Proposed Record of Decision Amendment
Dover Electronics Site

Town of Kirkwood / Broome County / Site No. 704026 January 2014

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

SECTION 1: PURPOSE AND SUMMARY OF THE PROPOSED RECORD OF DECISION AMENDMENT

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), is proposing an amendment to the Record of Decision (ROD) for the above referenced site. The disposal of hazardous wastes at this site, as more fully described in the original ROD document and Section 6 of this document, has caused the contamination of various environmental media. The proposed amendment is intended to attain the remedial action objectives identified for this site for the protection of public health and the environment. This amendment identifies the new information which has lead to this proposed amendment and discusses the reasons for the preferred remedy.

The Department has issued this document in accordance with the requirements of 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 Environmental Remediation Programs. This document is a summary of the information that can be found in the site-related reports and documents in the document repository identified below.

On March 30, 2000, the Department signed a ROD for the Dover Electronics Inactive Hazardous Waste Disposal Site to address volatile organic compound (VOC) contamination present in site soil and groundwater. Specifically, the March 2000 ROD selected: installation of a soil vapor extraction (SVE) system to treat inaccessible soils, excavation and off-site disposal of accessible soil, installation of a groundwater extraction and treatment system, property restrictions, and an evaluation of an in-situ groundwater treatment technology to shorten duration of the groundwater extraction and treatment.

On July 25, 2003, the Department approved a remedy modification under an Explanation of Significant Differences (ESD). The significant difference to the remedy approved at that time, compared to the remedy selected in the March 2000 ROD was to install an active sub-slab depressurization system to address indoor air contamination instead of the SVE system to treat soil contamination, and to place a deed restriction on the property to address inaccessible soils. The change was in response to information from an SVE pilot test indicating lower than expected soil vapor permeability. As a result, soil vapor could not be effectively drawn out of the subsurface preventing the successful application of the SVE technology.

Prior to issuance of the ROD, two interim remedial measures (IRMs) were attempted to address contamination at the site. In August 1994, recovery wells (RW-1 and RW-2) were installed near

former tetrachloroethene (PCE) tanks as an interim groundwater extraction and the treatment system operated until 1996. Another recovery well (RW-3) was installed in 1997 and operated until December 1998. The groundwater remediation-by-extraction attempts were of limited success because the tight nature of the glacial till, and the corresponding very low transmissivity across the site, limiting groundwater recovery.

As a result of the finding that the site is not amenable to effective groundwater extraction and in conjunction with the required in-situ treatment evaluation in the ROD, two field pilot tests were conducted as part of an alternative groundwater remediation field study. The field tests consisted of an enhanced bioremediation field study and an in-situ chemical oxidation (ISCO) field pilot test. Enhancing biodegradation of PCE in the source area was found to have limited overall effectiveness, while ISCO was shown to be much more effective in remediating the constituents of concern (COCs) in groundwater. To further evaluate the ISCO in-situ alternative, three phases of ISCO field tests were conducted between 2005 and 2008 to evaluate using sodium permanganate as a full-scale groundwater remedy. The results of the ISCO field tests indicated that the permanganate would be effective at reducing the concentration of COCs in groundwater. As a result, a full-scale ISCO groundwater remedy using sodium permanganate was initiated in November 2011 and is currently being implemented.

The Department is therefore proposing an amendment to the site ROD in addition to the previous ESD. The proposed changes and the reason for the changes are summarized in section 7.3 below.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on this proposed ROD Amendment. This is an opportunity for public participation in the remedy selection process. The information here is a summary of what can be found in greater detail in reports that have been placed in the Administrative Record for the site. The public is encouraged to review the reports and documents, which are available at the following repository:

Kirkwood Town Hall Attn: Ms. Gayle Diffendorf Town Clerk 70 Crescent Drive Kirkwood, New York 13795-9654 Phone: (607) 775-1966	Office Hours: Monday thru Friday 9:00 AM – 1:00 PM 2:00 PM – 4:00 PM Also by Appointment

A public comment period has been set from January 21, 2014 through February 21, 2014 to provide an opportunity for you to comment on these proposed changes. A public meeting is scheduled for January 29, 2014 at the Kirkwood Town Hall, 70 Crescent Drive, Kirkwood, New York 13795 at 2:00 PM.

At the meeting, a description of the original ROD documents and the circumstances that have led to proposed changes in this ROD will be presented. After the presentation, a question and answer period will be held, during which you can submit verbal or written comments on the proposal. We encourage you to review this summary and attend the meeting.

Written comments may also be sent to:

Edward Hampston, Project Manager
NYS Dept. of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7016
(888) 459-8667

Comments will be summarized and responses provided in a Responsiveness Summary. The Department may modify the proposed ROD Amendment based on new information or public comments. Therefore, the public is encouraged to review and comment on the proposed Amendment identified herein. Comments will be summarized and addressed in the responsiveness summary section of the final version of the ROD Amendment. This ROD Amendment is the Department's final selection of the remedy for this site.

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 Dover Electronics site, also known as Universal Instruments/Dover Electronics, is located just south of exit 3 of Interstate Route 81, across Colesville Road, at 29 Industrial Park Road in the Town of Kirkwood, Broome County. The site property is approximately 9 1/2 acres in size and is located in an industrial/commercial area at the western end of the Kirkwood Industrial Park.

Site Features: The property consists of an industrial building and historically had areas outside and inside that stored drums and chemicals. The original building was constructed in 1973, and subsequent additions were built in 1978, 1982, and 1983.

The property is rectangular in shape and is oriented in a southwest-to-northeast direction. The site elevation ranges from approximately 860 to 926 feet above Mean Sea Level. The on-site building is located on a relatively flat area on the northeast side of the property. From the building to the southwest edge of the property (at Industrial Park Drive) the topography dips steeply; from Industrial Park Drive to the Susquehanna River, located approximately 2/3 of a mile southwest of the site, the topography is relatively flat.

Current Zoning and Land Use: The site is currently zoned for industrial development and is in use as

a call center.

Past Use of the Site: Previous on-site circuit board manufacturing processes used tetrachloroethene (PCE) as a cleaning solvent. Originally, the virgin PCE was stored in 55-gallon drums at the former outer drum storage area. During the initial facility expansion, a ramp to the east-side overhead door served as the entry point for PCE drums. As production increased and the facility was again expanded, virgin PCE was stored in a 3,000-gallon aboveground storage tank. A 5,000-gallon "used PCE" aboveground flux storage tank was also on-site. A 10,000-gallon fuel oil tank was reportedly removed from the site in March 1992, and the aboveground PCE system was dismantled in March 1993. Reportedly, two 480-gallon PCE tanks were dismantled and removed from the building interior at that time. As the result of the historic handling and use of PCE, the presence of soil, storm water, and groundwater contamination has been documented at this site.

Operable Units: The site was previously divided into two operable units following the initial ROD; the site soils (OU1), and a groundwater plume (OU2). The remediation of the soil operable unit was conducted in the summer of 2003 and this operable unit is currently in the Site Management phase. OU2 was set up to administer the original groundwater remedy and enhanced bioremediation pilot, however as there was no intention to issue a ROD for this OU, OU2 activities were terminated. Rather than continuing with OU2, interim remedial measure (IRM) elements for groundwater remediation were created under OU1. The groundwater remedy is being completed as an IRM element (OU1A).

Site Geology and Hydrogeology: The shallowest soils at the site consist of a brown, poorly sorted (contains various particle sizes), weathered, glacial till unit that ranges in thickness from approximately 10 to 25 feet. The weathered till layer contains a mixture of clays, silts, sands, gravels and cobbles. The weathered till is brown in color and is fractured/cracked. These fractures are poorly to moderately connected and act as pathways and/or pockets for water and contaminants.

The shallow groundwater underlying the site is flowing through two water-bearing units: a glacial till groundwater unit and a groundwater unit in the glacial sediments, located below the till. In both water-bearing units, groundwater flow is generally to the southwest. The static water level in the till varies from approximately 40 feet below the ground surface at the northern portion of the site to 1 to 3 feet below the ground surface at the southeastern comer of the site mainly due to ground surface elevation differences. The glacial till unit is believed to be a semi-confining aquitard (groundwater does not move through it very easily).

The main regional aquifer in the area is the Five-Mile Point aquifer. The aquifer is in the general area of the site and is used as a potable water supply. However, the limit of the groundwater contamination on site and off site has been defined, and is not currently impacting the Five-Mile Point aquifer.

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. The Dover Electronics site is currently zoned for industrial use. The site is located in the Kirkwood Industrial Park and it is

anticipated that an industrial or commercial use will continue into the foreseeable future. In addition, a deed restriction prohibiting use of impacted areas of the property for uses other than industrial or commercial uses has been implemented.

SECTION 5: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

An Order on Consent and Administrative Settlement between the Department and Universal Instruments Corporation, as a past site operator, to implement the ROD remedial program was signed on January 19, 2001. Previously, the DII Group entered into a Consent Order on May 12, 1998 to implement the RI/FS at the site. The current building occupant, as of May 2006, is Modern Marketing Concepts. Tax records indicate the site owner is LDCS, LLC.

SECTION 6: SITE CONTAMINATION

6.1: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site.

Nature and Extent of Contamination: The primary contaminant of concern at the site is tetrachloroethene (PCE). Over time, some of the PCE has undergone natural degradation which has resulted in the presence of trichloroethene (TCE) and dichloroethene (DCE) in the environment. Investigations indicate that some of the contamination present at the site has migrated in the groundwater from the site to a limited area located immediately southwest of the site (the surface of this area is currently covered by a parking lot). Exceedances of standards, criteria, and guidance (SCGs) include PCE, TCE, and 1,2-DCE in subsurface soils, and groundwater.

6.2: Interim Remedial Measures

An IRM is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Record of Decision.

As discussed in Section 1, two interim remedial measures (IRMs) were attempted to address contamination at the site. In August 1994, recovery wells (RW-1 and RW-2) were installed near former PCE tanks as an interim groundwater extraction and treatment system operated until 1996. Another recovery well (RW-3) was installed in 1997 and operated until December 1998. Approximately 53,000 gallons of groundwater, a relatively small amount, were treated via the two systems.

6.3: 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.*

Measures are in place to control the potential for coming in contact with subsurface soil and groundwater contamination remaining on the site. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Volatile organic compounds in the soil or groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into 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. A sub-slab depressurization system has been installed in the on-site building to prevent the indoor air quality from being affected by the contamination in soil vapor beneath the building. In addition, the Site Management Plan requires an evaluation of the potential for soil vapor intrusion for any future buildings developed on the site, including provisions for implementing actions recommended to address exposures related to soil vapor intrusion.

SECTION 7: SUMMARY OF ORIGINAL REMEDY AND PROPOSED AMENDMENT

7.1 Original Remedy

The components of the March 2000 remedy were as follows:

- Installation of a soil vapor extraction (SVE) system, to address the contaminated inaccessible subsurface soils under the rear of the building.
- The storm water piping system that originates in the building's front roof drains (eventually discharging into the CB-1537 outfall located west of the west comer of the building) would be re-routed so that it would not travel through currently contaminated underground piping; the abandoned piping would then be used as a part of the SVE system.
- Installation of a groundwater extraction treatment system to address the on-site and off-site contaminated groundwater.
- Excavation and off-site disposal (landfill and/or incineration) of the limited amount of contaminated, accessible subsurface and surface soil.
- During the early stages of the implementation of the remedy, supplemental in-situ groundwater treatment (in the area(s) where the highest concentrations are present) will be evaluated to determine if it will be a cost effective way to shorten the duration for the operation of the groundwater extraction and treatment system.
- The Department would seek to have property restrictions placed upon the site as long as residual contamination remains at the site that could create a significant threat to public health or the environment.
- Since the remedy results in hazardous waste remaining at the site, for at least the term of the implementation of the remedy, an operation & maintenance (for the active components of the remedy) and a long-term monitoring program would be instituted.

On July 25, 2003, the Department approved a remedy modification under an Explanation of Significant Differences (ESD). The significant difference to the remedy approved at that time, compared to the remedy selected in the March 2000 ROD is:

- The planned SVE system for the inaccessible soils was not installed; instead, an active sub-slab depressurization (ASD) system has been installed to address indoor air contamination.
- Deed restrictions will be placed on the property to address the inaccessible soils.

The changes were made in response to information from an SVE pilot test indicating lower than expected soil vapor permeability. As a result, soil vapor cannot be effectively drawn out of the subsurface preventing the successful application of the SVE technology.

7.2 New Information

Since the issuance of the FS and ROD, new information about the site and the chosen remedy has been obtained and is outlined below.

- In September 2001 an SVE pilot study was performed at the site in order to gather the information that would be needed to design the intended SVE system to address contaminated inaccessible soils. The results of the pilot study are summarized in a January 2003 Pre-design Report and indicate lower than expected vapor permeability found in the soils during the pilot test. As a result, soil vapor cannot be effectively drawn out of the subsurface; this type of condition prevents the successful application of SVE technology. The results are also indicative of a difficulty in extracting groundwater for treatment and documented why IRM recovery efforts were limited.

- Based on the previous unsuccessful attempts for groundwater remediation by extraction due to the tight nature of the subsurface glacial till and the corresponding very low transmissivity, an enhanced bioremediation field pilot test was conducted from November 2001 to December 2004 to evaluate an alternative remediation method to groundwater extraction. The enhanced bioremediation field study was designed to assess the viability of a combination of hydrogen releasing compound (HRC) and oxygen releasing compound (ORC) as a means to enhance the reductive dechlorination process and breakdown contamination. While groundwater appeared to respond favorably to the HRC efforts on-site, the treatment appeared ineffective in the off-site, downgradient area. It was determined that a tighter pattern for better material distribution is not technically supported. Additionally, the high sulfate and dissolved oxygen content of the groundwater appeared to be a particularly adverse setting for modification using HRC product or other bioremediation enhancement products. As a result of this work, enhanced biodegradation of PCE in the source area was found to have limited overall effectiveness. Additional details are available in the March and November 2007 Groundwater Remediation Progress Reports and March 2010 ISCO Design Report.

- With the limitations identified for enhanced bioremediation, in-situ chemical oxidation (ISCO) field testing using sodium permanganate was initiated in March 2005 and continued until October 2008. In total, three phases of ISCO field tests were conducted at the site to evaluate the effectiveness of ISCO using sodium permanganate as a full-scale groundwater remedy. The various phases and field tests examined concentration of the oxidant, spacing of injection points, material dispersion, and effectiveness of sodium permanganate injection.

Based on a decreasing concentration trend for PCE, visual observation of oxidant distribution, an increase in PCE in source areas indicating flushing of residual PCE from soils, and plume stability with no significant horizontal or vertical migration outside baseline boundaries, implementation of full scale ISCO has been recommended. The March 2010 ISCO Design Report provides additional details on the pilot field testing process and results.

As a result of this new information and the positive results of the pilot study, the Department is proposing to amend the 2000 ROD document for the Dover Electronics Site.

7.3 Proposed Changes to the Original Remedy

A summary of the changes to the Original ROD and previous ESD as proposed in this document are shown in the Table on the following page.

SUMMARY OF PROPOSED REMEDY CHANGES
Dover Electronics Site (No. 704026) Record of Decision Amendment

Media:	2000 ROD / 2003 ESD	Amended ROD
Groundwater	(1) Ground water extraction and treatment via downgradient collection trench and extraction wells; (2) Evaluation of supplemental in-situ groundwater treatment in areas of highest contamination; (3) Long term monitoring; (4) Deed restriction against use of ground water with treatment and approval.	(1) In-situ chemical oxidation (ISCO) in source areas via injection of sodium permanganate (or other approved oxidant); (2) Hot spot application of sodium permanganate (or other approved oxidant) in monitoring wells in areas of downgradient contamination; (3) Monitoring of ground water parameters and quality to assess effectiveness of the ISCO remedy. (4) Long term monitoring; (5) No change to the previously implemented deed restriction.
Soil	(1) Excavation and off-site disposal of accessible subsurface and surface soils from former oil shed area, north catch basin (CB-2044), along storm water outfalls, and along utility lines; (2) Use of a cover system over contaminated inaccessible soils or excavation of soils if cover removed (in lieu of ROD SVE); (3) Deed restriction to limit use of property to industrial/commercial use to restrict exposure unless otherwise approved by the Department; (4) Use of a Site Management Plan (SMP) to maintain IC/ECs at the site.	There are no changes to the soil remedy via this amendment including the previously implemented deed restriction.
Soil Vapor/Indoor Air	(1) Installation of an active depressurization system (ASD) for areas of the building potentially impacted by vapor intrusion; (2) Monitoring of the ASD system to evaluate performance.	There are no changes to the remedy for soil vapor/indoor air via this amendment.
Other Media	(1) Replacement/re-routing of stormwater piping to prevent migration of contaminants	There are no changes to the remedy for other media via this amendment.

SECTION 8: EVALUATION OF PROPOSED CHANGES

8.1 Remedial Goals

Goals for the cleanup of the site were established in the March 2000 ROD. The overall remedial goals were to meet SCGs and be protective of human health and the environment. The remedial action objectives (RAO) and selected remedial actions for the site are shown in Table 1.

8.2 Evaluation Criteria

The criteria used to compare the remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6 NYCRR Part 375). For each criterion, a brief description is provided. A detailed discussion of the evaluation criteria and comparative analysis is contained in the original Feasibility Study. This section will only address a comparison of the groundwater components of the original remedy compared to the proposed amended remedy.

The first two evaluation criteria are called threshold criteria and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

The proposed ROD amendment remedy was evaluated and is protective of public health and the environment. This remedy is consistent with the anticipated future use and the current zoning for the site. The original remedy would remove contaminated groundwater for treatment and discharge. The modified remedy will include in-site treatment and breakdown of the contamination in the groundwater exceeding groundwater standards. Overall, both remedies are protective of human health and the environment, but the amended remedy, through the breakdown of contamination in-situ provides increased protection to human health and the environment.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

Groundwater SCGs for both the original and modified remedies are based on the Department's "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code. The original remedy requires extraction and treatment of the groundwater to meet the SCGs. The amended remedy utilizes injection and breaks down contamination in-situ. Both remedies comply with the groundwater SCGs, but the amended remedy by breaking down contamination in-situ is more likely to provide for compliance with the SCGs.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

The original and modified remedies would present a potential for construction worker and on-site worker exposure due to fugitive emissions including CVOCs and particulates during drilling and remedial systems construction. However, an air monitoring program will be implemented during the construction activities. Although unlikely, if necessary based on the air monitoring program, construction activities can be temporarily halted and actions taken to control emissions to the atmosphere.

Another potential concern is the shipment, preparation, storage, and use of chemicals on-site in the injection or groundwater treatment process. This potential for short term impacts will be eliminated or greatly reduced through site security, a health and safety plan, and a use and operations plan by the modified remedy since there will be little or no off-site transportation of contaminated soil.

Both the original and proposed amended remedy will take several months to complete construction activities and preparation, can be implemented quite safely as standard construction practices would be applied, and require nearly the same equipment. However, the amended remedy is more likely to be effective at destroying contaminant mass in the short term than the original remedy.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining contamination; 2) the adequacy of the engineering and/or institutional controls intended to limit the risk; and 3) the reliability of these controls.

The original remedy requires extraction and treatment of the groundwater to address contamination. With the tight soils and low transmissivity in the aquifers, a pump and treat system for groundwater would require an extended period of operation and have difficulty in permanently controlling groundwater contamination as demonstrated by the IRMs. For the modified remedy, the in-situ treatment will be designed to distribute the oxidant to the source area attempting to utilize believed pathways of release for thorough distribution. The application of oxidant to hot spots will also allow treatment in-situ for the proposed amendment as opposed to requiring capture of contamination for treatment. In addition, the modified remedy will reduce energy use from a long-term pump-and-treat system, while achieving both destruction of the VOCs and remedial goals for the groundwater contamination in a cost effective manner. Under both remedies, adequate and reliable engineering controls would be put in place to limit exposure to residual contamination. These controls include: groundwater monitoring, the deed restriction, and a site management plan.

The proposed remedy is expected to provide better long-term effectiveness, persistence and permanence compared to the original remedies with regards to addressing the primary source of groundwater contamination.

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that

permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

The original remedy requires capture of groundwater containing CVOCs to control mobility and reduce toxicity and volume of contamination. While the extraction and treatment system is intended to achieve capture of the groundwater and meet these conditions, the characteristics of soil and the aquifer indicate that the influence of the recovery points and rate of recovery will make it more difficult to achieve a reduction in toxicity, mobility, and volume than the proposed, amended remedy. For the amended remedy, the pilot studies have provided design parameters based on soil, groundwater, and contaminant constituents to demonstrate that the proposed chemical injection can achieve groundwater cleanup objectives in a more efficient and effective manner than the original remedy.

6. Implementability. The technical feasibility and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

The original and proposed remedies being considered are both technically feasible to implement, although the original remedy would be more challenging than the amended proposal given the difficulty in recovering sufficient groundwater to fully treat contamination in a reasonable timeframe. The proposed in-situ chemical reduction remedy would be easier and quicker to implement since it requires minimal equipment (primary equipment is a drill rig and distribution tank) and causes very little disruption of existing site features. Overall, the pilot studies show that the amended remedy is technically feasible and should not present significant difficulties during implementation.

Both remedies are administratively feasible to implement. The proposed remedy will not require administrative activities associated with water discharge permits that the original remedy would require.

7. Cost-Effectiveness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision.

The estimated present worth cost to carry out the proposed remedy is $1,465,000. These costs are primarily capital costs to implement the remedy as well as costs for injection and short term monitoring of the remedy. After ending the injection process, there will be some long term monitoring costs under the amended remedy. The estimated cost to complete the original remedy groundwater remedy proposed in the March 2000 ROD is $1,414,000. This cost includes approximately $800,000 for the on-site system, $500,000 for the off-site, down gradient trench and recovery, and $100,000 present worth cost for long-term monitoring activities for the remedy over a 30 year period.

Although the ISCO system will take less time to complete the remedy, the costs of the original and

amended remedy are similar.

This final criterion is considered a modifying criterion and is considered after evaluating those above. It is focused upon after public comments on the proposed ROD amendment have been received.

8. Community Acceptance. Concerns of the community regarding the proposed changes are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the final remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

SECTION 9: PROPOSED AMENDED REMEDY

The Department is proposing to amend the ROD document for the Dover Electronics Site. The changes to the selected remedy are summarized in Section 7.3 above.

The elements of the proposed amended remedy listed below are identified as *unchanged, modified or new* when compared to the March 2000 remedy:

1) The remedial design program will be completed and 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: (*modified to include the major green remediation components for the amended ISCO*).
    - 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) In-situ chemical oxidation (ISCO) will be implemented to treat contaminants in both the shallow and intermediate groundwater. A chemical oxidant, proposed to be sodium permanganate, will be injected into the subsurface above the site parking areas to the southwest of the site building to destroy the contaminants in groundwater in the source area. The injection will occur via injection wells spaced on nominal 20 foot centers screened from approximately 16 to 46 feet with the final details on chemical and application to be

determined during the remedial design. Injection of additional chemical oxidant will occur in monitoring well, hot spot locations off-site in the truck parking lot below the site *(new).*

3) Imposition of an institutional control in the form of a deed restriction for the controlled property that: (*unchanged - previously completed*).

- Restricts the use and development of the controlled property to commercial and industrial use 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 County DOH; and
- requires compliance with the Department approved Site Management Plan.

4) A Site Management Plan is required, which includes the following: (*unchanged*)
   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 Deed Restriction discussed in Paragraph 3 above.

      Engineering Controls: The active subslab depressurization system and site cover system discussed in Paragraph 5 below.

      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, if any;
      - descriptions of the provisions of the deed restriction including any land use and/or groundwater use restrictions;
      - a provision for evaluation of the potential for soil vapor intrusion for any future buildings developed on the site along with existing site buildings, including provisions 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;
      - a plan to administer future injections if necessary in the site management phase;
      - monitoring for vapor intrusion for any buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above; and;

- Continued evaluation of the potential for soil vapor intrusion of existing site buildings, including provisions for implementing actions recommended to address exposures related to soil vapor intrusion.

5) An active sub-slab depressurization (ASD) system to prevent movement of vapors into the on-site building including monitoring to evaluate the performance of the ASD system (*unchanged from 2003 ESD*).

6) Excavation and off-site disposal for the contaminated, accessible subsurface and surface soils located in the former oil shed area, the area around CB-2044 (north catch basin), any contamination present at storm water outfalls, and any residual contamination present along utility lines extending from the building (*complete, unchanged*).

7) An area defined in the deed restriction as the Restricted Building Property shall have the cover maintained, or the area shall be excavated and removed after written approval of the Department (*deed restriction complete, unchanged*).

SECTION 10: NEXT STEPS

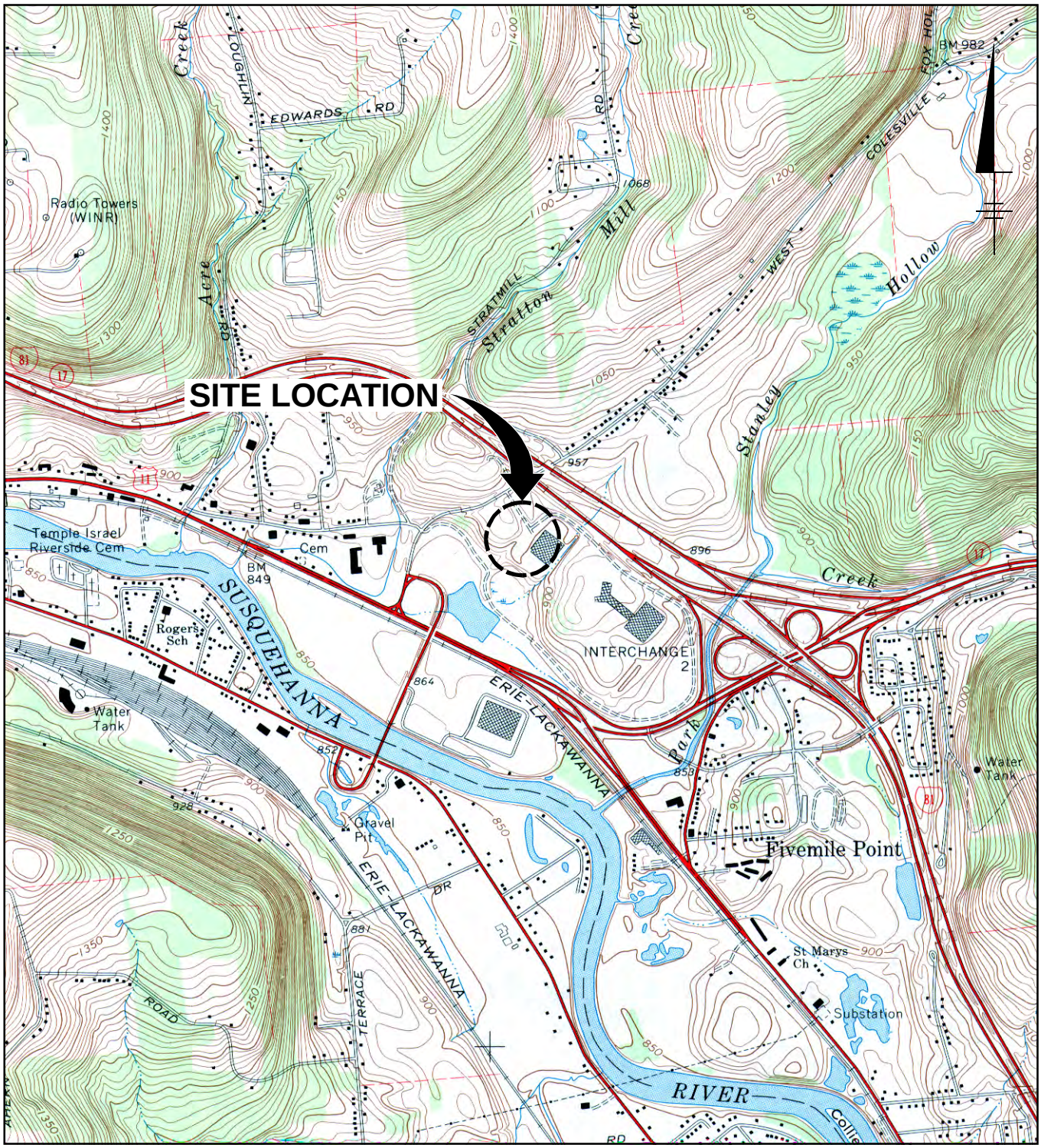
As described above, there will be a public meeting and comment period on the proposed changes to the selected remedy. At the close of the comment period, the Department will evaluate the comments received and prepare a responsiveness summary which will be made available to the public. A notice describing the Department's final decision will be distributed electronically by way of the county email listserv for Broome County (see information on the county listservs in Section 2 of this document).

If you have questions or need additional information you may contact the following:

Edward Hampston, P.E.
Project Manager
NYS Dept. of Environmental Conservation Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7016

1-888-459-8667 or (518) 402-9814

FIGURE 1
Site Location



REFERENCE: Base Map Source USGS 7.5 Minute Quad. Series Binghamton East, New York, 1968, Photorevised 1976.

2000' 0 2000'

Approximate Scale: 1" = 2000'

AREA LOCATION

DOVER ELECTRONICS/UNIVERSAL INSTRUMENTS CORPORATION KIRKWOOD, NEW YORK

SITE LOCATION MAP

ARCADIS

FIGURE

1

2/26/08 CRA-85-TLF
00616/0001/00002/000616N01.CDR

FIGURE 2
SITE FIGURES

N

MW-15
MW-21
MW-16
MW-5
MW-17
MW-2
MW-38
MW-24
MW-29
MW-9
MW-14
MW-1
MW-23
MW-4
MW-10
MW-13
MW-12
MW-11
BUILDING
MW-7A
MW-7
MW-8
MW-3
MW-22
MW-26
MW-19
MW-27
MW-18
MW-20
MW-6
MW-37
MW-30
MW-28
MW-25
MW-34
MW-31
MW-35
MW-32
MW-33
MW-36

MP-2 (to approx. 45ft)
MP-1 (to approx. 45ft)
MP-3D (to approx. 75ft)
MP-11
MP-4
MP-12
MP-5
MP-13
MP-14
MP-6S
MP-6D (to approx. 55ft)
MP-7
MP-9
MP-8S
MP-10D (to approx. 55ft)
MP-10S
MP-8D (to approx. 55ft)

IJ-7
IJ-2
IJ-8
IJ-3
IJ-9
IJ-4
IJ-10
IJ-1
IJ-5
IJ-6

CABLE GUIDE RAIL
GRAVEL ROAD
PAVED SHOULDER
W-BEAM GUIDE RAIL

EXPLANATION

MW-2	DESIGNATION AND APPROXIMATE LOCATION OF MONITORING WELL
MW-1	DESIGNATION AND APPROXIMATE LOCATION OF ABANDONED MONITORING WELL
MP-1	DESIGNATION AND APPROXIMATE LOCATION OF 1" DIAMETER SHALLOW MONITORING POINT TO 25' UNLESS OTHERWISE INDICATED
MP-6D	DESIGNATION AND APPROXIMATE LOCATION OF 1" DIAMETER DEEP MONITORING POINT TO INDICATED DEPTH
IJ-1	INJECTION WELL

SOURCE:
SITE MAP AND FEATURES OBTAINED FROM
BOUNDARY AND TOPOGRAPHIC SURVEY UNIVERSAL INSTRUMENTS CORPORATION 29 INDUSTRIAL PARK DRIVE TOWN OF KIRKWOOD BROOME COUNTY NEW YORK STATE PREPARED BY HAWK ENGINEERING OF BINGHAMTON, NEW YORK
OCTOBER 7, 1996

0 110 FT.
APPROXIMATE SCALE

VERINA Consulting Group, LLC

SITE MAP WITH MONITORING WELL LOCATIONS

FORMER DOVER ELECTRONICS FACILITY – KIRKWOOD, NEW YORK

Prepared By: CMS/TY	Date: DECEMBER 2012
Project No: 5101.0002	Figure: 2

S:\JOBFILES\5101-DOVER\Dover Kirkwood, NY - 5101.0002\CAD\Annual Groundwater Report 2012\5101.0002-Figure-0002-SM-01-Annual-GW-Report-2012.dwg LAYOUT: SM-01 SAVED: 12/13/2012 9:15 AM BY: CLAUDIO STABILE

Site Figure

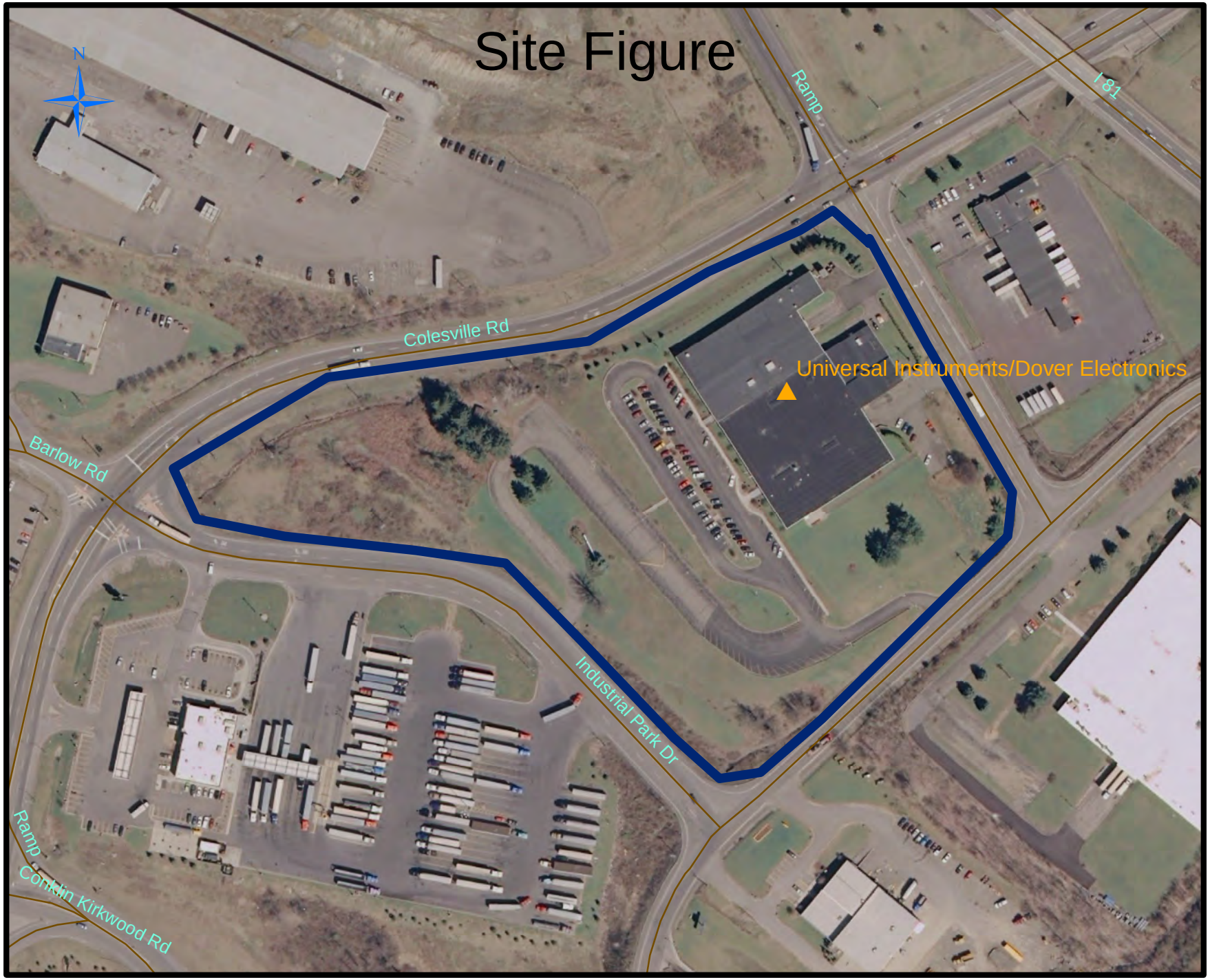
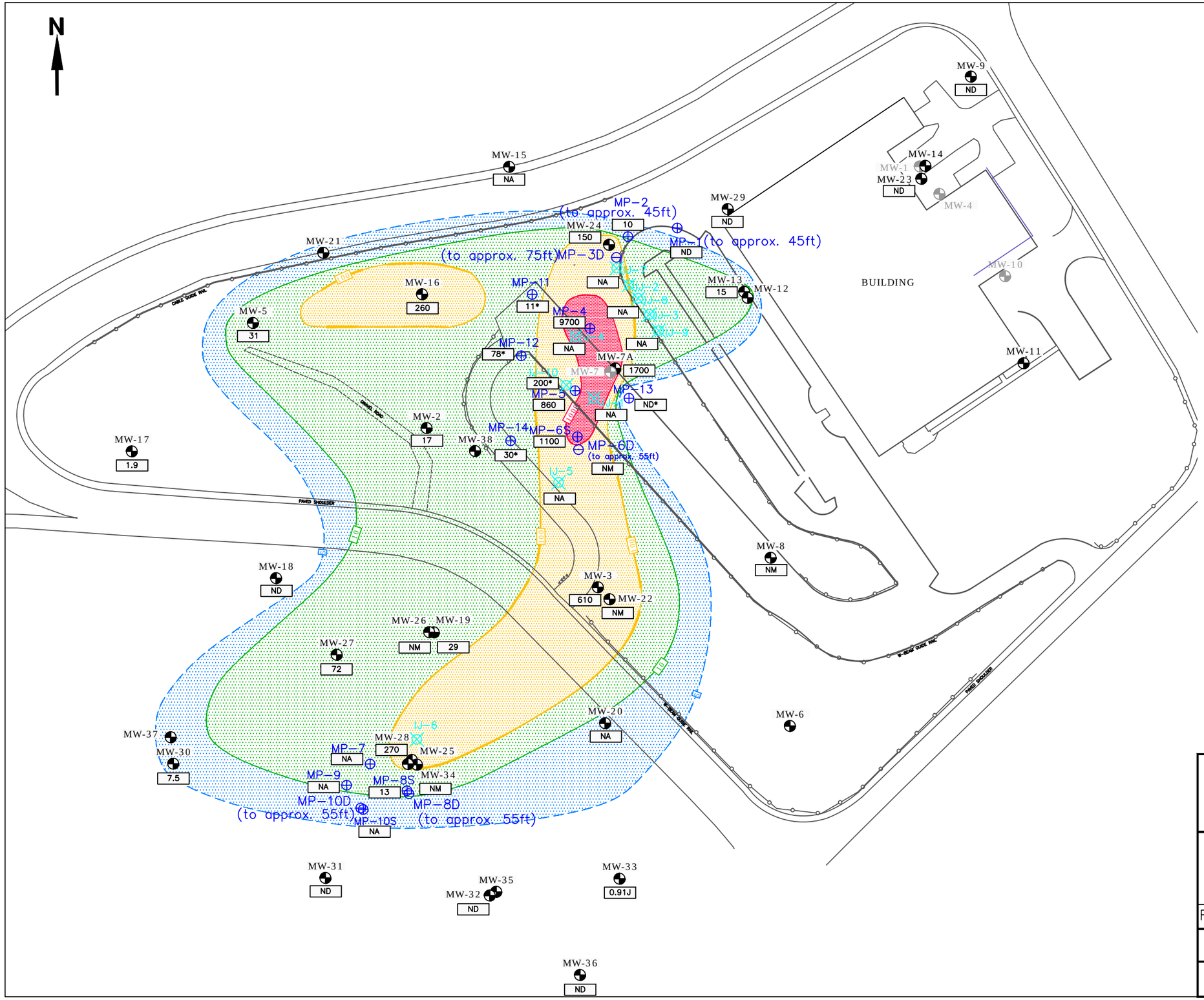

N
Ramp
I 81
Colesville Rd
Universal Instruments/Dover Electronics
Barlow Rd
Industrial Park Dr
Ramp
Conklin Kirkwood Rd

FIGURE 3-4
PRE-INJECTION
ESTIMATED PCE
CONCENTRATIONS



EXPLANATION

- MW-2 — DESIGNATION AND APPROXIMATE LOCATION OF MONITORING WELL
- MW-1 — DESIGNATION AND APPROXIMATE LOCATION OF ABANDONED MONITORING WELL
- MP-1 — DESIGNATION AND APPROXIMATE LOCATION OF 1" DIAMETER SHALLOW MONITORING POINT TO 25' UNLESS OTHERWISE INDICATED
- MP-6D — DESIGNATION AND APPROXIMATE LOCATION OF 1" DIAMETER DEEP MONITORING POINT TO INDICATED DEPTH
- IJ-1 — INJECTION WELL
- 17 — PCE CONCENTRATION IN ppb

- PCE > 5 ppb
- PCE > 10 ppb
- PCE > 100 ppb
- PCE > 1000 ppb

NOTES:
1) PCE = TETRACHLOROETHYLENE
2) ppb = PARTS PER BILLION
3) NA = NOT ANALYZED
4) ND = NOT DETECTED
5) J = INDICATES ESTIMATED VALUE
6) * = INDICATES WELL SAMPLED IN OCTOBER 2011

SOURCE:
SITE MAP AND FEATURES OBTAINED FROM *BOUNDARY AND TOPOGRAPHIC SURVEY UNIVERSAL INSTRUMENTS CORPORATION 29 INDUSTRIAL PARK DRIVE TOWN OF KIRKWOOD BROOME COUNTY NEW YORK STATE* PREPARED BY HAWK ENGINEERING OF BINGHAMTON, NEW YORK OCTOBER 7, 1996

0 — 110 FT.
APPROXIMATE SCALE

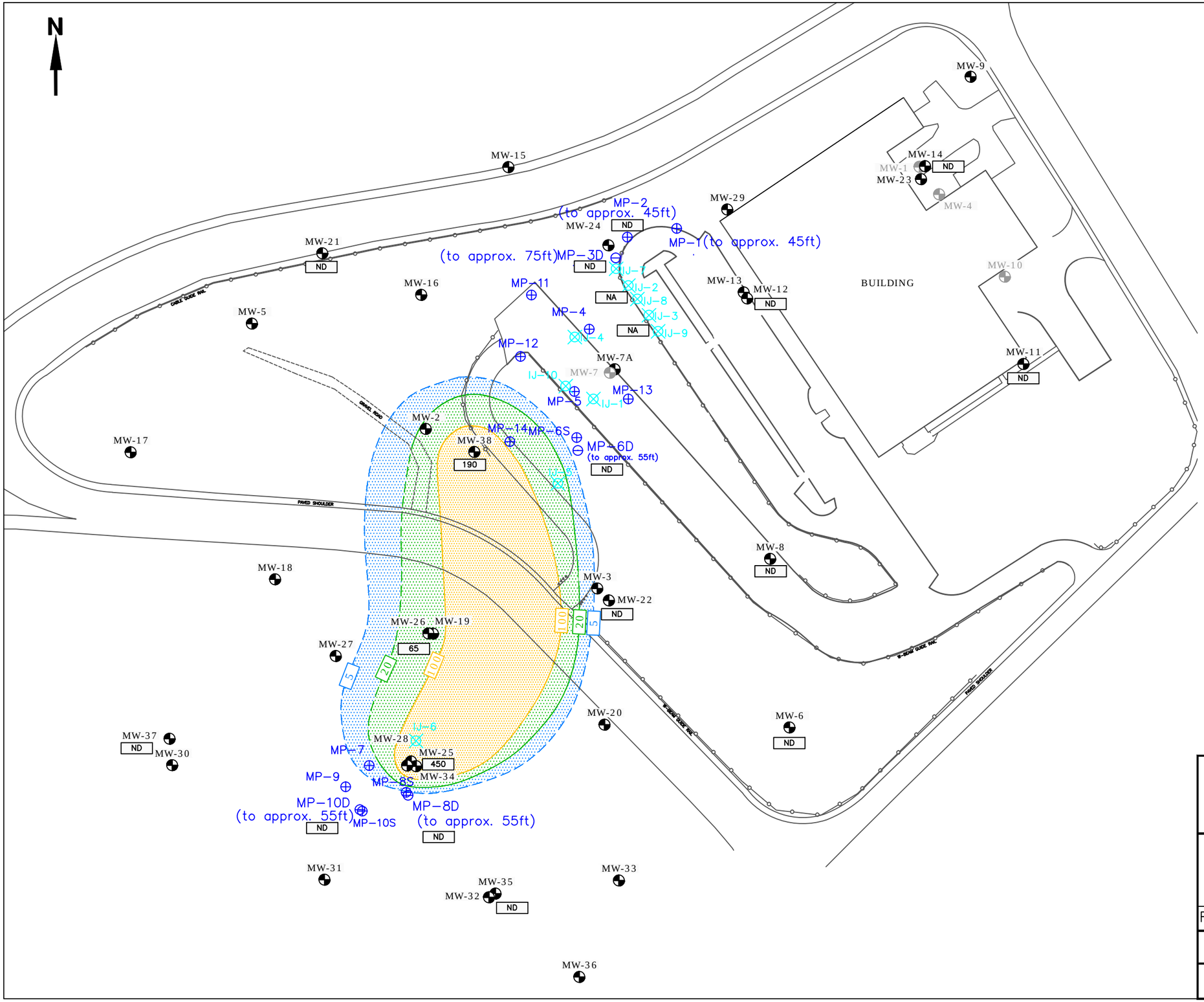
VERINA Consulting Group, LLC

ESTIMATED PRE-FULL SCALE ISCO INJECTION PCE ISOCONCENTRATION MAP SHALLOW AQUIFER MARCH 2010 / OCTOBER 2011

FORMER DOVER ELECTRONICS FACILITY – KIRKWOOD, NEW YORK

Prepared By: CMS/ST	Date: DECEMBER 2012
Project No: 5101.0002	Figure: 3

S:\JOBFILES\5101-DOVER\Dover Kirkwood, NY - 5101.0002\CAD\Annual Groundwater Report 2012\5101.0002-Figure-0007-PCE-00-Annual-GW-Report-2012.dwg LAYOUT: PCE-00 SAVED: 12/19/2012 9:39 AM BY: CLAUDIO STABILE



EXPLANATION

MW-2	DESIGNATION AND APPROXIMATE LOCATION OF MONITORING WELL
MW-1	DESIGNATION AND APPROXIMATE LOCATION OF ABANDONED MONITORING WELL
MP-1	DESIGNATION AND APPROXIMATE LOCATION OF 1" DIAMETER SHALLOW MONITORING POINT TO 25' UNLESS OTHERWISE INDICATED
MP-6D	DESIGNATION AND APPROXIMATE LOCATION OF 1" DIAMETER DEEP MONITORING POINT TO INDICATED DEPTH
IJ-1	INJECTION WELL
17	PCE CONCENTRATION IN ppb

- PCE > 5 ppb
- PCE > 20 ppb
- PCE > 100 ppb

NOTES:
1) PCE = TETRACHLOROETHYLENE
2) ppb = PARTS PER BILLION
3) NA = NOT ANALYZED
4) ND = NOT DETECTED

SOURCE:
SITE MAP AND FEATURES OBTAINED FROM *BOUNDARY AND TOPOGRAPHIC SURVEY UNIVERSAL INSTRUMENTS CORPORATION 29 INDUSTRIAL PARK DRIVE TOWN OF KIRKWOOD BROOME COUNTY NEW YORK STATE* PREPARED BY HAWK ENGINEERING OF BINGHAMTON, NEW YORK OCTOBER 7, 1996

0 110 FT.
APPROXIMATE SCALE

VERINA Consulting Group, LLC

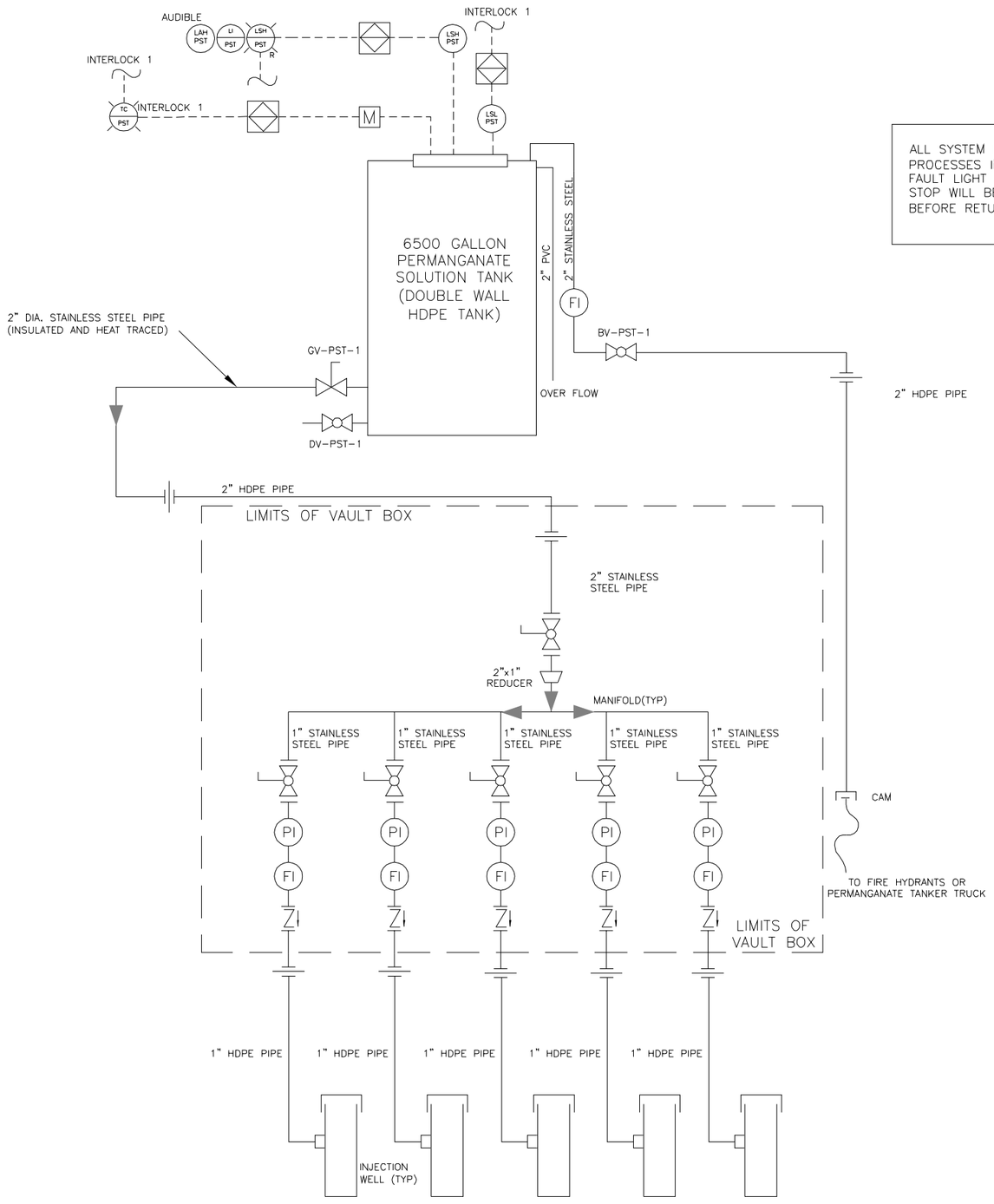
ESTIMATED PRE-FULL SCALE ISCO INJECTION PCE ISOCONCENTRATION MAP INTERMEDIATE AQUIFER MARCH 2010

FORMER DOVER ELECTRONICS FACILITY – KIRKWOOD, NEW YORK

Prepared By: CMS/ST	Date: DECEMBER 2012
Project No: 5101.0002	Figure: 4

S:\JOBFILES\5101-DOVER\Dover Kirkwood, NY - 5101.0002\CAD\Annual Groundwater Report 2012\5101.0002-Figure-0008-PCE-01-Annual-GW-Report-2012.dwg LAYOUT: PCE-01 SAVED: 12/19/2012 9:41 AM BY: CLAUDIO STABILE

FIGURES 5-7
ISCO DESIGN



NOT TO SCALE

ALL SYSTEM INTERLOCKS CAUSE THE SYSTEM TO STOP ALL PROCESSES IMMEDIATELY AND SWITCH TO "MANUAL" MODE. A FAULT LIGHT FOR THE DEVICE THAT CAUSED THE SYSTEM TO STOP WILL BE LIT. THE SYSTEM MUST BE MANUALLY RESET BEFORE RETURNING TO "AUTO" OPERATION.

LEGEND

- ENCLOSED IN VAULT BOX
- INTERLOCK
- PRESSURE INDICATOR
- FLOW INDICATOR/ TOTALIZING FLOW INDICATOR
- GATE VALVE
- BALL VALVE
- CHECK VALVE
- UNION
- CAMLOCK CONNECTION
- MOTOR (ELECTRIC)

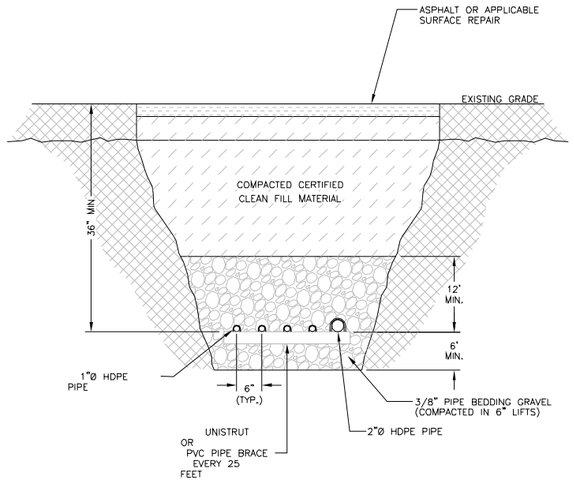
UNIVERSAL INSTRUMENTS CORPORATION
KIRKWOOD, NEW YORK
FULL-SCALE ISCO DESIGN REPORT

PROCESS AND INSTRUMENTATION DIAGRAM (NOT FOR CONSTRUCTION)

ARCADIS

FIGURE **5**

CITY:CRANBURY DIV/GROUP:ENVCAD DB:J.GONZALEX/R PETRIE LD:T.FATTO PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\RETURN-TO\Cranbury-NJ\NJ000616\K010\00001\REPORT\100616D06.dwg LAYOUT: 6SAVED: 3/22/2010 2:08 PM ACADVER: 17.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 3/22/2010 2:10 PM BY: PETRIE, RICH
XREFS: IMAGES: PROJECTNAME: ----

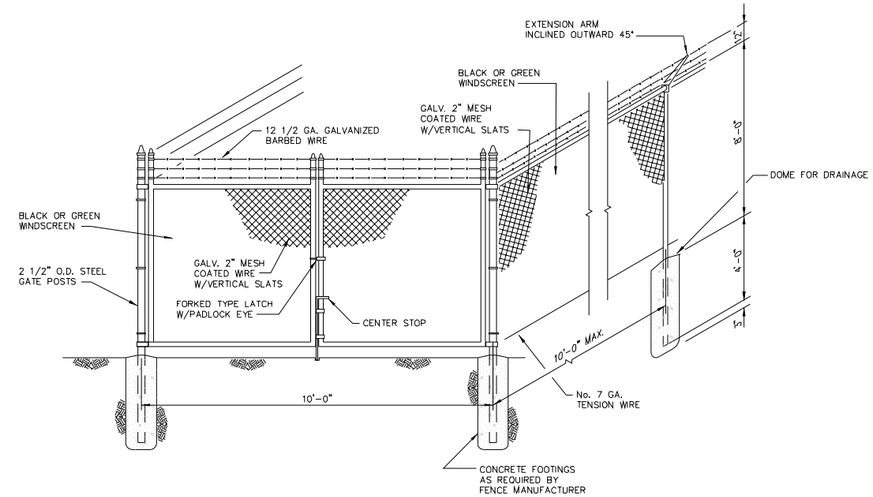


TYPICAL TRENCH DETAIL

SCALE: NONE

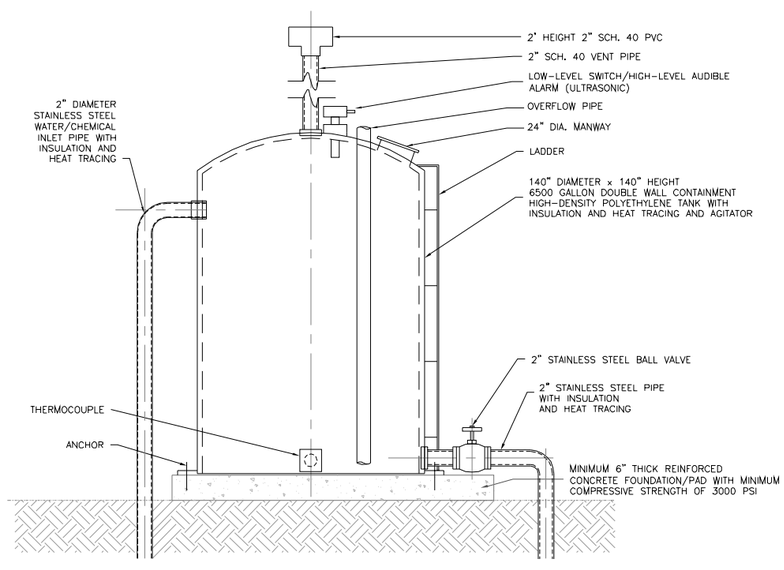
NOTES:

1. BACKFILL TO BE PLACED IN MAXIMUM LOOSE LIFT OF 8 INCHES, RESULTING IN MAXIMUM COMPACTED LIFT OF 6 INCHES.
2. BACKFILL TO BE COMPACTED TO A MINIMUM OF 92 PERCENT OF THE MAXIMUM DRY DENSITY BENEATH PAVEMENT AND 85 PERCENT FOR UNPAVED AREAS AS DETERMINED BY ASTM D-1557.
3. FILL SHALL BE COMPACTED WITH A RANGE OF 1 PERCENT BELOW TO 3 PERCENT ABOVE OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D-1557.



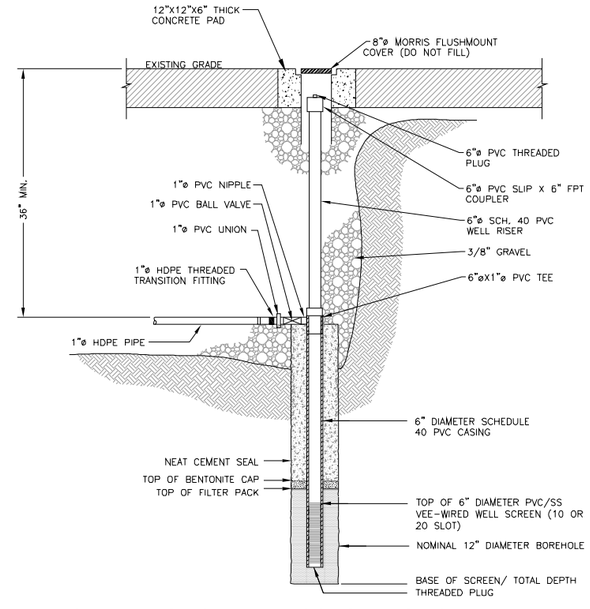
CHAIN LINK FENCE DETAIL

SCALE: NONE



SODIUM PERMANGANATE TANK DETAIL

SCALE: NONE



TYPICAL INJECTION WELL CONSTRUCTION DETAIL

SCALE: NONE

NOTES:

1. ALL WELL SCREENS ARE SCHEDULE 40 PVC.
2. 1"Ø PVC BALL VALVE TO BE SHUT WHILE PRESSURE TESTING THEN OPENED BEFORE BACKFILLING.

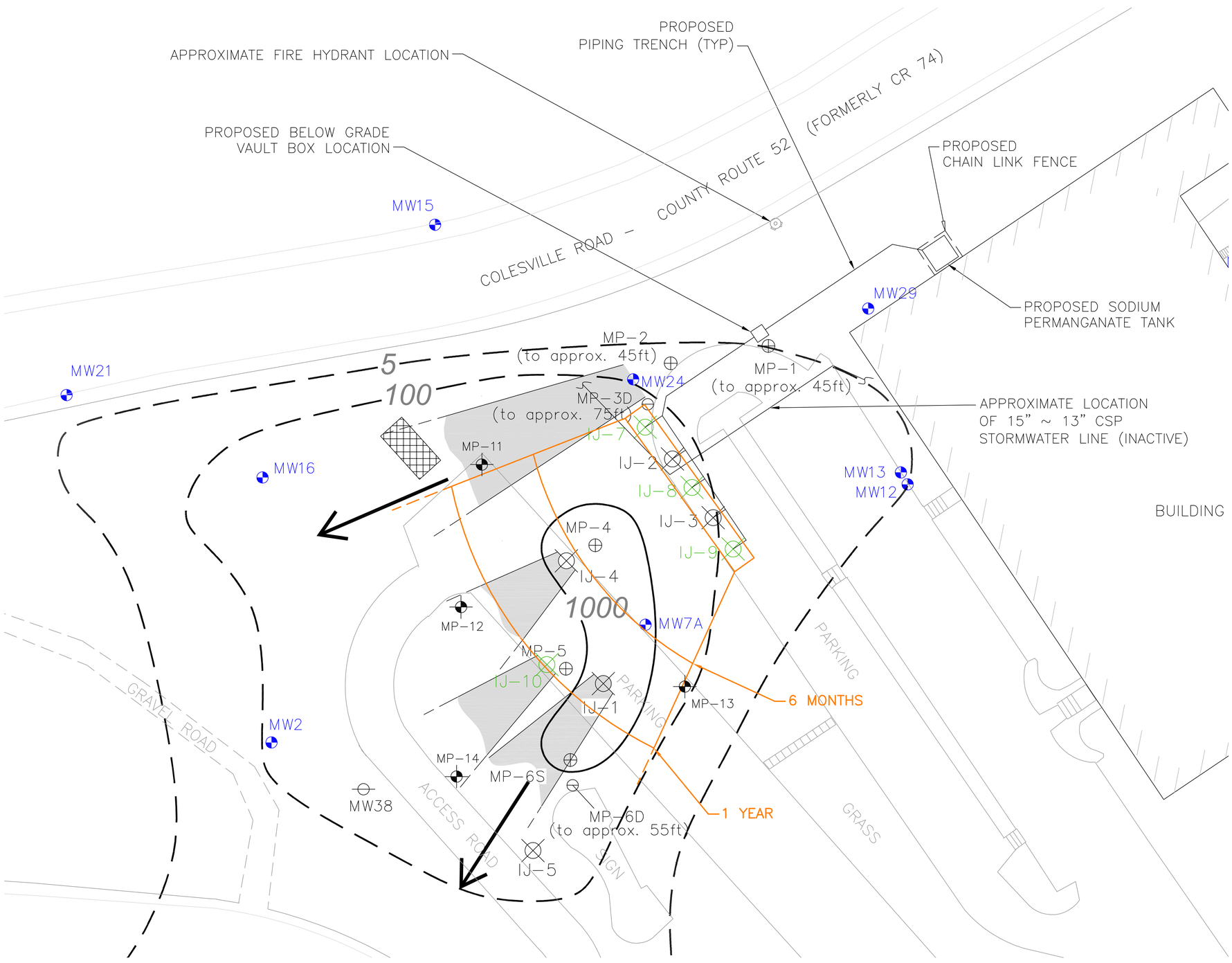
UNIVERSAL INSTRUMENTS CORPORATION
KIRKWOOD, NEW YORK
FULL-SCALE ISCO DESIGN REPORT

MISCELLANEOUS DIAGRAM (NOT FOR CONSTRUCTION)

ARCADIS

FIGURE 6

CITY:CRANBURY DIV/GROUP:ENVCAD DB:J.GONZALEZ/R PETRIE LDT FATTO: PIC: PM: TM: LYR:ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\RETURN-TO\Cranbury-NJNJ0006816\K01\0000001\REPORT1\006816N07.dwg LAYOUT: 7SAVED: 3/23/2010 8:38 AM ACADVER: 17.0S (LMS TECH) PAGESETUP: ----PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 3/23/2010 8:40 AM BY: PETRIE, RICH
XREFS: IMAGES: PROJECTNAME: ----



LEGEND

- EXISTING MONITORING WELL
- 1" DIAMETER, SHALLOW MONITORING POINT TO 25ft UNLESS OTHERWISE INDICATED
- 1" DIAMETER, DEEP MONITORING POINT TO INDICATED DEPTH
- 2" DIAMETER, DEEP MONITORING WELL TO INDICATED DEPTH
- EXISTING TREATMENT BUILDING
- INJECTION TEST WELL
- PROPOSED INJECTION WELL
- PROPOSED MONITORING POINTS
- 100 — PCE CONCENTRATION CONTOUR LINE CONCENTRATIONS IN MICROGRAMS PER LITER (DASHED WHERE INFERRED)
- EXISTING FIRE HYDRANT
- GROUNDWATER FLOW DIRECTION
- OXIDANT SPREAD TO 0.1% AFTER 1 YEAR
- OXIDANT SPREAD AFTER 6 MONTHS OR 1 YEAR

SOURCE:
BASEMAP FROM FIGURE 2 OF LETTER REPORT "UNIVERSAL INSTRUMENTS CORPORATION, KIRKWOOD, BROOME COUNTY, NEW YORK: DOVER ELECTRONICS SITE", GANNETT FLEMING, INC., NOVEMBER 9, 2000.

0 30' 60'
GRAPHIC SCALE

UNIVERSAL INSTRUMENTS CORPORATION
KIRKWOOD, NEW YORK
FULL-ISCO DESIGN REPORT

INFERRED MAXIMUM OXIDANT SPREAD (0.1% CONCENTRATION AFTER 1 YEAR)

ARCADIS

FIGURE
7

CITY:cranbury DIV/GROUP:ENVCAD DB:J GONZALEZ/R PETRIE LD:(FATTO PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\RETURN-TO\Cranbury-NJNJ000616\K010\00001\REPORT1\00616B08.dwg LAYOUT: 8 SAVED: 3/24/2010 3:37 PM ACADVER: 17.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 3/24/2010 3:41 PM BY: PETRIE, RICH
XREFS: IMAGES: PROJECTNAME: ----
00616x02

Table 1
Summary of Proposed Remedial Actions to Meet
Remedial Objectives

TABLE 1
SUMMARY OF COMPLETED AND PROPOSED REMEDIAL ACTIONS TO MEET REMEDIAL OBJECTIVES AMENDED RECORD OF DECISION – DOVER ELECTRONICS (Site No. 704026)

Remedial Action Objectives (RAOs)	On-going & Proposed Remedial Actions
Groundwater RAOs for Protection of Public Health	
Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards	• Achieved by the availability and connection to public water that is provided to this area. Groundwater is not the source of public water on-site. • Achieved with a deed restriction and associated site management plan that prohibits groundwater use at the Site without approved treatment. • Achieved by developing a Site Management Plan that will include protocols to safely handle groundwater encountered during potential future excavation activities. • Achieved by developing a Site Management Plan that includes periodic groundwater monitoring and a contingency for additional treatment to address residual groundwater contamination.
Prevent contact with, or inhalation of volatiles, from contaminated groundwater	• Achieved through the current operation and monitoring of an active sub-slab depressurization (ASD) system to prevent vapor from entering the site building. • Achieved with a Site Management Plan that includes provisions for further evaluation of the potential for soil vapor intrusion for any future buildings developed on the site along with existing site buildings, including provisions for inspection, monitoring, and indoor air sampling to address exposures related to soil vapor intrusion. • Achieved with a Site Management Plan that will include protocols for any subsurface work where groundwater could be encountered to protect construction and utility workers. • Achieved by on-going monitoring of groundwater to assess contaminant concentrations over time.
Groundwater RAOs for Environmental Protection	
Restore groundwater aquifer to pre-disposal/pre-release conditions, to the extent practicable	• Achieved by completed removal of contaminated soil from accessible areas of the site to reduce migration of contamination from the source material. • Achieved by continuing to maintain a building or other cover system over inaccessible soils at the site to minimize or prevent migration from source soils through infiltration and runoff. • The remedy will include the continued injection of in-situ chemical oxidants in source areas of the site to destroy site contaminants. • The remedy will include injection of in-situ chemical oxidants at monitoring wells at designated hot spots in the downgradient plume area. • Achieved by developing an SMP including periodic sampling to monitor the effectiveness of the treatment alternative and monitor nature and extent of the groundwater plume.

TABLE 1
SUMMARY OF COMPLETED AND PROPOSED REMEDIAL ACTIONS TO MEET REMEDIAL OBJECTIVES AMENDED RECORD OF DECISION – DOVER ELECTRONICS (Site No. 704026)

Remedial Action Objectives (RAOs)	On-going & Proposed Remedial Actions
Remove the source of ground or surface water contamination	• Achieved by the completed removal of contaminated soil from accessible areas of the site to reduce migration of contamination from the source material. • Achieved by continuing to maintain a building or other cover system over inaccessible soils at the site to minimize or prevent migration from source soils through infiltration and runoff. • The remedy will include the continued injection of in-situ chemical oxidants in source areas of the site to destroy site contaminants. • The remedy will include injection of in-situ chemical oxidants at monitoring wells at designated hot spots in the downgradient plume area.
Prevent the discharge of contaminants to surface water	• Achieved by removing contaminated soil from accessible areas of the site to reduce migration of contamination from the source material. • Achieved by maintaining a building or other cover system over inaccessible soils at the site to minimize or prevent migration from source soils through infiltration and runoff. • The remedy will include the injection of in-situ chemical oxidants in source areas of the site to destroy site contaminants. • Achieved by completed re-routing or removing drainage structures that may contribute to migration of contaminated soil or ground water.
Soil RAOs for Protection of Public Health	
Prevent ingestion/direct contact with contaminated soil	• Achieved by removing contaminated soil from accessible areas of the site. • Achieved by maintaining a building or other cover system over inaccessible soils at the site to prevent migration or exposure from source soils. • Achieved with a deed restriction limiting the use of the site to commercial or industrial use. • Achieved by developing a Site Management Plan, that will include a soil excavation plan for construction or utility work to protect workers from residual subsurface soil contaminants during potential future excavation activities.
Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.	• Achieved through the operation and monitoring of an active sub-slab depressurization (ASD) system to prevent vapor from soil contamination from entering the site building. • Achieved with a Site Management Plan that includes provisions for further evaluation of the potential for soil vapor intrusion for any future buildings developed on the site along with existing site buildings, including provisions for inspection, monitoring, and indoor air sampling to address exposures related to soil vapor intrusion.

TABLE 1
SUMMARY OF COMPLETED AND PROPOSED REMEDIAL ACTIONS TO MEET REMEDIAL OBJECTIVES AMENDED RECORD OF DECISION – DOVER ELECTRONICS (Site No. 704026)

Remedial Action Objectives (RAOs)	On-going & Proposed Remedial Actions
Soil RAOs for Environmental Protection	
Prevent migration of contaminants that would result in groundwater or surface water contamination	• Achieved by completed removal of contaminated soil from accessible areas of the site to reduce migration of contamination from the source material. • Achieved by maintaining a building or other cover system over inaccessible soils at the site to minimize or prevent migration from source soils through infiltration and runoff. • Achieved by completed re-routing or removal of drainage structures that may contribute to migration of contaminated soil or ground water.
Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain	• Achieved by removing contaminated soil from accessible areas of the site to reduce migration of contamination from the source material.
Sediment RAOs for Protection of Public Health	
Prevent direct contact with contaminated sediments	NA
Prevent surface water contamination which may result in fish advisories	NA
Sediment RAOs for Environmental Protection	
Prevent releases of contaminant(s) from sediments that would result in surface water levels in excess of (ambient water quality criteria)	• Achieved by completed re-routing or removal of drainage structures that may contribute to migration of contaminated sediment from site drainage features.
Prevent impacts to biota from ingestion/direct contact with sediments causing toxicity or impacts from bioaccumulation through the marine or aquatic food chain	• Achieved by completed re-routing or removal of drainage structures that may contribute to migration of contaminated sediment from site drainage features.
Restore sediments to pre-release/background conditions to the extent feasible	• Achieved by completed re-routing or removal of drainage structures that may contribute to migration of contaminated sediment from site drainage features.
Surface Water RAOs for Protection of Public Health	
Prevent ingestion of water impacted by contaminants	NA
Prevent contact or inhalation of contaminants from impacted water bodies	NA

TABLE 1
SUMMARY OF COMPLETED AND PROPOSED REMEDIAL ACTIONS TO MEET REMEDIAL OBJECTIVES AMENDED RECORD OF DECISION – DOVER ELECTRONICS (Site No. 704026)

Remedial Action Objectives (RAOs)	On-going & Proposed Remedial Actions
Prevent surface water contamination which may result in fish advisories	NA
Surface Water RAOs for Environmental Protection	
Restore surface water to ambient water quality criteria for the contaminant of concern	NA
Prevent impacts to biota from ingestion/direct contact with surface water causing toxicity and impacts from bioaccumulation through the marine or aquatic food chain	NA
Soil Vapor RAOs for Protection of Public Health	
Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site	• Achieved through the continued operation and monitoring of an active sub-slab depressurization (ASD) system to prevent vapor from soil contamination from entering the site building. • Achieved with a Site Management Plan that includes provisions for further evaluation of the potential for soil vapor intrusion for any future buildings developed on the site along with existing site buildings, including provisions for inspection, monitoring, and indoor air sampling to address exposures related to soil vapor intrusion.