# REMEDIAL ACTION WORK PLAN

**Former TNT Red Star Express Site**
**97 Industrial Parkway**
**Town of Kirkwood, Broome County, New York**
**NYSDEC Site #704028**

**Prepared for:**

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# 1.0 Introduction/Purpose

This Remedial Action Work Plan is for the remediation of the former TNT Red Star Express, Inc. site located in the Town of Kirkwood, in Broome County. The site is on the NYSDEC's Inactive Hazardous Waste Site Registry and identified by site identification #704028. This work plan was prepared in partial fulfillment of the Order on Consent, index #B7-0521-97-09, between USF Red Star LLC, ("USF") the successor to TNT Red Star Express, Inc., and the New York State Department of Environmental Conservation ("NYSDEC"). The Order on Consent was issued to address the site's need for remediation and includes the development of appropriate work plans, reports, and construction activities required to remediate the site. A Record of Decision ("ROD") for the site was signed on February 23, 2001 requiring USF to implement a groundwater pumping system and a bioreactor treatment system to clean up the site's groundwater contamination problem. In July 2007 NYSDEC issued an Explanation of Significant Difference changing the ROD to insitu intrinsic bioremediation of the groundwater using Regenesis' Hydrogen Releasing Compound ("HRC").

This work plan was prepared as a complement to the Remedial Design Work Plan.
Covered in this Remedial Action Work Plan will be the following topics:

- Location of Constructed Facilities (Injection locations);
- Standards, Criteria and Guidelines (including inspections, monitoring, and professional certifications);
- Controls (dusts, odors, and organic vapors) and Monitoring;
- Health and Safety Plan;
- Estimated Cost;
- Schedule;
- Institutional Controls; and
- Operation, Maintenance, and Monitoring Plan.

# 2.0 Location of Constructed Facilities and SCGs

## 2.1 Location of Constructed Facilities

The remediation of the site will require no constructed facilities, but will require the injection of a lactic acid substrate to change site conditions enhancing the insitu intrinsic bioremediation process. The lactic acid substrate to be used will be Regenesis' HRC-A. The injection of the HRC-A will be done in two areas of the site also referred to as treatment areas:

1. Treatment Area A is the former oil/water separator area where 1,1,1-Trichloroethane ("1,1,1-TCA") is the primary contaminant; and

2. Treatment Area B is located along the southernmost property line between monitoring well GP-2 and immediately east of monitoring well MW-4.

Currently, only Treatment Area B will be completed because Treatment Area A is still utilizing the HRC injected during the September 2006 Pilot Study. Monitoring will identify when additional injections of HRC-A will be needed. The HRC-A will be injected using direct push tools, which will inject the HRC-A within the contaminated zone. The remedial design work plan specifies the amount of HRC-A (per foot of contaminated zone) required and the depth of the top and bottom of the contaminated zone. In general, each treatment zone will be constructed as two parallel lines of injection points. The downgradient injection point locations will be offset from the upgradient injection points by half the distance between the upgradient injection points.

## 2.2 Standards, Criteria, and Guidelines

The Standards, Criteria, and Guidelines ("SCGs") for this project will include the following;

- Technical Operational Guidance Series ("TOGS") 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations.

- Title 6 of New York State Code Rules and Regulations Part 702 "Derivation and Use of Standards and Guidance Values."

- Title 6 of New York State Code Rules and Regulations Part 371 "Identification and Listing of Hazardous Waste."

- Title 6 of New York State Code Rules and Regulations Part 375 "Environmental Remediation Program."

- NYSDEC's Draft DER-10 Technical Guidance for Site Investigation and Remediation, December 2002.

Most important of the SCGs will be the TOGS 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, which specify the acceptable levels of chemicals in the groundwater. In general the chemicals found in the groundwater, which require remediation, have a groundwater quality criteria of 5 micrograms per liter ("µg/L") with the exception of Vinyl Chloride, which has a limit of 2 µg/L.

In addition to these regulatory requirements, the NYSDEC requires all remedial work plans be prepared under the supervision and certified by an engineer licensed by the State of New York.

# 3.0 Control (dusts, odors, and organic vapors) and Monitoring

The HRC injection procedures are addressed in the Remedial Design Work Plan. This document addresses the control of dusts, odors, and organic vapors. Other health and safety and exposure concerns are addressed in the project Health and Safety Plan. It is envisioned that dusts, odors and organic vapors will not be an issue, because of the type of activity planned and our experience with the site conditions. However, the potential for organic vapors is present and will be monitored for during the injection and sampling activities. Dust is not expected to be an issue because there will be no excavating work and the products being used are viscous liquids and water. If workers detect odors or if monitoring reveals organic vapors are a problem by either being a nuisance or exceeding the Health and Safety Plan's action level, activities will be suspended until the problem can be resolved. If the problem cannot be addressed, the Health and Safety Officer will require an appropriate upgrade in worker safety equipment and perimeter monitoring.

# 4.0 Health and Safety Plan

The Site's Health and Safety Plan for the planned activities is provided in Appendix B of the Remedial Design Work Plan.

# 5.0 Estimated Cost

The estimated cost for implementing the remediation and two years of monitoring is approximately $180,000.00.

# 6.0 Schedule

The schedule for the project is presented in phases on Figure 7 in the Remedial Design Work Plan. The project phases include:

- Procurement and mobilization;
- Implementation; and
- Operation, Maintenance, and Monitoring

The complete project will take approximately two years to achieve the remedial action objectives.

# 7.0 Institutional Controls

Since the site is an industrially zoned property and the site contaminants are only in the site's groundwater, there are minimal risks of exposure from surface soils, which might require institutional controls such as fencing to restrict access. The current zoning of the property does not allow the property use for residential purposes, childcare facilities, or schools.

# 8.0 Operation, Maintenance, and Monitoring Plan

Following the implementation of the remedial design, groundwater conditions will require monitoring to measure the progress of the groundwater cleanup and to monitor the effectiveness of the bioremediation process. To accomplish this monitoring, quarterly groundwater samples will be collected for the two years at which time the operation, maintenance and monitoring plan will be re-evaluated.

Analyses to be completed will include USEPA Target Compound List ("TCL") volatile organic compounds, Methane, Ethane, Ethene, inorganic carbon (Alkalinity), and field parameters including pH, temperature, dissolved oxygen, and oxidation – reduction potential ("ORP"). Sampling for these parameters will follow the procedures detailed in the Remedial Design Work Plan.