in dump trucks. 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, in situ bioremediation, burning of oily vegetation, etc.: Removed 188 loads (1880 yards) of contaminated soil and hauled to Waste Management North Weld County Landfill, Ault Colorado. Summary of manifests is attached.

Submit Page 2 with Page 1

FORM  
27  
Rev 6/99

State of Colorado  
Oil and Gas Conservation Commission  
1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
(303)894-2100 Fax:(303)894-2108



Tracking Number: 1761281  
Name of Operator: Stelbac Oil Corp., Inc.  
OGCC Operator No: 82470  
Received Date: 8/19/11  
Well Name & No: UPPR 2  
Facility Name & No: Black Hollow # 112086

Page 2  
**REMEDIATION WORKPLAN (Cont.)**

OGCC Employee: Axelsson

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

Groundwater not impacted.

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.

Pit will be filled with clean soil and original contour restored. The location of the pit is within the confines of the Black Hollow Unit production facility and will not be reseeded until the facility is abandoned and all of the surface restored.

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:

Note - Excavated pit is approximately 110' long, 50' wide, and 14' deep. Schematic is attached.

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

Landtreated at Waste Management North Weld County Landfill.

**IMPLEMENTATION SCHEDULE**

Date Site Investigation Began: 8/1/2009 Date Site Investigation Completed: 8/1/2009 Date Remediation Plan Submitted: 8/19/2011  
Remediation Start Date: 8/1/2009 Anticipated Completion Date: 9/30/2011 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: Roscoe Mendenhall

Signed: Roscoe Mendenhall

Title: Vice President - Operations

Date: 8/19/2011

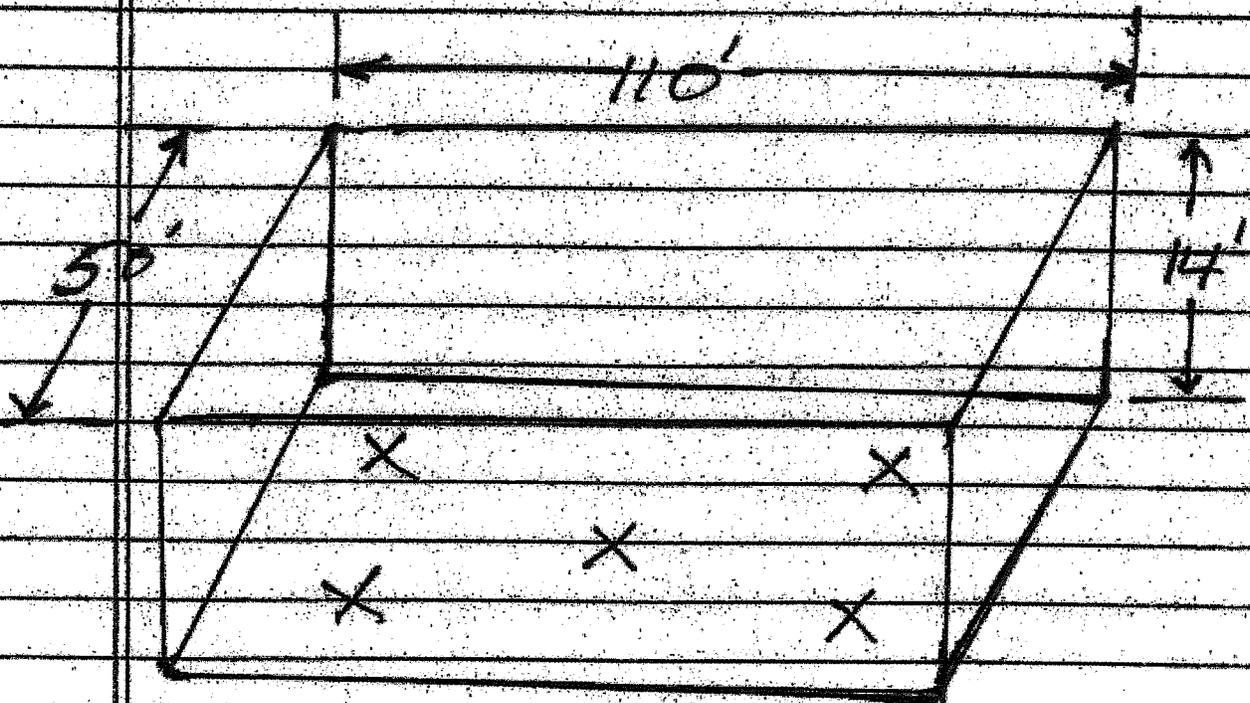
OGCC Approved: [Signature]

Title: EPS

Date: 8/19/11

# Black Hollow Unit

## Excavated Overflow Pit



X - Sample Location

5 samples taken from bottom of pit, combined and sent lab for analysis.

**ATTACHMENT 11**

**2012 Pit Closure Correspondence**

## Roscoe Mendenhall

---

**From:** Axelson - DNR, John <john.axelson@state.co.us>  
**Sent:** Thursday, November 13, 2014 3:10 PM  
**To:** Roscoe Mendenhall  
**Subject:** Black Hollow Pits

Roscoe,

Just a follow up to our earlier conversation. Both pit facilities that Stelbar had (#s 112086 & 112087) were changed to closed status in COGIS. The related remediation projects were previously changed to closed status with notations that no further action was required (refer to remediation #s 6027 & 7456).

Also, because no pits currently exist at the location and the Chevron pits were previously closed, I changed all of those pit facilities to closed status. There aren't any pit facilities remaining at the location with an active status. COGCC does not require any additional documentation from Stelbar regarding pit closure status.

Hope this helps.  
John

John E. Axelson, P.G.  
East Environmental Supervisor



**COLORADO**  
Oil & Gas Conservation  
Commission  
Department of Natural Resources

P 303.894.2100 x5115 | F 303.894.2109 | C 303-916-0527  
1120 Lincoln Street, Suite 801, Denver, CO 80203  
[john.axelson@state.co.us](mailto:john.axelson@state.co.us) | [www.colorado.gov/cogcc](http://www.colorado.gov/cogcc)



State  
of  
Colorado

EnviroScan - DNR <OGCC.EnviroScan@state.co.us>

---

## Black Hollow Unit Pit Closure - Form 27 Approval, Rem #7456

12/17/2012 9:17 AM

---

**Axelson - DNR, John** <john.axelson@state.co.us>  
To: Tyson Dilka <tdilka@stelbar.com>  
Cc: OGCC EnviroScan - DNR <OGCC.EnviroScan@state.co.us>

Mon, Dec 17, 2012 at 9:17 AM

Tyson,

COGCC has approved the Form 27 documenting pit closure activities at the Black Hollow Unit in Weld County. Based on the information provided, no further action is required. The associated Form 27 (remediation #7456) has been changed to closed status. In addition, the pit facility ID #112086 has also been changed to closed status in the Colorado Oil & Gas Information System. A copy of the approved Form 27 is attached for your records.

Thank you for your efforts to properly close this pit and for providing the required documentation.  
Sincerely,

John Axelson, P.G.  
Environmental Protection Specialist, Northeast Region  
Colorado Oil & Gas Conservation Commission

Phone: 303-637-7178  
Fax: 303-637-7179  
Cell: 303-877-9964

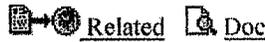
Cc. Remediation #7456, Pit Facility ID #112086 - Closure Correspondence

---

 **Stelbar - Black Hollow Form 27 Approval 12-12-12.pdf**  
2098K

**COGIS - Remediation Reports**

**Form 27/27A**



**Date Submitted:** 12/3/2012  
**Date Rec'd:** 12/12/2012  
**DocNum:** 1761363  
**Document Type:** FORM 27  
**Assigned by:** John Axelson  
**Facility ID:** 112086  
**Project Number:** 7456

**Operator Information:**

**Operator:** STELBAR OIL CORP INC  
**Oper. No.** 82470  
**Address:** 1625 N WATERFRONT PKWY #200  
 WICHITA , KS 67206-6602  
**Type of Facility:**  
**Fac. Name** BLACK HOLLOW UNIT  
**County Name:**  
**Operator contact:** BILL BLAGRAVE  
**qtrqtr:** CSW **section:** 31 **township:** 8N **range:** 66W **meridian:** 6

**Remediation Details:**

**Impacted Media**

Media	Impacted	Extent	How Determined?
SOILS		CONTAMINATED TO A DEPTH OF ~32'	OBSERVED DURING EXCAVATION

**Reason for Report:** OTHER **Cause of Condition:** OTHER **Potential Receptors:** NONE.

**INITIAL ACTION:** ALL FREE FLUIDS REMOVED FROM PIT AND HAULED TO FACILITY. CONTAMINATED SOIL EXCAVATED AND HAUL LAND FILL.

**SOURCE REMOVED:** FLUID REMOVED WITH VAC TRUCK. SOIL WAS EXCAVATED WITH EQUIPMENT AND HAULED IN DUMP TRUCKS.

**HOW REMEDIATE:** REMOVED 701 LOADS (6972 YARDS) OF CONTAMINATED SOIL AND HAULED TO WASTE MANAGEMENT NORTH WELD COUNTY LANDFILL, AULT, COLORADO. SUMMARY OF MANIFESTS ATTACHED.

**MONITORING PLAN:** GROUNDWATER NOT IMPACTED.

**5-RECLAMATION PLAN:** PIT WILL BE FILLED WITH CLEAN SOIL AND ORIGINAL CONTOUR RESTORED. THE LOCATION OF THE PIT IS WITHIN THE CONFINES OF THE BLACK HOLLOW UNIT PRODUCTIVE FACILITY AND WILL NOT BE RESEEDED UNTIL THE FACILITY IS ABANDONED AND ALL OF THE SURFACE RESTORED.

**Conditions of Approval:**

**Correspondence Log:**

**Final Resolution**

Date	Case Closed?	Letter Sent?	COGCC person
12/17/2012	Y		John Axelson

A total of 6,972 cu yds contaminated soil was disposed off site at North Weld Landfill in Ault, CO. Confirmation soil samples verified compliance with Table 910-1. Excavation was backfilled with clean and surface restored. No further action required.

Friday, December 19, 2014



01761363

FORM 27 Rev 6/99

State of Colorado Oil and Gas Conservation Commission

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



RECEIVED DEC 12 2012 COGCC Tracking No: [ ] Spill [ ] Complaint [ ] Inspection [ ] NOAV

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): Pit Closure

OGCC Operator Number: 82470 Name of Operator: Stelbar Oil Corporation, Inc. Address: 1625 N. Waterfront Parkway, Suite 200 City: Wichita State: KS Zip: 67206 Contact Name and Telephone: Bill Blagrave No: 316-440-7611 Fax: 316-264-0592 API Number: 123-05463 County: Weld Facility Name: Black Hollow Unit Overflow Pit Facility Number: 112086 Well Name: UPRR#2 Well Number: Location: (QtrQtr, Sec, Twp, Rng, Meridian): NE SW Section 31-T8N-R66W, 6th Latitude: 40.615954 Longitude: -104.825039

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 [X] N if yes, attach evaluation. Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Pasture Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Oiney Potential receptors (water wells within 1/4 mi, surface waters, etc.): None Description of Impact (if previously provided, refer to that form or document): Impacted Media (check): [X] Soils [ ] Vegetation [ ] Groundwater [ ] Surface Water Extent of Impact: Soil was contaminated to a depth of approx 32' How Determined: Observed during Excavation.

REMEDIALTION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document): All Free fluids removed from pit and hauled to SWD facility. Contaminated soil excavated and hauled to land fill. Describe how source is to be removed: Fluid removed with vac truck. Soil was excavated with Equipment and hauled in dump trucks. 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, in situ bioremediation, burning of oily vegetation, etc.: Removed 701 loads (6972 yds) of contaminated soil and hauled to Waste Management North Weld County Landfill, Ault Colorado. Summary of manifests is attached.

Submit Page 2 with Page 1



Tracking Number: 1761363 Name of Operator: Stelker Oil Corp. OGCC Operator No: 82470 Received Date: 12/12/12 Well Name & No: UPRR #2 Facility Name & No: Pit Fac ID # 112086

REMEDIATION WORKPLAN (Cont.)

OGCC Employee: John Axelsson

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

Groundwater not impacted

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.

pit will be filled with clean soil and original contour restored. The location of the pit is within the confines of the Black Hollow Unit production facility and will not be reseeded until the facility is abandoned and all of the surface restored.

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 [x] N If yes, describe:

Note Excavated pit is APP. 75' wide 75' long and 32' deep

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

Land treated at Waste Management North County Landfill.

IMPLEMENTATION SCHEDULE

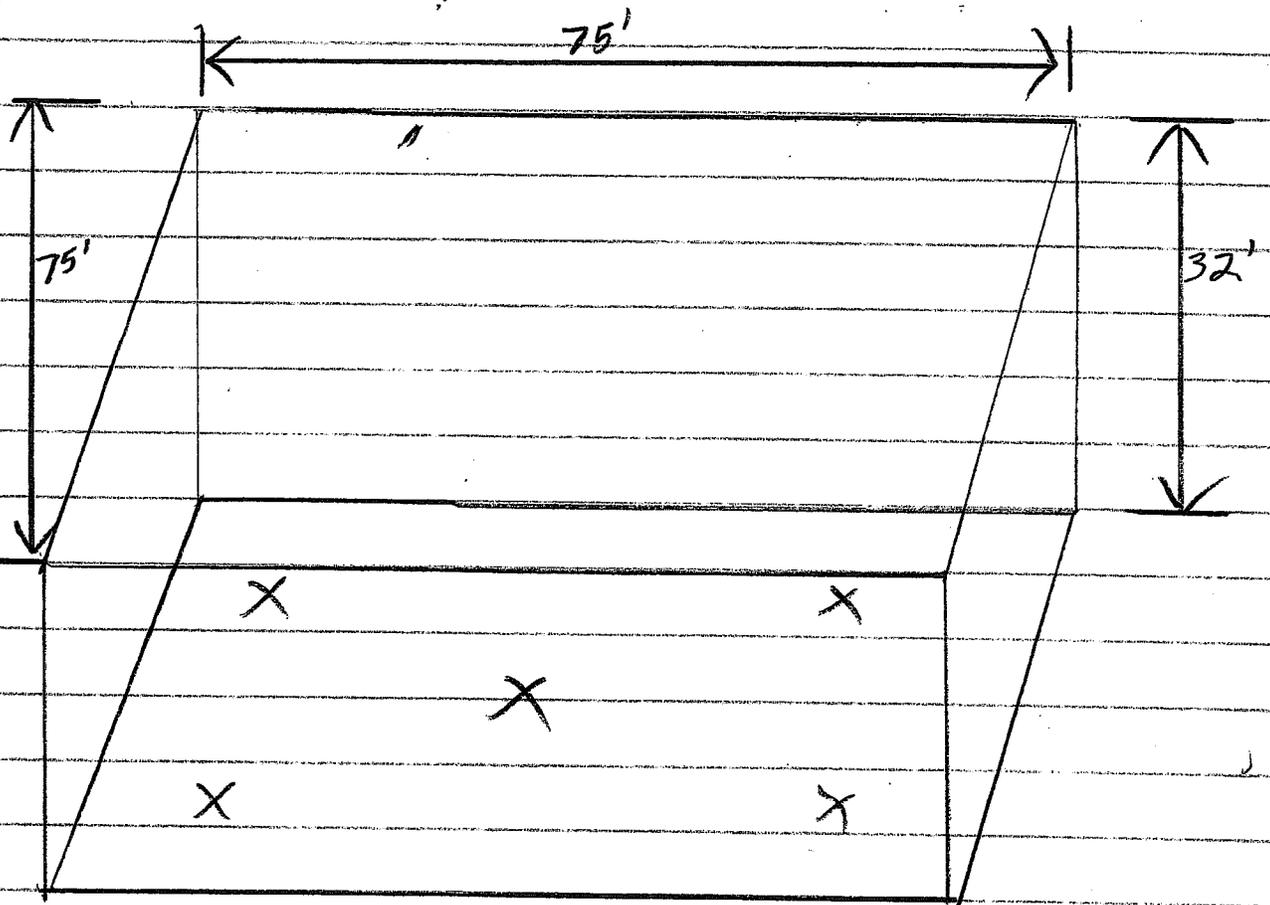
Table with 3 columns: Date Site Investigation Began, Date Site Investigation Completed, Date Remediation Plan Submitted, Remediation Start Date, Anticipated Completion Date, Actual Completion Date.

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

Print Name: Tyson Dilka Signed: [Signature] Title: Production superintendent CO/ KS Date: 12/3/2012

OGCC Approved: [Signature] Title: EPS Date: 12/12/2012

Black Hollow Unit  
Excavated Overflow Pit



X - Sample Location

5 - samples taken from Bottom of Pit  
Combined and sent to lab (ALS) for  
analysis.

**ATTACHMENT 12**

**1984 Spill Correspondence**

May 29, 1984

Colorado Oil & Gas Conservation Commission  
1313 Sherman Street, Room 721  
Denver, CO 80203

*attn: Mrs. Wm. Smith*

Gentlemen:

The attached spill report will confirm our recent telephone report to your office of a spill of 200 barrels of crude oil from a pipeline at Central Battery located in Black Hollow Field, Weld County, Colorado on May 24, 1984, at 7:00 a.m.

One hundred and fifty barrels of crude oil were recovered. No spilled material reached any navigable stream bed or tributary.

Very truly yours,

*for M. J. Luetman*  
R. H. ELLIOTT

MLS:js  
Attachment

cc: Mr. G. M. Emerick  
Ms. E. D. Corder

bcc: Mr. R. H. Elliott  
Mr. R. B. Eckerdt  
Mr. D. C. Olree, Sr. - Pierce  
Mr. J. D. Bechtold  
Mr. A. T. Long  
Office File #314

SPILL REPORT TO REGULATORY AGENCIES  
CHEVRON U.S.A. INC., CENTRAL REGION  
P.O. BOX 599  
DENVER, CO 80201

Field/Facility: Oil line from Black Hollow Central Battery in Black Hollow Field

Location: Township 8-N Range 66-W Section 31 QTR/QTR NESW

County: Weld

State: Colorado

Date of Spill/Time: May 24, 1984 at 7:00 AM

Fluid Spilled: Oil 200 Bbls, Water 0 Bbls, Other 0 Bbls

Fluid Recovered: Oil 150 Bbls, Water 0 Bbls, Other 0 Bbls

Agencies Notified/Date/Time: Telephoned by D. C. Olree, Sr:

- Colo. Dept. of Health, Water Q. Control (Chris Sutton) May 25, 1984 10:35 AM.
- EPA, Region VIII, Denver (Steve Szabo) May 25, 1984 10:30 AM
- Colo. Oil & Gas Conserv. Comm. (Bill Smith) May 25, 1984 10:40 AM

How spill occurred: A 3 inch victaulic coupling on steel pipeline failed and allowed 200 barrels of crude oil to spill and come to the surface--- all contained within the fire wall dikes of said Central Battery. No spilled material reached any navigable stream bed or tributary.

Control and cleanup methods used:

- Shut off the flow.
- Vacuumed up 150 barrels of crude oil and returned it to production tank.

Estimated damage:

No land damage.

Clean up cost estimated at \$800.00

Action taken to prevent recurrence:

Replaced defective coupling with another one.

Who to contact for further information:

Mr. D. C. Olree Sr  
Assistant Production Foreman  
Chevron U.S.A. Inc.  
PO Box 368  
Pierce, CO 80650  
(303) 834-2812

May 25, 1984  
Date Report Prepared

**ATTACHMENT 13**

**1989 Spill Correspondence**

SPILL REPORT TO REGULATORY AGENCIES  
NORTHERN REGION PRODUCTION

FIELD/FACILITY: Pierce Battery  
LOCATION: SECTION 22 TOWNSHIP 18N RANGE 66W QTR/QTR SE/SE  
COUNTY: Weld  
DATE/TIME OF DISCHARGE: 6-12-89 Early Morning ± 4:00 am  
AMOUNT SPILLED: OIL ± 650 BBLs, WATER \_\_\_\_\_ BBLs, OTHER \_\_\_\_\_  
AMOUNT RECOVERED: OIL 1000 BBLs, WATER \_\_\_\_\_ BBLs, OTHER \_\_\_\_\_  
TIME TO CONTROL DISCHARGE: 1 HRS.  
RECEIVING SURFACE: AIR \_\_\_\_\_ LAND \_\_\_\_\_ WATER X

HOW DISCHARGE OCCURRED:

ORPH's Gas operated dump valve plugged sending total amount of production to water tank which could not contain amount of fluid, contained on location.

CONTROL/CLEANUP METHODS USED:

Switched out of venters and found problem. Sucked up oil from puddles and pit and put in production tanks to be recycled and sale.

ESTIMATED DAMAGE \$ 0 ESTIMATED CLEAN-UP COST \$ 1500.00

ACTION TAKEN TO PREVENT RECURRENCE:

Implement regular maintenance on gas operated dump valves OR will install different type of system.

AGENCIES NOTIFIED/DATE/TIME:

{ \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

CONTACT: \_\_\_\_\_

DATE: \_\_\_\_\_

Oil-Water Spill/Complaint Inspection Form

Location NESE 22-8N-66W

Field Pierce

Operator Chevron USA

County Weld

Well Name Pierce Unit Battery

API # \_\_\_\_\_

Person calling/sending in complaint: Chevron

Date of occurrence: June 12, 1989

Date of complaint: \_\_\_\_\_

Phone# : \_\_\_\_\_

Follow up by phone: Date 7/12/89  
Contact None

Follow up by field visit: Date 7/12/89  
Contact None Bob Pideock

Type of fluid spill/overflow: \_\_\_\_\_

Estimated volume of fluid: \_\_\_\_\_

Area effected: \_\_\_\_\_

Did spill/overflow reach waters of the state? Yes \_\_\_ No \_\_\_

Remedial action: Sundry notice required - Yes \_\_\_ No \_\_\_

(Rule 329) How was spill/overflow cleaned up?

Comments: Emergency # on location 834-2812 or 330-9023

930-3000 Davies  
Emalie ~~Adams~~

\* Will berm be built?  
~25 yds oily dirt on location

Dean Forsgren

\* remove concrete pad on UPRR - Ferch #1

12-15-89 Berm in place around  
water surge tank - Injection station

Obey - no berm around the treater & FWKD.  
berm around tanks does not appear  
adequate to contain Is-gest tank if jet  
spilled. Some H<sub>2</sub>S evident, muckrock  
needs replacement. Is fenced area a  
closed up pit? Yes per Dean Forsgren



NEW WELL

LEASE INSPECTION FORM

DATE 12-15-89 OPERATOR CHEVRON USA FIELD PIERCE  
 COUNTY WELD LEASE PIERCE UNIT BTRY LOCATION NE SE 22-8N-66W  
 WELLS & STATUS N/A  
 CLASS 3- \_\_\_\_\_ LEASE SIGN:  YES  NO TANK ID:  YES  NO  NA

TYPE OF OBSERVED WATER DISPOSAL:  
 EVAP. PITS  TANKS/TRUCKED  INJECTED\*  NOT DETERMINED  NA  
 ESTIMATED WATER PRODUCTION \_\_\_\_\_

BRADENHEAD PRESSURE \_\_\_\_\_ FLUID: NO  YES  TYPE \_\_\_\_\_

STOCK TANKS \_\_\_\_\_

EQUIPMENT \_\_\_\_\_

SKIM TANK/PIT \_\_\_\_\_

PITS closed up.

CONDITION OF LEASE Follow-up to spill reported 6-12-89. No visible evidences of any spill. Tanks enclosed by berm.

RECOMMENDED ACTION NONE.

PIT PERMIT  YES  NO, LINER REQUIRED  YES  NO, TDS \_\_\_\_\_ ppm  
 REPORTED WATER PRODUCTION \_\_\_\_\_ BBLs/DAY LEASE NUMBER \_\_\_\_\_  
 \*INJECTION FACILITY: NAME \_\_\_\_\_ LOCATION \_\_\_\_\_

NOTICE SENT  YES  NO DATE SENT \_\_\_\_\_ INSPECTOR R. VanSickle

**ATTACHMENT 14**

**1998 Spill Correspondence**



PRINT PAGE

HELP

### COGIS - Spill Reports

- CONTACTS
- DATABASE
- FORMS
- GENERAL
- HEARINGS
- IMAGES
- KIDS' PAGE
- LIBRARY
- LOCAL GOV
- MAPS
- MISSION
- NEWS/MEDIA
- ORDERS
- PERMITS
- POLICIES
- RULES
- STAFF RPT

#### Form 19/19A

Doc

Date Rec'd: 1/23/1998

Report taken by: LOREN AVIS

DocNum: 785839

API number: 05-123-05463

Facility ID: 238600

#### Operator Information

Operator: STELBAR OIL CORP INC (Wichita, KS) Oper. No. 82470

Address: 155 NORTH MARKET SUITE 500 WICHITA , KS 67202-

Phone: ( )

Fax: ( )

Operator Contact:

#### Description of Spill:

Date of Incident: 1/23/1998

Type of Facility:

Well Name/No. BLACK HOLLOW UNIT-UPRR 2 Fac. Name/No.

County Name: WELD

qtrqtr: NESW section: 31 township: 8N range: 66W meridian: 6

#### Volumes spilled and recovered (bbls)

Oil spilled: 330

Recvrd: 110

Water spilled:

Recvrd:

Other spilled:

Recved:

GW Impact?

Surface water impact?

Contained within berm?

Area and vertical extent of spill: - X -

Current land use:

Weather conditions:

Soil/Geology description

Distance in feet to nearest surface water:

Depth to shallowest GW:

Wetlands:

Buildings:

Livestock:

Water Wells:

Cause of spill:

Flowline

#### Immediate Response:

Emergency Pits:

How extent determined:

Further Remediation

Prevent Problem:

#### Detailed Description:

GROSS 330 BO, NET 220 BO. A FLOWLINE LEAKED AND DRAINED DOWNHILL APPROXIMATELY 300 FT. TO THE NEARBY WELL LOCATION. A VACUUM TRUCK RECOVERED 110 BO, THE CONTAMINATED SOIL WILL BE SPREAD ON THE PRODUCTION FACILITY, FRESH SOIL WILL BE BROUGHT TO REPLACE CONTAMINATED SOIL. THE LINE WILL BE REPAIRED. (Uploaded from tSpill)

#### Field Visit/Follow Up

Name

Phone

Date

No Field Visit data found.

#### Final Resolution

Date  
1/23/1998

Case Closed?  
Y

Letter Sent?

COGCC person  
LOREN AVIS

See Spill Description



State of  
Oil and Gas Conserve



99999999

DEPARTMENT OF NATURAL RESOURCES

**SPILL/RELEASE REPORT**

(785839)

FOR COGCC USE ONLY

**C** 785839

RECEIVED

JAN 26 1998

COGCC

Spill report taken by:

This form is to be submitted by the party responsible for the oil and gas spill or release and mail to: COGCC, 1120 Lincoln, Ste 801, Denver, CO, 80203 or fax to (303) 894-2109. Any spill or release which may impact waters of the state must be reported as soon as practicable, any spill over 20 bbls must be reported within 24 hours and all spills over 5 bbls must be reported within 10 days. Submit a remediation plan.

**OPERATOR INFORMATION**

Name of Operator: <b>Stelbar Oil Corporation, Inc.</b>	Phone Numbers:
Address: <b>155 North Market, Suite #500</b>	No: <b>316 / 264-8378</b>
City: <b>Wichita</b> State: <b>Kansas</b> Zip: <b>67202</b>	Fax: <b>316 / 264-0592</b>
Contact Person: <b>Roscoe L. Mendenhall, Petroleum Engineer</b>	E-mail:

**DESCRIPTION OF SPILL OR RELEASE**

Date of incident: <b>01/23/98</b>	Location
Type of facility (well, tank battery, flow line, pit): <b>Flow line to Stock Tank.</b>	County: <b>Weld</b>
Well Name and Number: <b>Black Hollow Unit</b>	Field Name: <b>Black Hollow Unit 2</b>
API Number: <b>05- Multiple 123 05 463</b>	Qtr Qtr: <b>NE/4 SW/4</b> Section: <b>31</b>
Material spilled (oil, water, chemicals, etc.): <b>Oil</b>	Township: <b>8N</b> Range: <b>66W</b> Meridian:
Volume spilled: <b>330 BBLs.</b> Volume recovered: <b>110 BBLs.</b> Groundwater impacted: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Contained within berm? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Area and vertical extent of spill: <b>300' x 10' Area &amp; 1 ft. deep.</b>
Current land use: <b>Not cultivated at this time.</b>	Weather conditions: <b>Sunny and cold.</b>
Soil/geology description: <b>Alluvial</b>	
Distance to nearest..... surface water: <b>1/2 Mile</b> wetlands: <b>N/A</b> Depth to shallowest groundwater: <b>100 ft.</b>	
Distance to nearest..... buildings: <b>1/2 Mile</b> livestock: <b>1/4 Mile</b> water wells: <b>2,000 ft.</b>	
Provide a detailed description of the spill/release incident, including cause (equipment failure, human error, etc.):	
An oil flowline between the heater treater and the 400 bbl. stock tank developed a leak. The stock tank contained 360 bbls. of oil, of which 330 bbls. leaked out and drained downhill approximately 300 ft. to a nearby well location. A dike at the location prevented the oil from flowing further. The oil tank was shut-in immediately upon discovery of the leak.	

**CORRECTIVE ACTION**

Describe immediate response (how stopped, contained and recovered).

The oil tank was shut-in and a vacuum truck used to recover all the free oil (110 bbls.). The contaminated soil will be excavated and spread out at the production facilities and wellsites for remediation. Fresh soil will be used to replace the contaminated soil.

How was the extent of contamination determined:

Visual Inspection.

Describe measures taken to prevent problem from reoccurring.

Repair the leak and inspect remainder of line. Repair or replace line as necessary.



**OTHER NOTIFICATIONS**

List the parties and agencies notified (County, BLM, EPA, DOT, Local Emergency Planning Coordinator or other).

Date	Agency	Contact Person	Response



785839

FOR OGCC USE ONLY

# State of Colorado Oil and Gas Conservation Commission DEPARTMENT OF NATURAL RESOURCES

## SPILL/RELEASE REPORT

This form is to be submitted by the party responsible for the oil and gas spill or release and mail to: COGCC, 1120 Lincoln, Ste 801, Denver, CO, 80203 or fax to (303) 894-2109. Any spill or release which may impact waters of the State must be reported as soon as practicable, any spill over 20 bbls must be reported within 24 hours and all spills over 5 bbls must be reported within 10 days. Submit a remediation plan.

Spill report taken by:

PKR 1/23/98

### OPERATOR INFORMATION

Name of Operator: <del>Roscoe Mendenhall</del> Stellar	Phone Numbers:
Address:	No: 316-264-8378
City: State: Zip:	Fax:
Contact Person: Roscoe Mendenhall	E-mail:

### DESCRIPTION OF SPILL OR RELEASE

Date of Incident: 1/23/98 only mono T <sub>2</sub>	Location
Type of facility (well, tank battery, flow line, pit): Black Hollow Unit	County: WELD
Well Name and Number: 1	Field Name:
API Number: 05-	Qtr Qtr: NESW Section: 31
Material spilled (oil, water, chemicals, etc.):	Township: 8N Range: 06W Meridian:
Volume spilled: 330 bbl	Volume recovered: unknown at this time
Groundwater impacted: <input type="checkbox"/> Yes <input type="checkbox"/> No	
Contained within berm? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Area and vertical extent of spill: Ran across farm land wheat area ~ 300'
Current land use:	Weather conditions: from nr battery to closest well
Soil/geology description:	
Distance to nearest..... surface water:	wetlands:
Distance to nearest..... buildings:	livestock:
	water wells:
Depth to shallowest groundwater: Top of hill, 100'	
Provide a detailed description of the spill/release incident, including cause (equipment failure, human error, etc.):	
oil line btwn treater & tk - leaked, -- old line ← in line of course	

### CORRECTIVE ACTION

Describe immediate response (how stopped, contained and recovered):  
shut in well, vac truck out to recover fluids,

How was the extent of contamination determined:  
plan to excavate contam soils / land from and it

Further remediation activities proposed (attach separate sheet if needed):

Describe measures taken to prevent problem from reoccurring:

### OTHER NOTIFICATIONS

List the parties and agencies notified (County, BLM, EPA, DOT, Local Emergency Planning Coordinator or other).

Date	Agency	Contact Person	Response

## **ATTACHMENT 15**

### **Regulatory Chronology for Pit Operation and Closure**

## **Regulatory Chronology for Pit Operation and Closure**

Attached is a draft chart summarizing the evolution of the Colorado Oil and Gas Commission rules concerning pit operation and closure from 1952, when the first rules were enacted, until 2008, when the current rules were adopted. Below is a general timeline of the most significant changes:

- 1952: Beginning in 1952, the rules prohibit the storage of oil in earthen reservoirs.
- 1971: Permits are required for new and existing retaining pits, and operators must construct pits to prevent seepage. However, the Commission does not adopt construction or closure standards for pits.
- 1984: Construction standards are adopted, and submissions to the Commission become more detailed, e.g., requiring chemical analysis. But there are still no closure requirements.
- 1986: Pit closure regulations are adopted, but only require backfilling and debris removal. There are no groundwater or soil standards for closure.
- 1993: Extensive new rules are adopted for managing E&P waste. Production pits must be lined under certain conditions. However, pit closure requirements still focus on surface conditions.
- 1995: Sensitive Area Determinations are required to delineate whether new and existing pits must be lined. An inventory is required for existing unlined pits. Pits closed by July 1, 1997 need only comply with surface reclamation standards, while pits closed after that date must also comply with new waste management requirements.
- 1998: Pit closure requirements become more robust and mandate remediation of soil and groundwater where certain substances exceed minimum allowable concentrations set forth in Table 910. Notice to and approval by the Commission become stricter and more robust.
- 2008: Groundwater and soil concentrations in Table 910 become stricter.

Colorado Historical Regulations: Pit Operation and Closure (1952-2008)

OGCC Rules - 1952, 1956, 1964		Relevant Rule Language	Notable Changes to Rule
334. Open Pit Storage of Oil		The owner shall not, except during an emergency or except by special permission of the Director, permit oil to be temporarily stored or retained in earthen reservoirs or in any other receptacle in which there may be undue waste of oil.	Not permitted to store oil in earthen reservoirs.
OGCC Rules - 1970		Relevant Rule Language	Notable Changes to Rule
324. Open Pit Storage of Oil		Rule unchanged; see above (1952)	
OGCC Rules - 1971		Relevant Rule Language	Notable Changes to Rule
323. Open Pit Storage of Oil or Hydrocarbon Substances		Storage of oil or other produced liquid hydrocarbon substance in earthen pits shall constitute waste, except in emergencies. The Director can require removal or give special permission to delay removal.	Revised language, but comparable to rule in 1952.
326. Retaining Pits		Retaining pits constructed after August 1, 1971 must have a permit, and submit OGCC Form 15. Operators operating a pit after August 1, 1971 may continue operating, but must obtain a permit by November 1, 1971. The Commission may require changes to the owner's plans such as lining or water proofing of pits.	Pit permits required for new and existing retaining pits, but no construction rules are adopted.
Form 15		Retaining pits for produced water must be constructed. Pits are to be constructed so as to prevent seepage where the underlying soil conditions are such as to reach subsurface fresh waters. However, no statewide rules for construction are adopted.  Requires information about the size, capacity, and estimated inflow. Also requires type of sealing material (including specifications and application) and additional information on operation of the pit, chemical analysis of produced water, and necessary maps.	While the possibility of requiring pit lining is cited, there are no construction or operations standards in the rules.  Must submit information concerning pit specifications.

OGCC Rules - 1973, 1978, 1983		Relevant Rule Language	Notable Changes to Rule
315. OGCC Form 15. Application for Permit to Use Earthen Pit		Each producer or operator shall make an application for a permit from the Commission to construct a retaining pit.	Permit created for pit construction; requirements do not include information about groundwater quality.
316. OGCC Form 16. Monthly Affidavit of Condition of Operator's Retaining Pits		On or before the tenth (10) day of every month, each producer or operator shall file with the Commission, an affidavit on Form 16, containing all information required by said form for that operator's retaining pits for the previous calendar month.	Creates an ongoing obligation to submit reports on the condition of retaining pits. This is deleted in 1983.
325. Open Pit Storage of Oil or Hydrocarbon Substances		Rule unchanged, see above (1971)	
328. Retaining Pits (329. in 1983) Form 15.		Previously Rule 326, and mostly unchanged from 1971, but new addition: "Each producer of an oil and gas well shall file with the Commission, on or before the tenth (10th) day of each month, an Affidavit of Condition of Operator's Retaining Pits on OGCC Form 16."  Unchanged; see above (1971)	
Form 16.		Requires affidavit that the retaining pit was operated in accordance with Rule 328.	Must attest to operation in compliance with Rule 328 only.

OGCC Rules - 1984		Relevant Rule Language	Notable Changes to Rule
323. Open Pit Storage of Oil or Hydrocarbon Substances		Rule unchanged, see above (1971)	

<p>325. Disposal of Water Produced with Oil and Gas Operations or Other Oil Field Waste -- Retaining Pits</p>	<p>Requires that retaining pits have proper storage capacity and be "kept free of oil or other liquid hydrocarbon substances to the extent reasonably possible" (must be removed within 10 days of discovery). Retaining pits must be built following statewide construction standards. No closure requirements.</p> <p>Contents of the Rule 315 application must include information such as: a legal description of the pit, construction information, soil information, a chemical analysis of the water stored, explanation of the amount of water received and stored at the facility in a given day.</p>	<p>Pits must be kept free of hydrocarbons and removal provisions are included. Retaining pits must now be built following statewide construction standards. However, there are no closure requirements.</p> <p>Standards for submission to Commission become more detailed.</p>
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OGCC Rules - 1986, 1988	Relevant Rule Language	Notable Changes to Rule
<p>315. OGCC Form 15: Applications for Permits to Store and Dispose of Water Produced in Oil and Gas Operations and other Oil Field Wastes in Earthen Pits</p>	<p>Any person "intending to construct a pit, receptacle or other surface facility for the storage and disposal of water produced in oil and gas operations" must apply for a permit unless facility receives less than 5 barrels per day of produced water or oil field waste.</p>	<p>Deleted (1993)</p>
<p>317. General Drilling Rules</p>	<p>(p) if the well is abandoned, the surface must be reclaimed, all pits filled and all debris removed.</p>	<p>Pit reclamation discussed in terms of filling pit and removing debris.</p>
<p>319. Abandonment</p>	<p>(a)(8) Upon abandonment, all pits shall be backfilled, debris and surface equipment removed, and the location graded as soon as weather and pit conditions permit.</p>	<p>Standards for pit closure focus on backfilling, equipment removal and grading. This is deleted in 1993.</p>
<p>323. Open Pit Storage of Oil or Hydrocarbon Substances</p>	<p>Rule unchanged, see above (1971)</p>	<p>Deleted (1993) (becomes Rule 903 and 904)</p>
<p>325. Disposal of Water Produced with Oil and Gas Operations</p>	<p>Rule unchanged, see above (1984).</p>	

OGCC Rules - 1993	Relevant Rule Language	Notable Changes to Rule
<p>122-125. Types of Pits (and variation)</p> <p>315. General Drilling Rules</p> <p>321. Open Pit Storage of Oil or Hydrocarbon Substances</p>	<p>Pit = any manmade or natural depression in the ground used for oil and gas exploration and production purposes; Production Pits = used for initial setting, temporary storage, or disposal of produced water by permeation or evaporation after drilling and initial completion;</p> <p>Rule unchanged, see above 1987, 1988</p> <p>Rule unchanged, see above (1971)</p>	<p>Production pits are mentioned.</p>
<p>901. Introduction (Exploration &amp; Production Waste Management)</p>	<p>"The rules and regulations of this series establish the permitting, construction, operating and closure requirements for all pits used for oil and gas exploration and production, and the permitting, construction, operating and closure requirements for land applications of exploration and production waste."</p>	<p>New rules are adopted for managing E&amp;P waste.</p>
<p>902. Pits</p>	<p>Requires that all pits used for oil and gas shall be constructed to protect waters of the United States.</p> <p>Delineates timing by which closure is required, including that all pits must be closed no later than 6 months following the plugging and abandoning of the last well using the pit for disposal of produced water.</p>	<p>Closure requirements focus on time, not on condition.</p>
<p>All pits must be closed in accordance with Rule 319(a)(8) and 317(p) (must backfill and grade)</p>		<p>*This appears to be a typo - as these particular sections no longer address backfilling the pit. However, based on context, it appears that the Commission intended that these requirements regarding backfilling the pit stay in place (see 1988, 1989 Rules). However, the General Drilling Rules cited here do not appear in subsequent years.</p>

904. Production Pits	(b) All production pits receiving produced waters which will receive greater than five (5) barrels per day of produced water, which exceeds five thousand (5000) ppm tds, and which overlie groundwater must be lined. Pit lining materials must be approved in advance. Depending on the geology, a leak detection system may be required.  (c). Treatment of Produced Water: All produced water shall be treated, if necessary, prior to placement in the production pit (no indication of what "if necessary" entails).	Production pits with concentrations of 5000 ppm tds must be lined if above groundwater.  Must treat produced water if necessary.
1004. Reclamation	(a). Pit Closure. All areas affected by operations must be reclaimed as near as practicable to their original conditions as soon as conditions permit following completion of the well, but no later than three (3) months after. (a)(2). Pit shall be allowed to dry adequately and then backfilled according to soil segregation plan. "If subsidence occurs, the land shall be re-leveled to as close as original contour as possible."	Initially, the 1000 series only applies to the Wattenberg area, which included 8N, 66W. In 1995 the rules are revised, and the series are revised to cover all of Colorado.  Pit closure requirements address drying, backfilling, and leveling, not soil or groundwater quality.
1001. Introduction Wattenberg Special Area Rules	Rules 1001 et seq. are added to apply only to "lands within the designated area which includes northwestern Adams, Eastern Boulder, Northeastern Jefferson, Southeastern Larimer, and Southern Weld Counties" or the "Wattenberg area."	

COGCC Rules - 1995, 1996		Notable Changes to Rule
100. Definitions	<b>Relevant Rule Language</b> Sensitive Areas = an area vulnerable to potential significant adverse groundwater impacts, due to certain factors (e.g., shallow economically usable groundwater). Operators within the Sensitive Area must utilize the Sensitive area "decision tree"	Sensitive Area determination.
323. Open Pit Storage of Oil or Hydrocarbon Substances	<b>Production Pits</b> = includes pits used after drilling operations and initial completion, and include: skimming/settling pits, produced water pits, percolation pits, evaporation pits. Rule unchanged, see above (1971)	
901. Introduction	(d). Pit Inventory. No later than December, 31, 1995, each operator shall submit a Sundry Notice, Form 4, identifying all production pits, buried or partially buried produced water vessels, blowdown pits, and basic sediment pits existing on June 30, 1995.	Inventory required for existing pits.
904. Production Pits	(a) Sensitive Area Identification. For all existing unlined production pits to be kept in service after July 1, 1997, operators shall determine whether the pit is located inside or outside a Sensitive Area. For all new unlined pits put into service after July 1, 1995, operators shall determine whether the pit is located inside or outside a Sensitive Area. (c) Treatment of Produced Water. All produced water shall be treated prior to placement in the production pit to ensure that crude oil is separated from produced water. (a)-(d). Pit Closures. Must be closed as soon as conditions reasonably permit, but not later than 6 months following completion of the well (production pit closure must be closed within 6 months following the plugging and abandoning of the last well using the pit for disposal of produced water). (e). Interim pit closure requirements. Prior to July 1, 1997, any production pit existing on July 1, 1995, which is closed before July 1, 1997, shall submit a Sundry Notice, Form 4, after closure of the pit, along with an 1.) existing permit if one exists; and 2.) details about the closure.	Sensitive Area determination adopted as a tool for determining what pits must be lined.  Must treat produced water before placing in pit to ensure crude oil is separated first. New pit closure provision. Revised (1996) (All pits closed prior to July 1, 1997 shall be reclaimed in accordance with 1000 series rules passed in 1996. All pits closed after shall comply with 900 and 1000 series rules).
906. Pit Closure	(f). Land treatment of waste materials from pit closure. Onsite land treatment may be used for remediation of impacted materials resulting from pit closure.	Sundry notice required for pre-existing pits closed before July 1997  May use onsite land treatment for materials resulting from pit closure.



<p>905. Closure of Pits</p>	<p>(a). Unlined production pits, except emergency pits, shall be closed in accordance with an approved Site Investigation and Remediation Workplan, Form 27. The workplan shall be submitted for Director approval and shall include a description of the proposed investigation and remediation activities in accordance with Rule 909.  (c). Discovery of a spill/release during closure. When a spill or release is discovered during closure operations, operators shall report the spill or release on the Form 27, in accordance with Rule 906. Leaking pits shall be closed and remediated in accordance with Rule 909 and 910.  (e). Unlined drilling pits. Must be closed and reclaimed in accordance with 1000 series rules.</p>	<p>Requirement to deal with spills or releases before closure becomes applicable.  Must reclaim unlined pits according to 1000 series rules.</p>
<p>907. Management of E&amp;P Waste</p>	<p>(a)(1). Operator obligations. Operators shall ensure that E&amp;P waste is properly stored, handled, transported, treated, recycled, or disposed to prevent threatened or actual significant adverse environmental impacts to air, water, soil or biological resources or to the extent necessary to ensure compliance with the concentration levels in Table 910-1, with consideration to WQCC ground water standards and classifications.  (c)(1). Produced water shall be treated prior to placement in a production pit to prevent crude oil and condensate from entering the pit.</p>	<p>Must handle, treat, and dispose of E&amp;P waste in line with WQCC ground water standards and classifications  Must treat produced water before placing in pits.</p>
<p>909. Site Investigation, Remediation, and Closure</p>	<p>(a). Applicability. Applies to the closure and remediation of all pits, other than drilling pits, constructed pursuant to 903(a)(3).  (b). General site investigation requirements:  (b)(1). Sensitive Area Determination.  (b)(2). Sampling and analyses. Samples and analysis of soil and groundwater shall be conducted in accordance with Rule 910.  (b)(3). E&amp;P waste shall be managed in accordance with Rule 907.  (b)(4). Pit evacuation. Prior to backfilling and reclamation (i.e., pit closure), remaining E&amp;P waste shall be treated or disposed in accordance with Rule 907 and the 1000 series rules.</p>	<p>903(a) and (b) require groundwater sampling and remediation within certain standards of allowable concentrations.</p>
<p>910. Allowable Concentrations and Sampling for Soil and Groundwater</p>	<p>(b)(5). Remediation. Remediation standards must follow minimum allowable concentrations in Table 910-1. Soil that does not meet allowable concentrations shall be remediated. Groundwater that does not meet allowable concentrations shall be remediated in accordance with the Site Investigation and Remediation Workplan, Form 27 (see Rule 909(c)).  (b)(6). Reclamation. Remediation sites shall be reclaimed in accordance with the 1000 series rules.  (e)(1). Closure. Remediation and reclamation shall be complete upon compliance with the concentrations in Table 910-1, or upon compliance with an approved work plan.  (e)(2). Notification of completion. Within 30 days of site remediation and reclamation (including closure) operators must provide Form 19 and attach information sufficient to demonstrate compliance with Form 27.</p>	<p>1998/2000: Table 910-1 requires the following minimum allowable concentrations, including but not limited to: TPH (Non-Sensitive Area) = 10,000 mg/kg; TPH (Sensitive Area) = 1,000 mg/kg; Benzene = 5 ug/l; Toluene = 1000 ug/l; Ethylbenzene = 680 ug/l; Xylene = 10,000 ug/l; ph = 6-9; Chlorides (in groundwater) = &lt;1.25 x bckgrd.  2007: Table 910-1 has some changes from 1998/2000, Ethylbenzene = 700 ug/l; Xylenes = 1,400 to 10,000 ug/l</p> <p>Must provide notice after completion of pit closure with Form 27.</p> <p>Pit closure rules require sampling groundwater and water table, based contaminant concentrations in Table 910-1.</p>

1003. Interim Reclamation 911. Pit, Buried or Partially Buried Water Vessel, Blowdown Pit, and Basic Sediment/Tank Bottom Pit Management Requirements prior to December 30, 1997	(b)(4)(E). Groundwater sampling and analysis: Impacted Water. Where sampling for groundwater in order to determine whether complying with pit closure, remediation, and reclamation standards, if the sampling exceeds allowable concentrations listed in Table 910-1, operators shall notify the Director and submit the Form 27 for prior approval. All pits, cellars, rat holes, and other bore holes unnecessary for further lease operations, excluding the drilling pit, will be backfilled as soon as possible after the drilling rig is released to conform with surrounding terrain.	Approval of Form 27 is required if sampling indicates the minimum concentrations have been exceeded.
1004. Final Reclamation of Wellsites and Associated Production Facilities	(b). Operators were required to submit inventory of production pits existing prior to June 30, 1995, by December 31, 1995. (d)(4). A Sundry Notice, Form 4 was required for unlined production pits outside sensitive areas receiving produced water at an average daily rate of five (5) barrels per day calculated on a monthly basis for each month of operation constructed prior to December 30, 1997. (f). Closure requirements. Pits closed prior to December 30, 1997 were required to be reclaimed in accordance with 1000 series rules. All pits, cellars, rat holes, and other bore holes unnecessary for further lease operations, excluding the drilling pit, will be backfilled as soon as possible after the drilling rig is released to conform with surrounding terrain. (b). Production and special purpose pit closure. The operator shall comply with the 900 Series' rules for the removal or treatment of E&P waste remaining in a production or special purpose pit before the pit may be closed for final reclamation. After any remaining E&P waste is removed or treated, all such pits must be backfilled to return the soils to their original relative positions.	Pits must be backfilled and closed as soon as possible. All of Rule 911 reiterates previous rule language from 1995 - no new obligations for operators.
1004. Final Reclamation of Wellsites and Associated Production Facilities	if there is any leftover E&P waste at the time of closing the pit, must treat it before closing the pit, then backfilling sufficient for closure.	

COGCC Rules - 2008	Relevant Rule Language	Notable Changes to Rule
323. Open Pit Storage of Oil or Hydrocarbon Substances	Rule unchanged, see above (1971)	*Groundwater sampling and remediation requirements for closure were amended and made stricter in 2008, however most of the other rules concerning pit closure remain the same from 1998/2000/2007. To avoid significant redundancy, the major additions are shown here, and the full suite of revised Rule series 900 and 1000 are shown above, in the 1998/2000/2007 section.
905. Closure of Pits	(b). Pits not used exclusively for drilling operations and emergency pits shall be closed in accordance with Site Investigation and Remediation Workplan, Form 27. The workplan shall be submitted for Director approval.  (b)(1) Operators shall ensure that soils and groundwater meet the concentration levels of Table 910-1.	*Table 910-1 was revised in 2008 to require stricter sampling requirements. For example, in 2007, TPH in soil was 10,000 mg/kg for Non-Sensitive Areas and 1,000 mg/kg for Sensitive Areas. In 2008, the concentration for TPH is 500 mg/kg. These standards do not apply to previously closed pits.

(b)(2) Pit evacuation. Prior to backfilling and remediation, E&P waste shall be treated or disposed in accordance with Rule 907.

**ATTACHMENT 16**

**Regulatory Chronology for Spill Reporting and Response**

## **Regulatory Chronology for Spill Reporting and Response**

Attached is a draft chart summarizing the evolution of the Colorado Oil and Gas Commission rules concerning spill reporting and response from 1952, when the first rules were enacted, until 2008, when the current rules were adopted. Below is a general timeline of the most significant changes:

- 1970: where the Commission finds that pollution has occurred, it is authorized to require the operator to submit a plan to eliminate the pollution.
- 1986: the first regulations to specifically address spills are adopted. They require operators to take immediate steps to bring a spill under control, to submit a report within 15 days, and to report the spill immediately if public health or safety is jeopardized.
- 1993: broader rules are adopted for spill reporting and response. They require immediate remediation for all spills of E&P waste, crude oil, or water-based bentonitic drilling fluids, ten-day written reporting of all such spills exceeding five barrels, and 24-hour verbal reporting of all such spills exceeding 20 barrels.
- 1994: notice to the surface owner is required where the spill exceeds five barrels, and remediation plans are required where the Commission has mandated additional remediation. Other regulations adopted in 1994 require the use of Spill/Release Report Forms and establish hydrocarbon cleanup levels of 1,000 ppm TPH in sensitive areas and 10,000 ppm TPH outside sensitive areas.
- 1998: the Commission is authorized to require Site Investigation and Remediation Workplans on a case-by-case basis and the Table 910-1 standards were made applicable to spills. Other new requirements mandate soil and groundwater sampling and notice of completion of remediation for larger spills.
- 2008: more detailed requirements are adopted for spill reporting and surface owner notification.

**Colorado Historical Regulations: Spill Reporting and Response (1952-2012)**

<b>COGCC Rules - 1952, 1956, 1964</b>		<b>Relevant Rule Language</b>	<b>Notable Changes to Rule</b>
No rules exist regarding spill reporting or response	Not applicable		Not applicable
<b>COGCC Rules - 1970</b>		<b>Relevant Rule Language</b>	<b>Notable Changes to Rule</b>
323. Pollution and Surface Damage	The owner shall take precautions as are necessary to prevent polluting streams and underground waters by oil, gas, salt or brackish water, or oil field wastes. Should the operator be found by the Commission (whether through a hearing or without a hearing) to be committing pollution, the operator shall submit a plan for elimination of the pollution within a time period set by the Commission.	Where an operator is found to be committing pollution, the Commission is authorized to require a plan for eliminating the pollution.	
<b>COGCC Rules - 1971, 1973, 1978, 1983, 1984</b>		<b>Relevant Rule Language</b>	<b>Notable Changes to Rule</b>
208. Corrective Action	The Commission shall require correction, in a manner to be prescribed or approved by it, of any condition which is causing or is likely to cause waste or pollution.	The Commission is authorized to require corrective action regarding pollution. There is no requirement that operators take any action with regard to spills without an order from the Commission.	
<b>COGCC Rules - 1986, 1987, 1988, 1989</b>		<b>Relevant Rule Language</b>	<b>Notable Changes to Rule</b>
208. Corrective Action	Rule unchanged (see above: 1971-1984)		
329. Open Flows, Control of "Wild Wells" and Spills	The owner shall take all reasonable precautions in addition to fully complying with Rule 317 to prevent any oil, gas or water well from blowing uncontrolled or "wild" and shall take immediate steps and exercise due diligence to bring under control any such wild well, burning oil or gas well, or spill and shall report such occurrence to the Director immediately if public health or safety is jeopardized. Within fifteen (15) days after all occurrences the operator shall submit a report giving all details.	First regulation to address spills specifically. Though previous regulations address "wild wells," the reporting requirement for spills is new. In addition to reporting, operators must bring spills under control.	
<b>COGCC Rules - 1993</b>		<b>Relevant Rule Language</b>	<b>Notable Changes to Rule</b>
208. Corrective Action	Rule unchanged (see above: 1971-1984)		
908. Spill and Spill Reporting	a. All spills of E&P waste, crude oil, or water-based bentonitic drilling fluids shall be remediated immediately. b. All spills of E&P waste, crude oil, or water-based bentonitic drilling fluids exceeding five (5) barrels shall be reported in writing to the Director within ten (10) days of the spill. In addition, any spill which exceeds twenty (20) barrels of an E&P waste, crude oil or water-based bentonitic drilling fluids shall be verbally reported to the Director within twenty-four (24) hours of the spill.	Expanded remediation and reporting requirements for E&P waste, crude oil, and certain drilling fluids. All such spills require immediate remediation. Spills exceeding 5 barrels must be reported within 10 days. Spills exceeding 20 barrels must be verbally reported within 24 hours.	

COGCC Rules - 1994, 1996 208. Corrective Action	Relevant Rule Language Rule unchanged (see above: 1971-1984)	Notable Changes to Rule
907. Spills and Releases; Reporting and Remediation	<p>a. General. All spills and releases of E&amp;P waste or produced fluid shall be controlled, contained, and remediated as soon as practicable, in accordance with the COGCC/EGD describing spill and release remediation. For purposes of this Rule, a spill means any unauthorized sudden discharge of E&amp;P waste or produced fluids to the environment. For purposes of this Rule, release means any unauthorized discharge of E&amp;P waste or produced fluids to the environment over time, that is subsequently discovered.</p> <p>b. Reporting. Must report within 10 days of discovery of the spill, unless the spill exceeds twenty (2) barrels of an E&amp;P waste, then the operator must report the spill verbally within 24 hours.</p> <p>c. Surface Owner Notification. Must report the spill to the surface owner if it exceeds five (5) barrels.</p> <p>d. Remediation. (1) Remediation plans. Where additional remediation is required, the operator must submit a proposed remediation plan for approval by the Director.</p> <p>(3) Spills and releases of crude oil, condensate, and hydro-carbon-containing E&amp;P waste. A. Remediation of oily wastes. (i). COGCC Notification. Must file the COGCC Spill/Release Report Form describing the nature of the release.</p> <p>(ii) Hydrocarbon Cleanup Levels. Treatment shall be considered effectively complete when the residual oil concentration of the soil is less than one thousand (1,000) ppm TPH in Sensitive Areas, and less than ten thousand (10,000) ppm TPH outside Sensitive Areas, unless otherwise required by the Director. Sampling and analysis shall be conducted in accordance with the remediation plan until such level is achieved and the results submitted to the Director on a Sundry Notice, Form 4.</p>	<p>Immediate control and containment is required.</p> <p>Reporting requirements are essentially the same as 1993, where larger spills require a verbal notice to the Commission within 24 hours of the spill.</p> <p>New requirement that the surface owner must be notified if spill is larger than 5 barrels.</p> <p>Additional remediation plan required only if further remediation required after immediate efforts.</p> <p>Notification requires use of a specific form.</p> <p>New regulations concerning minimum allowable TPH concentrations in soil.</p>

COGCC Rules - 1998, 2000, 2007	Relevant Rule Language	Notable Changes to Rule
905. Closure of Pits, and Buried or Partially Buried Produced Water Vessels	<p>c. Discovery of a spill/release during closure. When a spill/release is discovered during closure operations operators shall report the spill/release on the Spill/Release Report, Form 19, in accordance with Rule 906. Leaking pits and buried or partially buried produced water vessels shall be closed and remediated in accordance with Rules 909. and 910</p>	<p>Regulations now specify how to handle spills occurring from different sources.</p>

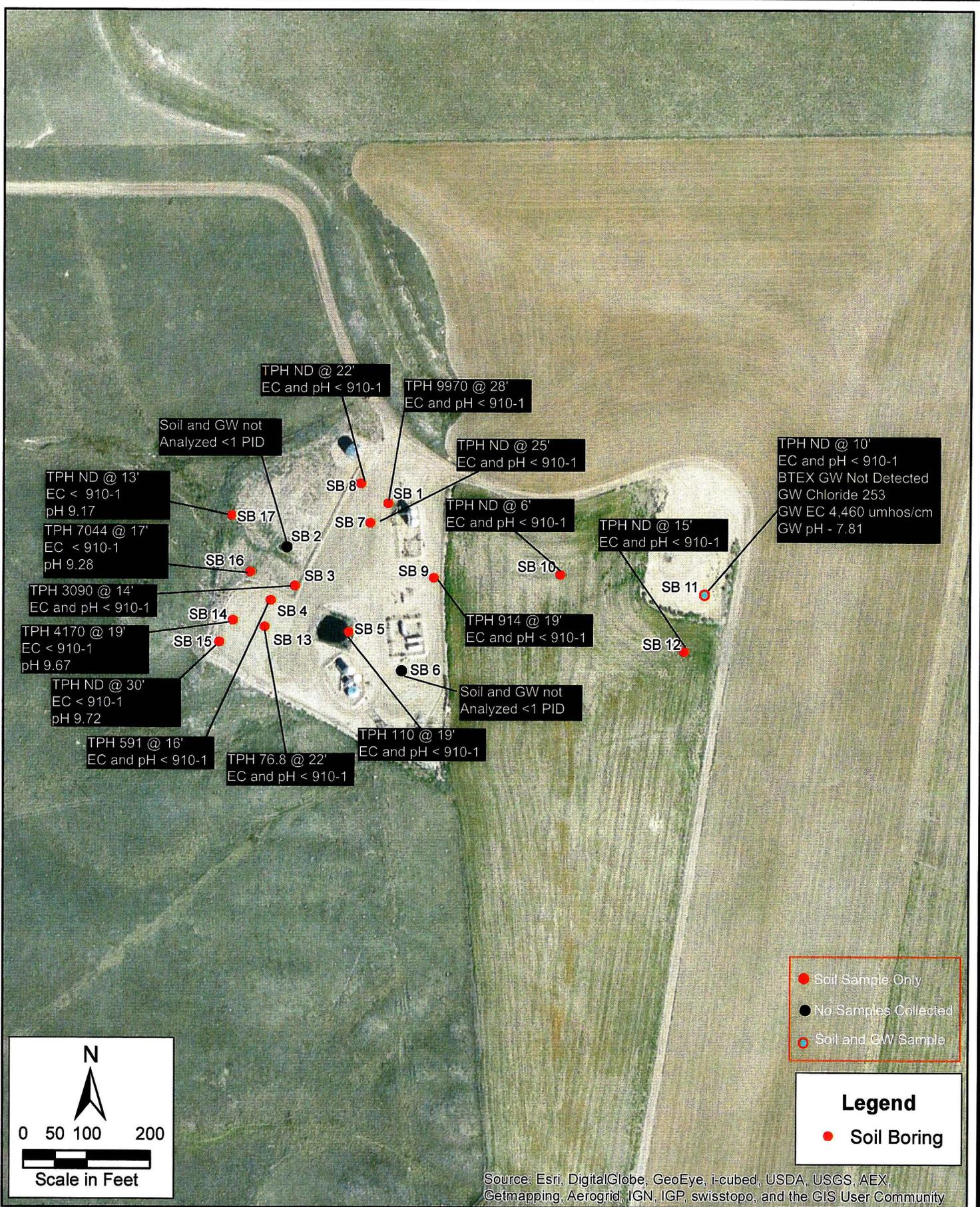
<p><b>906. Spills and Releases</b></p>	<p>a. General. Spills/releases of E&amp;P waste, including produced fluids shall be controlled and contained immediately upon discovery. Impacts resulting from spills/releases shall be investigated and cleaned up as soon as practicable. The Director may require additional activities to prevent or mitigate threatened or actual significant adverse environmental impacts on any air, water, soil or biological resource, or to the extent necessary to ensure compliance with the allowable concentrations and levels in Table 910-1, with consideration to WQCC ground water standards and classifications.</p> <p>b. Reporting. Regulations concerning reporting remain unchanged.</p> <p>c. Surface owner notification and consultation. Operator must make a good-faith effort to notify and consult with the surface owner prior to commencing operations to remediate a spill that is not in an area being utilized for oil and gas operations.</p> <p>d. Remediation of Spills/Releases. (1) Remediation workplan. When threatened or actual significant adverse environmental impacts on any air, water, soil or biological resource from a spill/release exists or when necessary to ensure compliance with the allowable concentrations and levels in Table 910-1, with consideration to WQCC ground water standards and classifications, the Director may require operators to submit a Site Investigation and Remediation Workplan, Form 27.</p> <p>(2) Remediation requirements. Spills/releases shall be remediated to meet the allowable concentrations in Table 910-1. Spills/releases exceeding twenty (20) barrels net loss of E&amp;P waste shall be remediated in accordance with Rules 909 and 910.</p> <p>e. (1) Spill/Release Prevention. Secondary containment. Secondary containment shall be constructed or installed around tanks containing crude oil, condensate or produced water with greater than 10,000 milligrams per liter (mg/l) total dissolved solids (TDS). Operators are also subject to crude oil tank and containment requirements under Rules 603. and 604. This requirement shall not apply to water tanks with a capacity of one hundred (100) barrels or less.</p> <p>(2) Spill/release evaluation. Operators shall determine the cause of a spill/release, and to the extent practicable, shall implement measures to prevent spills/releases due to similar causes in the future. For reportable spills, operators shall submit this information to the Director on the Spill/Release Report, Form 19 within thirty (30) days after discovery of the spill/release.</p> <p>(a). Applicability. Applies to the closure and remediation of all pits, other than drilling pits, constructed pursuant to 903(a)(3).</p> <p>(b). General site investigation requirements:</p> <p>(b)(1). Sensitive Area Determination.</p> <p>(b)(2). Sampling and analyses. Samples and analysis of soil and groundwater shall be conducted in accordance with Rule 910.</p> <p>(b)(3). E&amp;P waste shall be managed in accordance with Rule 907.</p>
<p>The Director may impose additional mitigation requirements to ensure compliance with Table 910-1 or otherwise address significant environmental impacts.</p>	<p><b>Must attempt to work with surface owner before starting remediation.</b></p>
<p>The Director may require the use of a Form 27 for spill remediation.</p> <p>Large spills (20 barrels or more) require same remediation requirements as those listed in Rule 909 (Site Investigation, Remediation, and Closure - applies to the closure of pits) and Rule 910 (Allowable Concentrations and Sampling for Soil and Ground Water).</p>	<p><b>In addition to new spill remediation requirements, operators are required to construct secondary containment around tanks.</b></p> <p><b>Operators are required to evaluate the reason for spills, and in addition to reporting each spill, submit information on what the operator will do to prevent a similar spill in the future.</b></p> <p><b>Spills over 20 barrels must follow the standards in Rule 909 according to Rule 906(d)(2).</b></p>

	<p>(b)(4). Pit evacuation. Prior to backfilling and reclamation (i.e., pit closure), remaining E&amp;P waste shall be treated or disposed in accordance with Rule 907 and the 1000 series rules.</p>	
<p>1998/2000: Table 910-1 requires the following minimum allowable concentrations, including but not limited to: TPH (Non-Sensitive Area) = 10,000 mg/kg; TPH (Sensitive Area) = 1,000 mg/kg; Benzene = 5 ug/l; Toluene = 1000 ug/l; Ethylbenzene = 680 ug/l; Xylene = 10,000 ug/l; ph = 6-9; Chlorides (in groundwater) = &lt;1.25 x bckgrd. 2007: Table 910-1 has some changes from 1998/2000, Ethylbenzene = 700 ug/l; Xylenes = 1,400 to 10,000 ugi</p>	<p>(b)(5). Remediation. Remediation standards must follow minimum allowable concentrations in Table 910-1. Soil that does not meet allowable concentrations shall be remediated. Groundwater that does not meet allowable concentrations shall be remediated in accordance with the Site Investigation and Remediation Workplan, Form 27 (see Rule 909(c)).</p>	
<p>Must reclaim the site according to 1000 series rules.</p>	<p>(b)(6). Reclamation. Remediation sites shall be reclaimed in accordance with the 1000 series rules.</p>	
	<p>(e)(1). Closure. Remediation and reclamation shall be complete upon compliance with the concentrations in Table 910-1, or upon compliance with an approved work plan.</p>	
<p>Must provide notice after completion of pit closure with Form 27.</p>	<p>(e)(2). Notification of completion. Within 30 days of site remediation and reclamation (including closure) operators must provide Form 19 and attach information sufficient to demonstrate compliance with Form 27.</p>	
<p>Pit closure rules require sampling groundwater and water table, based on contaminant concentrations in Table 910-1.</p>	<p>(b)(4)(A)-(D). Groundwater sampling and analysis. Contains requirements for sampling groundwater and water table, based on contaminant concentrations in Table 910-1.</p>	<p>910. Allowable Concentrations and Sampling for Soil and Groundwater</p>
<p>Approval of Form 27 is required if sampling indicates the minimum concentrations have been exceeded.</p>	<p>(b)(4)(E). Groundwater sampling and analysis: Impacted Water. Where sampling for groundwater in order to determine whether complying with pit closure, remediation, and reclamation standards, if the sampling exceeds allowable concentrations listed in Table 910-1, operators shall notify the Director and submit the Form 27 for prior approval.</p>	
<p><b>COGCC Rules - 2008, 2012</b></p>	<p><b>Relevant Rule Language</b></p>	<p><b>Notable Changes to Rule</b></p>
<p>905. Closure of Pits, and Buried or Partially Buried Produced Water Vessels</p>	<p>Rule unchanged (see above: 1998, 2000, 2007) a. General. Rule unchanged (see above: 1998, 2000, 2007)</p>	
<p>906. Spills and Releases</p>	<p>b. Reportable Spills and reporting requirements for spills/releases. Delineates more detailed requirements for reporting spills based on size, location, nearness to water, and requires calling specific hotlines. c. Surface owner notification and consultation. Surface owner notification and consultation. The operator shall notify the affected surface owner or the surface owner's appointed tenant of reportable spills as soon as practicable, but not more than twenty-four (24) hours, after discovery. The operator also shall make good faith efforts to notify and consult with the affected surface owner, or the surface owner's appointed tenant, prior to commencing operations to remediate E&amp;P waste from a spill/release in an area not being utilized for oil and gas operations.</p>	<p>Rule expands on previous reporting instructions.  In addition to the requirement to engage in consultation efforts, must inform surface owner within 24 hours of spill discovery. Also responsible for notifying any tenant.</p>

<p>d. Remediation of Spills/Releases. Same as above; must follow Rules 909 and 910 for remediation of any spill.</p>	<p>2008 regulations combine Rule 906(d)(1) and (2), and also require that operators following Rules 909 and 910 in remediating any spill (not just spills larger than 20 barrels).</p>
<p>e. Spill/Release Prevention. (1) Secondary containment. Requirements for secondary containment existing prior to April 1, 2009 follow rules as stated in 1998, 2000 regulations. Those constructed after May 1, 2009 "Secondary containment constructed on or after May 1, 2009 on federal land, or on or after April 1, 2009 on other land shall be constructed or installed around all tanks containing oil, condensate, or produced water with greater than 3,500 milligrams per liter (mg/l) total dissolved solids (TDS) and shall be sufficient to contain the contents of the largest single tank and sufficient freeboard to contain precipitation. Secondary containment structures shall be sufficiently impervious to contain discharged material."</p>	<p>All secondary containment constructed prior to April 1, 2009, follows the same regulations as listed above. Those constructed after that date have additional construction requirements. Previously had 30 days to submit Form 19; rule revised to require submission of Form 19 within 10 days.</p>
<p>(2). Spill/release evaluation. Submit Form 19 within ten (10) days of discovery.</p>	

## ATTACHMENT 17

### Maps Of and Other Information On Soil and Ground Water Samples



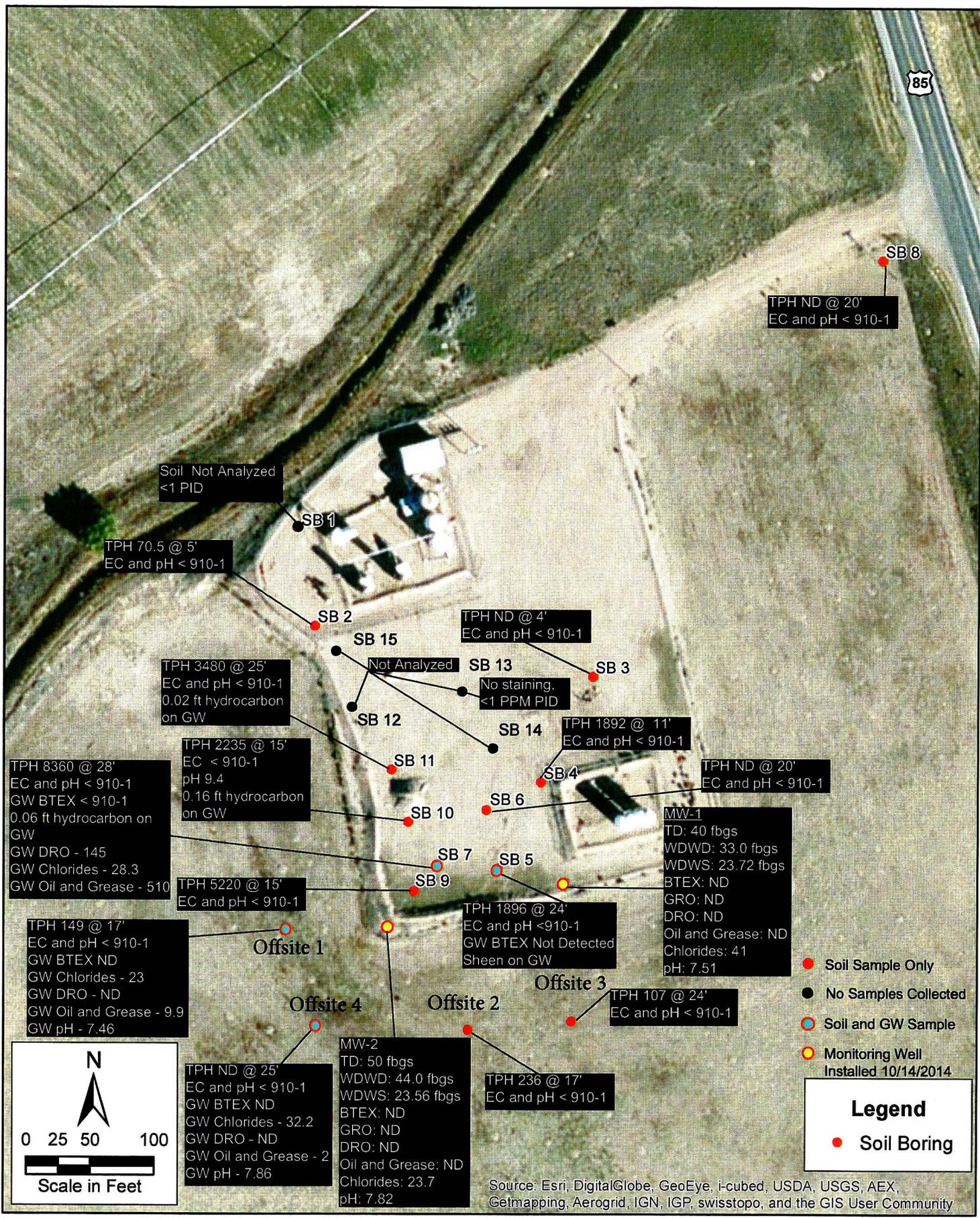
PROJECT: 014-1916  
 DRAWN BY: JM  
 DATE: September 30, 2014

Black Hollow Unit  
 Stelbar  
 Weld County, Colorado



FIGURE

2

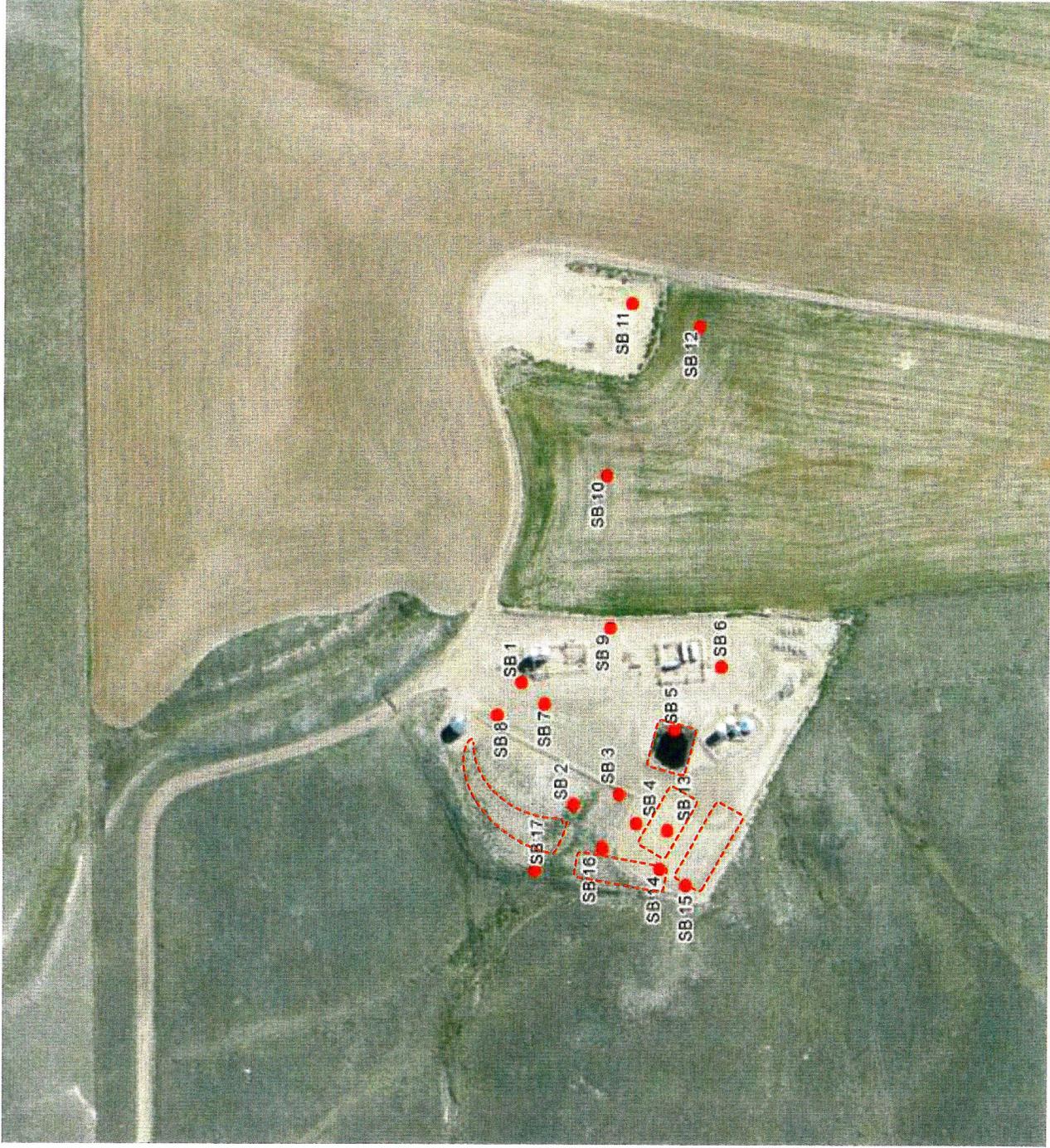


PROJECT: 014-1916  
DRAWN BY: JED  
DATE: 10/13/2014

Pierce Central Tank Battery  
Stelbar  
Weld County, Colorado



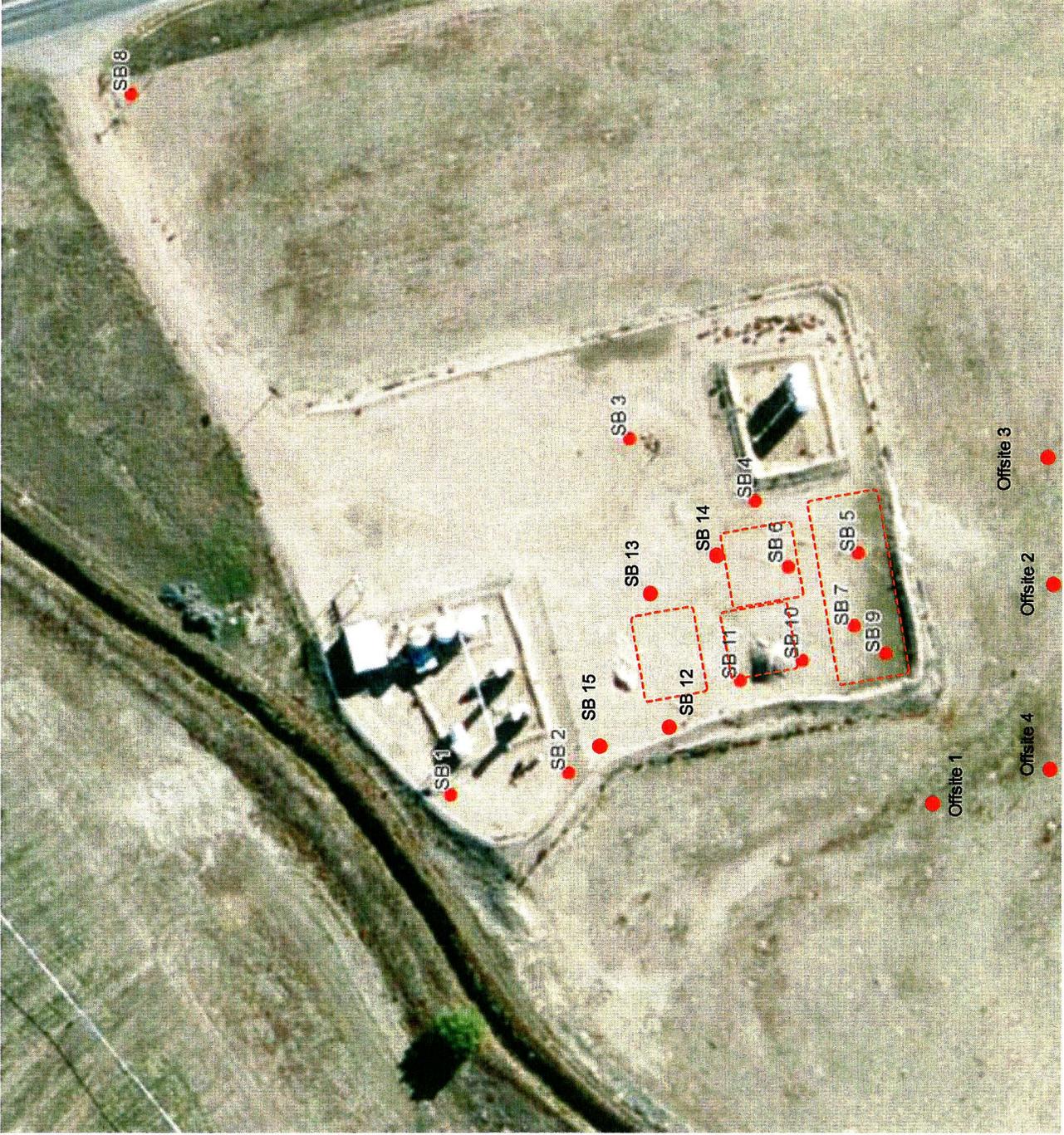
FIGURE  
1



**LEGEND**

- - Boring locations
- - - - - Approximate outline of historical pits

**Black Hollow**



**LEGEND**

- - Boring locations
- - - - - Approximate outline of historical pits

Pierce Central

Table 1

Analytical Method Summary  
Stelbar Subsurface Investigation

Site Name	Sample Number	Sample Matrix										
			BTEX - EPA 8260B	TPH GRO - EPA 8015C	TPH DRO - EPA 8015C	TPH GRO+DRO - EPA 8015C	Specific Conductance - EPA Method 120.1	pH in Soil - EPA 9045D	pH in GW - EPA 9040C	Oil and Grease EPA 1664A	Chlorides - EPA 300	
Pierce 1-27	SB1	Soil		•								
	SB2	Soil		•	•	•	•	•				
	SB3	Groundwater	•									
	SB4	Soil		•	•	•	•	•				
Pierce Central	SB1	Soil										
	SB2	Soil		•	•	•	•	•				
	SB3	Soil		•	•	•	•	•				
	SB4	Soil		•	•	•	•	•				
	SB5	Groundwater	•									
		Soil		•	•	•	•	•	•			
	SB6	Soil		•	•	•	•	•	•			
	SB7	Soil		•	•	•	•	•	•			
	SB7	Groundwater	•		•	•	•	•		•	•	•
	SB8	Soil		•	•	•	•	•	•			
	SB9	Soil		•	•	•	•	•	•			
	SB10	Soil		•	•	•	•	•	•			
	SB11	Soil		•	•	•	•	•	•			
	OFFSITE 1	Soil		•	•	•	•	•	•			
OFFSITE 1	Groundwater	•		•	•	•	•		•	•	•	
OFFSITE 2	Soil		•	•	•	•	•	•				
OFFSITE 3	Soil		•	•	•	•	•	•				
OFFSITE 4	Soil		•	•	•	•	•	•				
OFFSITE 4	Groundwater	•		•	•	•	•		•	•	•	
Black Hollow	SB1	Soil		•	•	•	•	•	•			
	SB2	Soil										
	SB3	Soil		•	•	•	•	•	•			
	SB4	Soil		•	•	•	•	•	•			
	SB5	Soil		•	•	•	•	•	•			
	SB6	Soil										
	SB7	Soil		•	•	•	•	•	•			
	SB8	Soil		•	•	•	•	•	•			
	SB9	Soil		•	•	•	•	•	•			
	SB10	Soil		•	•	•	•	•	•			
	SB11	Soil		•	•	•	•	•	•			
	SB11	Groundwater	•							•		•
	SB12	Soil		•	•	•	•	•	•			
	SB13	Soil		•	•	•	•	•	•			
	SB14	Soil		•	•	•	•	•	•			
	SB15	Soil		•	•	•	•	•	•			
	SB16	Soil		•	•	•	•	•	•			
SB17	Soil		•	•	•	•	•	•				

• = Analysis Conducted

Table 2

Soil and Groundwater Analytical Summary  
Stelbar Subsurface Investigation

Site Name	Sample Number	Sample Depth (ft-bgs)	Sample Matrix	BTEX (µg/L)				TPH (mg/kg) or (mg/L) Groundwater			Specific Conductance (EC) mmhos/cm	pH	Oil and Grease (mg/L)	Chlorides (mg/L)	Liquid Hydrocarbons in Groundwater Detected	Boring Location
				Benzene	Toluene <sup>1</sup>	Ethylbenzene	Total Xylenes <sup>1</sup>	GRO (C6-C10 Range)	DRO (C10-C28 Range)	TPH-GRO+DRO						
COGCC Table 910-1 Concentration Levels				5	1000	700	10,000	500	500	500	<4 mmhos/cm or 2X Background	6 to 9	No Standard	<1.25 Background	Below Detection Level	
Pierce 1-27	SB1	19'	Soil	NA				ND	ND	ND	0.180	7.79	NA			NE corner of tank battery
	SB2	13.5'	Soil	NA				ND	ND	ND	0.0771	8.60	NA			SE corner of tank battery
	SB3		Groundwater	ND	ND	ND	ND	NA			NA				SW corner of tank battery	
	SB4	13'	Soil	NA				ND	ND	ND	0.227	8.71	NA			NW corner of separator
Pierce Central	SB1	17'	Soil	Not analyzed, PID readings non-detect												NW corner of separator and stock tanks
	SB2	5'	Soil	NA				ND	70.5	70.5	0.271	8.01	NA			SW corner of separator and stock tanks
	SB3	4'	Soil	NA				ND	ND	ND	0.224	8.10	NA			NE of load out
	SB4	11'	Soil	NA				342	1550	1892	0.161	8.76	NA			NW of tank battery
	SB5		Groundwater	ND	ND	ND	ND	NA			0.805*	7.67*	NA		Sheen	W of tank battery
		24'	Soil	NA				386	1510	1896	0.132	7.91	NA			W of tank battery
	SB6	20'	Soil	NA				ND	ND	ND	0.370	8.13	NA			W of tank battery
	SB7		Soil	NA				1160	7200	8360	0.123	8.72	NA			Between SB5 and SB9
			Groundwater	ND	ND	3.1	ND	NA	145	NA	NA	7.37*	510*	28.3	Yes	
	SB8	20'	Soil	NA				ND	ND	ND	0.0531	8.16	NA			S of access road
	SB9	15'	Soil	NA				840	4380	5220	0.110	7.92	NA			SW corner of pad
	SB10	15'	Soil	NA				175	2060	2235	0.147	9.40	NA		Yes	N of SB9 on W side of pad
	SB11	25'	Soil	NA				ND	3480	3480	0.373	8.61	NA		Yes	N of Atmos Pipeline on W side of pad
	SB12		NA	NA											Yes	
OFFSITE 1		Soil	NA				ND	149	149	0.0183	7.98	NA				Offsite west of southwest corner
		Groundwater	ND	ND	ND	ND	NA	NA	NA	NA	7.46*	9.9*	23			
OFFSITE 2	17'	Soil	NA				ND	236	236	0.0257	7.66	NA			Offsite south of southwest site corner	
OFFSITE 3	24'	Soil	NA				ND	107	107	0.0268	7.89	NA			Offsite south of south property line	
OFFSITE 4		Soil	NA				ND	ND	ND	0.0314	8.94	NA			Southwest of southwest property corner	
		Groundwater	ND	ND	ND	ND	NA	NA	NA	7.86*	2*	32.2				
Black Hollow	SB1	28'	Soil	NA				1420	8550	9970	0.122	7.65	NA			NW corner of tank battery
	SB2	45'	Soil	Not analyzed, PID readings non detect												E of pad in drainage
	SB3	14'	Soil	NA				ND	3090	3090	0.653	8.89	NA			E area of pad in former pit location
	SB4	16'	Soil	NA				ND	591	591	1.04	8.73	NA			E area of pad in former pit location
	SB5	19'	Soil	NA				ND	110	110	0.567	8.60	NA			NE of stock tanks in former pit location
	SB6	5'	Soil	Not analyzed, PID readings non detect											NA	S of separators
	SB7	25'	Soil	NA				ND	ND	ND	0.111	8.33	NA			W of tank battery
	SB8	22'	Soil	NA				ND	ND	ND	0.0887	8.13	NA			NW corner of location
	SB9	19'	Soil	NA				ND	914	914	0.158	8.69	NA			E of flowline at low point
	SB10	6'	Soil	NA				ND	ND	ND	0.169	8.47	NA			Low point of field E of pad
	SB11	10'	Soil	NA				ND	ND	ND	0.398	8.54	NA			SE corner of UPRR2
	SB11		Groundwater	ND	ND	ND	ND	NA			4460 <sup>2</sup>	7.81*	NA	253		
	SB12	15'	Soil	NA				ND	ND	ND	0.267	8.68	NA			Low point of field S of UPRR 2
	SB13	22'	Soil	NA				ND	76.8	76.8	0.504	8.12	NA			Former pit area
	SB14	19'	Soil	NA				ND	4170	4170	0.771	9.67	NA			W of former pit area
	SB15	30'	Soil	NA				ND	ND	ND	0.442	9.72	NA			SW corner of pad
	SB16	17'	Soil	NA				254	6790	7044	0.558	9.28	NA			NW corner of former pit area
SB17	13'	Soil	NA				ND	ND	ND	0.314	9.17	NA			W of pad in low point	

<sup>1</sup> Colorado Oil and Gas Conservation Commission (COGCC), 900 Series, Exploration and Production Waste Management, Table 910-1, Concentration Levels, February BTEX  
 mg/kg - Milligrams per kilogram  
 BOLD - Above COGCC Table 910-1 concer  
<sup>1</sup> - Drinking water standard  
 ft-bgs - Feet below ground surface  
<sup>2</sup> - reported in microsiemens per centimeter

GRO - Gasoline range organics  
 DRO - Diesel range organics  
 µg/L - Micrograms per liter  
 - Indicates a groundwater sample

TPH  
 ND  
 mmhos/cm  
 \*

- Benzene, toluene, ethylbenzene, total xylenes  
 - Total petroleum hydrocarbons  
 - Sample not reported above laboratory reporting limit  
 - millimhos per centimeter  
 - No COGCC Table 910-1 concentration level established

Table 3

Depth to Groundwater Summary  
Stelbar Subsurface Investigation

Site Name	Drill Date	Borings w/ Temporary Wells	Initial Depth to Groundwater at Time of Drilling (ft.-bgs)	Groundwater Sample Date	Final Groundwater Measurement Date	Final Measured Depth to Groundwater (ft.bgs)	Final Measured Depth to Product (ft.bgs)	
Pierce 1-27	7/25/2014	SB3	8	7/25/2014	7/25/2014	8.00	Not Present	
Pierce Central	7/28/2014	SB5	25	7/28/2014	7/28/2014	25.00	Not Present	
		SB6	DRY	*	*	DRY	NA	
	8/11/2014	SB7	DRY <sup>1</sup>	DRY <sup>1</sup>	8/15/2014	8/18/2014	22.51	22.45
		SB8	DRY	DRY	*	*	DRY	NA
		SB9	DRY	DRY	*	*	DRY	NA
		SB10	DRY <sup>1</sup>	DRY <sup>1</sup>	*	8/18/2014	22.99	22.83
		SB11	21.29 <sup>1</sup>	*	8/18/2014	8/18/2014	21.24	21.22
		SB12	DRY	DRY	*	*	DRY	NA
	9/3/2014	OFFSITE1	18	18	9/18/2014	9/18/2014	18.00	Not Present
		OFFSITE2	DRY	DRY	*	*	DRY	NA
OFFSITE3		DRY	DRY	*	*	DRY	NA	
OFFSITE4		20	20	9/18/14 & 9/19/2014	9/18/14 & 9/19/2014	20.00	Not Present	
Black Hollow Unit	7/25/2014	SB1	DRY	*	*	DRY	NA	
		SB2	DRY	*	*	DRY	NA	
		SB4	DRY	*	*	DRY	NA	
	8/4/2014	SB11	12	12	8/6/2014	8/6/2014	12.00	Not present
		SB13	DRY	DRY	*	*	DRY	NA

ft.bgs - Feet below ground surface

\* - No groundwater sample collected

<sup>1</sup> - Borings SB10 and SB7 were dry initially when drilled on 8/11/2014. Groundwater was first detected and sampled in SB7 on 8/15/2014. The depth to groundwater measurement for SB7 and SB10 shown on this table was measured on 8/18/2014.

Free phase petroleum liquid was observed in borings SB7, SB10, and SB11 at time of drilling and measured on 8/14/2014.

The petroleum was removed from the borings SB7, SB10, and SB11 by bailing on 8/15/2014 and allowed to recharge. Boring SB7 was sampled on 8/15/2014. Final groundwater and petroleum thickness was remeasured in borings SB7, SB10, and SB11 on 8/18/2014 (but not sampled).

NA - Not Applicable