Ohio Department of Natural Resources
Division of Oil & Gas Resources Management
Facility Report

No: -215630671

API Well No.
34079202610000

Project:

County: **JACKSON** Twp **BLOOMFIELD** Sec: **16** Lot: WI Typ: **OG_R**

Owner: **9093 #Name?** Resp Co:

Well Name **RAPIER** No. **D1-16-35** WH_LAT **38.999890** WH_LONG **-82.512010**

Directions to site:

Inspection Type: **Exempt Well Pre Transfer**

Contact: Phone
Address:

Inspection Purpose:

Type of Notification Contact **MATTHEW FULK**

Inspection Comments:

Pre exempt transfer inspection for domestic use well requested by Columbus. Upon arrival at the wells site I found a gas well that had no flow line connected to any of the casing heads. The seven inch casing head had one 2" fitting with a cap in it to shut it in. The other fitting in that casing head had a nipple with a valve that was in the open position. The 4 inch casing head had both fittings closed off by use of valves. The tubing had a valve, then a tee with one side plugged and the other side reduced down for a pressure gauge. There were no production lines coming off the well, even just a line for house gas. The well appeared to be in an idle state. The only ID at the well was a blank Knox energy sign. There was also about 18 joints of 2" laying on the ground by the well.

Accompanied by

INJECTIONPRESSUR ☐ Vac ANNULUSPRESSUR ☐ Vac FLOWMETER ☐ Vac

HAULERNO: LISCENSE_NU

LANDOWNERWAIVER: ○ P_REST_PASS: ○ F_REST_PASS: ○

Inspection Date: 2/17/2016

Date notice of violation Issued:

Required action to be completed by:

Extended action due:

Required action completed:

Signature:

MATTHEW FULK

Reviewed by:

Forward to:

Section/Name

Duration: hrs

Form DNR 5611
Revised 12/15/2002
Division Form #57a

Compliance Notice

No 1420033453

Ohio Deptartment of Natural Resources
Division of Oil & Gas Resources Management
Region Phone (614) 265-6922

THIS IS TO NOTIFY YOU THAT AN INSPECTION WAS CONDUCTED BY THE ENFORCEMENT SECTION OF THE DIVISION OF OIL & GAS RESOURCES MANAGEMENT, OHIO DEPARTMENT OF NATURAL RESOURCES, ON THE BELOW DATE, AND THE FOLLOWING VIOLATIONS WERE NOTED.

API Well No.

34-079-20261-00-00 Project:

County: JACKSON Twp. BLOOMFIELD Sec: 0 Lot: 0 Wl Typ: OG_R

Owner: SHERMAN STEVEN P & MICHELL D Resp Co

Well Name: RAPIER No.: D1-16-35

Directions to site:

Inspection Type: Administrative Inspection Contact: Phone **(614) 265-6921**
Address

Inspection Purpose: Administrative Inspection

Type of Notification Contact KATHY SMITH

VIOLATIONS *1509:* **50[B]2** *1501:* **NONEA** $60 cost recovery fee not paid for 2014

NOV Requirements: Inspection requires action

Faliure to pay $60 fee for 2014.
1509.50 Oil and gas regulatory cost recovery assessment.
(2) The oil and gas regulatory cost recovery assessment for a well that becomes an exempt domestic well on and after June 30, 2010, shall be sixty dollars to be paid to the division of oil and gas resources management on the first day of July of each year.
TOTAL AMOUNT OWED $60.00.

OHIO REVISED CODE CHAPTER 1509. PROVIDES FOR ADDITIONAL NON-EXCLUSIVE REMEDIES WHICH THE DIVISION MAY PURSUE.

Accompanied by

INJECTION/PRESSURE ☐ Vac ANNULUS/PRESSURE: ☐ Vac FLOW/METER ☐ Vac

HAULER NO: LISCENSE_NUM:

Inspection Date: 12/31/2014
Date notice of violation Issued: 12/31/2014
Required action to be completed by: 1/31/2015
Extended action completed:
Required action completed: 1/9/2015

Signature: KATHY SMITH
Reviewed by:
Forward to: Section/Name

Form DNR 5611
Revised 12/15/2002
Division Form #57a

Compliance Notice

No 1348759046

Ohio Deptartment of Natural Resources
Division of Oil & Gas Resources Management
Region Phone (740) 286-6411

THIS IS TO NOTIFY YOU THAT AN INSPECTION WAS CONDUCTED BY THE ENFORCEMENT SECTION OF THE DIVISION OF OIL & GAS RESOURCES MANAGEMENT, OHIO DEPARTMENT OF NATURAL RESOURCES, ON THE BELOW DATE, AND THE FOLLOWING VIOLATIONS WERE NOTED.

API Well No.

34-079-20261-00-00 Project:

County: JACKSON Twp. BLOOMFIELD Sec: 0 Lot: 0 Wl Typ: OG_R

Owner: SHERMAN STEVEN P & MICHELL D Resp Co

Well Name: RAPIER No.: D1-16-35

Directions to site:

Inspection Type: Production Wells Contact: Phone (740) 978-0309

Address

Inspection Purpose: Status Check

Type of Notification Phone Call Contact MORGAN BUTTON

NOV Requirements: Inspection requires action

The well was shut-in, not producing gas. Well head was 25' from tank. There was no containment berm around tank. Sign barely legible. Property ownership change is in the process. New owner contacted me on 09.21.2012 about what he needed to transfer ownership from Knox to his company. Gave him information and had him contact Erica Freeman in Columbus about getting the latest forms for changing ownership of a well.

OHIO REVISED CODE CHAPTER 1509. PROVIDES FOR ADDITIONAL NON-EXCLUSIVE REMEDIES WHICH THE DIVISION MAY PURSUE.

Accompanied by _____

INJECTION/PRESSURE ☐ Vac ANNULUS/PRESSURE: ☐ Vac FLOW/METER ☐ Vac

HAULER NO: LISCENSE_NUM:

Inspection Date: 9/24/2012

Date notice of violation Issued:

Required action to be completed by:

Extended action completed:

Required action completed:

Signature: _____
MORGAN BUTTON

Reviewed by: _____

Forward to: _____
Section/Name

ATTACHMENT D

Acid Mine Drainage Abatement and Treatment (AMDAT) Plan for the Little Raccoon Creek, Watershed, Jackson County, Ohio

ACID MINE DRAINAGE ABATEMENT AND TREATMENT (AMDAT) PLAN FOR THE LITTLE RACCOON CREEK WATERSHED, JACKSON COUNTY, OHIO

by

Brett Laverty
Mia Painter
Mary Stoertz
Ohio University, Department of Geological Sciences, Athens, Ohio

J.B. Hoy
Rachael Hoy
Ohio University, Institute for Local Government Administration and Rural Development

Jennifer Last
Ohio University, Masters of Science and Environmental Studies Program

Chip Rice
Coordinator, Raccoon Creek Improvement Project

Mitchell Farley
Ohio Department of Natural Resources, Division of Mineral Resources

June 2000

TABLE OF CONTENTS

LIST OF FIGURES

SECTION 1: AMD ABATEMENT AND TREATMENT PLAN

INTRODUCTION

PURPOSE AND ORGANIZATION OF REPORT

The purpose of this report is to provide a rationale for treating Little Raccoon Creek watershed sources of acidic, sediment and metal-laden waters. Justification consists of evidence that the creek is contaminated to the point of being unable to sustain healthy aquatic communities. The rationale for treatment of particular sources is prioritized based on heavy acidity and metal loading. Because acid mine drainage is widespread in the basin, an intensive field investigation was conducted to identify (1) highly polluted tributaries, and then (2) sources of pollution within the tributaries. Users of this data should be cautioned that water quality shows extreme variability, and that these data represent discrete samples in time. They do not represent mean annual conditions, although in many cases high- and low-flow conditions were sampled. We believe that they show relative contributions of sources, allowing sources to be prioritized. There is a strong possibility that important sources could be discovered in the future, as discussed in the section *Future Monitoring*. Before detailed source reclamation is designed, water quality variation at treatment sites should be measured over a period of time to characterize variability of design parameters such as flow or acidity loading. This report measures spatial variability of water quality over a large area, at a few points in time. Treatment designs require measuring time-variability of water quality at relevant points over at least a year. Design may also warrant analyzing additional parameters that may be a concern in treatment.

This report includes, (1) mainstem loading, (2) tributary loading, and (3) source loading, described by sub-watershed. The intent of this structure is to allow sub-watershed sections to be pulled out individually for inclusion in proposals as the Raccoon Creek Improvement Committee and partners find time and funds for characterizing, monitoring and treating sources.

METHODS

A phased approach was used to prioritize sources based on acidity and metal loads. A Corning Checkmate meter was used to measure pH and specific conductance. The meter was calibrated daily.

Phase I: The Little Raccoon Creek mainstem and tributary mouths (36 sites) were sampled during a 3-day period.

Phase II: Each sub-watershed was screened over several days. Feeder streams of poor water quality based on this screening were visited on a second trip to collect grab samples.

Phase III: Point sources were identified by following poor-quality feeder streams up to the sources of acid mine drainage. Grab samples were taken, discharge was measured, and a qualitative site assessment was done to identify gob piles, ponding, or any other relevant features to the source or treatment.

Samples were collected in a triple-rinsed bucket and split into two triple-rinsed bottles. One bottle was acidified with 20% HCl solution; the other was a cubitainer with the air squeezed out of the headspace. Samples were not filtered. Samples were analyzed in Coshocton Environmental Testing Lab, and later ODNR's Cambridge lab, using the same protocol. Parameters measured were ODNR's Group I (pH, total acidity as $CaCO_3$, total alkalinity, specific conductance, total suspended solids, sulfate, total iron, total manganese, aluminum, hardness and total dissolved solids). Group I is sufficient to prioritize sources based on acidity and metal loads.

Discharge was measured for each sample in order to calculate loading (concentration x discharge), using methods appropriate to flow volume. For large discharges a pygmy meter was used. The meter was calibrated daily using 60 seconds of free spin as a criterion. For moderate discharges, a collapsible cutthroat Baski flume was used. Flume throat size (1", 2", 4" or 8") was selected to keep the stage in the flume between 0.2 and 0.5 feet. For small discharges, the flow was dammed and piped into a length of PVC to capture with a bucket using a stopwatch to measure filling time. Samples were packed in ice immediately to limit reactions, and shipped in ice to arrive at the lab on a daily basis.

Loading is calculated as the product of discharge with acidity, alkalinity or metal concentration, and is expressed in lb/day because of treatment considerations. In this report,

metal loading is the sum of the individual loads of the three Group I metals, iron, manganese and aluminum.

ABSTRACT

Little Raccoon Creek is a 38.5-mile long stream in Jackson, Vinton and Gallia Counties, and the largest tributary of Raccoon Creek. Historic coal mining activities have caused extreme pollution of the waterway from acid mine drainage and sedimentation. According to the OEPA, in the *Biological and Water Quality Study of The Raccoon Creek Basin (1995),* a steady improvement in the streams alkalinity and pH should be noted. This improvement is most likely due to the attenuation, remining and the reclamation of abandoned mines by various agencies. The biological health of the stream has similarly improved over the same period, though populations are still inhibited by acid mine drainage from several tributaries entering Little Raccoon Creek.

The Little Raccoon Creek Hydrologic Unit document identifies specific mine sites in Mulga Run, Middleton Run, Rich Run, Flint Run, Goose Run and other discrete locations for remediation. It is thought that targeted reductions in acid mine drainage pollution will provide a significant and immediate improvement in biologic response and overall stream health.

IDENTIFICATION OF THE HYDROLOGIC UNIT

NAME:	Little Raccoon Creek Watershed
TRIBUTARY TO:	Raccoon Creek of Ohio River Basin
LOCATION:	South Central Vinton County, eastern Jackson County, and northwest Gallia County, southeast Ohio.
QUADRANGLES:	USGS 7.5' quadrangle Mulga, Ohio covers main AMD area.
DRAINAGE:	155 mi^2; perennial reach is 38.5 miles long

AMD EFFECTS ON WATER QUALITY AND BIOLOGICAL RESOURCES

WATERSHED DESCRIPTION

In the Little Raccoon Creek watershed, acid mine drainage (AMD) from abandoned underground and surface coalmine spoils and coal refuse, has degraded stream water quality and damaged fish and macroinvertebrate habitat. Little Raccoon Creek's perennial reach is 38.5 miles long and has 62.5 miles of tributaries (Figure 1). The headwaters are in south central Vinton County and water flows southeast through eastern Jackson County and enters Raccoon Creek in northwestern Gallia County. The headwaters of Little Raccoon Creek are at RM 50 (that is, 50 river miles upstream from the mouth), six miles northwest of Hamden in Vinton County, with an elevation of approximately 1000 feet. At the mouth of Little Raccoon Creek, in Gallia County, the elevation is approximately 600 feet. The perennial reach of Little Raccoon Creek (RM 0.0 to RM 38.5) drops from 760 ft to 600 ft in 38.5 miles, so the gradient is about 4.2 feet per mile.

The topography is typical of southeastern Ohio, part of the unglaciated Western Allegheny Plateau bioregion, with steep rolling hills and narrow valleys, and an overall watershed relief of 400 feet. The bedrock consists of sedimentary Pottsville, Allegheny, and Conemaugh Formations of the Pennsylvanian Age. This area has an average annual precipitation of 40 inches per year (Harstine, 1991).

Little Raccoon Creek discharges approximately 400 cubic feet per second (cfs) into Raccoon Creek during high flow and less than 10 cfs during low flow. Little Raccoon Creek is a major tributary of Raccoon Creek and accounts for 22% of the drainage area of Raccoon Creek.

Improvements in stream water quality have been noted over time, resulting in improved use designation for some sections of the watershed. Ohio EPA's *Biological and Water Quality Study of The Raccoon Creek Basin (1995)* states that "Alkalinity and pH both showed increases through the period (1988 – 1995)….Those parameters showing an improvement during the period are generally considered mine drainage parameters. These improvements are most likely the result of many projects undertaken throughout the basin by various agencies to abate mine drainage problems" (pg. 128).