Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision Amendment

Jameco Industries Site
Wyandanch, Suffolk County New York
Site Number 1-52-006

March 2006

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* DENISE M. SHEEHAN, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION AMENDMENT

Jameco Industries Inactive Hazardous Waste Disposal Site
Wyandanch, Suffolk County, New York
Site No. 1-52-006

Statement of Purpose and Basis

The Record of Decision (ROD) amendment presents the amended remedy for the Jameco Industries site, a Class 2 inactive hazardous waste disposal site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Jameco Industries inactive hazardous waste disposal site, and the public's input to the ROD amendment presented by the NYSDEC. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD amendment.

Assessment of the Site

Actual or threatened releases of hazardous waste constituents from this site, if not addressed by implementing the response actions selected in this ROD amendment, presents a current or potential significant threat to public health and/or the environment.

Description of Selected Remedy

Based upon the results of the Remedial Investigation and Feasibility Study (RI/FS) and the Pre-Design Investigation/Remedial Action Soil and Groundwater Sampling Report for the Jameco Industries site and the criteria identified for evaluation of alternatives, the NYSDEC has selected excavation and off-site disposal and in-situ solidification/stabilization of soil contaminated with metals and enhanced bioremediation of soil and groundwater contaminated with semi-volatile organic compounds (SVOCs). The components of the remedy are as follows:

- Contaminated soil will be excavated from area of concern (AOC) #3 and from two exterior storm drains (B-27 and B-28) and transported for off-site disposal at a permitted disposal facility. Post excavation confirmatory soil samples will be collected to ensure compliance with the recommended soil cleanup objectives. Excavated areas will be backfilled to original grade with certified clean fill.

- Metals contaminated soil in AOC #1 and AOC #5 will be stabilized and solidified in-situ by injecting a specially formulated mixture of chemical reagents.

- Treatment of SVOC contaminated soil and groundwater will be accomplished through in-situ enhanced bioremediation.

- A groundwater monitoring plan will be implemented to evaluate the effectiveness of source remediation as it relates to restoring groundwater quality to relevant standards, criteria and guidance (SCGs).

- Institutional controls will be imposed in the form of existing use and development restrictions preventing the use of groundwater as a source of potable or process water without necessary water quality treatment.

- Environmental easement will be imposed and a soil management plan will be developed to ensure safety in the event that contaminated soils are to be disturbed during any future subsurface construction activities. A periodic certification will be submitted which will certify that the institutional controls and engineering controls put in place, pursuant to the Record of Decision, are still in place, have not been altered, and are still effective.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy selected for this site is protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

MAR 3 1 2006
Date

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

The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), has amended the March 2003 Record of Decision (ROD) for the Jameco Industries site. The presence of hazardous waste has created significant threats to human health and the environment that are addressed by the selected remedy. As more fully described in Sections 3 and 5 of this document, the discharge of metal plating solutions and semi-volatile organic compounds (SVOCs) has resulted in the disposal of hazardous wastes. These wastes have contaminated the soil and groundwater at the site and have resulted in:

- A significant threat to human health associated with current and potential exposure to contaminated soil and groundwater.

- A significant environmental threat associated with the impacts of contaminants to groundwater.

To eliminate or mitigate these threats, based on the results of the RI/FS and the Pre-Remedial Design/Remedial Action Soil and Groundwater Sampling Report, the NYSDEC has amended the March 2003 ROD. The components of the remedy include:

1. Contaminated soil will be excavated from AOC #3 and from two exterior storm drains (B-27 and B-28), stockpiled, analyzed for disposal characteristics and transported off-site to a permitted disposal facility. Post excavation confirmatory endpoint soil samples will be collected to ensure compliance with the recommended soil cleanup objectives specified in TAGM #4046.

2. Excavated areas will be backfilled to original grade with certified clean fill.

3. Contaminated soil in AOC #1 and AOC #5 will be stabilized and solidified in-situ by injecting a specially formulated mixture of chemical reagents.

4. In-situ treatment of SVOC contaminated soil and groundwater would be accomplished through the injection of oxygen release compounds or hydrogen release compounds.

5. A groundwater monitoring plan will be implemented to evaluate the effectiveness of source remediation as it relates to restoring groundwater quality to relevant SCGs. The operation

of the components of the remedy, including groundwater monitoring, will continue until the remedial objectives have been achieved, or until the NYSDEC determines that continued operation is technically impracticable or not feasible.

6. Institutional controls will be imposed in the form of existing use and development restrictions preventing the use of groundwater as a source of potable or process water without necessary water quality treatment.

7. Environmental easement will be imposed and a soil management plan will be developed to ensure safety in the event that contaminated soils were to be disturbed during any future subsurface construction activities. A periodic certification, prepared by a professional engineer or environmental professional acceptable to the NYSDEC will be submitted, which will certify that the institutional controls and engineering controls put in place, pursuant to the Record of Decision, are still in place, have not been altered and are still effective.

The selected remedy, discussed in detail in Section 8, is intended to attain the remediation goals identified for this site in Section 6. The remedy must conform with officially 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.

This ROD amendment identifies the preferred remedy, summarizes the other alternatives considered, and discusses the reasons for this preference. The NYSDEC has selected the final remedy for the site only after careful consideration of all comments received during the public comment period.

The NYSDEC has issued this ROD amendment as a component of the Citizen Participation Plan developed pursuant to 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 document is a summary of the information that can be found in greater detail in the May 2001 Remedial Investigation (RI) Report, the February 2002 Feasibility Study (FS), the March 2003 Record of Decision, the May 2004 Pre-Remedial Design Investigation/Remedial Action Soil and Groundwater Sampling Report and other relevant documents.

SECTION 2: SITE LOCATION AND DESCRIPTION

The Jameco Industries site (Site No.1-52-006) is located at 248 Wyandanch Avenue in the Village of Wyandanch, Suffolk County, New York. The site is 7.4 acres in size and is located in a mixed industrial/commercial/residential setting.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

Jameco Industries manufactured plumbing fixtures at the site from 1964 until 1998. One of the major manufacturing processes at the facility involved electroplating fixtures with nickel and chrome.

1964-1975: Effluent wastewater generated during plating operations was pH adjusted to precipitate metals out of solution. The wastewater, including precipitate, was then discharged to one of two seepage lagoons located in the rear yard of the plant. There was also an overflow basin constructed to accommodate discharges to the seepage lagoons. Wastewater would seep through the soil, leaving behind the metal plating sludge which was periodically removed from the lagoons and disposed off-site.

1975-1998: The use of seepage lagoons was discontinued. Effluent wastewater was discharged into a series of 48 subsurface leaching pools. Wastewater was pH adjusted and sludge was separated from liquid through the use of clarifiers. The discharge of treated wastewater into the industrial leaching pool system was regulated by the NYSDEC's Division of Water under a State Pollution Discharge Elimination System (SPDES) permit.

In 1994, groundwater sampling revealed the presence of hydrocarbons in the northern portion of the site. The contamination was determined to be cutting oil which was discharged into a subsurface leaching pool system located outside the north side of the facility. This area of concern was partially remediated as described in Section 3.2.

As part of the manufacturing process, the facility used degreasing machinery to clean metallic plumbing parts. Prior to the Remedial Investigation (RI), volatile organic compounds (VOCs) were detected in soil and groundwater beneath the facility. The source of the contamination was determined to be a leaking solvent storage tank.

3.2: Remedial History

In December 1983, the NYSDEC listed the site as a Class 2a site in the Registry of Inactive Hazardous Waste Disposal Sites in New York (the Registry). Class 2a is a temporary classification assigned to a site that has inadequate and/or insufficient data for placement in any of the other classifications. In May 1992, the NYSDEC reclassified the site to Class 2. A Class 2 site is a site where hazardous waste presents a significant threat to the public health or the environment and action is required. In February 1993, in response to a petition from Jameco Industries Inc., the site was reclassified to Class 4 and additional investigation of the site was undertaken by the responsible party to better define the presence and extent of hazardous waste at the site. Based upon this data, the site was reclassified to Class 2 in February 1996. Details of the Remedial History since year 1975 are summarized in the March 2003 ROD.

SECTION 4: 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. The NYSDEC and Watts Industries Inc. entered into a Consent Order on October 24, 2003. The Order obligates the responsible party to implement the remedial program.

SECTION 5: SITE CONTAMINATION

A RI/FS and a pre-remedial design/remedial action soil and groundwater investigation has been conducted to evaluate the alternatives for addressing the significant threats to human health and the environment.

5.1: Summary of the Remedial Investigation and the Supplemental Investigation

The purpose of the RI and the supplemental investigation was to define the nature and extent of contamination resulting from previous activities at the site. Prior to undertaking the RI, the PRP implemented an interim remedial measure (IRM) under NYSDEC oversight (Section 5.2). The RI was conducted in several phases beginning in January 1998 and ending in May 2001. The pre-remedial design/remedial action investigation was conducted in December 2003. A summary of the investigation conducted through May 2001 and the nature and extent of the contamination in soil and groundwater are presented in the March 2003 ROD.

Following the RI, in December 2003, a pre-remedial design/remedial action investigation of on-site soil and groundwater was conducted to provide additional data to support the remedial design. This data is summarized in a report entitled Pre-Remedial Design/Remedial Action Soil and Groundwater Sampling Report, dated May 2004.

The following activities were conducted during the pre-remedial design/remedial action soil and groundwater investigation:

- Perform 31 soil borings and collect soil samples for the purpose of further defining the areal extent of subsurface soil contamination;
- Construct and sample eight new groundwater monitoring wells and 16 pre-existing monitoring wells to better define groundwater quality on-site.

More complete information can be found in the Pre-Remedial Design/Remedial Action Soil and Groundwater Sampling Report.

5.1.1: Site Geology and Hydrogeology

The site is underlain by glacial outwash deposits that are approximately 110 feet thick. The aquifer in these deposits is referred to as the Upper Glacial aquifer. Groundwater occurs approximately 10 feet below grade. The site-specific groundwater flow direction is generally southeast. The Upper Glacial aquifer is underlain by the Magothy formation which is deltaic in origin and is comprised of silt and fine to medium grain sands. The Magothy formation is approximately 700 feet thick beneath the site and is the source of the Magothy aquifer. The Magothy aquifer is the primary source of potable water for the area. The upper glacial sands and gravel are separated from the Magothy formation by the Gardiners clay unit. Beneath the Magothy formation exists the clay member of the Raritan formation, which in turn overlies the Lloyd Sand member of the Raritan formation. The Raritan formation overlies crystalline bedrock, which occurs approximately 1,350 feet below grade.

5.1.2: Nature of Contamination

As described in the RI report and the Pre-Remedial Design/Remedial Action Soil and Groundwater Sampling Report, many soil and groundwater samples were collected to characterize the nature and extent of contamination. The main categories of contaminants that exceed their SCGs are inorganics (metals) and semi-volatile organic compounds (SVOCs).

The inorganic contaminants of concern are chromium, copper, nickel, and zinc. The SVOCs of concern are polycyclic aromatic hydrocarbons (PAHs).

5.1.3: Extent of Contamination

This section describes the findings of the investigation for all environmental media that were investigated.

Chemical concentrations are reported in parts per billion (ppb) for water and parts per million (ppm) for soil. For comparison purposes, where applicable, SCGs are provided for each medium.

Soil and groundwater data collected during the RI have been presented in the May 2001 RI report, the February 2003 PRAP and the March 2003 ROD. Table 1 and Table 2 in this proposed ROD amendment summarizes data presented in the May 2004 Pre-Remedial Design/Remedial Action Soil and Groundwater Sampling Report. Figure 1 in this ROD amendment shows the areas of concern (AOC) for this site. The following are the media which were investigated and a summary of the findings.

Soil

Area of Concern #1: Former Seepage Lagoons

During the RI, soil samples collected from this area were analyzed for VOCs and metals. Chromium, copper, nickel and zinc were all detected at levels which exceeded SCGs. There were no significant detections of VOCs in any samples collected from this area.

In light of the extensive number of borings and soil samples previously collected during the RI from this AOC, no additional soil samples were collected during the December 2003 pre-remedial design/remedial action investigation. Soil quality data from this AOC reveals that while many soil samples did not exceed the recommended cleanup objectives for metals, sporadic and isolated pockets of elevated metals still exists in subsurface soil.

Area of Concern #2: Degreasing Area

This area within the facility was the subject of an IRM that is discussed in Section 5.2. Soil samples collected during the RI indicates that the IRM conducted in this area was successful in remediating subsurface soil. No additional soil samples were collected during the December 2003 pre-design /remedial action investigation.

Area of Concern #3: Former Industrial Leaching Pool System

The former industrial leaching pool system is comprised of 48 subsurface leaching pools located within a fenced area. Wastewater which was discharged to these pools was regulated by the NYSDEC's Division of Water under State Pollution Discharge Elimination System Permit (SPDES) #0081540. Based upon previous sampling data and the chemistry of the process wastewater which was discharged into the industrial leaching pool system, the metals of concern relative to this area are chromium, copper, nickel and zinc. Samples collected from this area during the RI revealed levels of chromium, copper, nickel and zinc which exceeded SCGs. There were no detections of VOCs. No additional soil samples were collected during the December 2003 pre-design /remedial action investigation.

Area of Concern #4: Cutting Oil Release

During a groundwater sampling effort in 1994, a layer of free phase petroleum product was detected in MW-13. The PRP reported the incident to the NYSDEC on October 4, 1994. Spill #94-08922 was assigned to the incident. The source of the contamination was determined to be a leaching pool system located on the north side of the property which received discharges of machine cutting oil. In July 1995, under the oversight of the NYSDEC, the leaching pools were removed and 750 tons of contaminated soil was excavated and disposed at a permitted facility. The area was backfilled with clean fill material.

In December 2003, during the pre-remedial design/remedial action investigation, 15 soil borings were conducted in the vicinity of the cutting oil release. These borings revealed the presence of non-aqueous phase cutting oil present in soil at and slightly above the water table, generally referred to as the smear zone. Detections of SVOCs in the unsaturated zone were generally below the soil cleanup objectives.

Area of Concern #5: Metal Plating Shop

In January 1998, soil samples collected beneath the former plating shop revealed elevated levels of chromium, copper, nickel and zinc which exceeded SCGs. In February 1998, under the oversight of the Division of Solid and Hazardous Materials, a portion of the facility floor in the metal plating shop was removed and 222 cubic yards of contaminated soil was excavated and disposed of off-site at a permitted disposal facility.

As part of the December 2003 pre-remedial design/remedial action investigation, 12 soil borings were conducted in the vicinity of the former metal plating shop. Chromium, copper, nickel and zinc were detected at levels exceeding SCGs (Table 1).

Despite previous remedial actions in this AOC, soil samples collected in the vicinity of the former plating shop have revealed sporadic pockets of residual metals contamination in subsurface soil which exceeds the recommended soil cleanup objectives.

Miscellaneous Areas of Concern

Soil samples were collected during the RI from the bottom of two storm drains located in the facility parking lot. These samples were analyzed for VOCs and metals. While there were no detections of VOCs, concentrations of chromium, copper, mercury, nickel and zinc exceeded SCGs. No additional soil samples were collected during the December 2003 pre-design /remedial action investigation.

Groundwater

Area of Concern #1: Former Seepage Lagoons

During the RI, groundwater samples downgradient of this area detected, chromium, copper, nickel and zinc. In December 2003, three additional wells (MW-5R, MW-6R and MW-26R) were installed and sampled as part of the pre-remedial design/remedial action investigation. Chromium, copper and zinc were detected, but not at levels exceeding SCGs.

Area of Concern #2: Degreasing Area

As a result of the source remediation described in Section 5.2, TCE 1,2-DCE, and PCE concentrations have diminished to levels at or near SCGs. No additional groundwater samples were collected during the December 2003 pre-design /remedial action investigation.

Area of Concern #3: Former Industrial Leaching Pool System

Groundwater samples collected during the RI revealed levels of chromium, copper, nickel and zinc which exceeded SCGs. Groundwater samples collected from monitoring wells MW-3 and MW-4 during the pre-remedial design/remedial action investigation in December 2003 revealed elevated levels of metals (Table 2).

Area of Concern #4: Cutting Oil Release

Groundwater samples collected during the pre-remedial design/remedial action investigation in December 2003 revealed the presence of nonaqueous phase liquid (NAPL).

Area of Concern #5: Metal Plating Shop

During the pre-remedial design/remedial action investigation in December 2003, eight monitoring wells (GEC-1, 2, 3 and 4, MW-2, 10, 11 and 12) were sampled to assess groundwater quality relevant to the former plating shop (Table 2). Chromium, copper and zinc concentrations all exceeded SCGs in one or more samples.

5.2: 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 completion of the RI/FS.

A soil vapor extraction (SVE) system to remediate VOC contaminated soil beneath the facility was constructed in 1996 and operated at the site. The SVE system was shut down and dismantled in July 1999.

5.3: Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the human exposure pathways can be found in Section 6 of the RI report.

An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: [1] a contaminant source, [2] contaminant release and transport mechanisms, [3] a point of exposure, [4] a route of exposure, and [5] a receptor population.

The source of contamination is the location where contaminants were released to the environment (any waste disposal area or point of discharge). Contaminant release and transport mechanisms carry contaminants from the source to a point where people may be exposed. The exposure point is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g., ingestion, inhalation, or direct contact). The receptor population is the people who are, or may be, exposed to contaminants at a point of exposure.

An exposure pathway is complete when all five elements of an exposure pathway exist. An exposure pathway is considered a potential pathway when one or more of the elements currently does not exist, but could in the future.

The site is fenced and access is limited to employees.

Exposure pathways that are known to or may exist at the site include:

- Ingestion of contaminated groundwater: This pathway could potentially occur in the future if private or public drinking water supply wells existed at or near the site. A potable well search was performed and no private wells were found near the site. Residences and businesses in the area are served by public water from the Suffolk County Water Authority supply wells. Water from these wells is routinely monitored and, if necessary, treated to comply with federal and state drinking water standards.

- Dermal contact with contaminated soil on-site: This pathway could occur if soils are disturbed during excavation activities. Appropriate health and safety measures to prevent exposures will be in place during excavation.

- Inhalation of contaminated dust on-site and off-site: It is possible, that during excavation, fugitive dusts containing site related contaminants could be released. An approved Health

and Safety Plan and a Community Air Monitoring Plan will be in place to prevent unacceptable releases which may impact workers or the surrounding community.

5.4: Summary of Environmental Impacts

This section summarizes the existing and potential future environmental impacts presented by the site. Environmental impacts include existing and potential future exposure pathways to fish and wildlife receptors, as well as damage to natural resources such as aquifers and wetlands.

As described in the RI report, the nearest surface water body is more than 0.5 miles from the site. Based upon on-site and off-site groundwater quality and the mobility of site related contaminants, it is not expected that contamination would impact the nearest environmental receptor.

Site contamination has impacted the groundwater resource in the upper glacial aquifer. Although there are no private or public water supply wells affected by site related contamination, the United States Environmental Protection Agency has designated the groundwater resources in Suffolk County as a sole source aquifer.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The remediation goals for this site are to eliminate or reduce to the extent practicable:

- exposures of persons at or around the site to metals and SVOCs in soil and groundwater; and
- the release of contaminants from soil into groundwater that may create exceedances of ambient groundwater quality standards.

Further, the remediation goals for the site include attaining to the extent practicable:

- ambient groundwater quality standards; and
- the soil cleanup objectives specified in Technical and Administrative Guidance Memorandum #4046.

SECTION 7: EVALUATION OF THE SELECTED REMEDY IN THE MARCH 2003 ROD VERSUS THE AMENDED REMEDY

The amended remedy must also be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable.

7.1: Description of the Selected Remedy in the March 2003 ROD and the Amended Remedy

Alternative A: Selected Remedy in the March 2003 ROD

This alternative includes alternatives for the remediation of metals contaminated soil and groundwater and remediation of SVOC contaminated soil and groundwater.

METALS CONTAMINATED SOIL AND GROUNDWATER- EXCAVATION AND OFF-SITE DISPOSAL

Present Worth: $730,000
Capital Cost: $680,000
Annual OM&M: $10,000

This is Alternative 4 in the March 2003 ROD. Under this alternative, contaminated soil would be excavated from the areas of concern, AOC #1, AOC #3, AOC #5 and storm drains B-27 and B-28, stockpiled, analyzed and then disposed off-site at a permitted facility. Confirmatory end point soil samples would be collected to ensure that the full extent of the contaminated soil was removed. The excavated areas would then be backfilled to original grade with certified clean fill.

SVOC CONTAMINATED SOIL AND GROUNDWATER- EXTRACTION & TREATMENT OF GROUNDWATER AND EXCAVATION AND OFF-SITE DISPOSAL OF CONTAMINATED SOIL

Present Worth: $593,000
Capital Cost: $163,000
Annual OM&M: $86,000

This is Alternative 2 in the March 2003 ROD. Under this alternative, residual soil contamination would be addressed by additional excavation of soil in the area of the former abandoned leaching pool system on the north side of the site. Excavated soil would be stockpiled, analyzed and disposed of at a permitted facility, thereby removing the source of future groundwater contamination.

Contaminated groundwater would be pumped by extraction wells and passed through granular activated carbon to remove free phase product. Treated groundwater would then be recharged into the aquifer through diffusion wells or recharge basins. Free phase product that is collected would be stored in above ground storage tanks prior to off-site disposal at a permitted facility.

Alternative B: Amendment to the Selected Remedy in the March 2003 ROD

TREATMENT OF CONTAMINATED SOIL VIA SOLIDIFICATION/STABILIZATION AND ENHANCED BIOREMEDIATION OF CONTAMINATED GROUNDWATER & SOIL

This remedy addresses soil and groundwater that are contaminated with metals and SVOCs.

Present Worth: $1,479,000

Capital Cost: $1,138,000
Annual OM&M: $56,600

Under this alternative, soil contaminated with metals in AOC #1 and AOC #5 will be stabilized and solidified in-situ by solidification/stabilization (S/S). In situ S/S is a treatment technology whereby chemical reagents are injected into the contaminated media in order to immobilize contaminants within a crystalline structure of the solidified material.

Contaminated soil in AOC #3 and drains B-27 and B-28 will be excavated from the areas of concern, stockpiled, analyzed and then disposed off-site at a permitted disposal facility. Confirmatory end point soil samples will be collected to ensure that the full extent of the contaminated soil was removed. The excavated areas will then be backfilled to original grade with certified clean fill.

Under this alternative, soil and groundwater contaminated with SVOCs will be treated by enhanced bioremediation. This is the same as Alternative 3 under SVOC Contaminated Soil and Groundwater in the March 2003 ROD. Oxygen release compounds (ORC) or hydrogen release compounds (HRC) will be introduced into the groundwater to increase the rate of aerobic breakdown of contaminants. This alternative has been demonstrated to be effective when utilized for the remediation of petroleum-related contaminants.

7.2 Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which governs the remediation of inactive hazardous waste disposal sites in New York State. A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

The first two evaluation criteria are termed "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.

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 NYSDEC has determined to be applicable on a case-specific basis.

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.

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 risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

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.

6. Implementability. The technical 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.

7. Cost-Effectivness. Capital costs and 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 costs for each alternative are presented in Table 3.

This final criterion is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the ROD amendment have been received.

8. Community Acceptance. Concerns of the community regarding the amendment to the selected remedy in the March 2003 ROD would be evaluated. Public comments received during the comment period would be addressed in the responsiveness summary.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the Administrative Record (Appendix B) and the discussion presented below, the NYSDEC has selected treatment via solidification/stabilization of contaminated soil in AOC #1 and AOC #5 rather than excavation and off-site disposal as described in the March 2003 ROD. Excavation and off-site will still be implemented for contaminated soil in AOC #3 and storm drains B-27 and B-28. The NYSDEC has also selected Alternative #3 (Enhanced Bioremediation of Groundwater) for AOC #4, without the excavation component, rather than Alternative 2 (Extraction and Treatment of Groundwater and Excavation of Contaminated Soil) in the March 2003 ROD. The elements of this remedy are described at the end of this section. The selected remedy for the entire site is also protective of public health and environment and complies with the SCGs. The estimated present worth cost to implement the selected remedy is

$1,479,000 which is higher than the selected remedy in the March 2003 ROD. The cost to construct the remedy is estimated to be $1,138,000 which would be $295,000 more than the construction cost of the selected remedy in the March 2003 ROD. The estimated average annual operation, maintenance and monitoring cost for five years is $56,600, about $40,000 less than the selected remedy in the March 2003 ROD.

The basis for the selected remedy is as follows;

- Prior remedial actions conducted at AOC #1 and AOC #5 in the form of source removal have significantly reduced the volume of contaminated soil at both areas of concern. Additional soil sampling conducted during the pre-design investigation at both areas indicates that the areal extent of residual contamination in subsurface soil is not as widespread as believed. Residual contamination exists in sporadic and isolated pockets.

- Solidification/stabilization has been successfully implemented at sites with metals contamination similar to the Jameco Industries site.

- The physical constraints of the site complicate additional excavation activities at AOC #1 and AOC #5.

- In-situ solidification/stabilization complies with the threshold criteria and the primary balancing criteria and would be implemented in conjunction with a soil management plan and a groundwater monitoring plan.

- Recent groundwater sampling indicates levels of metals in groundwater are less than previously observed, due, in part to source remediation.

- Prior remedial actions conducted at AOC #4 in the form of source removal have significantly reduced the volume of contaminated soil in the area. Additional soil sampling conducted during the remedial design phase revealed minimal residual soil contamination in the unsaturated zone.

- The presence of underground utilities and the facility's foundation and footings renders the location nearly inaccessible for further excavation. Given these physical constraints, in-situ treatment can be more readily implemented and will effectively remediate contaminated soil in the vadose zone as well as in groundwater.

- In-situ treatment complies with the threshold criteria and the primary balancing criteria and would be implemented in conjunction with a soil management plan and a groundwater monitoring plan.

- In-situ treatment, via enhanced bioremediation, of SVOC contaminated soil and groundwater has been successfully implemented at similar sites.

The elements of the selected remedy for the entire site are as follows:

1. Contaminated soil will be excavated from AOC #3 and from two exterior storm drains (B-27 and B-28), stockpiled, analyzed for disposal characteristics and transported off-site to a permitted disposal facility. Post excavation confirmatory endpoint soil samples will be collected to ensure compliance with the recommended soil cleanup objectives specified in TAGM #4046.

2. Excavated areas will be backfilled to original grade with certified clean fill.

3. Contaminated soil in AOC #1 and AOC #5 will be stabilized and solidified in-situ by injecting a specially formulated mixture of chemical reagents. Bench scale laboratory testing utilizing soil samples collected from the site will ensure the optimum mixture and aid in the determination of the number of injection points.

4. In-situ treatment of SVOC contaminated soil and groundwater would be accomplished through the injection of ORC or HRC. Prior to field implementation, laboratory bench scale tests will aid in the determination of the appropriate amount of compounds and total oxidant demand.

5. A groundwater monitoring plan will be implemented to evaluate the effectiveness of source remediation as it relates to restoring groundwater quality to relevant SCGs. The operation of the components of the remedy, including groundwater monitoring, will continue until the remedial objectives have been achieved, or until the NYSDEC determines that continued operation is technically impracticable or not feasible.

6. Institutional controls will be imposed in the form of existing use and development restrictions preventing the use of groundwater as a source of potable or process water without necessary water quality treatment.

7. Environmental easement will be imposed and a soil management plan will be developed to ensure safety in the event that contaminated soils were to be disturbed during any future subsurface construction activities. The NYSDEC must be notified in the event that such activities become necessary. A periodic certification, prepared by a professional engineer or environmental professional acceptable to the NYSDEC will be submitted, which will certify that the institutional controls and engineering controls put in place, pursuant to the Record of Decision, are still in place, have not been altered and are still effective. Periodic certification will be provided until the NYSDEC notifies in writing that this certification is no longer needed.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation activities were undertaken to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- Documents were placed in the document repositories.

- A meeting/invitation fact sheet was distributed per the public contact list.

- A public meeting was held on March 6, 2006 to present and receive comments on the ROD amendment.

- A responsiveness summary (Appendix A) was prepared to address the comments received during the public comment period for the ROD amendment.

In general, the public comments received were supportive of the selected remedy.

Table 1
December 2003 Pre-Design Investigation Results
Area of Concern #5: Metal Plating Shop
Soil Sampling Results

Sample Location	Sample Depth (feet)	Sample Date	Analyte (ug/kg) Chromium (III)	Chromium (VI)	Copper	Nickel	Zinc
TAGM #4046 Soil Cleanup Objectives			50	50	25	13	20
L-2	0-4	11/30	3.4	ND	4.23	2.43	7.57
L-2	8-12	11/30	58.1	ND	66.8	10.9	12.3
L-3	4-8	12/01	238	16.4	233	17.4	7.86
L-3	8-12	12/01	137	5	390	98.2	57.5
L-4	0-4	12/01	20.9	ND	174	26.1	198
L-4	8-12	12/01	3.06	ND	ND	53.1	4.47
L-5	0-4	12/02	3.1	ND	21.3	9.63	3.52
L-5	4-8	12/02	186	ND	178	2,040	45.1
L-5	8-12	12/02	8.7	ND	30.2	30.2	6.84
O-2	0-4	11/30	13.5	ND	24	5.51	8.57
O-2	8-12	11/30	4.9	ND	4.5	2.43	4.29
O-3	4-8	12/01	5.81	ND	2.94	2.56	7.24
O-3	8-12	12/01	2.33	ND	ND	0.96	2.29
O-4	4-8	12/02	5.16	ND	4.25	3	10.2
O-4	8-12	12/02	5.03	ND	4.48	3.91	7.19
O-5	0-4	12/02	4.46	ND	4.43	1.37	8.66
O-5	4-8	12/02	3.43	ND	2.61	1.46	4.81
O-5	8-12	12/02	2.27	ND	3.07	1.28	3.32
Q-2	0-4	11/30	3.46	ND	3.25	1.74	5.17
Q-2	8-12	11/30	1.77	ND	3.12	1	5.35
Q-3	4-8	12/01	4.2	ND	2.76	2.43	7.11
Q-3	8-12	12/01	2.28	ND	ND	1.22	2.94
Q-4	0-4	12/01	4.37	ND	5.46	2.52	8.8
Q-4	4-8	12/02	3.74	ND	5.92	1.75	11.4
Q-4	8-12	12/01	5.13	ND	3.78	2.5	3.93
Q-5	4-8	12/02	4.45	ND	4.37	2.32	6.92
Q-5	8-12	12/02	2.71	ND	3.2	1.1	2.5

Table 2
December 2003 Pre-Design Investigation Results
Groundwater Sampling Results

Sample Identification Date Taken	Total Chromium (ppb)	Copper (ppb)	Zinc (ppb)
SCG	50	200	300
MW-2 12/03	ND	20	15
MW-3 12/03	56	84	71
MW-4 12/03	10	77	151
MW-5R 12/03	ND	42	90
MW-6R 12/03	ND	8	106
MW-7 12/03	ND	10	30
MW-10 12/03	11	10	29
MW-11 12/03	15	7	14
MW-12 12/03	7	530	289
MW-16 12/03	ND	10	17
MW-17 12/03	ND	2	11
MW-26R 12/03	ND	2	2
GEC-1 12/03	ND	1	15
GEC-2 12/03	ND	1	10
GEC-3 12/03	ND	1	23
GEC-4 12/03	ND	4	16

Note: ND = non-detect

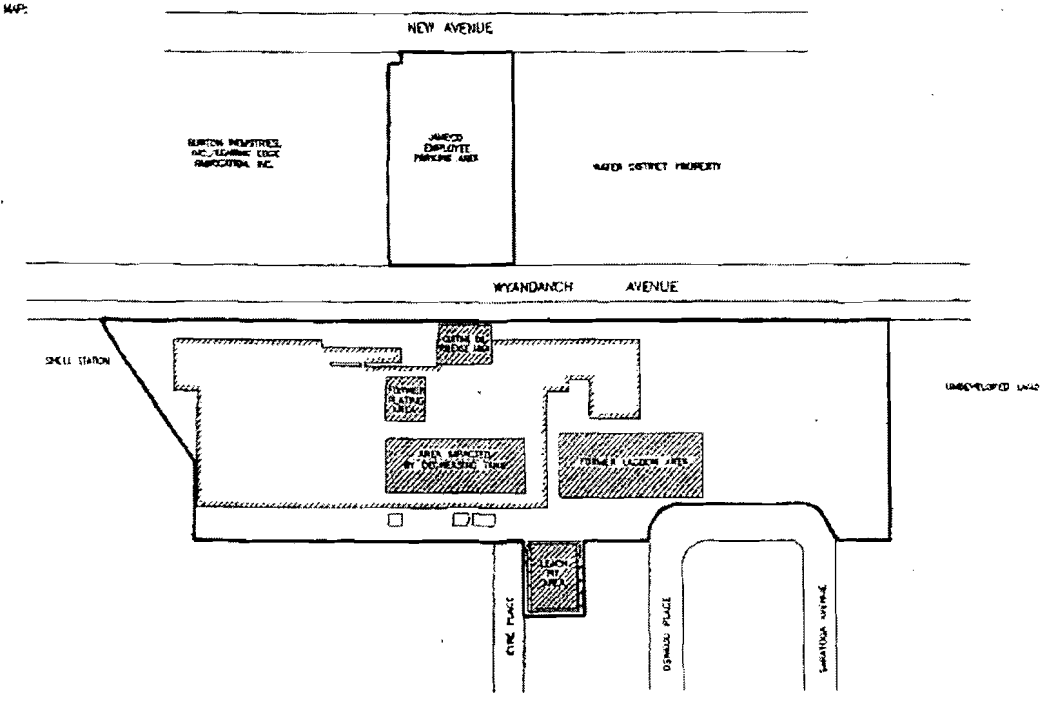
Table 3
Remedial Alternative Costs

Remedial Alternative	Capital Cost	Annual OM&M	Total Present Worth
Alternative A	**$843,000**	**$96,000**	**$1,298,000**
Alt #4: Excavation and Off-Site Disposal of metals contaminated soil	$680,000	$10,000	$705,000
Alt #2: Groundwater Extraction & Treatment and Excavation and disposal of contaminated soil - SVOC contaminated soil	$163,000	$86,000	$593,000
Alternative B: In-situ solidification/stabilization, excavation and off-site disposal and enhanced bioremediation	**$1,138,000**	**$56,600**	**$1,479,000**

NOTES

1.) THIS DRAWING IS A GRAPHICAL REPRESENTATION ONLY AND SHOULD NOT BE USED AS A SURVEY.

2.) BASEMAP TAKEN FROM SUFFOLK COUNTY TAX MAPS: DIST. 100 SECT. 82 BLOCK 2 LOT 73.1



LEGEND

SITE BOUNDARIES

SCALE

Jameco Industries #1-52-006
Figure 1 - Areas of Concern

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Jameco Industries
Wyandanch, Suffolk County, New York
Site No. 1-52-006

The Record of Decision (ROD) Amendment for the Jameco Industries site was prepared by the New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on February 21, 2006. The ROD Amendment outlined the remedial measures proposed for the contaminated soil and groundwater at the Jameco Industries site.

The release of the ROD Amendment was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedies.

A public meeting was held on March 6, 2006, which included a presentation on the Remedial Investigation and Feasibility Study and the Pre-Design Investigation/Remedial Action Report as well as a discussion of the proposed remedies. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedies. These comments have become part of the Administrative Record for this site. The public comment period for the ROD Amendment ended on March 21, 2006. This responsiveness summary responds to all questions and comments raised during the public comment period.

Part 1: The following questions were raised during the public meeting on March 6, 2006:

COMMENT 1: Were both Jameco Industries and Linzer Products using cutting oil?
RESPONSE 1: Only Jameco Industries used cutting oil.

COMMENT 2: In which cesspools was cutting oil found?
RESPONSE 2: Cutting oil was discovered in the sanitary cesspools on the north side of the facility.

COMMENT 3: Will excavation extend beyond the site's boundaries?
RESPONSE 3: Excavation activities will not extend beyond the site's physical boundaries.

COMMENT 4: What metals are we dealing with in the former seepage lagoons?
RESPONSE 4: Chromium, copper, nickel and zinc are the predominant inorganic contaminants associated with the former seepage lagoons.

COMMENT 5: How deep will the excavation be in the former industrial leaching pool system?
RESPONSE 5: The excavation is expected to extend to approximately six or eight feet below grade.

COMMENT 6: Are there any leaching pools still in place in area of concern (AOC) #3?
RESPONSE 6: Yes, the pools will be removed and disposed of during the excavation activities.

COMMENT 7: What is the status of the Burton Industries site?
RESPONSE 7: The Burton Industries site is being investigated and remediated under the NYSDEC's Voluntary Cleanup Program.

COMMENT 8: How will excavation activities be accomplished adjacent to residential properties?
RESPONSE 8: Particulate monitoring and, if necessary, dust abatement procedures will be implemented to ensure that excavation activities do not impact the surrounding community.

COMMENT 9: How long will groundwater be sampled for?
RESPONSE 9: Groundwater monitoring is anticipated to be conducted on a semi-annual basis for a period of two years. After the conclusion of the program, the NYSDEC, in consultation with the NYSDOH, may choose to extend, modify or terminate the program.

COMMENT 10: Will heavy rains wash the contamination out of the covered soil?
RESPONSE 10: Rainwater does not affect the contaminated soil in AOC #1 and AOC #5 as these areas are located beneath an asphalt parking lot and beneath the site building, respectively.

COMMENT 11: When was the last round of groundwater sampling conducted?
RESPONSE 11: Groundwater samples were last collected in December 2003 and are on schedule to be collected in Spring 2006.

COMMENT 12: Have the remedial technologies proposed for the site been tested and proven?
RESPONSE 12: In-situ solidification/stabilization and in-situ bioremediation are proven remedial technologies utilized by the NYSDEC and USEPA at similar sites.

COMMENT 13: Will the parking lot be kept as a cap over AOC #1?
RESPONSE 13: Yes, the parking lot will cover the area. Additionally, this AOC will be subjected to in-situ solification/stabilization.

COMMENT 14: Are the chemicals to be used in the remediation approved by the NYSDEC?
RESPONSE 14: The NYSDEC will approve the remedial design plans, including the types of chemicals utilized in the remediation.

COMMENT 15: Will hydrogen release compounds (HRC) or oxygen release compounds (ORC) be utilized in the remediation of the cutting oil?
RESPONSE 15: Bench testing and pilot testing will aid in the choice of HRC or ORC for the remediation of cutting oil.

COMMENT 16: How wide is the dispersion of each injection point?
RESPONSE 16: Soil analysis and bench testing will aid in determining the radius of influence of the dispersion points.

COMMENT 17: Why were disposal permits renewed by the NYSDEC in this area of high cancer risk?
RESPONSE 17: State Pollution Discharge Elimination System permits are issued and renewed by the NYSDEC. These permits contain effluent limitations that are protective of human health and the environment. The NYSDEC monitors the permitee's compliance with the permit requirements. There is currently no permit nor any industrial discharges at the site.

COMMENT 18: Is chromium a cancer causing metal?
RESPONSE 18: Hexavalent Chromium has been identified as a cancer-causing agent and has the potential to negatively affect human health. The site-related chromium contamination is not

accessible to either workers or visitors since it is subsurface, therefore, no exposures or compound-related health effects are expected.

COMMENT 19: Can the environmental easement and the deed restriction be filed with the Town of Babylon?
RESPONSE 19: Environmental easements and deed restrictions are filed with the county clerk's office. Notice of this filing can be provided to the Town.

COMMENT 20: Are there any officers from Jameco Industries employed by Watts Industries?
RESPONSE 20: At the public meeting, an officer of Watts Industries indicated that there are no officers from Jameco Industries employed by Watts Industries.

COMMENT 21: Can the public contact list for the area be expanded for notification of future meetings?
RESPONSE 21: The NYSDEC will endeavor to add any new or additional civic groups, elected officials or citizens to the existing public contact list.

COMMENT 22: What is the scope of this meeting?
RESPONSE 22: The purpose of this meeting was to discuss the rationale for the amendment of remedial alternatives that were prescribed in the March 2003 ROD.

COMMENT 23: Are there any additional meetings scheduled at this time?
RESPONSE 23: Currently, there are no additional meetings scheduled.

Part 2: The following comments were raised by Mr. Brian Zitani, Assistant Waterways Management Supervisor, on behalf of the Town of Babylon in a letter dated March 21, 2006.

COMMENT 1: We are concerned the State is considering the in-situ stabilizing of metals contaminated soil in AOC #1 and AOC #5 where this alternative was previously rejected in the original 2003 ROD. Although land use controls and site monitoring may provide the necessary oversight to prevent the future disturbance of this area, no oversight program is foolproof. A change in ownership or human error by a contractor could lead to the unintentional disturbance of this area. The Town recommends the State reconsider this issue and find for the original remediation alternative to excavate and dispose of soils off-site as discussed in the 2003 ROD.
RESPONSE 1: Prior remedial actions conducted at AOC #1 and AOC #5 have significantly reduced the volume of contaminated soil at both locations. Soil sampling conducted during the pre-design investigation further revealed that subsurface soil contamination is not as widespread as previously believed. In addition to the physical constraints of the site, excavation of these isolated, sporadic pockets of contamination would require the excavation of a large quantity of soil which already meets the recommended soil cleanup objectives. In-situ solidification/stabilization complies with the threshold criteria and the primary balancing criteria and will be implemented in conjunction with a site management plan and a groundwater monitoring plan. Additionally, periodic certification will be submitted to the NYSDEC which will certify that the engineering and institutional controls put in place have not been altered and are still effective.

COMMENT 2: Some of the remediation measures recommended fall within local permit jurisdiction. Prior to the commencement of any physical site disturbance, all departmental review and building permit approvals must be obtained.
RESPONSE 2: The NYSDEC will inform the PRP that the Town of Babylon should be notified of any anticipated construction activities so that the appropriate permit process is adhered to.

COMMENT 3: As a courtesy, the Town requests a copy of the Proposed Land Use Convenants and Restrictions.
RESPONSE 3: The NYSDEC will facilitate notification of the Town regarding the filing of any environmental easements with the Suffolk County Tax Assessor's office.

APPENDIX B

Administrative Record

Administrative Record

Jameco Industries
Wyandanch, Suffolk County, New York
Site No. 1-52-006

1. "Site Investigation Report", November 1991, AKRF, Inc.
2. "Facility Maintenance Plan", January 1993, AKRF, Inc.
3. "Facility Maintenance Plan Report", August 1994, AKRF, Inc.
4. "Initial Submittal Report", May 1995, Goldman Environmental Consultants (GEC), Inc.
5. "Interim Remedial Measure Work Plan", July 1996, GEC, Inc.
6. "Proposed Design Plan for Soil Vapor Extraction", February 1997, GEC, Inc.
7. "Remedial Investigation/Feasibility Study Work Plan", May 1998, GEC, Inc.
8. "Interim Remedial Measure Closure Report", February 1999, GEC, Inc.
9. "Remedial Investigation Report", May 2001, GEC, Inc.
10. "Feasibility Study Report", February 2002, GEC, Inc.
11. "Proposed Remedial Action Plan", March 2003, NYSDEC
12. "Record of Decision", March 2003, NYSDEC
13. "Pre-Remedial Design/Remedial Action Soil and Groundwater Sampling Report", May 2004, GEC, Inc.
14. "Remedial Design Plan", August 2005, GEC, Inc.