PROPOSED RECORD OF DECISION AMENDMENT
PERFECTION PLATING SITE

City of Watervliet / Albany County / Registry No. 401037 February 2018

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

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

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

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375 Environmental Remediation Programs. This document is a summary of the information that can be found in the site-related reports and documents in the document repository identified below.

On December 5, 1995 the Department signed a ROD which selected a remedy to address the contamination identified at the Perfection Plating Site. Since completion of construction in June 1998, a groundwater collection trench and treatment plant have been in continuous operation to capture and contain the contaminated groundwater plume before it migrates into the surrounding neighborhood. While the trench and groundwater treatment have been effective at controlling the plume and providing protection of public health, it has not met the remedial action objective (RAO) of cleaning up the groundwater to the Department's groundwater standards. After further investigation, it has been determined that a continuing source of chromium to the groundwater remains under the former plating building. Until such time as that source is removed, the RAO to achieve groundwater standards will not be achieved. In addition, some of the building structure has also been found to be impacted by hexavalent chromium particularly where exhaust fans discharged and where chromic acid had come into contact with the building materials. Significant contamination has resulted in, and analytical testing has identified, a 238 ft^2 area of hexavalent chromium-impacted paint on the west-facing outer wall of the building.

An investigation in August of 2014, collected a total of 15 bulk concrete samples from floor and wall locations. Results indicated that 13 of these 15 samples detected hexavalent chromium above 1 part per million (ppm), while 4 samples were above regulations for the toxicity characteristic leaching procedure (TCLP) chromium toxicity threshold of 50 ppm. The highest concentrations were found in the plating process room. This new information suggests that removal of the building and disposal of the demolition materials as either hazardous, or non-hazardous, as appropriate, will

provide access to the underlying source of the groundwater contamination. Excavation of the contaminant source is the goal of this amendment. Removal of the building and the underlying chromium contaminant source is the only effective and permanent way to eliminate the ongoing contamination of groundwater. Borings indicate the contaminant source is in the underlying shale bedrock that is highly weathered and fractured, and can be excavated with standard construction machinery such as a track hoe.

SECTION 2: CITIZEN PARTICIPATION

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

NYS Dept. of Environmental Conservation
Division of Environmental Remediation
Attn: Aydin Tabrizi
625 Broadway, 12th Floor
Albany, NY 12233-7017
518.402.9813
Aydin.Tabrizi@dec.ny.gov

A 30-day public comment period has been set from February 21, 2018 through March 21, 2018 to provide an opportunity for you to comment on these proposed changes. A public meeting is scheduled for March 7, 2018 at the Watervliet Senior Center, at 1501 Broadway in Watervliet, beginning at 7:00 pm.

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

Written comments may also be sent to:

Aydin Tabrizi, Project Manager
NYS Dept. of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, NY 12233-7017
518.402.9813, Aydin.Tabrizi@dec.ny.gov

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

Receive Site Citizen Participation Information by Email

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary Cleanup Program, and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html.

SECTION 3: SITE DESCRIPTION AND HISTORY

The Perfection Plating site is located at 911 11th Street in the City of Watervliet, Albany County. Access to the treatment plant is from 12th Street. The Watervliet Arsenal is located adjacent to the site. The site is about 1.7 acres in size and the main site features include the original concrete block electroplating building as well as a second warehouse building. Currently the buildings and the property are being used for storage. Residential housing borders the site on the north and east, with commercial businesses on the south. To the west is the “Siberia” area of the Watervliet Arsenal.

The chronology of ownership from 1965 to 1990 specifically includes three owners and operations:

1. Watervliet Plating, operating from1965 to 1973, with the facility conducting chrome and nickel automotive bumper plating.

2. Perfection Plating, operating from 1974 to 1989, with the primary operation consisting of zinc and cadmium plating, and later changing to chrome and copper plating of brake parts.

3. Pinnacle Plating, operating from 1989 to 1990, with the facility conducting copper and chromium plating with some zinc and cadmium plating. The facility was abandoned on September 1, 1990.

Beginning in 1965, the facility electroplated copper, nickel, chromium and to a lesser extent zinc and cadmium. Automotive brake parts were plated with copper while other metal parts were plated with chrome. Triple plating is the most expensive process for automotive parts, where multiple metals are electroplated for the most durable chrome plating of steel. First copper, then nickel, and lastly, the chrome are electroplated in sequence. Zinc and cadmium plating was also electroplated to provide a corrosion resistance finish on steel. The plating operation ceased in September 1990. The chromic acid tank inside of the building was of particular concern as it leaked, and resulted in significant contamination of the groundwater under the building.

Site Geology and Hydrogeology:

Site soils show evidence of fill material including brick, gravel and sand overlying the native clay and silt

on top of the shallow shale bedrock. Severely weathered and fractured grayish-black shale is encountered at shallow depths across the entire site typically from four to six feet below ground surface to as deep as 15 feet. The hydraulic groundwater gradient across the site was determined to be a low value based upon information obtained from the installed monitoring wells and indicates the groundwater flows slowly across the site. The observed groundwater flow direction in overburden monitoring wells was found to be in a north-northwest direction, which follows the same general direction as the site topography. Shallow groundwater is found at a depth from 4 to 6 feet below the ground surface.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. The Perfection Plating site is currently zoned for light industrial (L-I) use, and is located in an area of light industrial (L-I), residential (R-1) and (R-2) use. A deed restriction is in place that restricts the property from use for residential dwellings or daycare. Soil is not allowed to be disturbed below 1 foot without permission by the involved State environmental and health agencies. The deed restriction became effective on July 29, 1995 and shall run with the land and continue for a period of thirty (30) years. A Site Management Plan is in place that requires maintenance of a groundwater collection trench and groundwater monitoring.

SECTION 5: ENFORCEMENT STATUS

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

On October 24, 1989, a Consent Order (File No. R4-0641-89-03) was issued to the owners of Perfection Plating requiring submittal and implementation of a remedial investigation (RI)/feasibility study (FS). A second Consent Order was issued during Pinnacle Plating's operations to both Perfection Plating and Pinnacle Plating on December 12, 1989. On May 4, 1990, in compliance with the Consent Order, Perfection Plating submitted a Remedial Investigation/Feasibility Study (RI/FS) work plan. The Department approved the work plan on October 9, 1990; however, the plan was never implemented. On June 24, 1991 the Department determined an emergency removal action was necessary, including the emptying and disposal of the plating and rinse tanks, as well as removing and disposing at least six drums of plating waste stored in the warehouse. On June 26, 1991, the Department sent a certified letter to Perfection Plating's consultant requesting the removal of the above mentioned waste. Due to lack of response, an emergency removal action was performed by Clean Harbors under contract to the Department in late-1991 and early-1992.

In July 1995 a "Volunteer" having no connection to the prior ownership, offered to sign an agreement to implement a number of abatement measures and return the property to the tax rolls by using the property and buildings for storage of personal items in accordance with zoning requirements. A deed restriction was to be filed to run with the land to prohibit the site from being used for a residential dwelling, a day care center, a playground, a school or any similar uses in which exposure to contaminated soil is foreseeable. A number of clean-up measures were implemented pursuant to the agreement, but the source of contamination beneath the building still remains. The property was transferred to the volunteer.

SECTION 6: SITE CONTAMINATION

6.1: Summary of Environmental Assessment

While wastewater from the plating operations was pretreated and discharged to the sewer system, a leaking chromic acid tank and exhaust vents resulted in significant contamination. A chromic acid tank exhaust vent and other vents were operated without Department air permits in violation of 6 NYCRR Part 212 regulations. The soil below the tank exhaust vent was notably discolored. Surficial soil samples that were collected from this area showed total chromium at 76,000 ppm and EP Toxic chromium at 510 ppm.

The chromic acid tank located within the plating building leaked resulting in significant contamination of the groundwater underneath the building. Sampling of a monitoring well located immediately behind the building detected chromium at 173,000 parts per billion (ppb) in groundwater. Chromium contamination in the groundwater was detected in the on-site monitoring wells and in other monitoring wells downgradient of the site in the Siberia area of the Watervliet Arsenal. A chromium groundwater plume resulted from the chromic acid source underlying the building, and that plume has migrated towards 12th Street. During the remedial investigation, a homeowner's basement sump on the south side of 12th Street was found to contain chromium at 4,320 ppb, however no detections were found on the north side of the street.

The RI/FS was completed in August 1995 under State Superfund and a ROD was signed by the Department in December of 1995, requiring the removal and disposal of contaminated soil and the installation of a groundwater interceptor trench and treatment system.

Post Remediation
In 1998, an intercepting trench was constructed on Watervliet Arsenal property to capture the migrating plume of chromium in groundwater and a small groundwater treatment plant was constructed on-site. This plant continues to operate. Since the original electroplating building covers the most significant contamination, removal of the source has not been possible.

6.2: Interim Remedial Measures

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

In September 1991, the Department undertook an IRM to mitigate threat of exposure or release of chemicals improperly stored at the site. Plating chemicals stored in drums, tanks and vats within the building were sampled and disposed as part of this IRM. One hundred drums of hazardous waste, sixty-four lab packs with various small chemical bottles and 700 gallons of acid were removed in connection with this IRM. Additionally, fencing was repaired and the site secured.

6.3: Summary of Human Exposure Pathways

Human exposure pathways include ways that people can be exposed to site-related contamination. Direct contact, ingestion, and breathing are typical pathways for exposure. The site is fenced and the plating operation is no longer in operation, which minimizes direct contact exposure. People who enter the site may come into contact with site-related soil and groundwater contamination if they dig below the surface. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. A treatment plant onsite is effectively capturing and controlling

the plume of contaminated groundwater from migrating off-site. Soil vapor intrusion can allow volatile gas to enter buildings, however chromium is not a volatile gas and is not able to migrate into buildings by a soil vapor intrusion pathway.

SECTION 7: SUMMARY OF ORIGINAL REMEDY AND PROPOSED AMENDMENT

7.1 Original Remedy

The original 1995 remedy selected excavation of between 30 and 60 cubic yards of contaminated soil to be transported to a secure landfill as hazardous waste and between 275 to 550 cubic yards of non-hazardous soil to be transported to a permitted disposal facility as solid waste. Excavated areas would be backfilled with clean soil. Additionally, the groundwater would be collected in a shallow trench on Watervliet Arsenal property, treated on-site in a newly constructed treatment plant and then discharged to the Hudson River via a city storm sewer. The treatment plant was assumed to operate for five years.

7.2 Elements of the Remedy Already Performed

The limited soil remediation required by the ROD was completed in 1995, including localized excavation of soil from beneath the former plating building slab in the area of the chromic acid tank. The remediation of the soil included excavation and disposal of 160 tons of hazardous soils and 800 tons of non-hazardous soils. The excavation areas were backfilled with 300 cubic yards of clean soil. The shallow groundwater interceptor trench and the treatment plant were also constructed at this time. The treatment system included installation of a downgradient collection trench and on-site treatment plant that uses chromate specific ion-exchange resin to remediate site groundwater. After the conclusion of the demonstration period, in 1998 the groundwater treatment system began full scale operation. The plant has been in continuous operation for almost 20 years. The plume emanating from the source under the building is currently being captured and contained, however the source under the existing block building remains.

7.3 New Information

Based on elevated analytical results obtained in 2009 of soil and paint chip samples, elevated chromium toxicity characteristic leaching procedure (TCLP) results from the 2014 building materials samples, and long-term groundwater samples, it is believed that deterioration of the building envelope coupled with the presence of significant contamination of building materials and underlying soils is resulting in a continued source of groundwater contamination; therefore, the remedial action objectives presented in the original ROD (NYSDEC 1995) are not being achieved. After nearly two decades of pump and treatment plume capture, well beyond the estimated five years of anticipated operation in the original remedy, the groundwater continues to exhibit very high levels of chromium. In the intervening years, the former building and the property have not been developed, and an opportunity to address the source remains. If the source is not addressed, continued plume containment by collection and operation of the onsite treatment plant will be necessary and would continue indefinitely.

7.4 Proposed Changes to the Original Remedy

The on-site building will be demolished and materials which cannot be beneficially reused on site will be taken off-site for proper disposal. Following removal of the building contaminant source areas, including 104 cubic yards of contaminated soil with TCLP results greater than 5 mg/l and 860 cubic yards of non-

hazardous soil exceeding the protection of groundwater SCO of 19 ppm would be excavated for off-site disposal at an appropriately permitted facility. After confirmatory sampling indicates that the contaminated soil has been removed, clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in and compacted to backfill the limits of the excavation. While some limited excavation and off-site disposal of contaminated soils was selected as part of the original remedy, it did not include demolition and removal of the plating building. This proposed amended remedy includes demolition of the building and excavation of the contaminated soil/fractured rock beneath and immediately adjacent to the building footprint. Demolition of the building will also remove any potential for human exposure to chromium that is leaching from the deteriorating block building. This contaminated concrete block will likely need to be disposed of as hazardous waste, while other uncontaminated concrete will be disposed of as construction and demolition material. To the extent possible, metal material will be recycled, and once the building is removed, the underlying source will be accessible for excavation. An environmental easement will restrict use of the groundwater if not treated before use, and will require compliance with an approved site management plan. It will also restrict land-use to commercial and industrial use as part of the amended remedy. The estimated cost to implement this amended remedy is $1,012,000, plus the in-situ injection cost of $110,000, for a total cost of $1,122,000. A ten-year operation and maintenance cost of $500,000 is also projected.

In-situ Geochemical Fixation Plan: In-situ Geochemical Fixation will follow building demolition and excavation. In lieu of continuing the operation of the existing groundwater collection and treatment system remaining groundwater contaminated with hexavalent chromium will be treated in-situ with an injection of sodium lactate solution or other fixation agent. An injection gallery would be installed perpendicular to the direction of groundwater flow during the excavation work and a sodium lactate solution would be gravity fed into the injection galley and diffuse into the soil from a temporary onsite tank. The fixation agent would chemically reduce the hexavalent chromium to trivalent chromium, resulting in an iron/chromium precipitate that is permanently immobilized under site conditions. The chromium would remain in the aquifer system but would be “fixed” onto aquifer solids as trivalent chromium and not be available for transport in the groundwater. The cost to set-up, implement, and monitor this injection of sodium lactate is $110,000. Once the sodium lactate or other fixation agent is observed entering the on-site treatment plant’s influent collection trench, the treatment plant would be turned off and the monitoring of groundwater performed quarterly to assess the groundwater plume.

SUMMARY OF PROPOSED REMEDY CHANGES
Perfection Plating (No. 401037) Record of Decision Amendment

Media:	1995 ROD	Amended ROD
Groundwater	(1) Groundwater plume extraction and treatment via downgradient shallow collection trench and a selective ion exchange resin treatment plant to capture metals. (2) Long-term monitoring; (3) Groundwater was not being used in the vicinity and was unlikely to be used according to 1995 ROD so a groundwater use restriction was not included.	(1) No immediate change, collection trench and treatment system will continue to operate to intercept the plume. Once the source beneath the building is removed, the groundwater contamination levels are expected to diminish, then the interceptor trench and treatment plant would be discontinued. In lieu of pump and treatment, a sodium lactate solution or other fixation agent will be injected to treat the hex chromium in-situ. (2) Long term monitoring will continue to evaluate the effectiveness of the remedy (3) An Environmental Easement restricting groundwater use will be in place.
Soil	(1) Excavation and off-site disposal of accessible subsurface and surface soils to meet a cleanup objective of 390 ppm. Building left intact and source area underneath is inaccessible for excavation. (2) A deed restriction was filed to prevent excavation into site soil deeper than 1 foot. This IC expires in 2025 unless extended	(1) The former metal-plating building will be demolished and building material categorized for disposal. The underlying source of contamination, and any contamination in soils adjacent to the building, will be excavated to achieve the protection of groundwater SCO of 19 ppm and appropriately disposed of. (2) A Site Management Plan (SMP) will be implemented as part of the amended remedy to maintain IC/ECs at the site. An Environmental Easement to restrict land-use to commercial/industrial will also be implemented
Soil Vapor	No remedy required for this media.	No change. The primary contaminant is chromium from plating operations which does not impact the soil vapor pathway.

SECTION 8: EVALUATION OF PROPOSED CHANGES

8.1 Remedial Goals

Goals for the cleanup of the site were established in the original ROD. The goals selected for this site are:

1. *Reduce, control, or eliminate the contamination present within the soil onsite.*
2. *Eliminate the potential for direct human or animal contact with the contaminated soil on site and miscellaneous contaminated materials inside the plating building.*
3. *Prevent, to the extent possible, migration of contaminants from the site to groundwater.*
4. *Mitigate the impacts of contaminated groundwater to the environment.*
5. *Provide for the attainment of SCGs for groundwater quality at the limits of the area of concern.*

No changes to these goals are proposed in this amended remedy.

8.2 Evaluation Criteria

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

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

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

   The original remedy has been protective by intercepting and containing the plume emanating from the source. The contaminated groundwater is captured and treated to allowable discharge limits before being discharged to the Hudson River. However, the chromic acid source under the building remains untouched. The amended remedy would continue to operate the groundwater collection and treatment system until the in-situ sodium lactate solution injection was detected in the treatment plant influent and would also remove the source by excavation and off-site disposal. Potential exposures to workers could occur during excavation but will be managed by a health and safety plan and a community air monitoring program (CAMP) will be implemented to protect the adjacent community during demolition and excavation. Removal of the source will eliminate the source entirely and the plume will decline once the source is removed, thereby eliminating any potential for an adverse effect on public health or the environment. Removal of the contaminated soils and building material will reduce the potential for human exposure.

2. **Compliance with New York State Standards, Criteria, and Guidance (SCGs).** Compliance with

   SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department

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

The original remedy has not been effective at meeting groundwater SCGs in the area of concern. Groundwater contamination levels are anticipated to be significantly reduced via the amended remedy from the current high concentrations of chromium in the groundwater in the vicinity of the plating building. In addition to excavation of the source under the building, an in-situ injection to further immobilize the chromium will be implemented.

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

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

   The original remedy has been constructed and has been operating for many years, so it would simply continue to operate for an indeterminate period into the future. The amended remedy would require a short-term construction event of truck traffic and construction equipment noise during demolition of the building, soil excavation, dewatering, classification of the debris and soil, and loading of trucks for off-site disposal. The construction activity would vary in intensity, depending on work progress, truck scheduling and weather. Construction activity can be scheduled to be performed during a time of least disruption to nearby residents and truck traffic can be routed to limit travel through neighborhoods thereby minimizing any adverse effects. Potential exposures could occur to the surrounding area during excavation but will be monitored by a community air monitoring program (CAMP) and strict protocols followed to protect public and worker health.

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.

   The original remedy is capturing the contaminated groundwater after it has been contaminated by the hexavalent chromium source beneath the building. The contaminated groundwater is then captured, treated, and discharged to the Hudson River. The current remedy has proven to be effective at containing the contamination, but not in reducing contaminant levels in groundwater or the source under the building and therefore is not a permanent remedy that will attain RAOs. The amended remedy will remove the source and the building above it. Removal of the source is a permanent remedy. Removal of the source is the best alternative to provide the longest term effectiveness and permanence. The continued use of the collection trench and treatment plant and implementation of an Easement until all contamination in groundwater is removed will ensure that the remedy remains effective in protecting human health and the environment.

5. **Reduction of Toxicity, Mobility or Volume.** Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

The original remedy had left the contaminant source in place and has not reduced its toxicity, mobility, or volume. The amended remedy would excavate the source and dispose of it properly off-site. This would eliminate exposure on-site and would reduce the mobility of the contamination in the environment.

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

   The original remedy has been constructed and the treatment plant is currently being operated, maintained, and monitored. The amended remedy would need a period of construction activity to demolish the building and excavate the contaminant source. This type of construction activity is routinely implemented with standard construction methods and readily available track-hoe excavators and semi-tractor trailer dump trucks available to contractors. The technical and administrative feasibility to implement the amended remedy is straightforward and will present a low level of difficulty for a contractor to complete.

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

   The original remedy that has been constructed requires operator visits two times each week to maintain the treatment plant and to keep it online. The treatment process uses a chromium specific ion exchange resin, sulfuric acid, sodium hydroxide, city water, and electricity. Monthly samples from the process are collected and periodic sampling of on-site monitoring wells are performed. In addition, a periodic review of the site is conducted by a consulting engineer. These costs will continue and escalate each year into the future with an indeterminate end point as long as the source remains under the building. The amended remedy has a high initial cost of $1.1 million dollars but would remove as much of the source as possible and chemically fixate any remaining chromium in the aquifer. This alternative would be more cost effective in the long-term than simply continuing the groundwater collection and treatment.

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

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

SECTION 9: PROPOSED AMENDED REMEDY

The Department is proposing to amend the Record of Decision (ROD) for the Perfection Plating Site. The changes to the selected remedy are summarized in Section 7.4 above.

The estimated present worth to complete the original remedy was $680,000. The actual costs to date for the original remedy are $1,608,712. The cost to construct the amended remedy is estimated to be $1,122,000 and the estimated operation and maintenance (O&M) present worth is $500,000 for 5 years of plant operation plus 10 years of site monitoring and periodic review certification by a consulting engineer.

The elements of the proposed amended remedy listed below are identified as unchanged, modified or new when compared to the December 1995 remedy:

1. A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. (unchanged)

2. The former plating building will be demolished. Dust and storm water run-off control measures will be employed to minimize any short-term impacts. An estimated 368 cubic yards of contaminated building material will be hauled to an approved off-site disposal area. An estimated 245 cubic yards of building material not meeting the definition of hazardous waste will be disposed in a non-hazardous waste landfill. Hazardous soil will be sent to a RCRA-regulated facility for disposal. (new)

3. Contaminated soil beneath and adjacent to the building footprint will be excavated and replaced with clean fill. Dust and storm water run-off control measures will be employed to minimize any short-term impacts. Contaminated soil will be hauled to an approved off-site disposal area. An estimated volume of 860 cubic yards of soil not meeting the definition of hazardous waste will be disposed in a non-hazardous waste landfill. An estimated 104 cubic yards of hazardous soil will be sent to a RCRA-regulated facility for disposal. (modified)

4. In-situ geochemical fixation will be performed after the source excavation. An infiltration galley will be constructed to inject a sodium lactate solution or other fixation agent into the soil to chemically convert the hexavalent chromium to tri-valent form which would become an immobile precipitate. Once the sodium lactate is detected in the remedial system influent, the plant will be turned off. No additional cost for O&M is expected for implementation of the geochemical fixation contingency. (new)

5. A groundwater cutoff trench will be constructed on Watervliet Arsenal property to intercept and collect the plume of contaminated groundwater. Additionally, the trench will lower the water table in the vicinity of the affected house north of the site. (unchanged)

6. A treatment facility will be built on the Perfection Plating property, adjacent to the collection trench on the Watervliet Arsenal's Siberia Area. The treatment facility will only treat water collected from the trench. As a contingent option, the wastewater treatment plant at the Watervliet Arsenal could be used. (unchanged)

7. Treated wastewater will be monitored and piped to a local storm drain which discharges to the

Hudson River. (unchanged)

8. A long-term monitoring program will be instituted including development of an updated site management plan. This program will allow the effectiveness of the selected remedy to be monitored. This long-term monitoring program will be a component of the operation and maintenance for the site. (modified)

9. An institutional control in the form of an environmental easement will be placed on the property in place of the current deed restriction to restrict site use to commercial and industrial use, to require certifications as required by 6 NYCRR Part 375, to restrict use of groundwater and to require adherence to the requirements of the site management plan. (new)

SECTION 10: NEXT STEPS

As described above, there will be a public meeting and comment period on the proposed changes to the selected remedy. At the close of the comment period, the Department will evaluate the comments received and prepare a responsiveness summary which will be made available to the public. A notice describing the Department's final decision will be sent to all persons on the site mailing list.

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

Project Related Questions
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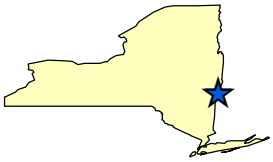
NEW YORK STATE OF OPPORTUNITY Department of Environmental Conservation

PERFECTION PLATING ROD AMENDMENT

FIGURE 1 SITE LOCATION

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	SCALE:	DATE:	Site Number	911 Eleventh Street
JCH	JCP	ALK	JAV	AS SHOWN	AUGUST 2015	#401037	WATERVLIET, NY



Legend

- Former Excavation Area
- Soil Sample Hazardous TCLP Results
- Soil Sample Hexavalent Chromium Above UU SCO (1 mg/kg)
- Soil Sample Hexavalent Chromium Non-Detect
- Approximate Extent of Hexavalent Chromium Over UU SCO (1 mg/kg)
- TCLP Results Indicate Hazardous Material

Source: USGS Seamless Data Distribution 2007

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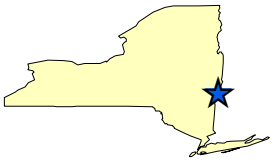
FIGURE 2
APPROXIMATE EXTENT OF HEXAVALENT CHROMIUM IMPACTED SOIL

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	SCALE:	DATE:	PROJECT NO:	FILE NO:
JCH	CSY	HAW	JV	AS SHOWN	AUGUST 2015	14907.15	14907.15 - Perfection Plating\GIS\BOD



Legend

Former Excavation Area

Approximate Area of Characteristic Hazardous Waste

Area of Non-Hazardous Waste

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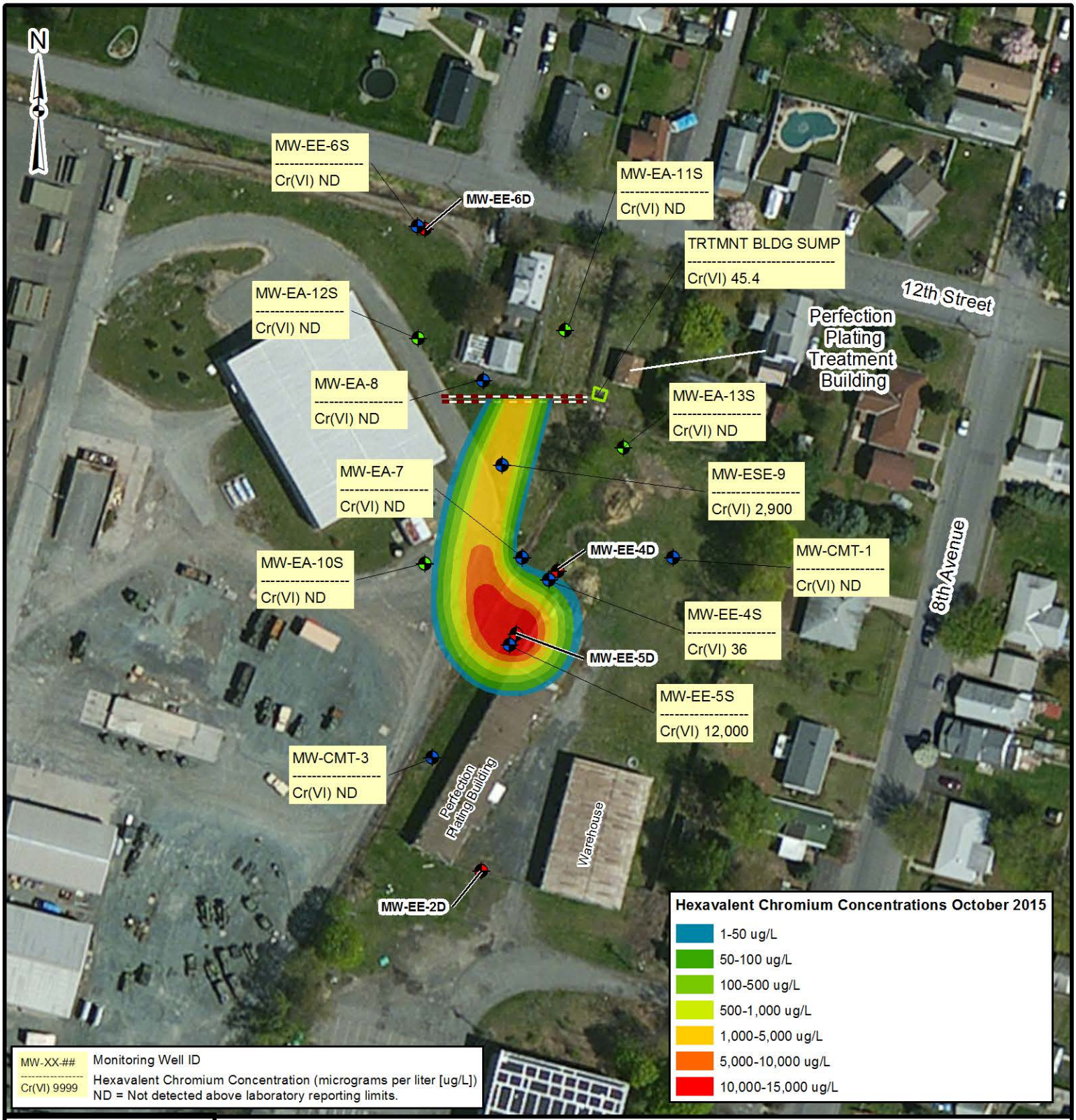
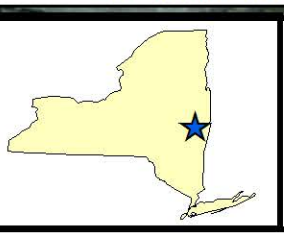
FIGURE 3
APPROXIMATE EXTENT OF
HEXAVALENT CHROMIUM
IMPACTED BUILDING MATERIAL

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	SCALE:	DATE:	PROJECT NO:	FILE NO:
JCH	CSY	HAW	JV	AS SHOWN	AUGUST 2015	14907.15	14907.15 - Perfection Plating\GIS\BOD





Legend

- Collection Trench
- Sump Location
- Overburden Monitoring Well
- Bedrock Monitoring Well
- Newly Installed Well (April 2014)

Feet

0 50 100 200

1 in = 100 feet

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PERFECTION PLATING SITE (4-01-037)
OPERATION AND MAINTENANCE REPORT
(JANUARY-MARCH 2016)
WATERVLIET, NEW YORK

FIGURE 4
HEXAVALENT CHROMIUM
JANUARY 2016 OVERBURDEN
ISOPLETH MAP

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	SCALE:	DATE:	PROJECT NO:	FILE NO:
JCH	ALK	ALK	JAV	AS SHOWN	APRIL 2016	14907.15	GIS/PROJECTS/QUARTERLY O&M REPORT FIGURES/ 2016 Q1