Environmental Services

Engineering Services

Notice of Intent for Coverage Under Remediation General Permit MAG910000

399 Northampton Road
Amherst, Massachusetts

July 2018

Prepared for:

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326 Clark Street
Worcester, MA 01606

Prepared by:

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PREPARERS' CERTIFICATION

The undersigned employees of CMG Environmental, Inc. (CMG) prepared and reviewed this report. Please direct any requests for additional information regarding the content of this document to these individuals.

Matthew Reiser, CHMM
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7/20/18
Date

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Principal

7/20/18
Date

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1.0 INTRODUCTION

CMG Environmental, Inc. (CMG) has prepared the attached Notice of Intent (NOI) for the National Pollutant Discharge Elimination System (NPDES) General Permit for Remediation Activity Discharges (RGP) for the Commonwealth of Massachusetts (MAG910000) and State of New Hampshire (NHG910000). Attachment A provides a copy of the NOI.

1.1 PURPOSE & BACKGROUND

1.1.1 PURPOSE OF SUBMITTAL

The purpose of this submittal is to obtain authorization to temporarily discharge treated groundwater extracted during removal of three 10,000-gallon underground storage tanks (USTs) and replacement of new tanks at 399 Northampton Road in Amherst, Massachusetts (the Site). Figure 1 - Site Location Map depicts the Site in relation to streets and other topographic features.

1.1.2 HISTORICAL & ENVIRONMENTAL BACKGROUND

The Site is a retail petroleum service station which has been in service for at least 30 years. In 1989, a leaking UST incident report (ER# W89-472) was filed by the Massachusetts Department of Environmental Protection (MassDEP) upon removal of three 6,000-gallon USTs. Less than one-half inch of light non-aqueous phase liquid (LNAPL) was observed on the groundwater during removal of the USTs. Excavation of soils was limited to the removal of soil necessary for the installation of the new tanks. A MassDEP incident report, prepared in November 1989, indicated that up to one-half inch of product was present in the recovery well installed to a depth of 15 feet below grade (fbg) immediately south of the tank grave to assist in the dewatering for the installation of the new USTs.

In 1998, a Quick-Lube facility was constructed adjacent to the source area. The activities included dewatering during excavation for the foundation and footings of the new building; screening, sampling and segregation of contaminated soils for off site disposal; and collection of post-excavation soil samples. Soils were excavated to a maximum depth of 9 fbg in the new building footprint. Nearly 658 tons of gasoline-impacted soils were excavated from the site and transported for asphalt batch recycling. An 18-inch perforated steel pipe was installed adjacent to the eastern corner of the excavated area to a depth of approximately 12 fbg for dewatering. Approximately 8,440 gallons of water and gasoline were collected during dewatering activities and disposed of at a permitted facility.

A combination of bio-venting, low flow soil vapor extraction (SVE), air sparging (AS) and continued operation of the existing foundation curtain drain/sump pump groundwater treatment system was installed/activated in October 2001. The system was shut down in January 2005 due to a historical trend of decreasing groundwater contamination unrelated to groundwater elevation and the leveling off of petroleum recovery from the SVE-AS system.

A second groundwater treatment system consisting of the 18-inch corrugated stainless steel pipe installed during construction activities in 1998 for dewatering purposes fitted with a submersible pump and two 200-pound liquid phase granular activated carbon (LPGAC) cannisters was installed/activated in late 2005. It is believed that this treatment system is no longer operating.

The treated discharge was originally permitted under the National Pollutant Discharge Elimination System (NPDES) and later under the USEPA Remediation General Permit (MAG910175).

The planned excavation dewatering that is the subject of this NOI is not intended to remediate a known release to groundwater. However, as the groundwater in the area has historically been impacted, registration is being made under the RGP rather than the dewatering general permit.

1.2 SITE LOCATION & IDENTIFICATION

The Site is located at 399 Northampton Road, Amherst, MA 01002. See Figure 2 - Site Plan. It is on the northwestern side of Northampton Road, southwest of the intersection of Northampton Road and Snell Street. The Town of Amherst Assessor's Map identifies the property as parcel 13D-2, which consists of a total of 0.59 acres (approximately 25,640 square feet) of land.

The coordinates for the center of the Site are 42.366068° N, -72.535225° W. Figure 2 (Site Plan) depicts site boundaries.

1.3 PARTY SEEKING COVERAGE

Name:	Nouria Energy Corporation
Address:	326 Clark Street Worcester, MA 01606
Contact:	Paul Belanger, Construction Project Manager 508-612-0834

2.0 PRE-DISCHARGE CHARACTERIZATION

2.1 SITE GROUNDWATER CHARACTERIZATION

CMG collected a sample of groundwater from the Site on June 29, 2018 and submitted the sample to Eurofins Spectrum Analytical, Inc. (Spectrum) of Agawam, Massachusetts (a state-certified and NELAC-accredited environmental laboratory) for analysis of the following parameters.

- Volatile organic compounds (VOCs) by EPA Method 8260C;
- Semi-volatile organic compounds (SVOCs) by EPA Method 8270D (full list);
- Extractable petroleum hydrocarbons by EPA Method 8100Mod;
- Total antimony, arsenic, barium, cadmium, chromium, copper, iron, nickel, lead, selenium, silver and zinc by EPA Method 6010C;
- Total mercury by EPA Method 245.1/7470A;
- Chloride by EPA Method 300.0;
- Total residual chlorine by Standard Method 4500-Cl-G (11);
- Cyanide by EPA Method 335.4/9012B;
- Total dissolved solids by Standard Method 18-22 2540C;
- Total suspended solids by Standard Method 2540D (11); and
- Ammonia as nitrogen by EPA Method 350.1.

CMG recorded the results of our analyses in the NOI presented in Attachment A, which also includes the laboratory report (following the NOI).

2.2 RECEIVING WATERBODY CHARACTERIZATION

The receiving waterbody for this discharge is an unnamed stream located approximately 1,050 feet west of the Site. This stream flows north to the Mill River (MA34-25_2012) which then flows west to the Connecticut River.

2.2.1 WATER QUALITY

CMG collected a sample of the water in the unnamed tributary upstream of the location of the discharge outfall to it on July 10, 2018 and submitted it to Spectrum for analysis of the following parameters.

- Temperature by field measurement;
- pH by field measurement and ASTM D 1293-99B;
- Hardness (as $CaCO_3$) by Standard Method 2340B (11);
- Ammonia as nitrogen by EPA Method 350.1;
- Total antimony, arsenic, cadmium, chromium, copper, iron, nickel, lead, selenium, silver and zinc by EPA Method 200.7; and
- Total mercury by EPA Method 245.1/7470A.

The table below summarizes the results of the receiving waterbody monitoring and the laboratory analytical results are included in Attachment A.

RECEIVING WATERBODY QUALITY
SAMPLE 'REC-H2O' (LAB ID SC48548-01)

Parameter	Field Measurement	Laboratory Result
	°C (1)	
Temperature	21.6	NA (2)
	S.U. (1)	
pH	7.06	7.20
	mg/L (1)	
Hardness	NA	281
Ammonia as N	NA	1.00
Total Antimony	NA	<0.0060
Total Arsenic	NA	0.0132
Total Cadmium	NA	<0.0025
Chromium III	NA	<0.0250
Chromium VI	NA	<0.025
Total Copper	NA	0.0163
Total Iron	NA	<0.125
Total Lead	NA	<0.0075
Total Mercury	NA	<0.00020
Total Nickel	NA	<0.0050
Total Selenium	NA	<0.0150
Total Silver	NA	<0.0050
Total Zinc	NA	<0.0250

Notes:
1. °C = degrees Celsius; S.U. = Standard Units; mg/L = milligrams per liter
2. NA = Not Analyzed

2.2.2 OUTFALL LOCATION AND FLOW

CMG plans to discharge to an onsite catch basin that discharges to a private storm sewer system west of the Site that ultimately discharges to the unnamed tributary west of the Site. The coordinates of the catch basin are 42.366205°N, -72.535576°W.

CMG used the USGS StreamStats online application (https://streamstats.usgs.gov/ss) to determine low-flow characteristics for this outfall. CMG determined the following:

- The outfall into the unnamed tributary west of the Site drains an area of 0.04 square miles (25.6 acres); and
- The 7-day, 10-year low flow (7Q10) is 0.00344 ft^3/s (~1.5 gpm, 0.002 MGD).

Attachment B provides the StreamStats report for the Site.

2.2.3 MASSACHUSETTS DILUTION FACTOR AND WATER QUALITY-BASED EFFLUENT LIMITATIONS

CMG used the 7Q10 flow from StreamStats to determine the dilution factor for the planned Site discharge. CMG estimates the planned discharge to be approximately 100 gpm (0.144 MGD). RGP Appendix V, Section I.B., provides an equation for calculating dilution factor as:

$$\frac{Q_s + Q_d}{Q_d}$$

Where: Q_s = 7Q10 in MGD

Q_d = (Permitted) discharge flow in MGD

Using this equation, CMG determined a dilution factor of 1.01.

CMG used the EPA-provided spreadsheet for calculating Water Quality-Based Effluent Limitations (WQBELs) for the RGP at https://www3.epa.gov/region1/npdes/remediation/MALimitsBook.xlsx to determine appropriate effluent limits. Attachment C provides a copy of the calculated freshwater effluent limits for the Site. CMG entered WQBELs where applicable on the NOI, in accordance with the results of our calculation.

CMG notes the 0.0039 µg/L WQBELs calculated for Group I polycyclic (polynuclear) aromatic hydrocarbons (PAHs) are an order of magnitude below the detection limit our laboratory using modified EPA Method 625 (SIM) and are thus not practical to achieve. The achievable laboratory detection limit is 0.050 µg/L.

3.0 DISCHARGE TREATMENT

3.1 TREATMENT SYSTEM PARAMETERS AND DESIGN

The site contractor will prepare a drain sump with a perforated pipe dewatering well. The pipe will be wrapped with filter fabric and the sump backfilled with stone. The stone and filter fabric will provide the first measure of filtration. Water pumped from the well will then pass through the following additional treatment:

- Up to four 21,000-gallon fractionation (frac) tanks to allow settling of solids by loss of velocity;
- A 100-gallon per minute (gpm) pump connected after the frac tanks will discharge water through the rest of the system;
- After the pump, water will pass through one 10-µm duplex bag filter skid to capture additional suspended solids; and
- Two 2,000-pound GAC reaction vessels connected in series to remove organic contaminants.

It is believed that the metals present can be removed by controlling total suspended solids. If necessary, an ion exchange media system will be implemented to further eliminate metals.

Flow will pass through a flow meter totalizer after treatment to record discharge rate and overall volume, and will discharge to an onsite catch basin. The catch basin discharges to a private storm sewer system west of the site, ultimately discharging into the unnamed stream approximately 1,050 feet west of the site.

Figure 3 - Site Plan with Proposed Treatment System depicts the discharge flow path and Figure 4 - Proposed Treatment System Process Flow Diagram provides a treatment system diagram for the discharge. Attachment D provides information about the proposed equipment to be used in the treatment system planned for use at the Site.

3.2 MONITORING REQUIREMENTS

CMG will prepare and implement a Best Management Practices Plan (BMPP) prior to initiating the discharge. We will perform monitoring in accordance with Section 4.0 and Appendix IV of the RGP. The anticipated discharge duration is approximately 7 days (possibly less), and thus constitutes a “short-term discharge” subject to Section 4.4 of the RGP. We will perform monitoring either in accordance with Section 4.4.2 (“Short-Term Discharges Other than Those from Dewatering of Pipelines and Tanks”). We anticipate Section 4.4.2.b. (discharges lasting 7 days or less) will apply.

If the discharge runs longer than anticipated, we will continue monitoring in accordance with Section 4.4.2.c.

CMG will prepare Discharge Monitoring Reports for electronic submittal to EPA Region 1 in accordance with Section 4.6.1.b. (NetDMR submittal is not required for this discharge).

4.0 ENDANGERED SPECIES AND HISTORIC PROPERTIES

4.1 ENDANGERED OR THREATENED SPECIES AND HABITAT

CMG consulted the U.S. Fish & Wildlife Service (US FWS) Information, Planning and Conservation System (IPaC) at http://ecos.fws.gov/ipac to determine if protected species are present in the action area of the discharge. Attachment E provides a copy of the IPaC report.

There is no critical habitat in the planned discharge area. The only listings of endangered species in the vicinity of the Site are the threatened Northern Long-eared Bat the threatened Small Whorled Pogonia. The bat utilizes trees during summer months and hibernates in caves or mines during wintertime. As this project will not involve tree removal, it is unlikely these bats will be affected. Additionally, as the Site is fully developed in an urbanized area, the presence of the Small Whorled Pogonia is unlikely. As such, we believe the subject discharge meets the requirements of US FWS Criterion A based upon our review.

The subject discharge does not occur in one of the fisheries or potential habitats listed in the RGP or its appendices and is unlikely to affect marine species.

4.2 HISTORIC PROPERTIES

CMG reviewed the Massachusetts Historical Commission Massachusetts Cultural Resource Information System (MACRIS) webpage (http://mhc-macris.net) to identify nearby historic properties. There are numerous properties listed on Northampton Road in the MACRIS report. However, the nearest entry is 0.2 miles northeast of the Site. CMG therefore concludes Criterion A applies to this discharge with respect to historic properties. The MACRIS report is presented in Attachment F.

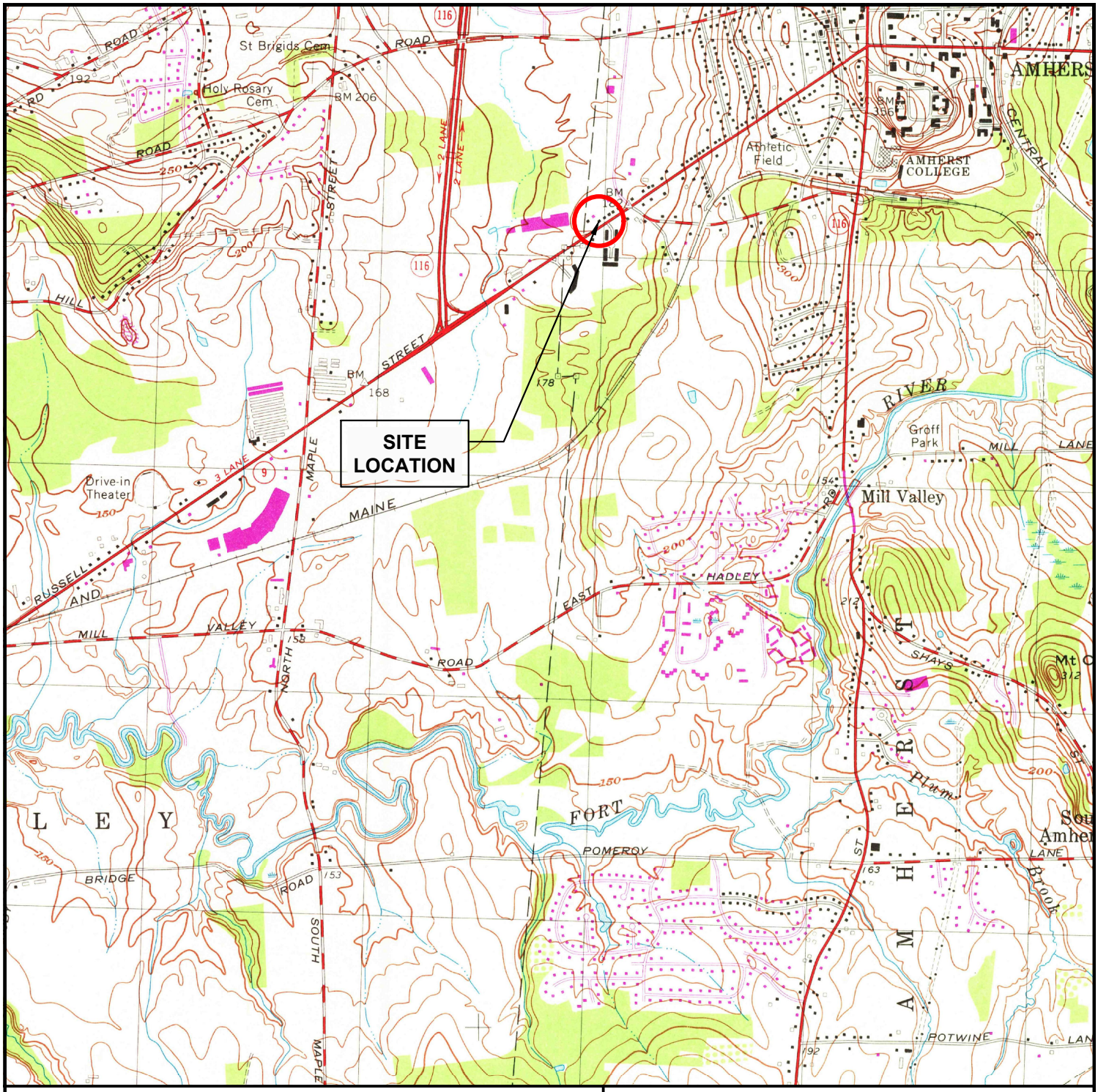
Figures

Figure 1 - Site Location

Figure 2 - Site Plan

Figure 3 - Site Plan with Proposed Treatment System

Figure 4 - Proposed Treatment System Process Flow Diagram



TOWN LOCATION - AMHERST, MA

FIGURE 1: SITE LOCATION

399 NORTHAMPTON ROAD
AMHERST, MA 01035
CMG ID 2018-136

SCALE 1:25,000

2000 FT 0 2000 FT

ENVIRONMENTAL SERVICES

CMG EST. 2002

ENGINEERING SERVICES

67 HALL ROAD. STURBRIDGE MA 01566

Google Maps Figure 2 - Site Plan

Imagery ©2018 Google, Map data ©2018 Google 50 ft

Figure 2 - Site Plan
399 Northampton Road, Amherst, MA
CMG ID 2018-136

Google Maps

Imagery ©2018 Google, Map data ©2018 Google 100 ft

Figure 3 - Site Plan with Proposed Treatment System
399 Northampton Road, Amherst, MA
CMG ID 2018-136

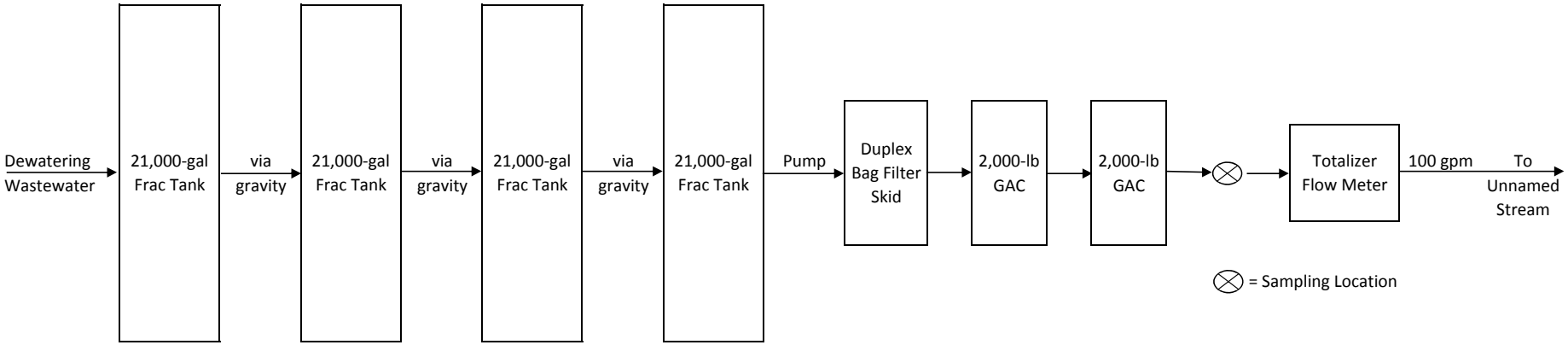



Figure 4
Proposed Treatment System Process Flow Diagram