Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision
Circle M Wood Treating Corporation
Town of Fishkill, Dutchess County
Site Number 3-14-083

September 2005

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

DECLARATION STATEMENT - RECORD OF DECISION

Circle M Wood Treating Corporation
Inactive Hazardous Waste Disposal Site
Town of Fishkill, Dutchess County, New York
Site No. 3-14-083

Statement of Purpose and Basis

This Record of Decision (ROD) presents the selected remedy for the Circle M Wood Treating Corporation site, a Class 2 inactive hazardous waste disposal site. The selected 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 Circle M Wood Treating Corporation inactive hazardous waste disposal site, and the public's input to the Proposed Remedial Action Plan (PRAP) 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.

Assessment of the Site

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

Description of Selected Remedy

Based on the results of the Remedial Investigation and Feasibility Study (RI/FS) for the Circle M Wood Treating Corporation site and the criteria identified for evaluation of alternatives, the NYSDEC has selected on-site excavation and consolidation of the contaminated soil. The components of the remedy, which will allow 14 acres of this 20 acre site to have unrestricted use, are as follows:

- A remedial design program will be developed to provide the details necessary to implement the remedial program. This will include additional sampling of surface water, sediment and soil from both banks of the adjacent stream, and analysis for site-related contaminants.

- The former treatment building will be demolished.

- Contaminated soil will be excavated and consolidated on-site. Soils will be consolidated within a designated area and will include the treatment building's slab, which will be left in place, beneath a portion of the consolidation area. The consolidation area will then be covered with a geotextile fabric and by two feet of clean fill.

- An erosion control program in the form of grass or other vegetative cover will be developed to stabilize soils on the stream bank.

- Three bedrock monitoring wells (one upgradient and two downgradient) and one upgradient overburden well will be installed.

- A site management plan (SMP) will be developed and implemented. The SMP will include institutional controls and engineering controls to: address soils that may be excavated from the consolidation area in the future; provide for the operation and maintenance of the components of the remedy; monitor groundwater; and identify any restrictions on site development or groundwater use.

- An environmental easement will be recorded, which identifies all use restrictions. Uses in the consolidation area will be limited to green space or parking.

- The SMP will require that the property owner complete and submit to the NYSDEC an Institutional Control/ Engineering Control (IC/EC) certification periodically.

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.

SEP 30 2005

Date

Dale A. Desnoyers, Director
Division of Environmental Remediation

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RECORD OF DECISION

Circle M Wood Treating Corporation Site
Town of Fishkill, Dutchess County, New York
Site No. 3-14-083
September 2005

SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), has selected this remedy for the Circle M Wood Treating Corporation site. The presence of hazardous waste has created significant threats to human health and the environment that are addressed by this remedy. As more fully described in Sections 3 and 5 of this document, releases from past lumber treatment process and waste management practices have resulted in the disposal of chromated copper arsenate (CCA) which has constituent elements, chromium, arsenic and copper, that are deemed hazardous at certain concentrations in soil because of their leaching characteristics. The disposal of CCA has contaminated the soil and groundwater at the site. These disposal activities have resulted in:

- a significant threat to human health associated with exposure to contaminated soil and groundwater; and

- a significant environmental threat associated with the impacts of contaminants to surface soil, subsurface soil and stream sediment.

To eliminate or mitigate these threats, the NYSDEC has selected the following remedy:

- A remedial design program will be developed to provide the details necessary to implement the remedial program. This will include additional sampling of surface water, sediment, and soil from both banks of the adjacent stream, with analysis for site-related contaminants.

- The former treatment building will be demolished.

- Contaminated soil will be excavated and consolidated on-site. Soils will be consolidated within a designated area and will include the treatment building's slab, which will be left in place, beneath a portion of the consolidation area. The consolidation area will then be covered with a geotextile fabric and by two feet of clean fill.

- An erosion control program will be developed to stabilize soils on the stream bank . The erosion control would be in the form of grass or other vegetative cover.

- Three bedrock monitoring wells (one upgradient and two downgradient) and one upgradient overburden well will be installed.

- Since the remedy will result in contamination above unrestricted levels remaining at the site, a site management plan (SMP) will be developed and implemented. The SMP will include institutional controls and engineering controls to: address soils that may be excavated from the consolidation area during in the future (e.g., utility repair/installation); provide for the operation and maintenance of the components of the remedy; monitor the groundwater; and identify any restrictions on site development or groundwater use.

- An environmental easement will be recorded, which identifies all use restrictions. Uses in the consolidation area will be limited to green space or parking.

- The SMP will require that the property owner complete and submit to the NYSDEC an Institutional Control/Engineering Control (IC/EC) certification periodically.

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. Standards, criteria and guidance are hereafter called SCGs.

SECTION 2: SITE LOCATION AND DESCRIPTION

The former Circle M wood treatment facility is located in the Chelsea Industrial Park at the end of Brockway Road in the Town of Fishkill, Dutchess County (see Fig. 1). Circle M occupied a 18,500 square foot building which was one of six buildings (see Fig. 2) located in the 58.6 acre Chelsea Industrial Park. The site is comprised of a 20-acre area. The site is approximately 0.25 miles east of the Hudson River at an elevation of 55 feet above mean sea level. An unnamed stream flowing north, located approximately 100 feet from the Circle M building, forms the eastern boundary of the site. Across the stream, and extending from the north to the southeast, are residential properties (see Fig. 3). The facilities at the site and most of the nearby residences are supplied with public water from off-site wells operated by the Rombout Water District. However, two private wells are reported to be within a quarter mile radius, upgradient and northeast of the site.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The Circle M wood treatment facility operated from 1986 to 1990. The facility treated wood by impregnating it with chromated copper arsenate (CCA) as a preservative. Improper operational and waste management practices resulted in spills and drippage of CCA during the 1986-1990 period both indoors (from storage tanks, the treatment process, and associated piping) and outdoors (from storage of fresh batches of incompletely dried treated lumber). The metals arsenic (As), chromium (Cr) and copper (Cu) form the principal constituents of CCA. Circle M vacated the property in early 1990.

3.2: Remedial History

In 1986, Circle M was cited by the NYSDEC for Resource Conservation and Recovery Act (RCRA) violations, including the improper storage of treated wood.

Between 1987-1989, the property owner conducted two site investigations. Reports were generated dated September 1987 and January 1989.

The site was placed on the State's Registry of Inactive Hazardous Waste Disposal Sites as a Class 2 site in 1990, based on the analytical data collected. A Class 2 site is a site where hazardous waste presents a significant threat to the public health and/or the environment and action is required.

In the spring of 1990, during the repossession of leased equipment by the supplier, an accidental spill of approximately 3,000 gallons of CCA occurred, which was cleaned up by a NYSDEC spill contractor. Six months later, during an inspection of frozen pipes, another spill of approximately 1,600 gallons of CCA was discovered and also cleaned up by a NYSDEC spill contractor.

Between 1990 and 1997, several other removal activities were conducted at the site by the property owner. These included the removal and recycling of 256 drums of liquid waste and 18,000 gallons of liquid waste stored in tanks on-site.

The above on-site removal activities and subsequent regrading have altered the characterization of the extent of contamination defined by the data collected during the investigations in 1987 and 1989. Therefore, no further consideration will be given to the data obtained from these investigations, except for the metals concentrations data for the background soil samples collected from off-site locations, since these areas were not disturbed by Circle M activities. Investigations reports listed in Section 5.1 below provide more reliable data for the assessment of contamination on-site.

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, Chelsea Industrial Park Inc. and Chemical Specialties Inc. entered into a Consent Order on June 27, 1997. The Order obligates the responsible parties to implement a Focused RI/FS remedial program. Upon issuance of the ROD the NYSDEC will approach the PRPs to implement the selected remedy under either an Order on Consent or as part of the Brownfield Cleanup Program.

SECTION 5: SITE CONTAMINATION

A focused remedial investigation/feasibility study (FRI/FS) 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

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The RI was conducted between September 1997 and September 2002.

The field activities and findings of the investigation are described in the September 2002 RI report entitled "Supplemental Remedial Investigation: Circle M Wood Treating Site". Findings are also documented in the following reports, which were generated in conjunction with the RI/FS:

- Remedial Investigation Report, September 1998;
- Biological Resource Inventory and Impact Assessment, October 1999;
- Focused Feasibility Study, October 1999; and
- Supplemental Remedial Investigation Report, July 2001.

The following activities were conducted during the RI:

- February 1998: Stream sediment samples were collected at three points. Groundwater samples were collected from six monitoring wells for the metals As, Cr, and Cu;
- April 1998: Groundwater was resampled for metals in monitoring wells MW-1, 3, and 7;
- January 1999: Geoprobe borings were installed to a depth of six feet with sampling in two foot intervals. In addition, six surface soil samples were collected in the 0-0.5 foot range and analyzed for As, Cr and Cu;
- March 2001: Soil samples (12 total) were collected from six locations. The samples were collected from both the 0-4 inch and 8-12 inch depth ranges, and analyzed for As, Cr, and Cu;
- May-June 2001: Sediment samples were collected from two locations and surface water samples were collected from five locations from the unnamed stream on the eastern border of the site. Additional geoprobe borings were installed to a depth of two feet and sampled in six inch intervals for As, Cr, and Cu. A total of 53 soil samples were collected and analyzed;
- February 2002: An additional 33 geoprobe borings were installed to a depth of two feet; and sampled in six inch intervals for As, Cr and Cu. A total of 142 soil samples were collected and analyzed; and
- April 2002: Ten geoprobe borings were installed to a depth of two feet; with sampling in six inch intervals for As, Cr, and Cu. A total of 44 soil samples were collected and analyzed.

To determine whether the soil and groundwater contain contamination at levels of concern, data from the investigation were compared to the following SCGs:

- Groundwater, drinking water and surface water SCGs are based on NYSDEC "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code;

- Soil SCGs, to be used in conjunction with the NYSDOH human health exposure assessment in Section 5.3, are based on the NYSDEC "Technical and Administrative Guidance Memorandum (TAGM) 4046, Determination of Soil Cleanup Objectives and Cleanup Levels"; and in this case take into account the site-related background levels. The remedial objectives selected for this site are 13 parts per million (ppm), 25 ppm and 25 ppm, for arsenic, chromium and copper respectively; and

- Sediment SCGs, to be used in conjunction with the environmental impact assessment in Section 5.4, are based on the NYSDEC "Technical Guidance for Screening Contaminated Sediments."

Based on the RI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized below. More complete information can be found in the RI report.

5.1.1: Site Geology and Hydrogeology

The site soils are characterized by thick lacustrine deposits of silt and clay overlain by 2 to 8 feet of gravel/fill. The groundwater flow direction in the overburden soil is east-northeast (see Fig. 5). The depth to the groundwater table, allowing for seasonal changes and topography, ranges from 4-11 feet below the ground surface and is in the silt/clay layer. The well log indicates that shale was encountered at a depth of 6 feet below ground surface in some locations. Based upon the available data, rate of lateral and downward flow of groundwater, and consequently the rate of transport of contaminants, would be low.

5.1.2: Nature of Contamination

As described in the RI report, many soil, groundwater, surface water, and sediment samples were collected to characterize the nature and extent of contamination. As summarized in Table 1, the main categories of contaminants that exceed their SCGs are As, Cr, Cu which are the constituents of CCA, the chemical used by Circle M as a wood preservative.

5.1.3: Extent of Contamination

This section describes the findings of the investigation for all environmental media investigated. Table 1 summarizes the degree of contamination for the contaminants of concern (i.e., the heavy metals As, Cr, and Cu) in surface soil (top six inches), subsurface soil, sediment, groundwater, and surface water. The following are the media which were investigated and a summary of the findings of the investigation.

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

Surface Soil

Figure 6 depicts the areas where contamination was identified at shallow depths (0-6 inches). The locations of the highest contaminant concentrations in surface soil are as follows: As at 557 ppm at sample GB-13 (see Fig. 4) under the building; Cr at 326 ppm at GB-40, which is located northeast of the Circle M building and 100 feet west of stream, and Cu at 296 ppm at GB-40. Elsewhere on-site the contamination concentrations are at lower levels.

Subsurface Soil

The location of the highest contaminant concentrations at depths greater than six inches is GB-14 which is under the building (see Fig. 4). Contaminant concentrations were detected as follows: As at 505 ppm, Cr at 1225 ppm and Cu at 665 ppm. Elsewhere on-site, the locations where the contaminant concentrations exceed the background concentrations, were generally observed to be south of the building, west of the stream (which includes the drip pad used for drying freshly treated lumber). The maximum concentrations of As, Cr and Cu outside the building footprint are 230, 179, and 207 ppm, respectively, at location GB-40.

Sediment

Three sediment samples were analyzed in 1998 and two in 2001 (see Table 1). Arsenic was detected at 47.8 ppm, which is above the Severe Effects Level (SEL) of 33 ppm, at sample location S2. This is the only sediment sample that exceeded the SEL.

Groundwater

The groundwater quality data collected from the seven shallow monitoring wells at the site serve to assess the nature and extent of contamination in the shallow saturated zone. The results of unfiltered groundwater sample analysis provide an assessment of the suspended and dissolved metals in the sample, whereas the filtered sample analysis was conducted to quantify only the dissolved metals. The dissolved fraction better represents the potential for transport of contaminants with groundwater flow. Several factors can affect the unfiltered sample results, including the design and construction of the well; the fineness of the soil particles (which can affect turbidity); and the propensity of soil particles to adsorb metals.

The results of 26 groundwater samples collected from seven monitoring wells are summarized in Table 1. The depths of the seven existing overburden wells at the site range from 17-24 feet. Groundwater is in the range of 4-11 feet below ground surface.

None of the filtered samples analyzed during the RI exceeded the SCGs. The unfiltered results varied widely, however. For example, monitoring well MW-1 had the highest concentrations. MW-1 had 1,430 ppb of Cu in the February 1998 sample, 575 ppb in the April 1998 sample and 292 ppb in the June 2001 sample. MW-1 is located immediately west of the Circle M building. The concentration of As and Cr in samples analyzed in June 2001 from MW-1 were 24 ppb and 161 ppb, respectively. The groundwater standards for As, Cr and Cu are 25, 50 and 200, respectively. MW-1 has, among all the overburden wells, the shallowest depth to the groundwater table at about 4-5

feet below ground surface. It also has the highest groundwater table elevation. The set of unfiltered sample results is insufficient to conclusively determine the concentration trends in MW-1.

Surface Water

Five surface water samples were collected during the RI. The surface water contamination that exceeds the SCG is limited to copper. The range of copper concentrations observed in the stream were 37-48 ppb. The SCG for copper is 9 ppb. Since copper was recorded above the SCG in the furthest upstream sample, ST-1, at 43 ppb, the copper contamination in the stream is not considered to be site-related. Rather, the copper contamination in the stream is considered to be due either to a naturally high background level, or another upstream source.

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.

An IRM was conducted at the site during the latter part of the RI/FS, in which two abandoned petroleum underground storage tanks were excavated and removed from the site. The soil in the footprints of the excavated tanks was removed and disposed of off-site. In addition, as described in Section 3.2, several CCA spill removal actions were conducted by the NYSDEC between 1990 and 1997.

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 5.3 and Table 1 of the FS 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 are documented. 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 following potential exposure pathways relate to on-site soil and groundwater:

- Incidental ingestion of and/or dermal contact with on-site soils is a potential pathway of exposure if the area(s) of contamination currently covered by gravel or asphalt is not maintained;

- Inhalation of particulates should the site be subject to invasive (e.g., excavation) activities without implementation of adequate monitoring and dust control measures; and

- Workers involved in site excavations may come in contact with contaminated groundwater.

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.

The October, 1999 "Biological Resource Inventory and Impact Assessment" prepared for this site presents a detailed discussion of the existing and potential impacts from the site to fish and wildlife receptors. The following environmental exposure pathways and ecological risks have been identified:

- The potential impact of contaminated sediment on the flora and fauna in the unnamed stream on the eastern border of the site.

In 1999, a qualitative examination of the stream showed that the macroinvertebrate composition was similar to that in a nearby, uncontaminated reference stream, indicating that there were no significant impacts from the site.

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 As, Cr, and Cu in soil and groundwater;

- Environmental exposures of flora or fauna to As, Cr, and Cu in sediment;

- The release of contaminants from soil into groundwater that may create exceedences of groundwater quality standards; and

- The release of contaminants from surface soil into air through wind borne dust.

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

- TAGM 4046 objectives, which in this case take into account the site related background levels for arsenic, chromium and copper of 13 ppm, 25 ppm and 25 ppm, respectively.

- Groundwater SCGs based on NYSDEC "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must 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. Potential remedial alternatives for the Circle M site were identified, screened and evaluated in the December 16, 2002 report entitled "Focused Feasibility Study: Circle M Wood Treating Site".

A summary of the remedial alternatives that were considered for this site are discussed below. The present worth represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved.

7.1: Description of Remedial Alternatives

The potential remedies are intended to address the contaminated soil and groundwater at the site.

Alternative 1: No Action

Present Worth: $122,980
Capital Cost: $8,000
Annual OM&M: $8,000

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. It requires continued monitoring only, allowing the site to remain in an unremediated state. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Alternative 2: Excavation and Consolidation of Contaminated Soil On-site; Implementation of an Erosion Control Program for Stream Protection; Installation of Three Bedrock Monitoring Wells and Implementation of Deed Restrictions

Present Worth: $2,325,000
Capital Cost: $1,930,000
Annual OM&M: $29,250

Under Alternative 2, contaminated soil would be excavated and consolidated on-site as shown in Fig. 6. The extent and depth of the area of concern was determined after consideration of the SCGs

for As, Cr and Cu. The former Circle M wood treating building would be demolished, but the slab would be left in place within the soil consolidation area. The soil consolidation area would be covered by a two-foot soil cover consisting of clean fill. Prior to placement of the soil cover, a geotextile fabric would be installed to serve as a demarcation barrier. Also, an erosion control program would be implemented to prevent soil from washing into the stream. The erosion control would be in the form of grass or other vegetative cover.

In addition, three bedrock wells (two upgradient and one downgradient) and a shallow upgradient well would be installed. There are six former Rombout Water District supply wells near the site that were abandoned, due to problems unrelated to the site. The new bedrock wells on-site would serve as sentinel wells to warn of any potential impacts to a future re-commissioning of the abandoned wells, or installation and use of new supply wells nearby. The upgradient shallow well would enable a better assessment of the impact on the shallow groundwater at the site. This well network, which includes the existing seven shallow wells, would be sampled after the completion of the remedial action and thereafter as determined by a site management plan.

A site management plan would be developed to address residual contaminated soils that may be excavated from the site during future intrusive activity (e.g., utility repair); address the operation and maintenance components of the remedy; groundwater monitoring requirements; and identify restrictions on site development or groundwater use. Also, an environmental easement would be recorded, which limits the use of the consolidated area to green space or parking, and the property owner would be required to provide a periodic Institutional Control/Engineering Control (IC/EC) certification. This document would certify that the institutional controls and engineering controls put in place, are unchanged from the previous certification and nothing has occurred that would impair the ability of the control to protect public health or the environment or constitute a violation or failure to comply with the site management plan.

Alternative 3: Excavation and Off-Site Disposal (Excluding Sub-Floor Soil); Implementation of an Erosion Control Program for Stream Protection; Installation of Three Bedrock Monitoring Wells and Implementation of Deed Restrictions

Present Worth: *$19,873,000*
Capital Cost: *$19,038,760*
Annual OM&M: $61,750

Under Alternative 3, the soil excavated to depths ranging from 0.5-2 feet in the 10-acre excavation area outlined in Fig. 6, excluding that under existing structures, would be disposed of off-site at a permitted disposal facility, instead of being consolidated and covered. The volume of soil that would be removed is estimated to be 36,000 cubic yards. All other provisions of Alternative 2 would apply.

Alternative 4: In-Situ Soil Treatment; Implementation of an Erosion Control Program for Stream Protection; Installation of Three Bedrock Monitoring Wells; and Implementation of Deed Restrictions

Present Worth: *$4,491,800*
Capital Cost: *$3,657,500*

Annual OM&M: $61,750

Under Alternative 4, in-situ soil treatment would be used to remediate the areas of contamination depicted in Fig. 6, with the exception of the soil underneath existing structures. All other provisions of Alternative 2 would apply.

In-situ soil treatment would consist of one or more of four soil treatment technologies. These technologies include electrokinetic remediation, phytoremediation, soil flushing and solidification/stabilization. The cost estimate provided above reflects the cost for stabilization, however, pilot testing would be needed to determine the appropriate in-situ treatment.

Alternative 5: Asphalt Pavement; Sub-Floor Soil Excavation and Off-Site Disposal; Implementation of an Erosion Control for Stream Protection; Installation of Three Bedrock Monitoring Wells; Institution of a Groundwater, Surface Water, and Sediment Monitoring Program; and Implementation of Deed Restrictions

Present Worth: *$4,192,000*
Capital Cost: *$3,357,800*
Annual OM&M: $61,750

Under Alternative 5, the soil underneath the former treatment building (see Fig. 2) would be excavated and disposed of off-site. Asphalt pavement, building slab(s) or a two-foot soil cover would be installed across the balance of the contaminated area. All other provisions of Alternative 2 would apply.

Alternative 6: Excavation and Off-Site Disposal (Including Sub-Floor Soil); Implementation of an Erosion Control Program for Stream Protection; Installation of Three Bedrock Monitoring Wells; and Implementation of Deed Restrictions

Present Worth: *$21,075,000*
Capital Cost: *$20,240,800*
Annual OM&M: $61,750

Under Alternative 6, the soil in the excavation and consolidation areas outlined in Fig. 6 would be excavated, including the soil underneath the Circle M building. The excavated soil would be sent to an appropriate disposal facility. Other provisions of Alternative 2 (e.g., groundwater monitoring) would apply, but the need for restrictions on site use would be eliminated.

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 or not a remedy will meet applicable environmental laws, regulations, standards, and guidance.

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-Effectiveness. 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 2.

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 Proposed Remedial Action Plan have been received.

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the PRAP have been evaluated. During the public meeting on the PRAP held on March 14, 2005 and during two subsequent 30 day extensions to the comment period, concerns were raised relative to the remedy proposed by the PRAP. Concerns were voiced relative to future development of the site, the ability to maintain an effective, protective cover system, and the extent of the area to be managed by an environmental easement and site management plan. The comments received resulted in several significant modifications to the remedy, as proposed in the PRAP. The responsiveness

summary (Appendix A) presents the public comments received and the manner in which the NYSDEC addressed the concerns raised.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based upon the Administrative Record (Appendix B) and the discussion presented below, the NYSDEC has selected Alternative 2, Excavation and Consolidation of Contaminated Soil On-site, as the remedy for this site. The selected remedy was based upon due consideration of the comments received during the public comment period. The selected remedy will include nearly ten acres of soil excavation to depths ranging from 0.5-2 feet, with consolidation of that material into a six-acre soil consolidation area. The consolidation area will have a two-foot clean soil cover. The soil consolidation area will be subject to future use restrictions, however, the areas surrounding the consolidation area will be free of use restrictions.

Alternative 2 will include: a pre-design sampling program to confirm the limits of the remedial program, including additional sampling soil, sediment and surface water in the adjacent creek; demolition of the former treatment building; the excavation and consolidation of contaminated soil on-site, as shown in Fig. 6; installation and sampling of three bedrock wells (two upgradient and one downgradient) as well as sampling and analysis of groundwater from existing wells; an erosion control program in the form of grass or other vegetative cover, to stabilize soils on the stream bank; development of a site management plan which will dictate future site monitoring, maintenance and reporting requirements; and implementation of institutional controls.

The selected remedy is based on the results of the RI and the evaluation of alternatives presented in the FS. Alternative 2 is being selected because, as described below, it will satisfy the threshold criteria and will provide the best balance of the primary balancing criteria described in Section 7.2. It will achieve the remediation goals for the site by covering the soils that create the most significant threat to public health and the environment, which will also greatly reduce the source of contamination to groundwater. Alternatives 3, 4, 5, and 6 would also comply with the threshold selection criteria, but at a higher cost or (in the case of Alternative 4) with lower certainty.

Because Alternatives 2, 3, 4, 5, and 6 satisfy the threshold criteria, the five balancing criteria were particularly important in selecting a final remedy for the site.

Alternatives 2 (excavation with on-site consolidation), 3 (excavation, excluding Circle M building footprint), 4 (in-situ soil treatment), 5 (capping and Circle M building footprint excavation), and 6 (excavation, including Circle M building footprint) all have short-term impacts which can easily be controlled. The time needed to achieve the remediation goals are comparable for all alternatives.

Achieving long-term effectiveness would best be accomplished by excavation and removal of the contaminated overburden soils (Alternatives 3 and 6). However, the cost of these alternatives would be 4-5 times that for alternatives 2, 4, and 5. Alternative 2 will be favorable because it will result in the consolidation of all contaminated soil at the site that exceeds the site-cleanup goals for any of the metals of concern, and would cost considerably less than Alternatives 4 and 5 for similar protection.

The pilot-testing required for Alternative 4 would resolve the question of its long-term effectiveness. The other alternatives would have no question as to their long-term effectiveness, especially since

the effectiveness of the capping required by Alternatives 2 and 5 will be maintained by an environmental easement.

Alternatives 6, 3, and 5 would reduce the volume of waste on-site, in that order (i.e., 60,000, 54,000, and 6,000 tons, respectively). However, Alternative 2 will cover the contaminated soil with a two-foot cover of clean fill, while Alternative 4 would attempt to stabilize the contamination with an in-situ soil treatment process.

All alternatives would reduce the mobility of the contaminants, although the long-term effectiveness of Alternative 4 would have to be proved via pilot-testing.

The cost of the alternatives varies significantly (i.e.,$2,325,000-$21,075,000). However, Alternative 2 will be the least expensive remedy, and will provide effective protection of public health and the environment.

The estimated present worth cost to implement the remedy will be $2,325,000. The cost to construct the remedy is estimated to be $1,930,000 and the estimated average annual operation, maintenance, and monitoring costs for four or more years is $29,250.

The elements of the selected remedy will be as follows:

1. A remedial design program will be developed to provide the details necessary to implement the remedial program. This will include additional sampling of surface water, sediment and soil from both banks of the adjacent stream, and analysis for site-related contaminants.

2. The former treatment building will be demolished.

3. Contaminated soil will be excavated and consolidated on-site. Soils will be consolidated within a designated area and will include the treatment building's slab, which will be left in place, beneath a portion of the consolidation area. The consolidation area will then be covered with a geotextile fabric and by two feet of clean fill.

4. An erosion control program in the form of grass or other vegetative cover will be developed to stabilize soils on the stream bank.

5. Three bedrock monitoring wells (one upgradient and two downgradient) and one upgradient overburden well will be installed.

6. A site management plan (SMP) will be developed and implemented. The SMP will include institutional controls and engineering controls to: address soils that may be excavated from the consolidation area during in the future (e.g., utility repair/installation); provide for the operation and maintenance of the components of the remedy; monitor the groundwater; and identify any restrictions on site development or groundwater use.

7. An environmental easement will be recorded, which identifies all use restrictions. Uses in the consolidation area will be limited to green space or parking.

8. The SMP will require that the property owner complete and submit to the NYSDEC an Institutional Control/Engineering Control (IC/EC) certification periodically.

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:

- Repositories for documents pertaining to the site were established.
- A public contact list, which included nearby property owners, elected officials, local media and other interested parties, was established.
- A fact sheet was mailed on 2/28/05.
- A public meeting was held on 3/14/05 to present and receive comment on the PRAP.
- Notices were mailed on 3/05 and 5/05 extending the length of the public comment period.
- A responsiveness summary (Appendix A) was prepared to address the comments received during the public comment period for the PRAP.

TABLE 1
Nature and Extent of Contamination
September 1998 - September 2002

SURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)	SCG (ppm)	Frequency of Exceeding SCG
Inorganic Compounds	Arsenic	0.31-557	13	37 out of 81
	Chromium	4.27-326	25	35 out of 81
	Copper	4.93-296	25	62 out of 81

SUBSURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)	SCG (ppm)	Frequency of Exceeding SCG
Inorganic Compounds	Arsenic	0.36-505	13	39 out of 212
	Chromium	2.12-1,225	25	30 out of 212
	Copper	3.85-665	25	119 out of 212

SEDIMENTS	Contaminants of Concern	Concentration Range Detected (ppm)	SCG (ppm)	Frequency of Exceeding SCG
Inorganic Compounds	Arsenic	1.24-47.8	LEL - 6	4 out of 5
			SEL - 33	1 out of 5
	Chromium	11.1-32.6	LEL - 26	1 out of 5
			SEL -110	0 out of 5
	Copper	15.0-34.1	LEL - 16	4 out of 5
			SEL -110	0 out of 5

TABLE 1 (continued)
Nature and Extent of Contamination
September 1998 - September 2002

GROUNDWATER (Unfiltered samples)	Contaminants of Concern	Concentration Range Detected (ppb)	SCG (ppb)	Frequency of Exceeding SCG
Inorganic Compounds	Arsenic	2.1-284	25	5 out of 16
	Chromium	4.2-236	50	7 out of 16
	Copper	4.8-1,430	200	4 out of 16

GROUNDWATER (Filtered samples)	Contaminants of Concern	Concentration Range Detected (ppb)	SCG (ppb)	Frequency of Exceeding SCG
Inorganic Compounds	Arsenic	2.1-22	25	0 out of 10
	Chromium	4.2-14	50	0 out of 10
	Copper	9.6-49	200	0 out of 10

SURFACE WATER	Contaminants of Concern	Concentration Range Detected (ppb)	SCG (ppb)	Frequency of Exceeding SCG
Inorganic Compounds	Arsenic	0-5	150	0 out of 5
	Chromium	0-10	74	0 out of 5
	Copper	37-48	9	5 out of 5

ppb = parts per billion, which is equivalent to micrograms per liter (ug/L) in water.

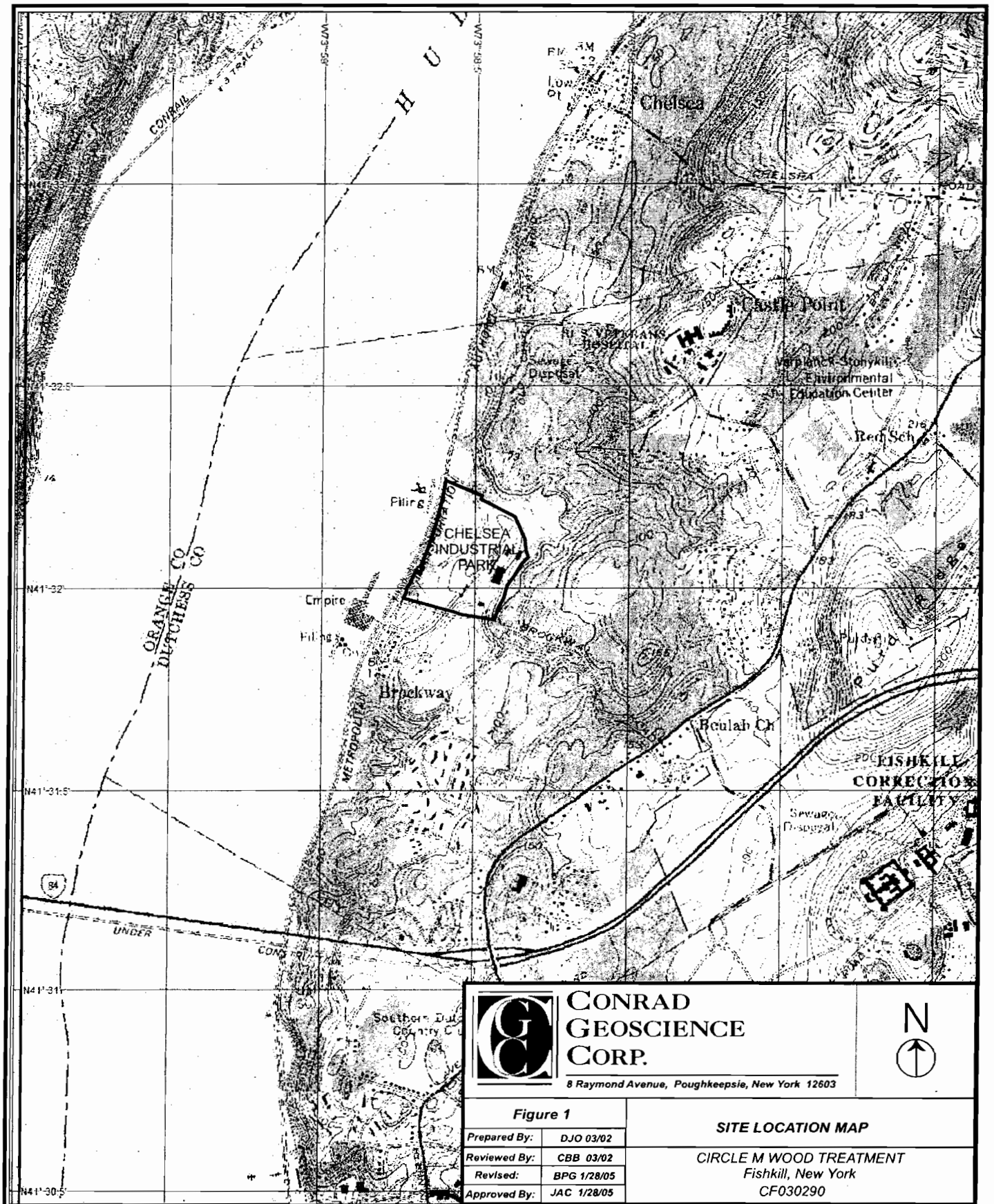
ppm = parts per million, which is equivalent to milligrams per kilogram (mg/kg) in soil.

SCG = standards, criteria, and guidance values based on unrestricted use.

LEL = Lowest Effects Level and SEL = Severe Effects Level. A sediment is considered to be contaminated if either of these criteria is exceeded. If both criteria are exceeded, the sediment is severely impacted. If only the LEL is exceeded, the impact is considered to be moderate.

TABLE 2
Remedial Alternative Costs

Remedial Alternative	Capital Cost	Annual OM&M	Total Present Worth
No Action	$8,000	$8,000	$122,980
Excavation and On-site Consolidation	$1,930,000	$29,250	$2,325,000
Excavation and Off-site Disposal (Excluding Sub-Floor Soil)	$19,038,760	$61,750	$19,873,000
In-Situ Soil Treatment	$3,657,500	$61,750	$4,491,800
Low Permeability Capping, Sub-Floor Soil Excavation and Off-site Disposal	$3,357,800	$61,750	$4,192,000
Excavation and Off-site Disposal (Including Sub-Floor Soil)	$20,240,800	$61,750	$21,075,000



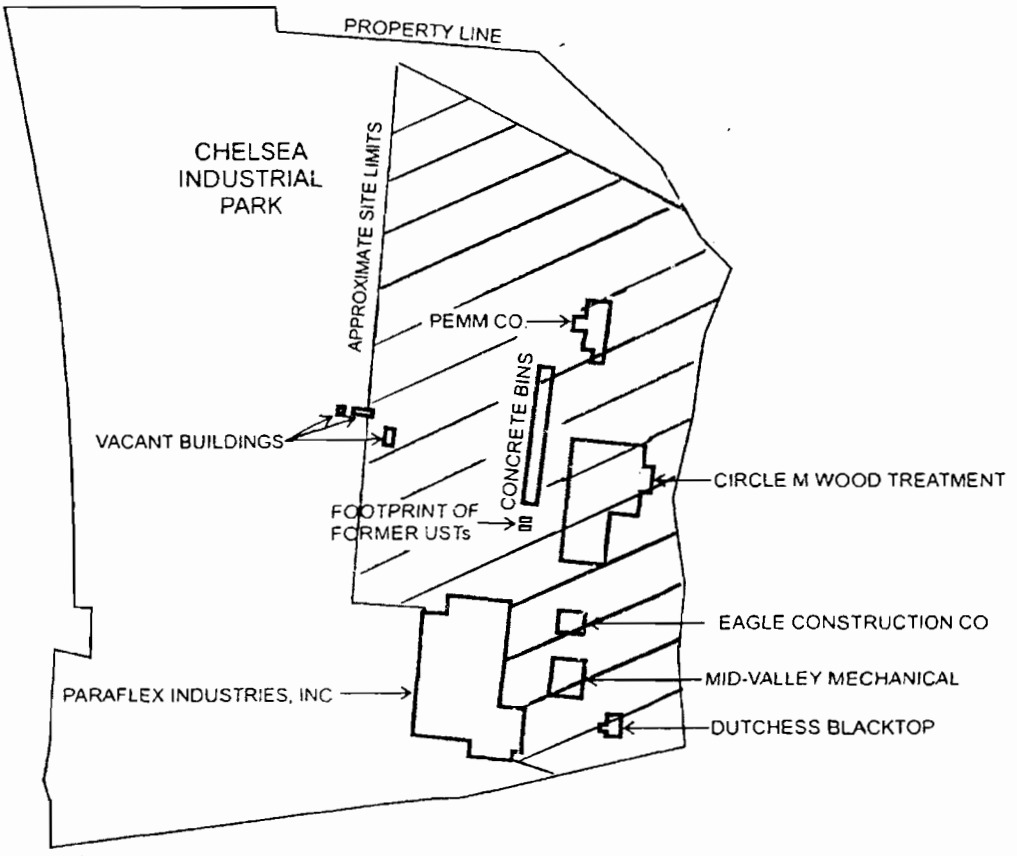
CONRAD GEOSCIENCE CORP.

8 Raymond Avenue, Poughkeepsie, New York 12603

N

Figure 1		SITE LOCATION MAP
Prepared By:	DJO 03/02	CIRCLE M WOOD TREATMENT Fishkill, New York CF030290
Reviewed By:	CBB 03/02	
Revised:	BPG 1/28/05	
Approved By:	JAC 1/28/05	

643 ft Scale: 1 : 22,400 Detail: 13-0 Datum: WGS84



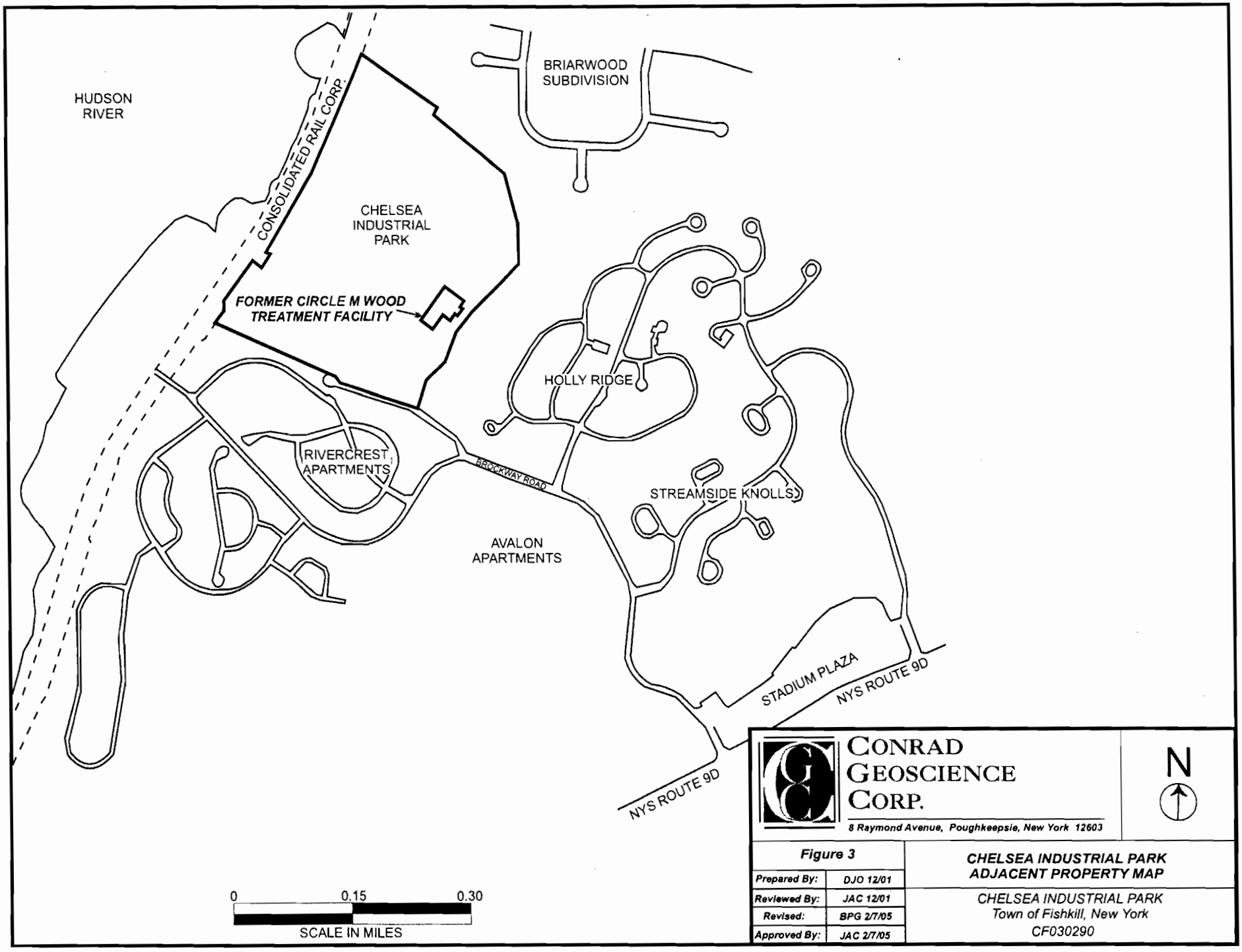
Approximate Site Limits

0 FEET 200
100

CONRAD GEOSCIENCE CORP.
8 Raymond Avenue, Poughkeepsie, New York 12603

N

Figure 2		ONSITE STRUCTURES
Prepared By:	DJO 03/02	CIRCLE M WOOD TREATMENT Fishkill, New York CF030290
Reviewed By:	CBB 03/02	
Revised:	BPG 1/28/05	
Approved By:	JAC 1/28/05	



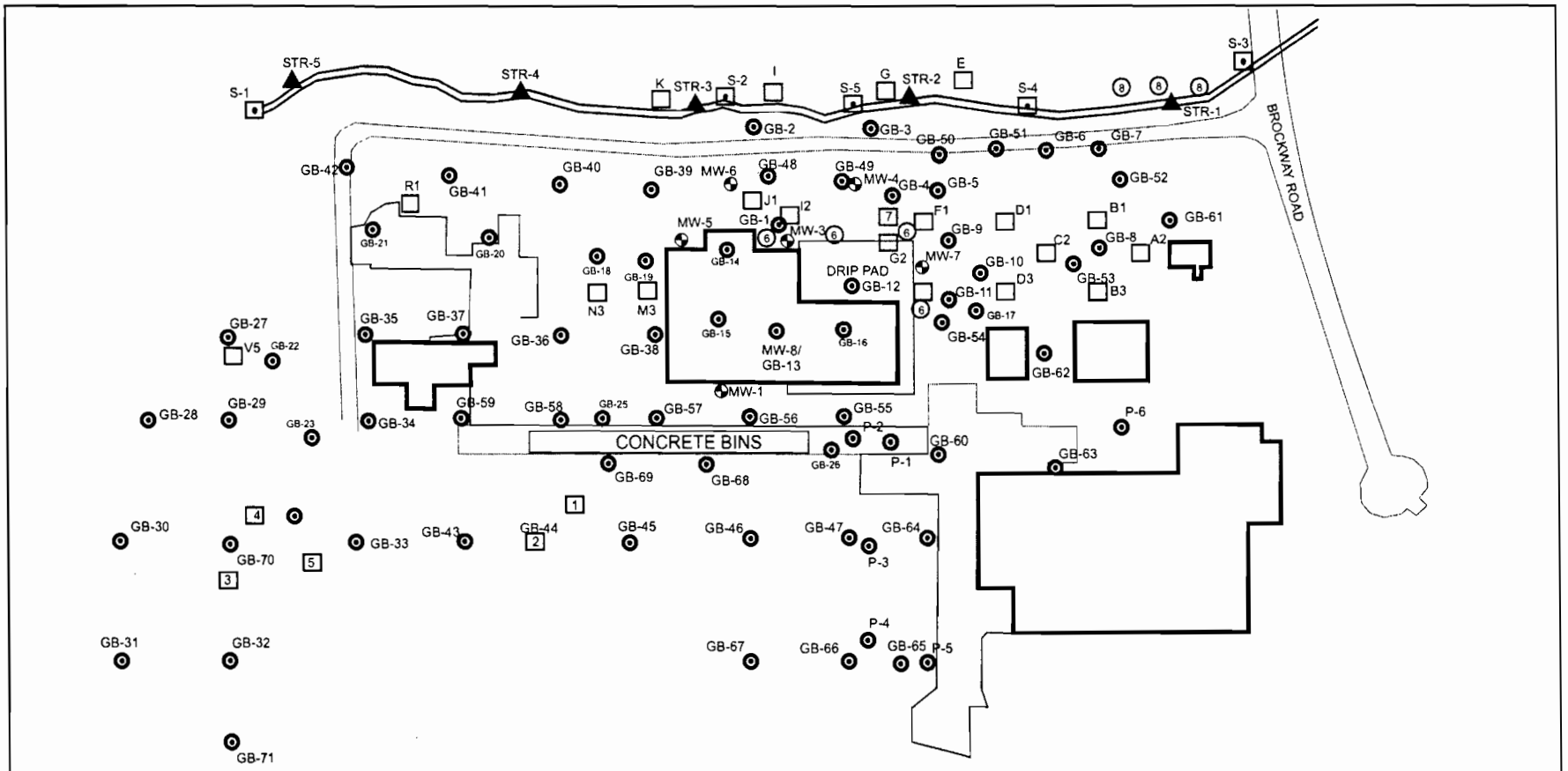
CONRAD GEOSCIENCE CORP.

8 Raymond Avenue, Poughkeepsie, New York 12603

Figure 3	
Prepared By:	DJO 12/01
Reviewed By:	JAC 12/01
Revised:	BPG 2/7/05
Approved By:	JAC 2/7/05

CHELSEA INDUSTRIAL PARK
ADJACENT PROPERTY MAP

CHELSEA INDUSTRIAL PARK
Town of Fishkill, New York
CF030290



LEGEND

- STREAM LOCATION
- STREAM WATER SAMPLE LOCATION
- STREAM SEDIMENT SAMPLE LOCATION
- CGC SOIL BORING LOCATION
  GB 1-12 COMPLETED JAN 99'
  GB13-26 COMP. MAY 01'
  GB 27-60 COMP. FEB 02'
  GB 60-71 COMP. APR 02'
- LBG (1987)and DUNN(1989) SOIL SAMPLE LOCATION
- MONITORING WELL LOCATION

0 FEET 200
100

N

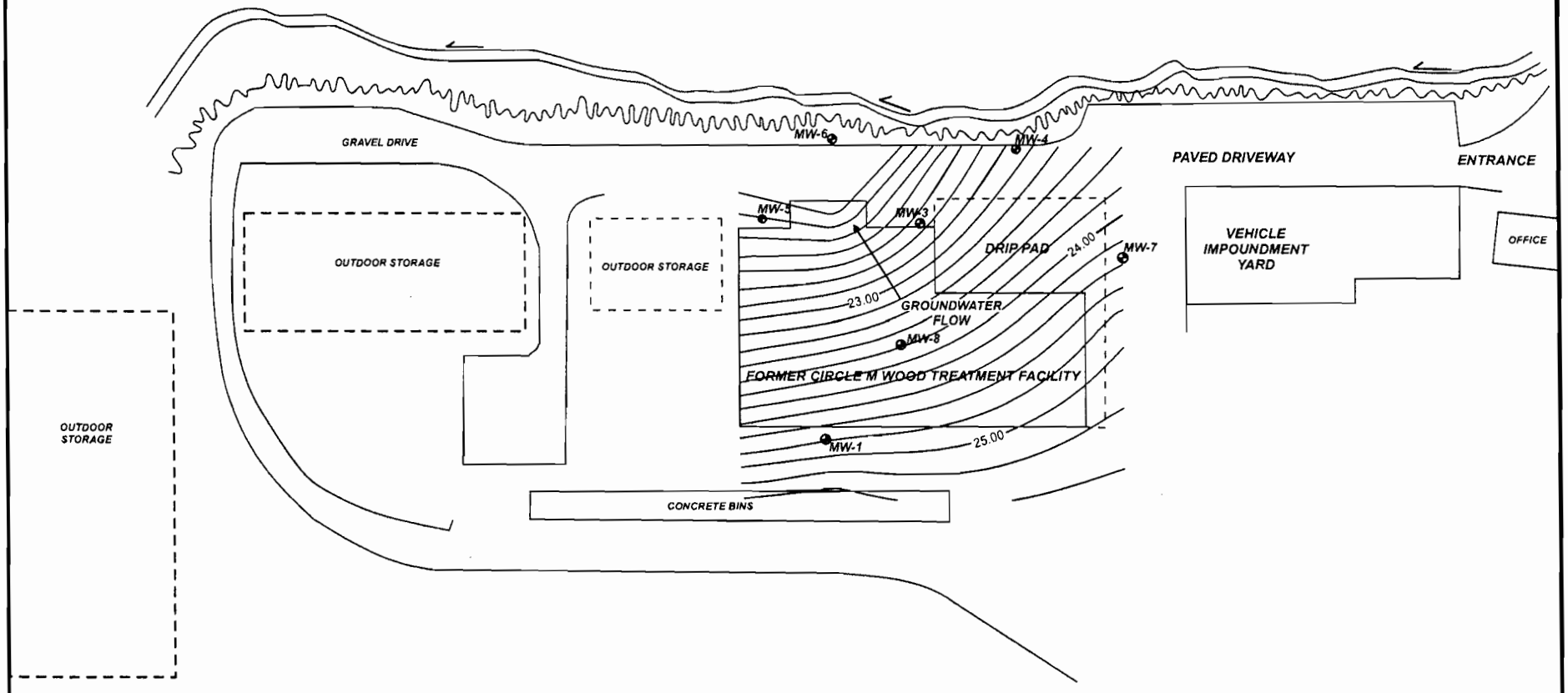
CONRAD GEOSCIENCE CORP.
8 Raymond Avenue, Poughkeepsie, New York 12603

Figure 4

MONITORING WELL & SAMPLE LOCATION MAP

Prepared By:	DJO 05/16/02
Reviewed By:	JAC 05/16/02
Revised By:	BPG 2/4/05
Approved By:	JAC 2/4/05

CHELSEA INDUSTRIAL PARK
Fishkill, New York
CF030290



LEGEND

GROUNDWATER MONITORING WELL

0 80 160

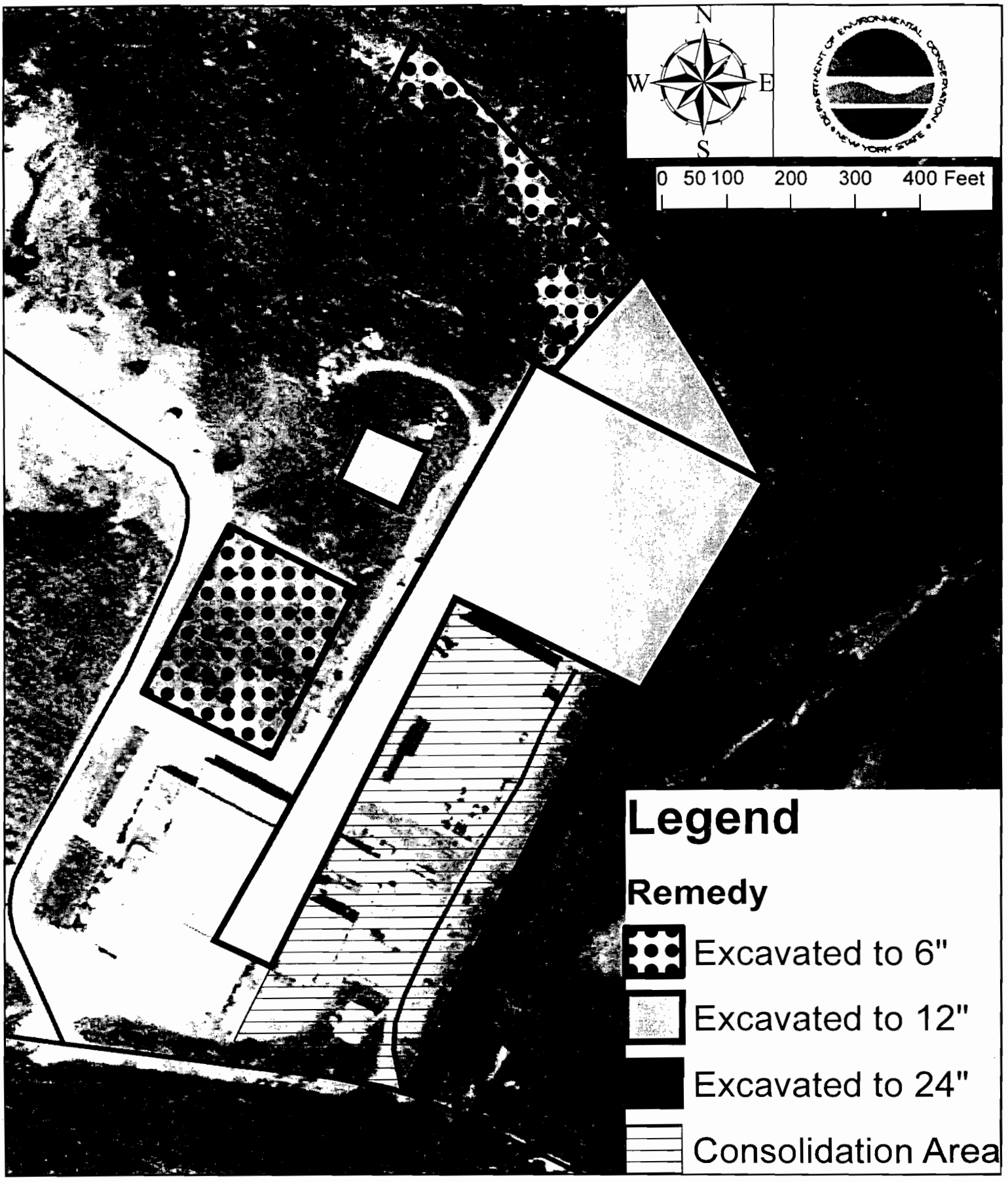
FEET

Contour Interval = 0.2'
Elevations surveyed relative to local datum.

CONRAD GEOSCIENCE CORP.
8 Raymond Avenue, Poughkeepsie, New York 12603

N

Figure 5		GROUNDWATER CONTOUR MAP
Prepared By:	CBB 5/98	CHELSEA INDUSTRIAL PARK Fishkill, New York CF030290
Reviewed By:	JAC 5/98	
Revised By:	BPG 2/16/05	
Approved By:	JAC 2/16/05	



Circle M Wood Treatment Figure 6

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Circle M Wood Treating Corporation
Town of Fishkill, Dutchess County, New York
Site No. 3-14-083

The Proposed Remedial Action Plan (PRAP) for the Circle M Wood Treating Corporation 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 28, 2005. The PRAP outlined the remedial measure proposed for the contaminated soil and groundwater at the Circle M Wood Treating Corporation site.

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

A public meeting was held on March 14, 2005, which included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on June 10, 2005.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the NYSDEC's responses:

COMMENT 1: As a resident, I have to say I am not in agreement with the proposed remedy, and I hope that the NYSDEC and the NYSDOH will take our concerns seriously and propose a more permanent and protective alternative.

RESPONSE 1: The NYSDEC and NYSDOH have evaluated the comments expressed during the comment period. In response, several significant modifications to the remedy as proposed by the PRAP have been made. These include a comprehensive removal program whereby all contaminated soils will be segregated and consolidated into a single, dedicated area of the site. Use restrictions will be placed on the consolidation area, however, other areas of the site will not be subject to such restrictions. The consolidation area will be covered with a minimum two foot clean soil cover system. Further, based on the concerns voiced, additional sampling will be conducted, including surface water, sediment and soil from both banks of the adjacent stream, and analysis for site-related contaminants.

COMMENT 2: How are surface soils defined?

RESPONSE 2: Surface soils were defined as the top six inches of the soil profile for this site.

COMMENT 3: What were the results of the deepest soil samples (i.e., the top six feet of the soil profile)?

RESPONSE 3: Figure 6 of the Record of Decision (ROD) depicts the excavation limits which will address the vertical and horizontal limits of the contaminants of concern (As, Cr, Cu). Although results suggest that the majority of the contamination is situated at shallow depths, the remedial

investigation did reveal contamination in soil as deep as six feet below the ground surface (concentrations up to 505 ppm As, 1,225 ppm Cr, 665 ppm Cu) in areas beneath the former treatment building slab, which will remain in place within the consolidation area.

COMMENT 4: If this property is developed and foundations are built, the two-foot cap will be torn apart. Why not make the cap as deep as the frost line, so that any further construction only occurs in the capped portion of the soil profile, and not in the soil remaining underneath the cap?

RESPONSE 4: The ROD remedy (which differs from the PRAP) calls for consolidation of contaminated soils, a two foot soil cover and a restriction on use of this area. The development on the consolidation area will be limited to green space or parking. A Site Management Plan (SMP) will be developed as a component of the remedy which will require that materials encountered beneath the cover system, due to future excavation in this area (e.g., utility repair), be managed in accordance with appropriate regulations (i.e., proper handling and disposal). The areas of the site which have no contamination, together with areas of the site from which soil will be excavated, will not be subjected to the SMP cover system, thereby allowing 14 acres of the 20 acre site to have unrestricted use.

COMMENT 5: Why not have the preferred remedy, Alternative No. 2, remove the soil underneath the footprint of the former Circle M building, since that is the location of the largest amount of the site's contaminants?

RESPONSE 5: The floor slab of the former Circle M building serves to isolate the underlying contaminants, thus the slab currently serves as an effective barrier which isolates this contamination from the environment and public. By consolidating contaminated soil in this area, the footprint of the contamination throughout the site will shrink considerably. The slab will continue to function as a barrier to the deepest contamination, and the two foot clean soil cover will serve as barrier to the consolidated material. Removal of the floor slab and excavation of this contaminated soil would only result in an increase in cost, duration of the remedy and potential for short term impacts, without providing a significant increase to the protection of human health and/or the environment.

COMMENT 6: Isn't time of the essence for this site? Otherwise, it could become the next Shenandoah Road or East Fishkill site.

RESPONSE 6: It is anticipated that this remedy will be undertaken by the site owner. In fact, the site owner has already submitted an application to the NYSDEC's Brownfield Cleanup Program. Should the owner or any other party be unwilling or unable to implement the remedial program in a timely manner, the NYSDEC will address contamination using the State Superfund. Since the contaminants of concern at this site are metals, not chlorinated solvents as is the case in Shenandoah Road and Hopewell, the groundwater contamination associated with this site will not result in vapor intrusion issues such as were associated with Shenandoah Road or Hopewell.

COMMENT 7: Some of us didn't get the Fact Sheet at the start of the comment period, so can the comment period be extended?

RESPONSE 7: The comment period was extended twice, by thirty days each time, until June 10, 2005.

COMMENT 8: The PRAP was not available at the specified public website today (3/14/05), so what can be done about this?

RESPONSE 8: PRAPs are made available to the public at document repositories, and these locations are listed on the correspondence distributed by the NYSDEC. In addition the Circle M PRAP was posted on the NYSDEC's website at: http://www.dec.state.ny.us/website/der/projects/reg3/314083.pdf

COMMENT 9: How will we know if the comment period is extended?

RESPONSE 9: All parties on the site's mailing list were notified by mail that the comment period had been extended to June 10, 2005.

COMMENT 10: A two-foot cap isn't deep enough, and maintenance of the cap requires the diligence and good faith of the property owner, so why not clean up all the contamination or send it off-site or at least go with a five-foot cap so that developers won't encounter contaminated soil?

RESPONSE 10: As detailed in Section 8, Alternative 2 was selected based upon its ability to satisfy all the remedy selection criteria. Further, as explained in Response 4, a SMP will be developed as a component of the remedy. In addition, the remedy selected in the ROD requires consolidation of contaminated material. As a result, only 6 acres will require a cover system, compared to the 20 acre area proposed in the PRAP. Please note that future uses of the capped 6 acres will be limited to green space or parking. The owner of the property will also be required to certify to the NYSDEC on a periodic basis that the cover system is in place, functioning as envisioned by the ROD, and in accordance with the SMP.

COMMENT 11: What are the plans for the site's development, and is there just one owner?

RESPONSE 11: Chelsea Waterfront Development, LLC is the site's owner. Details regarding site development should be addressed to the site owner.

COMMENT 12: What effect did the two spills at the site, totaling about 5,000 gallons of CCA spilled, have on the site?

RESPONSE 12: These spills, which were isolated, were remediated by NYSDEC spill contractors. The selected remedy will address the more widespread contamination associated with past site operations.

COMMENT 13: What is the half-life of heavy metals at the site, and can they be treated?

RESPONSE 13: The term half-life is commonly associated with radioactive decay. There are no radiological issues or concerns at this site. As clarified at the meeting, the context of the question is "How long would it take for the contaminants of concern to breakdown, or attenuate?" The contaminants of concern at this site: arsenic, chromium and copper, are in a category of compounds known as inorganics, or more commonly metals. These compounds, unlike organic compounds, are not prone to breakdown, therefore, the concentrations present in site soil will remain unless removed by physical means such as excavation or erosion. Soil stabilization is another method to

address soils contaminated with metals. This process was evaluated as Alternative No. 4 in the ROD.

COMMENT 14: Why put a cap on the site if it's going to be developed later? Doesn't this conflict with the institutional control in Alternative No. 2?

RESPONSE 14: A major difference between the remedy proposed in the PRAP and the ROD is that the area to be capped has been reduced from the entire 20 acres to a 6 acre portion of the site. Please see Response 4 and Response 10 for additional information.

COMMENT 15: One of the criteria in the PRAP for selecting a remedy was short-term effects like dust exposure. Another criteria was long-term effects like dust exposure. Since dust will occur during the upcoming development of the site, why not remove all of the contaminated soil from the site before developing the site? With the removal of contaminated soil from the site, the long-term effect of the dust is eliminated.

RESPONSE 15: During remedial activities a Health and Safety Plan (HASP), which incorporates a Community Air Monitoring Plan (CAMP), will be in effect. The HASP and CAMP address generation and control of dust from site work. Following completion of the remedy, the two-foot soil cover in the consolidation area will serve to isolate the site's contaminants. As soon as the soil cover is in place, dust is eliminated as a long-term effect. Also, the SMP will ensure that actions/activities after the remedial program (e.g., any future construction that penetrates the two-foot cap), will not increase the mobility of the site contaminants. Please note that a major difference between the proposed remedy in the PRAP and the ROD is that the size of the capped area has been reduced to 6 acres. As a result 14 acres of the site will not require use restrictions or have associated "exposure" issues.

COMMENT 16: Who do the consultants work for?

RESPONSE 16: Chelsea Industrial Park, Inc. and Chemical Specialties, Inc. entered into a Consent Order with the NYSDEC in 1997. The Order obligates the responsible parties to implement a Focused Remedial Investigation/Feasibility Study remedial program. These parties procured an engineering consultant, Conrad Geoscience, to conduct this remedial program on their behalf.

COMMENT 17: Does the NYSDEC have the authority to prevent the site from being developed at all?

RESPONSE 17: The NYSDEC, in cooperation with the NYSDOH, is responsible for selecting a remedy that is protective of human and health and the environment. The NYSDEC can not restrict development of a site but can require additional remediation if it is required. As part of a remedy, certain use restrictions may be required but the decisions relative to site development/redevelopment (e.g., zoning) are the jurisdiction of the municipal government. Often times, as part of a remedial program, site owners will agree to restrict future site uses.

COMMENT 18: What does "restricted residential" development mean?

RESPONSE 18: "Restricted residential" development means residential development where there is a common or a single owner of the property. At a minimum, restrictions include prohibition of

any vegetable gardens on a property, although community vegetable gardens may be considered with NYSDEC approval. Examples of restricted residential uses include apartment complexes; day care facilities; schools, colleges and other educational institutions; nursing homes, elder care and other long-term health care facilities; and active recreational uses, (e.g., playgrounds, picnic areas, playing fields or other public uses where there is a higher potential for soil contact). While the PRAP had contemplated restricted residential use, the ROD has modified the restrictions to parking or green space, and decreased the area affected by those restrictions to the 6 acre consolidation area.

COMMENT 19: Even if there is a single ownership entity in control of the management of the site, won't hundreds of families still be at risk?

RESPONSE 19: The ROD process is designed to select a remedy that is protective of human health and the environment. This is accomplished through the process of comparing proposed remedies against eight criteria. These criteria are: Protection of Human Health and the Environment; Compliance with New York State Standards, Criteria, and Guidance (SCGs); Short-term Effectiveness; Long-term Effectiveness; Reduction of Toxicity, Mobility, or Volume; Implementability; Cost Effectiveness; and Community Acceptance. The selected remedy best addresses these criteria.

COMMENT 20: Wouldn't it make more sense to send contaminated soil off-site, rather than to an on-site soil consolidation area?

RESPONSE 20: Off-site disposal of contaminated soil would be an effective remedy, however, as detailed in the Feasibility Study, this alternative would be accomplished at a much higher cost than the selected remedy without any corresponding increase in protection of human health or the environment. The selected remedy is protective of human health and the environment and can be accomplished with fewer short term impacts (e.g., trucking/transport of contaminated materials, etc.).

COMMENT 21: The development of the site will require water, sewer and other utility lines. If these lines are buried in contaminated soil and they break or otherwise need repair, how will the problem be handled in the context of the soil management plan and institutional controls; and who will handle the problem?

RESPONSE 21: It is not anticipated that any utilities will be installed in the soil consolidation area, but were they to be, the SMP will detail the protocols to be employed during any utility installation or maintenance activities that penetrate the two-foot soil cover. For installation of underground utilities, such measures would include backfilling utility trenches with clean fill and placement of a demarcation barrier.

COMMENT 22: If a water supply pipe breaks and it's surrounded by contaminated soil, is there a risk of drinking contaminated water?

RESPONSE 22: Generally, the installation of utilities through the consolidation area will be discouraged. In the event a water line or other utility is installed within the consolidation area, the SMP will require that the line be installed/backfilled within clean fill. This will avoid direct contact between the utility and contamination, and alleviate health and safety considerations for utility repair workers, who might otherwise come into contact with residual contamination in the future.

COMMENT 23: Was there any sampling outside of the 20-acre site boundary?

RESPONSE 23: Yes, background soil concentrations were obtained by taking eight discrete soil samples from four off-site locations (i.e., the four locations labeled "K", "I", "G", and "E") and one composite soil sample from three off-site locations (see Figure 4). Also, one sample was collected from an upstream section of the adjacent stream.

COMMENT 24: I closed on my property, which is up the hill from the site, last April. Why wasn't I informed that an inactive hazardous waste disposal site was located near my new home?

RESPONSE 24: The Circle M site has been listed on New York State's Registry of Inactive Hazardous Waste Disposal Sites since 1990. When the NYSDEC makes decisions with regard to site listing/classification, the NYSDEC announces the decision to the county clerk; the town, city or village; the site owner and adjacent property owners. This notice therefore would have been made in 1990. The Registry is available for review on the NYSDEC's website.

COMMENT 25: Shouldn't the Town of Fishkill notify each of its residents about the location of sites like Circle M?

RESPONSE 25: Publication in the State's Registry of Inactive Hazardous Waste Disposal Sites is equivalent to public notice of the status and location of the Circle M site. The Town of Fishkill has no additional legal obligation to inform its residents about such sites.

COMMENT 26: Shouldn't the Circle M site be under some sort of operating restriction right now? I'm concerned about my wife, who is five months' pregnant, and who goes to the AVR Realty office in the former Circle M building quite often.

RESPONSE 26: CCA was not used in the portion of the building occupied by AVR Realty. Also, AVR offices were newly constructed, with a raised floor, within the former Circle M building thus eliminating the possibility for contact with surfaces of the building formerly used by Circle M. Also see Comment/Response 27 below.

COMMENT 27: What about the workers in the former Circle M building? What tests have been conducted to ensure that their work area was safe, especially in light of the relatively high amount of soil contamination that lies under the building's slab foundation?

RESPONSE 27: The NYSDOH inspected the former Circle M building on October 11, 2002 and again on May 2, 2005, and determined that indoor air testing was not necessary after both inspections. Based on inspections conducted at the former Circle M facility on October 11, 2002 and May 2, 2005, areas of this site where the current on-site workforce spends their time (where soil contamination was detected during the RI) have been covered with gravel or asphalt thus significantly reducing the potential for direct contact exposures with contaminated soil. During the May 2, 2005 visit there was no observable (visual) generation of dust on-site even though wind speeds likely gusted to over 30 miles per hour (the maximum wind speed recorded at Stewart Field on May 2, 2005 was 35 mph). Since dust generation was not evident during elevated wind conditions, it is unlikely that dust migration/inhalation is a significant pathway of exposure. The majority of businesses currently operating at this site occupy areas where CCA was not used. In

addition, some of the offices are newly constructed within older on-site structures. Since contamination at this site is generally sub-surface and CCA is not a volatile substance, there is little to no potential for the inhalation of CCA vapors. Please note that as a component of the ROD buildings in the soil consolidation area will be demolished.

COMMENT 28: Is there any SMP in effect to guarantee that the floor slab in the former Circle M building isn't cracked right now? When was the last time that this slab was inspected?

RESPONSE 28: The floor slab in the former Circle M building is not inspected for cracks on a regular basis. Minor cracks would be a concern if the contaminants of concern could volatilize. However, arsenic, chromium and copper are not volatile. The slab serves to prevent direct contact with the underlying soils in this instance, so minor cracks are not of concern.

COMMENT 29: What has been done to keep the trucks and equipment that leave the site and come into our neighborhood free from contamination so that they aren't bringing this stuff into our neighborhood?

RESPONSE 29: The majority of this site is paved and observations have revealed little if any current dust problems at this site. Also, see Response 15 and Response 27.

COMMENT 30: How do we know that construction materials being used in our neighborhood haven't been contaminated from being on this site?

RESPONSE 30: The site was previously used to produce pressure treated lumber. As part of this process wood is impregnated with chromated copper arsenate (CCA). Pressure treated lumber is widely used for porches, decks and other exterior uses. It is entirely possible that some of the residences in the surrounding community have used materials from this or other wood treatment facilities.

COMMENT 31: If the contamination is left in place, why have a uniform two-foot cap? Why not make the cap thicker where the contamination is more severe, or where excavation for construction will be taking place?

RESPONSE 31: Two feet of clean soil cover is a standard barrier thickness and will serve as an effective barrier to exposure of contaminated soil. The ROD selected remedy specifies that contaminated soil will be excavated and consolidated on to 6 acres of the site (see Figure 6) and this area will be subject to use restrictions and a Site Management Plan (see Response 4). There will be no use restrictions on the (14 acre) balance of the site. Note also that during the process of excavation and consolidation it is likely that soil contamination will become fairly uniform throughout the soil to be capped.

COMMENT 32: If the most contaminated soil from all over the site is isolated under a segment of the cap, how deep will that excavation of the most contaminated soil have to be?

RESPONSE 32: Figure 6 depicts the areas to be excavated and consolidated and the estimated depths of those excavations. The actual depths will be based on confirmatory sampling during the remedial program.

COMMENT 33: Will off-site testing occur?

RESPONSE 33: Off-site testing has occurred in several locations in association with the background soil sampling program. Eight samples were collected from four off-site locations (i.e., labeled "K", "I", "G", and "E") and one composite soil sample was collected from three off-site locations (see Figure 4). In addition, as a component of the remedial design, sampling will be performed to provide the details necessary to implement the remedial program. This will include additional sampling of surface water, sediment and soil from both banks of the adjacent stream, and analysis for site-related contaminants.

COMMENT 34: How does this site affect the Hudson River?

RESPONSE 34: The unnamed stream located adjacent to the site discharges to the Hudson River, which is located approximately 0.25 miles west of the site. Based on the analysis of samples collected from the adjacent stream, contamination appears confined to the site, specifically the limits depicted on Figure 6. Therefore, the site is believed to have no impact on the Hudson River. However, as described in Response 33, additional sampling will be performed in the stream as a component of the remedial design.

COMMENT 35: If the proposed remedy becomes the chosen remedy in the ROD, and part of the site is set aside for recreation or parkland, would you let your kids play there?

RESPONSE 35: Please note that the ROD selected remedy differs from the propose remedy in the PRAP. The ROD selected remedy results in 14 acres of the site having no usage restrictions with a 6 acre consolidation area. The two-foot cap on the soil consolidation area serves to isolate the site's contaminants from the site's occupants. Also, the SMP would require maintenance of the cap and prevent any unauthorized excavations. Therefore, the cap and the restrictions placed on the soil consolidation area will effectively prevent exposure to any underlying contamination to children and other future site residents.

COMMENT 36: Annual certification is not sufficient to make the proposed institutional control work. More frequent certification is necessary.

RESPONSE 36: Unlike the PRAP, reliance on an institutional control for the entire site is no longer being considered. When the remedy is implemented, 14 acres of this 20 acre site will be available for unrestricted use. The document that covers the post-remediation operation, maintenance and monitoring requirements for the site is the SMP. The site owner will be obligated to adhere to this plan, including if excavation in the consolidation area is contemplated. The certification is the statutory obligation to advise the NYSDEC that the SMP is being followed and that the remedy as contemplated by the ROD, remains in effect. The certification is required no more often than annually, and in some cases less often. If the NYSDEC fails to receive this certification within the specified time frame, the NYSDEC will take appropriate action.

COMMENT 37: What if there is non-compliance with the institutional control, and how are we protected if this happens? What are the penalties, and who is responsible for enforcing the institutional control?

RESPONSE 37: The institutional control is in the form of an environmental easement, which would require compliance with the approved SMP and limit the use and development of the portion of the property where the soil consolidation will occur, as appropriate. The easement will also restrict the use of untreated groundwater as a source of potable or process water. The NYSDEC is responsible for enforcing this institutional control. In the event the site owner fails to comply with the SMP and/or does not submit the certification, appropriate action will be taken. The SMP will be available to the public and is expected to minimize non-compliance with the institutional control. The public is encouraged to report any non-compliance with the institutional control to the NYSDEC.

COMMENT 38: How does Alternative No. 2 address the criteria for dealing with minimizing the toxicity, mobility, and volume of the site's contaminants, if the contamination is being left in place?

RESPONSE 38: The volume of the contaminated material will not be reduced by the selected remedy. The remedy however, will serve to isolate the site's contaminants via consolidation and installation of a soil cover. While the toxicity is not being directly reduced, this soil cover will reduce the potential mobility of the contamination by such means as erosion and wind dispersion; and the opportunity for contact with contamination will be greatly reduced. The NYSDOH has determined the remedy to be protective of human health and the NYSDEC has determined the remedy to be protective of the environment.

COMMENT 39: I believe that the criteria that address the long-term permanence and effectiveness of the remedy and the reduction of the volume of the contamination are best achieved with Alternatives No. 5 or No. 6, and I prefer the latter.

RESPONSE 39: Each of the alternatives evaluated by the Feasibility Study satisfy the screening criteria to various degrees, however, the goal of the Feasibility Study is to select the alternative which best satisfies all of the criteria. As detailed in the Feasibility Study and discussed in Section 8 of the ROD, Alternative No. 2 best satisfies all of the criteria.

COMMENT 40: Is CCA a water-based solution? If so, could it move on the site?

RESPONSE 40: CCA is a water-based preservative containing arsenic, chromium and copper. CCA solution has a low pH to maintain metals in solution. While this CCA solution is water soluble, inorganic compounds such as arsenic, chromium and copper tend to adhere to soil particles. Also, CCA has a greater affinity for soil particles than for water. Filtered groundwater samples were collected to assess whether dissolved metals had impacted groundwater quality. The samples did not show exceedances of groundwater standards, thereby supporting the premise that the mobility of site contaminants via groundwater movement is limited. Further, a monitoring well network will be established in conjunction with the remedial program to confirm earlier findings.

COMMENT 41: Would acid rain affect the soil's pH enough to affect CCA mobility?

RESPONSE 41: No, the affects of acid rain would not be significant. Also, groundwater monitoring well samples do not indicate that CCA is migrating in groundwater. See Response 40.

COMMENT 42: The best way to achieve long-term effectiveness is Alternative No. 6, which would remove the soil contamination from the site.

RESPONSE 42: See Response 39.

COMMENT 43: If the contamination at the site isn't mobile, how come it has spread so far so fast all over the site and into the ground?

RESPONSE 43: The extent of the soil contamination is attributed to past site operations which involved transport of CCA-impregnated wood to various locations across the site to dry. Dripping of the newly treated wood was likely the source of these contaminated areas, although areas of the site have also been subject to regrading in recent years. It is also possible residual contamination from the two onsite spills contributed to the contamination.

COMMENT 44: If this is such a dangerous area, why is any use of this site being considered?

RESPONSE 44: The remedy selected for this site will effectively eliminate the potential for exposure to site-related contaminants. Also, see Response 35.

COMMENT 45: Is this site being remediated because someone wants to develop it? Why wasn't this site remediated much earlier?

RESPONSE 45: This ROD is the culmination of years of site investigation. The investigation and remediation, of the site, is not a result of developer interest. The site will be remediated regardless of developer interest.

COMMENT 46: I am very concerned about a plastic demarcation barrier being placed underneath the cap. What kind of plastic would be used to avoid dioxins leaching into the groundwater?

RESPONSE 46: The barrier employed to serve as a demarcation mechanism between the clean soil cover and the underlying contaminated soil is typically a woven geotextile fabric of the type commonly used in landscaping. This material is not a source of leachable contaminants.

COMMENT 47: If left in the ground, can heavy metals be absorbed by tree roots and get into tree leaves, and thereby create a human exposure pathway?

RESPONSE 47: While heavy metals can be absorbed by tree roots, they are not likely to move into the tree leaves in sufficient concentrations that would represent an exposure concern.

COMMENT 48: Holly Ridge is as close to the east side of the site as some of the samples that were taken towards the west side of the site. We want additional testing done to determine whether there are any off-site impacts from site-related contamination.

RESPONSE 48: As a component of the remedial design, additional sampling will be performed to provide the details necessary to implement the remedial program. This will include sampling of surface water, sediment and soil from both banks of the adjacent stream, and analysis for site-related contaminants.

COMMENT 49: How does Alternative No. 2 get the soil contaminant concentrations down to the SCGs shown in Table 1 in the PRAP?

RESPONSE 49: The selected remedy was revised based on public comment, and now involves the excavation of contaminated materials from the areas identified on Figure 6 and consolidation of those materials into a single, controlled area which will be situated atop the slab of the former treatment building and adjacent areas. The areas of excavation will be subject to sampling to confirm all materials above the SCGs have been removed, and the excavations will be backfilled with clean soil. The remediation of these areas outside the footprint of the consolidation area, will achieve levels which will allow unrestricted use.

COMMENT 50: Why weren't some of the six alternatives in the PRAP screened out by the eight evaluation criteria?

RESPONSE 50: Alternatives which are considered potentially viable are carried through the detailed analysis, which includes the evaluation of those alternatives against each of the criteria. This gives reviewers the opportunity to more closely scrutinize the alternatives and assess the positive and negative aspects of each remedial strategy.

COMMENT 51: In Alternatives No. 3, 5 and 6, a comment was made that the removal process could spread particles and increase exposure. But could this process be done in an enclosed container like a railroad boxcar to restrict dust, while transporting the soil contaminants off-site?

RESPONSE 51: The ROD selected remedy does not include transportation of contaminated soil off-site. Temporary structures have been used in certain instances where excavation and/or treatment is required, however, these are typically employed in instances where odor, not dust, is a concern. Odors have not been a concern at the Circle M site. Dust can be monitored and mitigated, using appropriate engineering controls, such as wetting an area to control dust. As a component of the remedial program a community air monitoring program will be implemented, which includes strict provisions for dust monitoring and mitigation, as necessary.

COMMENT 52: Should a meeting be scheduled that includes the site's owner, the Town of Fishkill and the NYSDEC to determine what needs to be done at this site?

RESPONSE 52: The remedial decision is set forth in this ROD. The NYSDEC would be willing to participate in a meeting with municipal officials, should the Town request such a meeting, to discuss implementation of the ROD.

COMMENT 53: Why is there such a rush to change the zoning on this property from industrial to residential?

RESPONSE 53: Issues concerning zoning are the jurisdiction of local government, not the NYSDEC.

COMMENT 54: How much of this site is covered right now, and why isn't there more of a concern as to what is going on at the site in terms of dust and contaminant transport by various means?

RESPONSE 54: Approximately 20 percent of the site is paved. The remedy chosen in this ROD will address the potential off-site migration of dust. Also see Response 26 and 27.

COMMENT 55: At a minimum, why aren't the hot spots on the site that were identified during testing delineated so that vehicles and employees stay away from these areas?

RESPONSE 55: Areas of this site frequented by the current on-site workforce have been covered with gravel or asphalt thus significantly reducing the potential for direct contact exposures with contaminated soil. The highest soil contaminant levels are under the slab of the former Circle M building. See Response 26 and 27.

COMMENT 56: Will there be some criteria for protecting workers in the SMP? If so, what type of oversight will there be?

RESPONSE 56: The design will include a Health and Safety Plan which addresses the controls necessary to ensure the protection of site workers during the remedial program. The NYSDEC and the NYSDOH must review and approve the remedial design documents, and the NYSDEC will oversee the remedial program. The design will also include the development of the SMP which details the measures to be employed by any worker who may have to excavate within the soil consolidation area in the future.

COMMENT 57: Are the current workers at the site being exposed to an unacceptable level of site contaminants? I am especially concerned about this, since my daughter works at the site.

RESPONSE 57: See Response 26 and 27.

COMMENT 58: Except for the soil contaminated by fuel in the vicinity of the two underground storage tanks that were removed from the site, no other soil contaminants have been removed from the site, so why aren't steps being taken to restrict the use of the property by current occupants?

RESPONSE 58: It is important to note that petroleum contamination was treated differently due to it's properties. Unlike metals, petroleum is mobile in the environment (i.e. will migrate to, and impact groundwater). Metals contamination tends to be fairly stable (i.e. it does not migrate and does not volatilize). Nevertheless, some of the most contaminated soil at the site was removed in 1990 by two separate NYSDEC spill contractors (3,000 gallon CCA spill, 1,600 gallon CCA spill - see Section 3.2 of the ROD). See also Response 26 and Response 27.

COMMENT 59: Was an indoor air monitoring sample ever taken?

RESPONSE 59: Indoor air samples were not collected since CCA is a non-volatile mixture. Also see Response 27.

COMMENT 60: What does "short term exposure" mean if the contaminated soil is removed from the site?

RESPONSE 60: The Feasibility Study assessed short term effectiveness of each of the remedial alternatives. The objective is to review potential short-term adverse impacts of the remedial action (e.g., dust controls or truck traffic leaving the site) upon the community, the workers, and the environment during remedy construction/implementation. Please refer to Section 7.2 of the ROD.

COMMENT 61: Who does the monitoring of the SMP?

RESPONSE 61: The site owner is responsible for implementing the SMP and certifying to the NYSDEC that the plan's terms have been followed. In the event the site owner fails to comply with the SMP and/or does not submit the certification, the NYSDEC will take appropriate action.

COMMENT 62: When was your most recent round of sampling done, and how do you know that they reflect current conditions?

RESPONSE 62: The most recent round of sampling was conducted in 2002, as summarized in Table 1 in the ROD. The contaminants of concern, the metals arsenic, chromium, copper tend to adhere to soil particles, and by their physical nature do not volatilize or otherwise degrade, therefore, the site conditions since that time are expected to be relatively unchanged. During the remedial design/remedial action program, additional sampling will be conducted to fully delineate the extent of contamination to be addressed by the remedy.

COMMENT 63: When dealing with construction and demolition debris, who makes the determination as to whether the media is exempt or non-exempt?

RESPONSE 63: 6 NYCRR Part 360, the regulation which governs solid waste management facilities, defines construction and demolition debris and lists certain exemptions. The party conducting the remedial program will have to detail plans for demolition and the proposed disposal facility(ies), and ultimately provide documentation as to the disposition of those materials. These plans/documents will be subject to review by the NYSDEC.

COMMENT 64: If you leave the contamination under the floor slab, what happens if the slab becomes compromised or cracked right after the annual certification?

RESPONSE 64: The SMP will detail the actions required to address any breach in the cover system. Unlike the PRAP, the ROD remedy will require the demolition of the building, as well as the covering of the slab with the consolidated soils and a two foot clean soil cover. Inspection/maintenance of the slab once buried, will not be required. Maintenance and protection of the soil cover, however, will be one of the key components of the SMP.

COMMENT 65: As a result of your soil sampling, do you have any idea as to whether there is off-site contamination?

RESPONSE 65: The findings of the remedial investigation suggest that contamination is confined to the site. To confirm this, however, additional sampling will be conducted as part of the remedial design/remedial action. This will include sampling of surface water, sediment and soil from both banks of the adjacent stream, and analysis for site-related contaminants.

COMMENT 66: In the worst-case scenario, what are the health impacts from contaminant exposure at the site?

RESPONSE 66: The contaminants of concern at the former Circle M Facility are inorganic arsenic, chromium and copper, which comprise the water based solution CCA. As with all substances, it is the amount of a substance or "dose" that an individual is exposed that will determine if there are any adverse health effects. Although exposure to the each constituent of CCA may individually

represent a health concern, based on the results of the remedial investigation, exposure to arsenic would represent the greatest concern for an adverse health effect.

Oral (ingestion) exposure to high levels of arsenic over short periods of time can irritate the stomach and the intestines, producing symptoms such as stomach ache, nausea, vomiting and diarrhea. Other effects which may occur from swallowing large amounts of arsenic include swelling of the face, decreased production of red and white blood cells, abnormal heart rhythm and impaired nervous system function resulting in a "pins and needles" sensation in the hands and feet. Long-term inhalation or oral exposure to high levels of arsenic in humans is associated with skin effects (warts, corns and darkening of the skin), nerve, liver or blood vessel damage, and an increased risk of skin, bladder or lung cancer. Chemicals, such as arsenic, that cause adverse health effects in humans after high levels of exposure may also pose a risk of adverse health effects in humans exposed to lower levels over long periods of time. The World Health Organization, the Department of Health and Human Services, and the United States Environmental Protection Agency classify inorganic arsenic as a human carcinogen.

For more information about the health effects associated with the exposure to arsenic, or the other constituents of CCA, you may contact the Agency for Toxic Substance and Disease Registry (ATSDR) by telephone at 1-888-422-8737 or through ATSDR's Internet website at http://www.atsdr.cdc.gov.

It is important to remember that if exposure to a substance is reduced or eliminated, the risk of an adverse health effect, which may be associated with that exposure, is reduced or eliminated. In evaluation of current conditions at the former Circle M Facility, the potential for exposure to site-related contamination for on-site workers has been reduced by covering contaminated areas where worker activity takes place, with gravel or asphalt. Also, since CCA is not a volatile substance, there is little to no potential for exposure to CCA vapors (see Response 26 and 27). The remedy selected for this site will effectively eliminate the potential for exposure to site-related contaminants in concentrations that may represent a health concern.

COMMENT 67: Arsenic accumulates in the body, doesn't it?

RESPONSE 67: If you are exposed to arsenic, your liver changes some of this to a less harmful organic form. Both inorganic and organic forms leave your body in urine. Most of the arsenic will be gone within several days, although some will remain in your body for several months or even longer. Also see Response 66.

COMMENT 68: Without off-site sampling, we won't know the impacts to the Streamside and Holly Ridge developments.

RESPONSE 68: See Response 33.

COMMENT 69: We are lay people and the site presents some very technical and complex issues, so can we get a technical assistance grant to bring in a third party to help us evaluate these issues?

RESPONSE 69: A technical assistance grant (TAG) of up to $50,000 (no matching contribution required) may be awarded to a community group to obtain independent technical assistance in interpreting existing information about the nature and extent of hazardous waste contamination, and

the development and implementation of a remedy at any significant threat site under the State Superfund (SSF) or Brownfield Cleanup programs (BCP). To be eligible, the community group must meet the following criteria:

- It must be a non-responsible party community group;
- It must be a domestic not-for-profit corporation exempt from taxation under section 501(c)(3) of the Internal Revenue Code;
- It must be a group whose members' health, economic well-being or enjoyment of the environment are potentially affected by a release or threatened release of contamination at the eligible site; and,
- It must be a group whose membership represents the interests of the community affected by the eligible site.

More information relative to TAGs and an application is available on the NYSDEC website at http://www.dec.state.ny.us/website/der/guidance/tag/.

COMMENT 70: While AVR is constructing the Streamside and Holly Ridge developments, what is being done to prevent contaminated equipment from being brought into these developments, which is our neighborhood? What about the trucks taking mud off of the site and into our neighborhood? Construction workers and gardeners who come to our neighborhood are coming from the AVR office, which is in the most contaminated area of the site.

RESPONSE 70: See Response 26 and 27.

COMMENT 71: A new pool is being put in at the Streamside development. Since the contractor's trucks come from the Circle M site to Streamside daily, how can we know that the pool or the associated landscaping isn't being contaminated? Certainly, the pool and other common recreation areas, including the landscaping, at the Streamside development should be checked out before we let our children play in them.

RESPONSE 71: See Response 26 and 27.

COMMENT 72: If you add new monitoring wells, I think a monitoring well needs to be placed right through the slab floor of the former Circle M building.

RESPONSE 72: A monitoring well (MW-8) currently penetrates the slab floor of the former Circle M building. Groundwater quality will be assessed at this location and others as a component of the remedial design/remedial action.

COMMENT 73: If the SCG's you are using for environmental media change in any way to more stringent levels, will you be able to enforce the more stringent levels, or will you have to enforce the SCGs listed in the ROD? In other words, could a change in any of the SCGs affect the remedy?

RESPONSE 73: Should a potential threat to the public health or the environment be identified after the issuance of the ROD and implementation of the remedy (e.g., contamination previously not identified is discovered or cleanup objectives for constituents of concern are significantly modified), the NYSDEC and NYSDOH would assess the need for further action.

COMMENT 74: Judging by the contaminants at the site, is there any chance that this site isn't developable?

RESPONSE 74: Upon implementation of the remedy, as described in the ROD, areas of the site outside the consolidation area may be developed without use restrictions. Use of the consolidation area, however, will be subject to restrictions (i.e., green space or parking)

COMMENT 75: After the comment period is over, what happens next; and what kind of time frames will the next steps entail?

RESPONSE 75: The new site owner has already submitted an application to the State's Brownfield Cleanup Program. If accepted into the BCP, the owner will be required to implement the remedy as described in the ROD. This will include the development of detailed design documents, implementation of the remedial program, and placement of the institutional controls (i.e., use restrictions, SMP, certification) and engineering controls (i.e., soil cover, groundwater monitoring program) required by the ROD. It is expected the design and construction will take one to two years to complete.

COMMENT 76: Are there any private wells in the area that could be affected by groundwater contamination from this site?

RESPONSE 76: Although there are several private wells that have been identified in the Briarwood development, approximately one-quarter mile northeast of the site, these wells are likely supplied by a bedrock aquifer that would not be affected by the site. Based on results of groundwater monitoring well samples, site-related contaminants have not contaminated groundwater and thus are not migrating off-site. However, the ROD mandates that three bedrock wells be installed so that the hydrogeology of the bedrock aquifer at the site can be better understood and monitored. The site's bedrock groundwater flows into the Hudson River; while the site's overburden groundwater flows into the stream on the eastern perimeter of the site, which eventually flows into the Hudson River also.

COMMENT 77: When the Remedial Design is being finalized, could construction be limited to winter when the ground is more frozen so that dust would be less likely?

RESPONSE 77: The construction schedule will be assessed during remedial design, however, a spring or fall project is preferred over winter work, as winter work brings with it challenges such as difficult excavation, frozen lines, etc. Note that when the remedial program is conducted, the excavation and transport of materials will be subject to a Community Air Monitoring Plan, which contains dust monitoring and mitigation controls (e.g., continuous monitoring at the upwind and downwind perimeters), designed to prevent the off-site migration of contaminants in concentrations that would represent a health concern.

COMMENT 78: So that every future buyer has adequate information about the property that they are investing in, there should be a condition in the ROD or some other legal device compelling the seller to disclose to any prospective buyer the location of any inactive hazardous waste disposal site that may have an impact on the property that is being sold.

RESPONSE 78: The consolidation area will be subject to an environmental easement. This will address in detail the use restrictions and engineering controls. The easement will be filed in the title record relating to the real property. The further issue as to whether the seller or agent has an

affirmative obligation to disclose this type of information to a buyer does not fall under the jurisdiction of the NYSDEC. Also see Response 24.

More than 90 community residents residing near the site submitted a letter dated April 27, 2005 which included the following twelve comments, plus two additional comments from a petition attached to the letter, for a total of fourteen comments:

COMMENT 79: It is requested that the review and comment period be extended an additional 60 days. Most residents were not aware of the site until they received the DEC mailing and there has not been ample time for the community to review, investigate and collectively discuss the alternative remediation measures presented in this proposal.

RESPONSE 79: The comment period was extended twice beyond the original comment period end date of March 30, 2005. The extended comment period closed on June 10, 2005.

COMMENT 80: Is the cleanup of this site being performed under the NY State Voluntary Cleanup Program (VCP) and if so, who are the principals and what are the terms of the agreement? If there is a written agreement, is it available for public review?

RESPONSE 80: The Remedial Investigation/Feasibility Study was conducted under the State Superfund Program. The NYSDEC, Chelsea Industrial Park, Inc. and Chemical Specialties, Inc. entered into a Consent Order in 1997. The Order obligated the responsible parties to implement a Focused Remedial Investigation/Feasibility Study remedial program. This Order is available for review in the site's document repositories. The site owner has submitted an application to the State's Brownfield Cleanup Program (BCP) to conduct the cleanup. The application is available for public review at the document repositories. If accepted into the BCP, the owner will be required to execute a Brownfield Cleanup Agreement which commits the owner to development of design documents, implementation of the remedial program, and emplacement of the institutional controls and engineering controls required by the ROD. The agreement will be available for review at the document repositories upon execution.

COMMENT 81: Can this cleanup be performed under the new NY State Brownfield Cleanup Program (BCP), which would provide for Technical Assistance Grants that the community could use to research and evaluate the proposed cleanup?

RESPONSE 81: See Response No. 69.

COMMENT 82: Based on the review of the PRAP and the discussions at the public meeting held on March 14, 2005, the proposed remedy of Alternative 2 will not guarantee that the goals established for protecting human health and the environment will be met. The most certain way to achieve these goals is to remove the contaminated soil and structures in a controlled manner, and place this material in an acceptable repository for this type of contamination. Alternatives 3 or 6 are the preferable choices.

RESPONSE 82: As part of the selected remedy the Circle M buildings will be removed in a controlled manner. All remedial activities will be conducted in accordance with the HASP and CAMP. Also see Response 20.

COMMENT 83: Please describe and quantify the process used to arrive at Alternative 2 for the proposed solution.

RESPONSE 83: The criteria used in the selection of a Preferred Alternative is set forth in the PRAP itself. The final, modifying criteria, is community acceptance. To ascertain the community's response to the PRAP, a Public Meeting is conducted during a public comment period.

As result of the public input, the selected remedy set forth in this ROD has been significantly modified from that in the PRAP. The rationale for the final selection is set forth in Sections 7 and 8 of the ROD.

COMMENT 84: Allowing residential units to be constructed on the site after it is covered with a cap does not make any sense. As discussed at the public meeting, the foundations and infrastructure for these buildings will require that the cap be penetrated, exposing the contaminated material during the excavation process. The contaminated material will most likely be mixed with the cap material and thus will result in additional volumes of contaminated material to manage. Please describe the process and controls that the DEC would require the developer to use to insure that the contaminated materials are segregated and maintained in a fashion to guarantee that the volume of the material does not increase and that it does not pose a continuing threat to human health and the environment. How will DEC enforce the use of these processes and controls? Will there be a DEC inspector on-site during all excavation? Will DEC require an annual certification by the developer and future owners concerning the integrity of the cap?

RESPONSE 84: See Response Nos. 4, 10, 36 and 37.

COMMENT 85: Once the cap has been installed, will there be a requirement for placards and signs to identify and caution the public about the remaining contamination? Please describe the content, size, number and placement of these signs. Will the DEC impose deed restrictions specifying the limitations on the usage of this site?

RESPONSE 85: An environmental easement will be recorded, which identifies all use restrictions and engineering controls (e.g., the soil cover). Uses in the consolidation area will be limited to green space or parking. The easement will also restrict the use of untreated groundwater as a source of potable or process water. During the design, the need for further precautions (e.g., placards or signs) will be evaluated.

COMMENT 86: The proposed alternative has an Institutional Controls (IC) that would allow the site to be used for "restricted residential". We do not agree with the proposed use of the capped property. We believe that future uses should be limited to those that do not disturb the cap, unless all the contaminated materials are removed. The developer has indicated that they plan on constructing apartments or town homes on the property. How does this stated use conform to the "restricted residential" use control? Will the DEC require that all future residents be notified of the underlying contamination? If so, please indicate the nature and extent of the required notification to the residents.

RESPONSE 86: Use of the consolidation area will be limited to green space or parking. Construction of residential units within the consolidation area will be prohibited. Also see Response 1, 78 and 85.

COMMENT 87: Please indicate other sites in NY State where CCA spills have been cleaned up. Indicate the location and remedial measures taken to insure prevention of exposure to the public. Have any of these sites been handled in the same way as proposed in Alternative 2?

RESPONSE 87: Sites contaminated with wood preservatives (CCA, pentachlorophenol, creosote) have been identified across the State. The remedies selected have varied depending on the site-specific circumstances, but have included off-site disposal (e.g., Perry Builders, Bainbridge), on-site treatment (e.g., GCL Tie and Treating, Sydney), and on-site consolidation (e.g., Camp Georgetown, Georgetown).

COMMENT 88: Was there any investigation performed to determine if the CCA reached the Hudson River and if so, what was the extent of the contamination? Is there any cleanup planned for this material?

RESPONSE 88: The unnamed stream located adjacent to the site discharges to the Hudson River, which is located approximately 0.25 miles west of the site. Based on the analysis of samples collected from the stream, contamination appears to be confined to the site, specifically the limits depicted on Figure 6. Therefore, the site is believed to have no impact on the Hudson River. However, as described in Response 33, additional sampling will be performed as a component of the remedial design. The additional sediment sampling will help determine the extent of any site-related impacts on the stream and additional groundwater sampling will help determine the extent of any site-related groundwater contamination.

COMMENT 89: Will additional sampling be performed on the adjacent property to determine the extent of CCA material transported to these properties by the developer's construction activities, which continue to take place on the Circle M site?

RESPONSE 89: See Response 33.

COMMENT 90: If the developer had knowledge concerning the classification of the site and nature of the contamination on this site prior to beginning to develop and sell the adjoining properties, was the developer required to disclose this information to the purchasers? Was the Town of Fishkill required to disclose this information?

RESPONSE 90: See Response 24, 25 and 78.

COMMENT 91: It is our intention to pursue a safer and more permanent solution by recommending excavation and removal of the contaminated area identified by the NYSDEC.

RESPONSE 91: Comment noted.

COMMENT 92: We request additional testing and monitoring soil and water samples from the entire 58.6-acre Chelsea Industrial Park facility, as well as from the surrounding residential communities, including, but not limited to, Holly Ridge, Streamside Knolls, and Avalon Apartments.

RESPONSE 92: See Response 1.

Azem (Ozzy) Albra submitted a letter dated March 20, 2005 which included the following comment:

COMMENT 93: What happens when the developer leaves or goes bankrupt? Also, there is a similar site in the City of Newburgh where contaminated soil is being removed from a commercial property. Why would you remove soil that is used for commercial use and not remove it for residential use? Finally, so you think that 2,000 families would have moved into a contaminated development knowing it was contaminated?

RESPONSE 93: As indicated in Response 6 the site owner has already submitted an application to the NYSDEC's Brownfield Cleanup Program. Should the owner or any other party be unwilling or unable to implement the remedial program in a timely manner, the NYSDEC will address contamination using the State Superfund. With regard to the comparison of the remedy selected for the Circle M versus that for a site in Newburgh, please realize remedies are selected on a site-specific basis, giving consideration to the nature of the contaminant, existing or potential exposure pathways, geologic setting, etc.

The owner of the site, Chelsea Waterfront Development, LLC, submitted a letter dated April 27, 2005 which included the following comment:

COMMENT 94: Alternative 2 should be modified to eliminate any requirement to evaluate the potential for vapor intrusion.

RESPONSE 94: References to a vapor intrusion study/mitigation have been removed from the remedy for the following reasons: contaminants at this site are metals which are not a threat to volatilize; the selected remedy will provide for a 6 acre soil consolidation area where no residential occupation will be permitted; the selected remedy will require the demolition of the currently existing Circle M Building; and the remedy will address site contamination in such a way as to make possible the unrestricted use of the remaining 14 acres of the site.

APPENDIX B

Administrative Record

Administrative Record
Circle M Wood Treating Corporation
Site No. 3-14-083

Proposed Remedial Action Plan for the Circle M Wood Treating Corporation site, dated 3/05, prepared by the NYSDEC.

Order on Consent, Index No. W3-0785-97-02, between NYSDEC and the Chelsea Industrial Park and Chemical Specialties, Inc., executed on 6/27/97.

Letter report, dated 9/24/87, prepared by Leggette, Brashears & Graham, Inc.

Letter report, dated 1/16/89, prepared by Dunn Geoscience Corporation.

Focused Remedial Investigation Workplan, dated 10/23/97, prepared by Conrad Geoscience Corp.

Remedial Investigation, dated 9/9/98, prepared by Conrad Geoscience Corp.

Biological Resource Inventory and Impact Assessment, dated 10/99, prepared by Matthew D. Rudikoff Associates, Inc.

Focused Feasibility Study, dated 10/25/99, prepared by Conrad Geoscience Corp.

Supplemental Remedial Investigation, dated 7/6/01, prepared by Conrad Geoscience Corp.

Focused Feasibility Study, 9/6/01, prepared by Sterling Environmental Engineering, P.C., with revisions submitted on 12/20/01, 12/16/02, 12/24/03, and 2/10/05, respectively.

Supplemental Remedial Investigation, dated 9/13/02, prepared by Conrad Geoscience Corp.

Citizen Participation Plan, dated 8/03.

Meeting Invitation and Fact Sheet, dated 3/05.

Notices dated 3/05 and 5/05 extending public comment period.

Letter dated 3/20/05 from Azem (Ozzy) Albra.

Letter dated 3/22/05 from Chelsea Waterfront Development, LLC.

Letter dated 4/4/05 from RPA Associates, LLC.

Letter dated 4/4/05 from Rivercrest, an AVR Community.

Letter dated 4/8/05 from Holly Ridge, an AVR Community.

Letter dated 4/27/05 from Chelsea Waterfront Development, LLC.

Letter dated 4/27/05 from more than 90 community residents residing near the site.

Letter dated 6/10/05 from Chelsea Waterfront Development, LLC.