DECISION DOCUMENT

Sun Chemical Corporation
Brownfield Cleanup Program
Staten Island, Richmond County
Site No. C243024
August 2015

Prepared by
Division of Environmental Remediation
New York State Department of Environmental Conservation

DECLARATION STATEMENT - DECISION DOCUMENT

Sun Chemical Corporation
Brownfield Cleanup Program
Staten Island, Richmond County
Site No. C243024
August 2015

Statement of Purpose and Basis

This document presents the remedy for the Sun Chemical Corporation site, a brownfield cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Sun Chemical Corporation site and the public's input to the proposed remedy presented by the Department.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Excavation

Lot 12: Excavation and off-site disposal of contaminated soil above restricted residential soil cleanup objectives (RRSCOs) to achieve a Track 4 remediation intended for restricted residential use for Lot 12, as defined by 6 NYCRR Part 375-6.8(b).

Approximately 3,293 cubic yards of soil, containing elevated concentrations of metals (e.g., arsenic, barium, cadmium, nickel and lead), polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAHs), will be excavated from Lot 12 from varying depths (2-7 feet below ground surface [bgs]).

Lot 54 soil which does not exceed the SCOs for restricted-residential use described below may be used to backfill the excavation below the cover system described in remedy element 3.

Clean fill meeting the requirements of Part 375-6.7(d) may be brought in to replace excavated soil and establish the designed grades at the site.

Lot 54: All soils on Lot 54 which exceed residential use SCOs (RSCOs) from the upper 15 feet, as defined by 6 NYCRR Part 375-6.8, will be excavated and transported off-site for disposal.

Approximately 1,880 cubic yards of soil, containing elevated concentrations of metals (e.g., arsenic, barium, cadmium, nickel and lead), PCBs, and PAHs, will be excavated from Lot 54 from varying depths (2-10 feet bgs).

Clean fill meeting the requirements of Part 375-6.7(d) will be brought in to replace excavated soil and establish the designed grades at the site.

3. Site Cover

Lot 12: A site cover will be required to allow for the restricted-residential use of Lot 12. The cover will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper two feet of exposed surface soil will not meet the applicable SCOs. Where the soil cover is required, it will be a minimum of two feet of soil, meeting the SCOs for the cover materials as set forth in 6 NYCRR Part 375-6.7(d) for restricted-residential use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

Lot 54: A site cover would not be required for a Track 2 cleanup.

4. Groundwater Treatment

In-situ chemical oxidation (ISCO) will be implemented to treat chlorinated volatile organic compounds in groundwater. A hydrogen peroxide solution (including a catalyst and other products) will be injected into the subsurface to destroy the contaminants in an approximately

3,600-square foot area surrounding monitoring wells MW-3 and MW-3D, located in the southwestern portion of the site. The chemical oxidant solution will be delivered via sixteen (16) injection wells in a grid 15-foot on center to ensure overlapping radius of influence during the injection. The injection points will be installed as triplets each comprising a shallow well (to 24 feet), an intermediate well (to 33 feet) and a deep well (to 44 feet).

5. Institutional Control

Imposition of an institutional control in the form of an environmental easement for Lot 12 (the controlled property) that:

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allows the use and development of the controlled property for restricted-residential, commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOH;
- requires compliance with the Department approved Site Management Plan.

Institutional controls are not required for Lot 54.

6. Site Management Plan

A Site Management Plan is required for Lot 12, which includes the following:

a) An Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The Environmental Easement discussed in Paragraph 5 above.

Engineering Controls: The Site Cover discussed in Paragraph 3 above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or

engineering controls.

b) A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- monitoring of groundwater to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department; and
- monitoring for vapor intrusion for any buildings (if necessary) developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

c) An Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy, if necessary. The plan includes, but is not limited to:

- maintaining site access controls and Department notification; and
- providing the Department access to the site and O&M records.

A site management plan is not required for Lot 54.

Declaration

The remedy conforms with promulgated standards and criteria that are directly applicable, or that are relevant and appropriate and takes into consideration Department guidance, as appropriate. The remedy is protective of public health and the environment.

August 12, 2015

Date

Robert Cozzy, Director
Remedial Bureau B

DECISION DOCUMENT

Sun Chemical Corporation
Staten Island, Richmond County
Site No. C243024
August 2015

SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of contaminants at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of contaminants at this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum.

The New York State Brownfield Cleanup Program (BCP) is a voluntary program. The goal of the BCP is to enhance private-sector cleanups of brownfields and to reduce development pressure on "greenfields." A brownfield site is real property, the redevelopment or reuse of which may be complicated by the presence or potential presence of a contaminant.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all remedies. A public comment period was held, during which the public was encouraged to submit comment on the proposed remedy. All comments on the remedy received during the comment period were considered by the Department in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repository:

ST. GEORGE LIBRARY CENTER
5 CENTRAL AVENUE
STATEN ISLAND, NY 10301
Phone: 718-442-8560

Receive Site Citizen Participation Information By Email

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email

listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary Cleanup Program, and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html

SECTION 3: SITE DESCRIPTION AND HISTORY

Location: The Sun Chemical Corporation site is located at 441-443 Tompkins Avenue and 83 Chestnut Avenue in an urban portion of the Rosebank section of Staten Island, Richmond County, New York.

Site Features: The site consists of 5.196 acres. The site comprises two tax lots in Tax Block 2846, including: Lot 12, the majority of the property and the land on which manufacturing operations have occurred; and Lot 54, formerly a portion of a passenger and freight railroad. The site is fenced and is bordered on the south by privately owned real property, on the north by Chestnut Avenue, on the west by Tompkins Avenue, and on the east by privately owned real property. All structures were previously demolished and the site is vacant with the exception of an occupied security guard shack located on the western property boundary.

Current Zoning and Land Use: Lot 12 is currently zoned M3-l (manufacturing) and Lot 54 is zoned R3A (residential). The site is currently owned by SUN/DIC Acquisitions, Corp. and is vacant. The surrounding parcels are currently used for residential use. A church and the former affiliated parochial school are located to the west and southwest. A museum and neighborhood playground are located across Tompkins Avenue to the west.

Past Use of the Site: The site formerly consisted of a multi-story two-wing manufacturing building, support buildings (offices, warehouse laboratory, maintenance shop), exterior aboveground storage tanks and perimeter parking areas. All manufacturing buildings have been demolished.

Prior to 1908 the site was used for residential, lodging, and entertainment purposes. In 1908, the site was developed for industrial operations, for the production of various pigments for use in ink, plastics, coatings and cosmetics preparations, and operated in that capacity without material changes until 2008. The Lot 12 portion of the site has historically been used by G. Siegle & Co. Color Works, a pigment production facility (1907-1928), the Ansbacher-Siegle Corp., manufacturers of dry colors (1937-1962), Ansbacher Siegle Division of Sun Chemical Corp. Colors (1965) and Sun Chemical Corp. Pigments Department (1970-1979). The Lot 54 portion of the site has historically been used as a Staten Island Metro Transit railroad station (1898-1962) and was acquired by Sun Chemical Corp. in June 1984. Sun Chemical Corporation conducted pigment production operations at the site between 1987 and 2008.

Prior Investigations/Actions:
Several investigations/evaluations were completed at the site prior to the 2010-2015 Remedial Investigation (RI) as follows: 1988 Site Investigation by Sun Chemical to determine the extent of contamination in connection with a 1988 release of a caustic solution; 1994 Hazardous

Substances Disposal Site Study by the Department; 2001 Preliminary Site Assessment Work Plan by Sun Chemical for investigation of the location of 1988 release of a caustic solution, and floors under the filter presses in the main production building (note, the work plan was on hold for several years while Sun Chemical was in various stages of negotiations with the Department to enter a cleanup program); and June 2008 Pre-Demolition Sub-slab Soil Evaluation by Sun Chemical. Based on those investigations/evaluations an initial remedial action was implemented, prior to execution of the Brownfield Cleanup Agreement and without Department oversight, to address contaminated soils exposed and/or disturbed during removal of the buildings and subsequent regrading.

Site Geology and Hydrogeology: Based on soil collected by continuous sampling activities, unconsolidated soils were encountered to the maximum drilling depth of 35 feet. These soils consisted of clayey silt and sand, with minor coarser layers. Soils encountered during preliminary investigations were of the same consistency, with occasional boulders present. A peat layer was also encountered in the southeastern portion of the site. The presence of a peat layer and the associated perched water (8 feet below ground surface [bgs]) appears to be localized given that these conditions were not evident at nearby monitoring wells, completed at the same topographic elevation approximately 130 feet to the west-northwest.

The groundwater level within the overburden aquifer ranges from an elevation of approximately 5 feet bgs at the east boundary of the site to an elevation of approximately 35 feet bgs in the central portion of the site. Groundwater flow direction varies from easterly to northerly, largely following site topography. As such, the highest groundwater elevations are along the southern property boundary, with a component of flow to the north, and a component of flow to the east. The regional groundwater flow direction is generally to the east toward the Upper New York Bay.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict(s) the use of the site to restricted residential use (Lot 12) (which allows for industrial and commercial use) and residential use (Lot 54) (which allows for industrial, commercial and restricted residential use) as described in Part 375-1.8(g) were/was evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the RI to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is available in the RI Report.

SECTION 5: ENFORCEMENT STATUS

The Applicant(s) under the Brownfield Cleanup Agreement is a/are Participant(s). Therefore, the

Applicant(s) does/do have an obligation to address off-site contamination. However, the Department has determined that this site does not pose a significant threat to public health or the environment; accordingly, no enforcement actions are necessary.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A remedial investigation (RI) serves as the mechanism for collecting data to:

- characterize site conditions;
- determine the nature of the contamination; and
- assess risk to human health and the environment.

The RI is intended to identify the nature (or type) of contamination which may be present at a site and the extent of that contamination in the environment on the site, or leaving the site. The RI reports on data gathered to determine if the soil, groundwater, soil vapor, indoor air, surface water or sediments may have been contaminated. Monitoring wells are installed to assess groundwater and soil borings or test pits are installed to sample soil and/or waste(s) identified. If other natural resources are present, such as surface water bodies or wetlands, the water and sediment may be sampled as well. Based on the presence of contaminants in soil and groundwater, soil vapor will also be sampled for the presence of contamination. Data collected in the RI influence the development of remedial alternatives. The RI report is available for review in the site document repository and the results are summarized in section 6.3.

The analytical data collected on this site includes data for:

- groundwater
- soil
- soil vapor

6.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform to promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, Criteria and Guidance are hereafter called SCGs.

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

6.1.2: RI Results

The data have identified contaminants of concern. A "contaminant of concern" is a contaminant

that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized below. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

Nickel	Trichloroethene (TCE)
Polychlorinated Biphenyls (PCB)	Polycyclic Aromatic Hydrocarbons (PAHs),
Lead	Total
1,1,1 TCA	Arsenic
1,1-Dichloroethane	Barium
1,1-Dichloroethene	Cadmium

The contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil

6.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Decision Document.

There were no IRMs performed at this site during the RI.

6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water. The RI report presents a detailed discussion of any existing and potential impacts from the site to fish and wildlife receptors.

Nature and Extent of Contamination:

Soil and groundwater were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), and pesticides. The Remedial Investigation indicated that the primary contaminants of concern at the site include metals, polychlorinated biphenyls (PCBs), semi-volatile organic compounds (SVOCs), and chlorinated volatile organic compounds (CVOCs). Previous environmental investigation on-site also revealed concentrations of metals, SVOCs, CVOCs and PCBs exceeding standards, criteria, and guidance values in the soil and groundwater.

Soil: Based upon investigations to date, surface and sub-surface soils are contaminated with SVOCs (polyaromatic hydrocarbons [PAHs]), PCBs and some metals (e.g., arsenic, barium,

cadmium, lead, and nickel) over restricted residential use soil cleanup objectives (RRSCOS) on Lot 12 and over residential use SCOs (RSCOs) on Lot 54 at varying depths.

Lot 12: Maximum detections vs. applicable RRSCOs are as follows: arsenic at 559 parts per million (ppm) vs. 16 ppm, barium at 2,340 ppm vs. 400 ppm, cadmium at 53 ppm vs. 4.3 ppm, lead at 44,400 ppm vs. 400 ppm, PCBs at 49 ppm vs. 1 ppm, benzo(a)pyrene at 4.3 ppm vs. 1 ppm, benzo(k)anthracene at 4.3 ppm vs. 1 ppm and benzo(k)flouranthene at 4.8 ppm vs. 3.9 ppm.

Lot 54: Maximum detections vs. applicable RSCOs are as follows: arsenic at 42 ppm vs. 16 ppm, barium 490 ppm vs. 350 ppm, lead 433 ppm vs. 400 ppm, nickel at 799 ppm vs. 140 ppm, PCBs at 2.1 ppm vs. 1 ppm, benzo(a)pyrene at 1.5 ppm vs. 1 ppm, benzo(k)anthracene at 1.5 ppm vs. 1 ppm and benzo(k)flouranthene at 1.6 ppm vs. 1 ppm.

Data does not indicate any off-site impacts in soil related to this site.

Groundwater: On Lot 12, groundwater sampling indicates one metal and CVOCs contamination above Class GA groundwater standards a localized area near MW-3 and MW-3D on-site. The groundwater samples were analyzed for metals, SVOCs, VOCs, PCBs and pesticides. Maximum groundwater detections vs. standards are as follows: trichloroethene at 16.7 parts per billion (ppb) vs. 5 ppb, 1,1,1-TCA at 7.35 ppb vs. 5 ppb, 1,1-dichloroethane at 314 ppb vs. 5 ppb, 1,1-dichloroethene at 576 ppb vs. 5 ppb, and nickel at 260 ppb vs. 100 ppb. On Lot 54, groundwater does not exceed standards. Data does not indicate off-site impacts in groundwater related to this site

Soil Vapor: On Lot 12, elevated levels of tetrachloroethylene (PCE) were detected in soil vapor. Concentrations of PCE were detected in the southwestern portion of the site at the concentrations of 120 micrograms per cubic meter (ug/m3). The off-site soil vapor investigation was conducted at an adjacent property and it confirmed that PCE is not present in off-site soil vapor. Because the site is vacant, the inhalation of site-related contaminants due to soil vapor intrusion does not represent a current concern. On Lot 54, soil vapor results did not find any VOCs at levels of concern. Furthermore, environmental data does not indicate any off-site impacts in soil vapor related to this site.

6.4: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure.*

The site is fenced, which restricts public access. Groundwater at the site is not used for drinking or other purposes and the area is served by a public water supply that obtains its water from a different source. Volatile organic compounds in the groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into the overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Because the site

is vacant, the inhalation of site-related contaminants due to soil vapor intrusion does not represent a current concern. Furthermore, environmental sampling has indicated that soil vapor intrusion is not a concern for off-site buildings.

6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

SECTION 7: ELEMENTS OF THE SELECTED REMEDY

The alternatives developed for the site and the evaluation of the remedial criteria are presented in the Alternative Analysis. The remedy is selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation and 6 NYCRR Part 375.

The selected remedy is a dual-track cleanup, consisting of both a Track 4: Restricted Residential use with site-specific soil cleanup objectives remedy for Lot 12 and a Track 2: Residential use with generic cleanup objectives for Lot 54.

The selected remedy is referred to as the Excavation to Residential (Lot 54) and Restricted-Residential (Lot 12) SCOs remedy.

The elements of the selected remedy, as shown in Figure 2, are as follows:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Excavation

Lot 12: Excavation and off-site disposal of contaminated soil above restricted residential soil cleanup objectives (RRSCOs) to achieve a Track 4 remediation intended for restricted residential use for Lot 12, as defined by 6 NYCRR Part 375-6.8(b). Approximately 3,293 cubic yards of soil, containing elevated concentrations of metals (e.g., arsenic, barium, cadmium, nickel and lead), PCBs, and PAHs, will be excavated from Lot 12 from varying depths (2-7 feet below ground surface [bgs]). Lot 54 soil which does not exceed the SCOs for restricted-residential use described below may be used to backfill the excavation below the cover system described in remedy element 3. Clean fill meeting the requirements of Part 375-6.7(d) may be brought in to replace excavated soil and establish the designed grades at the site.

Lot 54: All soils on Lot 54 which exceed residential use SCOs (RSCOs) from the upper 15 feet , as defined by 6 NYCRR Part 375-6.8, will be excavated and transported off-site for disposal. Approximately 1,880 cubic yards of soil, containing elevated concentrations of metals (e.g., arsenic, barium, cadmium, nickel and lead), PCBs, and PAHs, will be excavated from Lot 54 from varying depths (2-10 feet, bgs). Clean fill meeting the requirements of Part 375-6.7(d) will be brought in to replace excavated soil and establish the designed grades at the site.

3. Site Cover

Lot 12: A site cover will be required to allow for the restricted-residential use of Lot 12. The cover will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper two feet of exposed surface soil will not meet the applicable SCOs. Where the soil cover is required, it will be a minimum of two feet of soil, meeting the SCOs for the cover materials as set forth in 6 NYCRR Part 375-6.7(d) for restricted-residential use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

Lot 54: A site cover will not be required, in light of the Track 2 cleanup.

4. Groundwater Treatment

In-situ chemical oxidation (ISCO) will be implemented to treat chlorinated volatile organic compounds in groundwater. A hydrogen peroxide solution (including catalyst and other products) will be injected into the subsurface to destroy the contaminants in an approximately 3,600-square foot area surrounding monitoring wells MW-3 and MW-3D, located in the southwestern portion of the site. The chemical oxidant solution will be delivered via sixteen (16) injection wells in a grid 15-foot on center to ensure overlapping radius of influence during the injection. The injection points will be installed as triplets each comprising a shallow well (to 24 feet), an intermediate well (to 33 feet) and a deep well (to 44 feet).

5. Institutional Control

Imposition of an institutional control in the form of an environmental easement for Lot 12 (the controlled property) that:

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allows the use and development of the controlled property for restricted-residential, commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOH;
- requires compliance with the Department approved Site Management Plan.

Institutional controls are not required for Lot 54.

6. Site Management Plan

A Site Management Plan is required for Lot 12, which includes the following:

a) An Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The Environmental Easement discussed in Paragraph 5 above.

Engineering Controls: The Site Cover discussed in Paragraph 3 above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b) A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- monitoring of groundwater to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department; and
- monitoring for vapor intrusion for any buildings (if necessary) developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

c) An Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy, if necessary. The plan includes, but is not limited to:

- maintaining site access controls and Department notification; and
- providing the Department access to the site and O&M records.

A site management plan is not required for Lot 54.

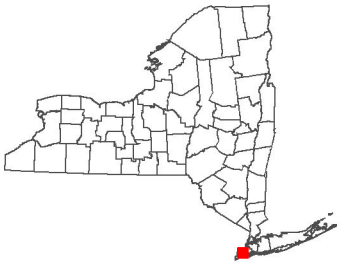

Figure 1

Site Location Map

Sun Chemical Corporation
Rosebank, Richmond County
Site No. C243024

Sun Chemical Corporation
Rosebank, Richmond County
Site No. C243024

Figure 2
Site Map