U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF INSPECTOR GENERAL

Catalyst for Improving the Environment

Early Warning Report

Observed Conditions at Five Deleted Superfund Sites

Report No. 11-P-0433

August 3, 2011

Report Contributors: Rick Beusse
Kevin Good
Jim Hatfield
Michael Young

Abbreviations

ARCHER	Airborne Real-time Cueing Hyperspectral Enhanced Reconnaissance
EPA	U.S. Environmental Protection Agency
I-RBC	Industrial risk-based concentration
NPL	National Priorities List
OIG	Office of Inspector General
PPM	Parts per million
R-RBC	Residential risk-based concentration
USGS	U.S. Geological Survey
XRF	X-ray fluorescence

Cover photo: U.S. Air Force Civil Air Patrol airplane equipped with the Airborne Real-time Cueing Hyperspectral Enhanced Reconnaissance System (ARCHER). (USGS photo)

U.S. Environmental Protection Agency
Office of Inspector General

11-P-0433
August 3, 2011

At a Glance

Catalyst for Improving the Environment

Why We Did This Review

We initiated this evaluation to assess whether the U.S. Environmental Protection Agency (EPA), Office of Inspector General, can use hyperspectral imaging data as a feasible oversight tool to assess the effectiveness of prior Superfund remediations, or to target areas for assessment.

Background

The Office of Inspector General entered into an interagency agreement with the U.S. Geological Survey, Eastern Geographic Science Center, to develop and test hyperspectral remote sensing technologies for the detection of fugitive and residual contamination at deleted Superfund waste sites. Subsequently, the U.S. Geological Survey entered into an interagency agreement with the U.S. Air Force Civil Air Patrol to use its remote sensing system to collect hyperspectral imagery at five deleted former National Priorities List sites in Maryland and Virginia.

For further information, contact our Office of Congressional, Public Affairs and Management at (202) 566-2391.

The full report is at:
www.epa.gov/oig/reports/2011/20110803-11-P-0433.pdf

Observed Conditions at Five Deleted Superfund Sites

What We Found

Conditions at two of the five sites we visited in EPA Region 3, which had been remediated and deleted from the National Priorities List, may warrant additional attention from EPA. Hyperspectral imaging data, on-site testing, and/or soil samples revealed issues at the Middletown Road Dump site in Annapolis, Maryland, and the Matthews Electroplating site in Roanoke County, Virginia. We do not believe conditions at the other three sites visited warrant additional consideration from EPA.

The Middletown Road Dump site, formerly a dump for construction waste, was found to have expanded in size since EPA's latest Five-Year Review. Hyperspectral imaging data identified an anomaly that proved to be leachate coming from the landfill. Our on-site testing also indicated hydrocarbons pooling in surface waters, and soil samples collected at the site contained arsenic, chromium, mercury, and antimony at levels exceeding established residential risk-based concentrations.

The Matthews Electroplating site, formerly a chrome-plating operation, contained waste metal, empty drums, and containers. Soil samples taken at the site contained arsenic, nickel, and antimony at levels exceeding EPA's established risk-based concentrations for residential areas. We also observed that the current landowner had started building a residence on the site.

We did not make any conclusions regarding potential health risks or the effectiveness of EPA's prior remediation efforts, or the usefulness of hyperspectral imaging data as an oversight tool. We are presenting our results in this early warning report so Region 3 can review the information on the sites and take further action if appropriate. Additional work is ongoing to assess the usefulness of remote sensing technology as an OIG oversight tool.

What We Recommend

We recommend that EPA Region 3's Office of Superfund Site Remediation add the information in this report to the appropriate site-specific case files and assess whether any additional action is warranted for the Matthews Electroplating and Middletown Road Dump sites. The Agency agreed with our recommendations, stating that it has added the information to the case files and requested more detailed sampling information to assist it in evaluating the two deleted sites. The region's ongoing and planned actions meet the intent of our recommendations.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

THE INSPECTOR GENERAL

August 3, 2011

MEMORANDUM

SUBJECT: Observed Conditions at Five Deleted Superfund Sites
Report No. 11-P-0433

FROM: Arthur A. Elkins, Jr.
Inspector General

TO: Ronald Borsellino
Director, Hazardous Site Cleanup Division, EPA Region 3

This is our report on the subject evaluation conducted by the Office of Inspector General (OIG) of the U.S. Environmental Protection Agency (EPA). This report contains findings that describe the problems the OIG has identified and corrective actions the OIG recommends. This report represents the opinion of the OIG and does not necessarily represent the final EPA position. Final determinations on matters in this report will be made by EPA managers in accordance with established audit resolution procedures.

Action Required

In accordance with EPA Manual 2750, you are required to provide a written response to this report within 90 calendar days. You should include a corrective actions plan for agreed-upon actions, including milestone dates. Your response will be posted on the OIG's public website, along with our memorandum commenting on your response. Your response should be provided as an Adobe PDF file that complies with the accessibility requirements of Section 508 of the Rehabilitation Act of 1973, as amended. The final response should not contain data that you do not want to be released to the public; if your response contains such data, you should identify the data for redaction or removal. We have no objections to the further release of this report to the public. We will post this report to our website at http://www.epa.gov/oig.

If you or your staff have any questions regarding this report, please contact Wade Najjum, Assistant Inspector General for Program Evaluation, at 202-566-0832 or najjum.wade@epa.gov; or Rick Beusse at 919-541-5747 or beusse.rick@epa.gov.

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Purpose

We initiated this evaluation to assess whether the U.S. Environmental Protection Agency (EPA), Office of Inspector General (OIG), can use hyperspectral imaging data as a feasible oversight tool to assess the effectiveness of prior Superfund remediations, or to target areas for assessment. This early warning report presents information obtained during the interim phase of our work. Additional work is ongoing to assess the usefulness of remote sensing technology as an OIG oversight tool.

Background

EPA OIG Report No. 2007-P-00039, *Limited Investigation Led to Missed Contamination at Ringwood Superfund Site*, issued September 25, 2007, documented problems with insufficient characterization of contamination and cleanup at the Ringwood, New Jersey, National Priorities List (NPL) Superfund site. One of the key findings of the report was that the extent of contamination at the Ringwood site might have been detected earlier if EPA had made greater use of available aerial photographs. Morphological characteristics of the landscape and landscape changes, as documented on historical aerial photographs, could have detected the much larger extent of paint sludge and contamination than was thought to exist after the initial remedial investigation.

Based on the results of the Ringwood report, the OIG decided to evaluate whether remote sensing technologies could be an effective tool for the OIG in assessing long-term remediation conditions at Superfund sites deleted from EPA's NPL. Remote sensing is the acquisition of information on an object by use of a sensing device(s) not in physical contact with the object. Hyperspectral imaging, an advanced form of remote sensing, records reflected and emitted electromagnetic energy in hundreds of very narrow wavelengths, resulting in data that can be analyzed with chemical spectroscopic techniques. Hyperspectral imaging may be able to detect the electromagnetic signatures of pollutants in vegetation at deleted Superfund sites, which could be indicative of residual or previously undetected contamination.

Scope and Methodology

The OIG entered into an interagency agreement with the U.S. Geological Survey (USGS), Eastern Geographic Science Center, to develop and test hyperspectral remote sensing technologies for the detection of fugitive and residual contamination at deleted Superfund waste sites. Subsequently, USGS entered into an interagency agreement with the U.S. Air Force Civil Air Patrol to use its Airborne Real-time Cueing Hyperspectral Enhanced Reconnaissance (ARCHER) system to collect hyperspectral imagery at the following five deleted NPL sites in Maryland and Virginia:

1. Middletown Road Dump, Annapolis, Maryland
2. Matthews Electroplating, Roanoke County, Virginia
3. Dixie Caverns Landfill, Roanoke County, Virginia
4. Rhinehart Tire Fire Dump, Frederick County, Virginia
5. Mid-Atlantic Wood Preservers, Harmans, Maryland

A primary factor in selecting these sites was the availability of the U.S. Air Force Civil Air Patrol to use its ARCHER system to collect remote sensing data in the region. We also considered geographic information, such as where the predominance of sites existed and proximity of sites to one another; the media and type of contaminant; and the size, original condition, and cleanup costs of the site.

The ARCHER system provides:

- **Spectral signature matching**—by comparing reflected electromagnetic radiation against a library of spectral signatures to identify specifically targeted objects.
- **Anomaly detection**—by comparing reflected electromagnetic radiation against a continuously calculated background spectrum. Spectral anomalies are flagged as potential targets for further evaluation.
- **Change detection**—by conducting a pixel-by-pixel comparison of ground conditions between current and past images.

After collecting and analyzing the ARCHER data, USGS and OIG representatives visited all five sites to collect soil and sediment samples. USGS analyzed the samples for hydrocarbons and organic signatures using an Analytical Spectral Devices full range spectrometer, and analyzed the samples for metals using x-ray fluorescence (XRF) technology.

This report presents information obtained during the interim phase of our work and does not present OIG conclusions regarding the effectiveness of the prior remediations or the potential environmental impact of current conditions at the five sites. Additional work is planned to assess the usefulness of remote sensing technology as an OIG oversight tool. However, the work performed provides a reasonable basis to inform EPA as to the conditions observed at the sites reviewed. The observations and findings in this report rely on technical analyses of soil samples and hyperspectral imaging data conducted by USGS under interagency agreement with the OIG. The results of USGS's analyses were published in two reports;

1. Slonecker, E.T. and Fisher, G.B, 2011. *Evaluation of Traditional and Emerging Remote Sensing Technologies for the Detection of Fugitive Contamination at Selected Superfund Hazardous Waste Sites.* USGS Open File Report 2011-1050

2. Slonecker, E.T. and Fisher, G.B, 2011. *Graphic Products Used in the Evaluation of Traditional and Emerging Remote Sensing Technologies for the Detection of Fugitive Contamination at Selected Superfund Hazardous Waste Sites.* USGS Open File Report 2011-1068.

We also relied on unpublished data provided to us by USGS. This data was primarily background in nature. All test results reported herein were based on peer-reviewed published USGS data obtained under interagency agreement with the OIG.

We conducted our review in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the evaluation to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our evaluation objectives. We believe that the evidence obtained provides a reasonable basis for the information presented in this report.

Results of Review

We collected hyperspectral imaging data for five sites in Virginia and Maryland. These sites had been remediated and deleted from the NPL. We visited the sites to collect soil samples and to follow up on anomalies disclosed by the hyperspectral imaging data. Conditions noted at two sites may warrant attention from EPA Region 3:

- The Middletown Road Dump site, formerly a dump for construction waste, had been expanded since the last Five-Year Review conducted by EPA. Hyperspectral imaging data identified an anomaly that proved to be leachate coming from the landfill. Our on-site testing indicated hydrocarbons in surface waters. In addition, soil samples collected at the site contained arsenic, chromium, mercury, and antimony at levels exceeding EPA's established residential risk-based concentrations (R-RBCs).

- At the Matthews Electroplating site, formerly a chrome-plating operation, hyperspectral imaging data identified anomalies that proved to be scrap auto bumpers, empty metal containers, and other materials. We also observed that the current landowner was building a residence on the property. Results of our soil sampling showed the presence of arsenic, nickel, and antimony at levels that exceeded EPA's R-RBC.[1]

At two other sites, Dixie Caverns Landfill and Rhinehart Tire Fire Dump, soil sampling showed the presence of some heavy metals that exceeded the R-RBCs for soil samples. However, these sites were generally secured from public access.

[1] Region 3 uses risk-based concentrations as screening levels to determine whether a site may warrant further investigation or cleanup. The levels do not represent cleanup standards.

The other site we visited, Mid-Atlantic Wood Preservers, was located in a commercial/industrial setting and was found to be in reuse. The site had been paved since the Superfund remedy was accomplished. Analysis of soil samples around the edge of the paved area did not disclose concentrations of metals that exceeded the industrial risk based concentration (I-RBC) for industrial soil samples. Below are the details of conditions found at each of the five sites we reviewed.

Middletown Road Dump Site, Annapolis, Maryland

The Middletown Road Dump is located in a residential area of Anne Arundel County. It is surrounded by residential homes on three sides and has a landscaping business located immediately adjacent to the southeast border of the site boundary.

The Middletown Road Dump was shut down by the State of Maryland in 1981 because it was found to be in violation of state water pollution and hazardous waste laws. The site was placed on EPA's NPL in September 1983 after it was found to contain ground and surface water contamination. Following removal actions that were completed by the state and EPA Region 3 in December 1983 and subsequent additional soil testing by the state in 1985, a record of decision was issued stating no further remedial action was needed at the site. The site was removed from the NPL in April 1988.

An initial review of the historical aerial photographs, maps, and reports of the site, and a comparison with our results from January 2010, indicated that the site area has been expanded along the northern border since the last Five-Year Review. Anomalies detected in the hyperspectral analysis proved to be areas of a leachate discharge coming from the landfill that impacted an unnamed surface stream north of the site. Also, drums and other debris were located in this area, although soil readings for metals were not elevated in this area.

A site visit was conducted at the Middletown Road Dump on April 13, 2010. Upon visiting the site, we observed an area of jagged terrain consisting of debris that had been covered over with soil, and one empty barrel located in a ravine near a stream running through the property.

We collected 32 soil samples and analyzed them for metals and other elements such as arsenic and antimony. We compared the results to EPA Region 3's residential screening levels, since residences were located on three of the site's boundaries. Table 1 shows the samples that exceeded the R-RBCs.

Table 1: Middletown Road Dump, soil samples exceeding R-RBCs

	Arsenic	Chromium	Mercury	Antimony
R-RBC	**22ppm**	**230ppm**	**5.6ppm**	**31ppm**
MRD-1	-	-	-	37.65
MRD-2	-	-	-	32.95
MRD-3	93.65	433.24	-	-
MRD-8	-	-	-	35.98
MRD-9	-	-	-	40.34
MRD-16	-	-	-	48.45
MRD-21	-	-	7.24	-
MRD-30		-	-	35.37
MRD-32	-	-	9.67	-

Source: Slonecker, E.T. and Fisher, G.B, 2011. *Graphic Products Used in the Evaluation of Traditional and Emerging Remote Sensing Technologies for the Detection of Fugitive Contamination at Selected Superfund Hazardous Waste Sites*. USGS Open File Report 2011-1068, 12 p.

Note: ppm = parts per million.

Appendix A shows the location of samples exceeding the R-RBCs. In addition, laboratory spectral analysis of very dark soils and dark liquids on the ground along the northeast corner of the site indicated the presence of organic hydrocarbons.

Matthews Electroplating Site, Roanoke County, Virginia

The Matthews Electroplating site is approximately 3 and one-half miles southwest of the city of Salem. The property was the site of an automobile bumper repair and plating facility from 1972 to 1976. According to EPA's Five-Year Review report conducted in June 2004, there were approximately 150 residences within 4,000 feet of the site. In 1995, the site was rezoned from industrial to residential. A residential home is currently under construction on the site, east of the location of the former electroplating shop.

In 1975, the Commonwealth of Virginia, State Water Control Board, identified Matthews Electroplating as a potential source of drinking water contamination and began monitoring approximately 30 wells within the area for total chromium, hexavalent chromium, nickel, and cyanide. Three residential wells and the original on-site well had total chromium concentrations exceeding Virginia's drinking water quality standard (at that time) of 50 micrograms per liter. The Matthews Electroplating site was added to EPA's NPL in September 1983 and was deleted in January 1989.

Hyperspectral imagery of the Matthews Electroplating site was collected on November 24, 2009. An initial review of the historical aerial photographs, maps, and reports of the site, and a comparison with the recently acquired ARCHER imagery, indicated that all of the previous buildings on the site have been

removed and that a small residential structure is being constructed near the center of the site. Several anomalies were detected: one in the northwest corner of the property and several small anomalies along the southeast area of the property.

A site visit to Matthews Electroplating was conducted on April 14, 2010. As identified by the hyperspectral imagery, a residence is under construction at the site with several small outbuildings. Old automobile bumpers were still located on the property, as well as tanks and other metal debris left from the electroplating operation. These were identified as the hyperspectral anomalies along the southeast section of the property that correlated with the outbuildings and the waste metal tanks.

We collected 44 soil samples at the Matthews Electroplating site and analyzed them for metals, and other elements such as arsenic and antimony. Table 2 shows the samples that exceeded the R-RBCs.

Table 2: Matthews Electroplating, soil samples exceeding R-RBCs

	Arsenic	Nickel	Antimony
R-RBC	**22 ppm**	**1600 ppm**	**31 ppm**
ME-5	25.58	-	-
ME-9	-	3104	-
ME-16	-	-	42.9
ME-19	-	1828.5	-
ME-24	-	-	41.1
ME-30	-	-	32.2
ME-32	-	-	38.6
ME-36	26.52	-	-
ME-40	-	1928.4	-

Source: Slonecker, E.T. and Fisher, G.B, 2011. *Graphic Products Used in the Evaluation of Traditional and Emerging Remote Sensing Technologies for the Detection of Fugitive Contamination at Selected Superfund Hazardous Waste Sites.* USGS Open File Report 2011-1068.

Note: ppm = parts per million.

Appendix B shows the location of samples exceeding the R-RBCs. Laboratory hyperspectral analysis of the soils from Matthews Electroplating showed no evidence of hydrocarbons.

Dixie Caverns Landfill Site, Roanoke County, Virginia

The Dixie Caverns Landfill site is located near the city of Salem. The site operated as a municipal solid waste disposal area for Roanoke County from June 1965 through July 1976. The site was added to EPA's NPL in October 1989 and was deleted in September 2001.

Hyperspectral imagery of the Dixie Caverns Landfill was collected on September 24, 2009. Several anomalies were detected in the area but were explained during the field visit. The most unique of these were the last few concrete blocks that were formed as part of the remedial process. Remote sensing analysis for potential hydrocarbons in the soil did not identify any hydrocarbons in the samples.

The site visit was conducted on April 16, 2010. Thirty-one soil samples were collected and analyzed in the laboratory with XRF analysis. Table 3 shows the samples that exceeded the R-RBCs.

Table 3: Dixie Caverns Landfill, soil samples exceeding R-RBCs

	Lead	Arsenic	Mercury	Cobalt	Manganese	Chromium	Antimony
R-RBC	**400 ppm**	**22 ppm**	**5.6 ppm**	**23 ppm**	**1800 ppm**	**230 ppm**	**31 ppm**
DCL-1	-	-	-	-		-	-
DCL-2	-	-	-	202.5		-	-
DCL-3	-	-	-	154.0		-	-
DCL-4	-	42.1	-	-		-	-
DCL-5	-	27.4	-	-		-	-
DCL-6	-	22.9	-	-		-	-
DCL-8	-	26.6	-	149.8		-	-
DCL-9	-	-	8.71	153.1		-	-
DCL-10	-	36.8	-	-		-	-
DCL-21	510.6	26.0	-	-		-	-
DCL-23	-	25.7	-	-		-	-
DCL-24	-	26.5	-	-	2456.5	249.4	-
DCL-25	-	-	-	-		-	31.8

Source: Slonecker, E.T. and Fisher, G.B, 2011. *Graphic Products Used in the Evaluation of Traditional and Emerging Remote Sensing Technologies for the Detection of Fugitive Contamination at Selected Superfund Hazardous Waste Sites.* USGS Open File Report 2011-1068.

Note: ppm = parts per million.

Appendix C shows the location of samples exceeding the R-RBCs. Although soil sampling showed the presence of some heavy metals that exceeded the R-RBCs, this site was secured from public access.

Rhinehart Tire Fire Dump Site, Frederick County, Virginia

The Rhinehart Tire Fire Dump site is located in a rural setting near Winchester. Site security is provided by the enclosed nature of the land parcel, and surrounding access is limited by private property. The site was used as a tire disposal area from 1972 to 1983. The site was added to EPA's NPL in June 1986 and was deleted in September 2005.

Hyperspectral imagery of the Rhinehart Tire Fire Dump site was collected on October 19, 2009. The only significant anomaly detected proved to be concrete structures related to the abandoned treatment facility and incinerator.

A site visit was conducted on April 20, 2010. Old tires were discovered in the wooded area to the immediate north of the site. We collected and analyzed 52 soil samples at the site. Table 4 shows the samples that exceeded the R-RBCs.

Table 4: Rhinehart Tire Fire, soil samples exceeding R-RBCs

	Arsenic	Mercury	Cobalt	Manganese	Antimony
R-RBC	**22 ppm**	**5.6 ppm**	**23 ppm**	**1800 ppm**	**31 ppm**
RTF-7	-	-	118.7	-	-
RTF-8	-	-	123.4	-	-
RTF-10	26.4	-	-	-	58.0
RTF-11	26.4	-	-	-	34.6
RTF-12	26.7	-	679.7	-	32.0
RTF-13	27.3	-	290.5	-	-
RFT-24	-	-	-	-	41.8
RTF-25	46.2	-	-	1815.0	45.0
RTF-27	-	-	-	-	35.1
RTF-32	-	-	-	-	31.1
RTF-35	-	-	-	2330.4	-
RTF-36	-	-	-	2547.4	-
RTF-38	-	9.5	-	-	31.2
RTF-41	-	9.2	-	-	39.0
RTF-42	-	-	-	-	37.5
RTF-45	-	-	-	-	32.7
RTF-51	22.5	-	-	2349.2	54.8

Source: Slonecker, E.T. and Fisher, G.B, 2011. *Graphic Products Used in the Evaluation of Traditional and Emerging Remote Sensing Technologies for the Detection of Fugitive Contamination at Selected Superfund Hazardous Waste Sites.* USGS Open File Report 2011-1068.

Note: ppm = parts per million.

Appendix D shows the location of samples exceeding the R-RBCs. Although soil sampling showed the presence of some heavy metals that exceeded the R-RBCs, this site was generally secured from public access due to the enclosed nature of the land parcel and surrounding access limited by private property.

Mid-Atlantic Wood Preservers Site, Harmans, Maryland

For the Mid-Atlantic Wood Preservers site, surrounding land use is mixed industrial and residential. The site is paved over with asphalt. Adjacent properties contain asphalt parking lots and light industrial buildings. A private residence is located approximately 500 feet south of the site. The Mid-Atlantic Wood

Preservers site was used from 1974 to 1993 as a chromated copper arsenate waterborne wood treatment facility. The site was listed on EPA's NPL in June 1986 and was deleted in July 2000.

Hyperspectral imagery of the Mid-Atlantic Wood Preservers site was collected on January 18, 2010. Since the Superfund remedy was implemented, the site has been almost completely paved over. No remote sensing analysis of vegetation stress, anomalies, or chemical contamination identification could be effectively performed. Imagery does show the site to be actively engaged in transportation operations, with numerous tractor trailers and large vehicles parked on the property.

A site visit was conducted on August 5, 2010. Fifteen samples were collected around the edges of the pavement to determine whether any residual contamination was present. None of the sample measurements exceeded the I-RBCs at the Mid-Atlantic Wood Preservers site. Appendix E shows the locations of soil samples collected at this site.

Conclusions

Site conditions and soil sampling results at two sites may warrant EPA's attention. Soil samples at these two sites exceeded risk-based screening levels for certain metals. One of the sites was still being used as a landfill, and the current owner of the other site was constructing a residence at the site. Conditions at the other three sites did not appear to present significant concerns, but the results of our analyses and observations are presented in this report for EPA's information.

Recommendations

We recommend that the Director, Hazardous Site Cleanup Division, EPA Region 3, instruct the Associate Director, Office of Superfund Site Remediation, EPA Region 3, to:

1. Add the information in this report to the appropriate site-specific case files for each of these sites.

2. Assess whether any additional action is warranted for the Middletown Road Dump and Matthews Electroplating sites.

Agency Response and OIG Comment

The region agreed with our recommendations. For recommendation 1, the region stated that it has reviewed the information and added the OIG's early warning report to the two site-specific files on June 20, 2011. For recommendation 2, the region requested more detailed site information from us to help the region assess whether additional action is warranted for the Middletown Road Dump and

Matthews Electroplating sites. We provided Region 3 with additional information regarding these two deleted sites on July 7, 2011. Region 3 stated that it would complete recommendation 2 by October 2011. The region's planned actions meet the intent of our recommendations. As such, we are closing recommendations 1 and 2 upon report issuance in our tracking system. The Agency's full response is in appendix F.

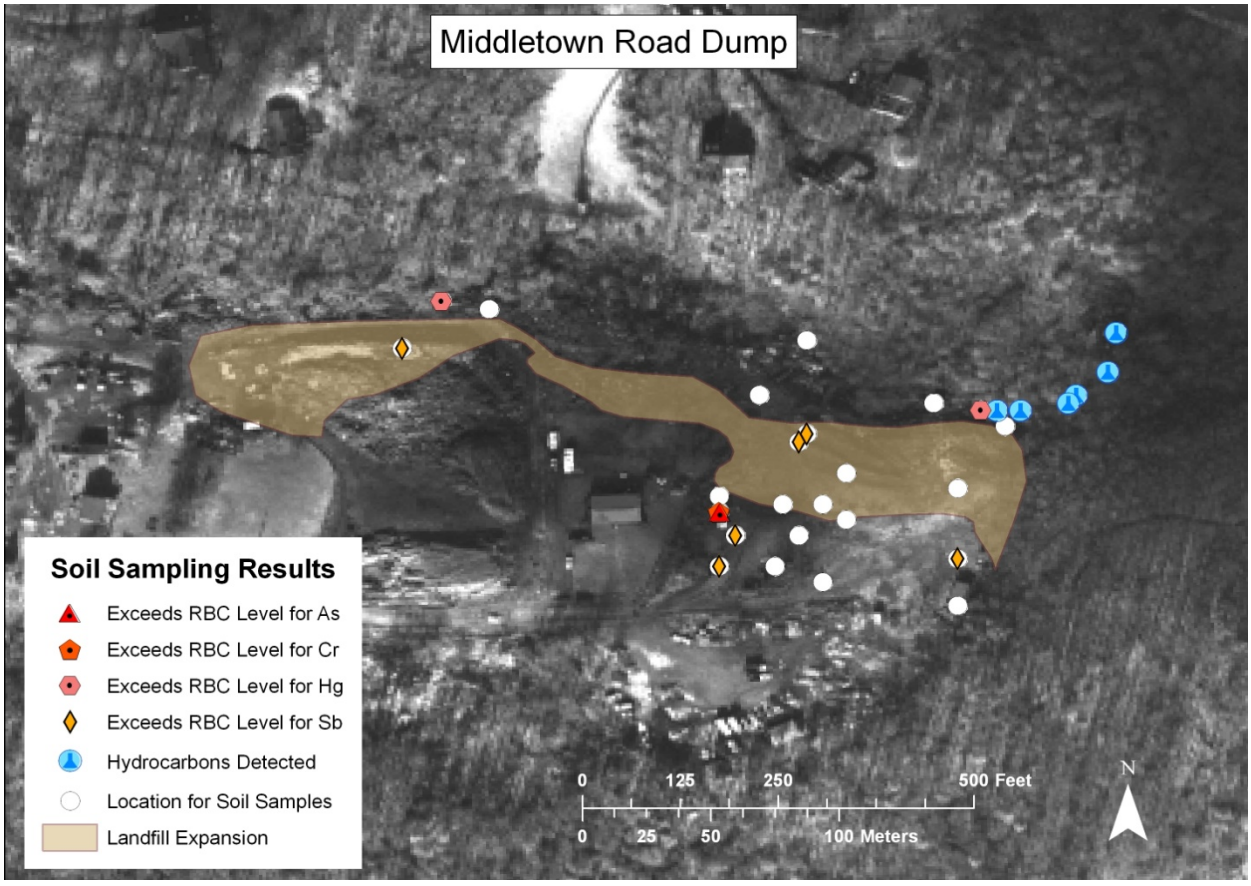
Status of Recommendations and Potential Monetary Benefits

RECOMMENDATIONS						POTENTIAL MONETARY BENEFITS (in $000s)	
Rec. No.	Page No.	Subject	Status[1]	Action Official	Planned Completion Date	Claimed Amount	Agreed-To Amount
1	9	Instruct the Associate Director, Office of Superfund Site Remediation, EPA Region 3, to add the information in this report to the appropriate site-specific case files for each of these sites.	C	Director, Hazardous Site Cleanup Division, EPA Region 3	06/20/11		
2	9	Instruct the Associate Director, Office of Superfund Site Remediation, EPA Region 3, to assess whether any additional action is warranted for the Middletown Road Dump and Matthews Electroplating sites.	O	Director, Hazardous Site Cleanup Division, EPA Region 3	October 2011		

[1] O = recommendation is open with agreed-to corrective actions pending
C = recommendation is closed with all agreed-to actions completed
U = recommendation is undecided with resolution efforts in progress

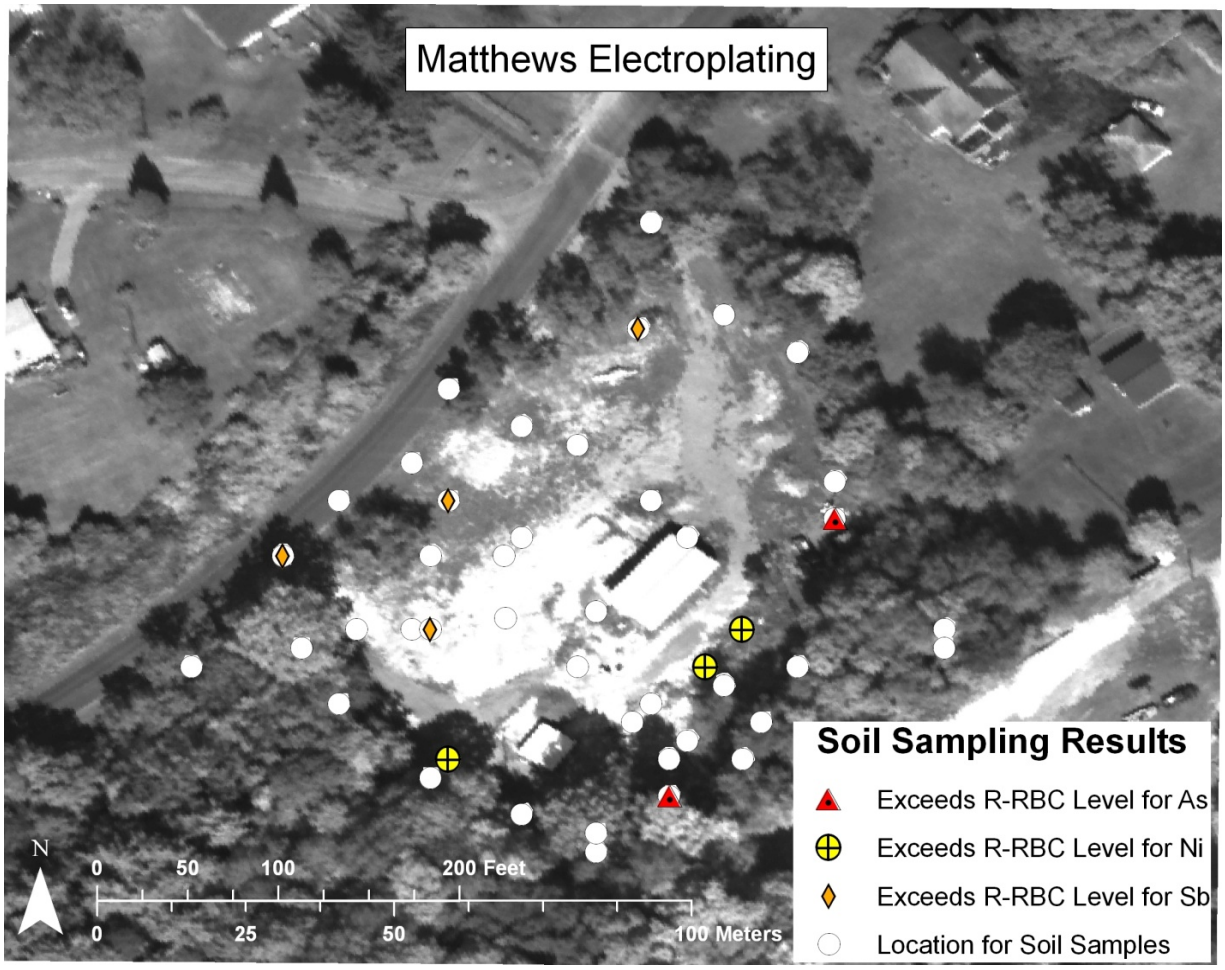
Appendix A

Middletown Road Dump, Location and Results of Samples



Source: Imagery produced by USGS using the Civil Air Patrol's ARCHER technology.

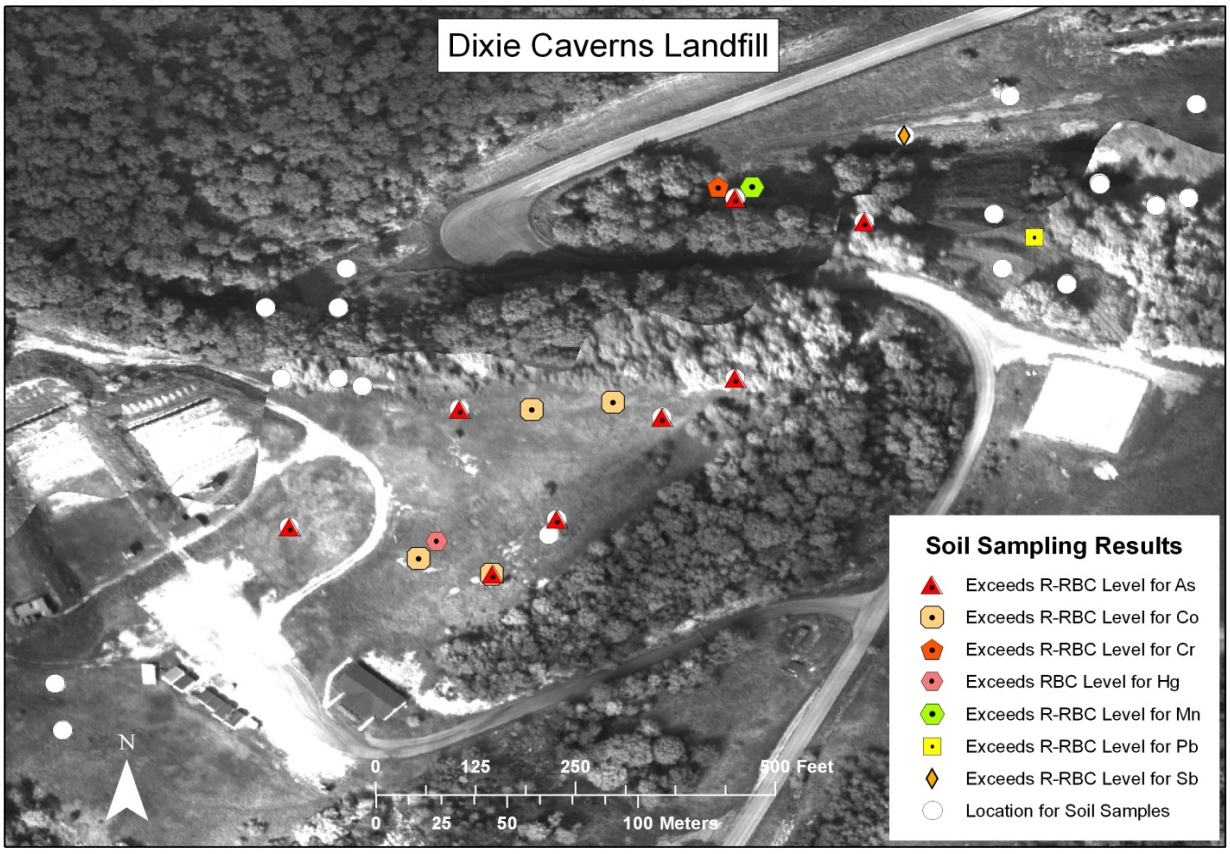
Matthews Electroplating, Location and Results of Soil Samples



Source: Imagery produced by USGS using the Civil Air Patrol's ARCHER technology.

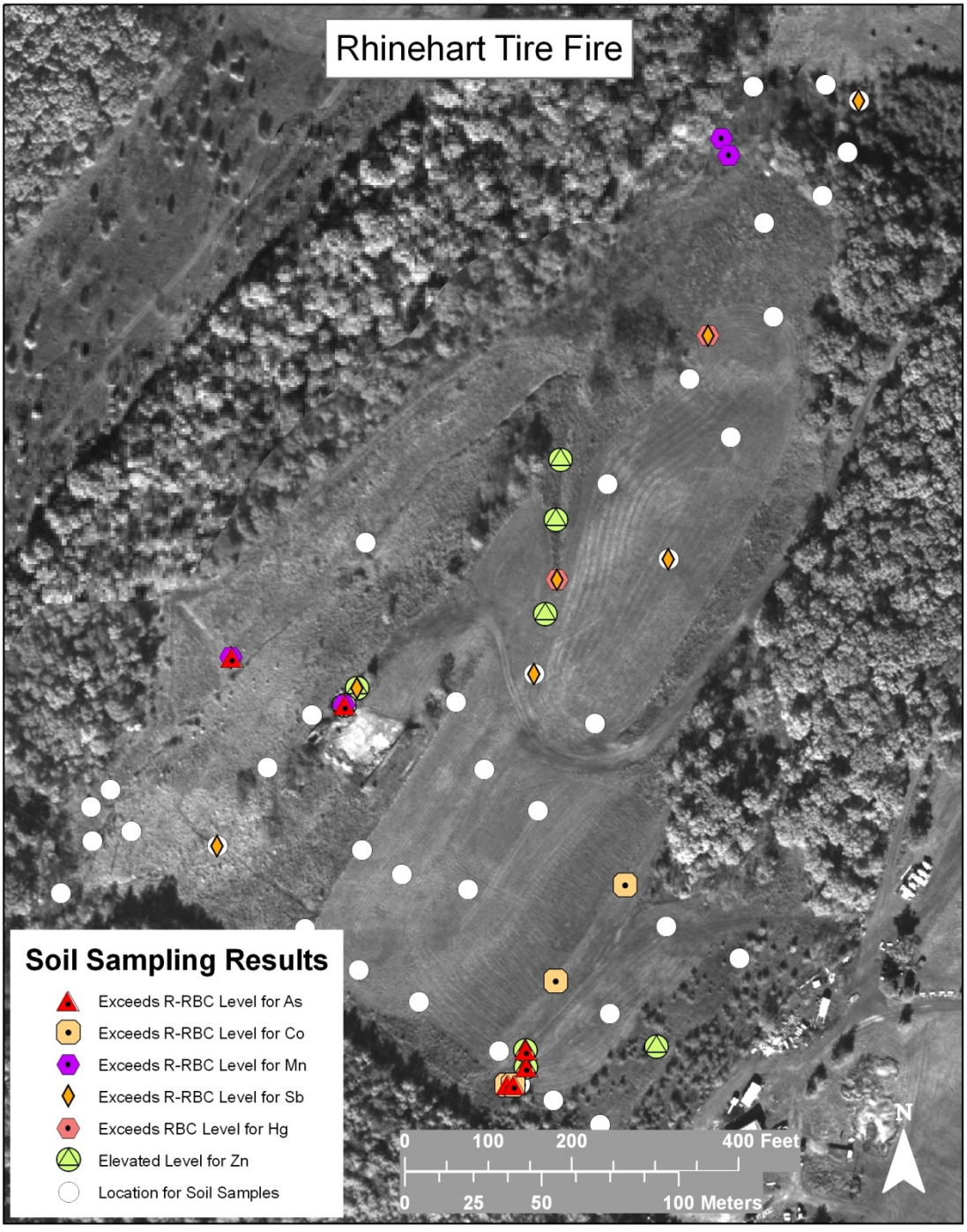
Appendix C

Dixie Caverns Landfill, Location and Results of Soil Samples



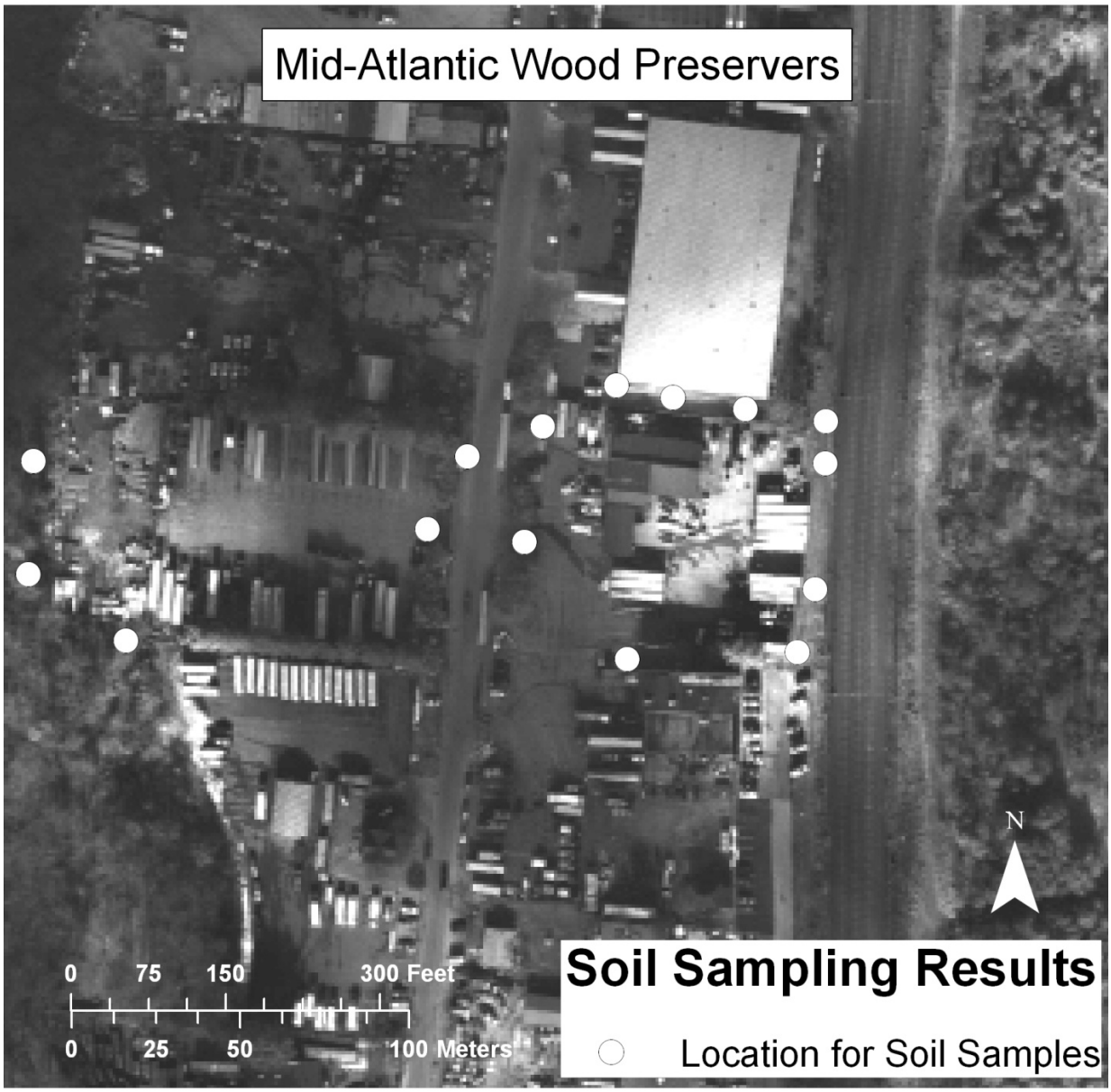
Source: Imagery produced by USGS using the Civil Air Patrol's ARCHER technology.

Rhinehart Tire Fire Dump, Location and Results of Soil Samples



Source: Imagery produced by USGS using the Civil Air Patrol's ARCHER technology.

Mid-Atlantic Wood Preservers, Location and Results of Soil Samples



Source: Imagery produced by USGS using the Civil Air Patrol's ARCHER technology.

Region 3 Response to Draft Report

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

June 21, 2011

MEMORANDUM

TO: Wade T. Najjum
Assistant Inspector General for Program Evaluation

FROM: Ronald J. Borsellino
Director, Hazardous Site Cleanup Division, EPA Region 3

SUBJECT: *Response to Evaluation Report: Draft Early Warning Report: Observed Conditions at Five Deleted Superfund Sites*
Project No. 2008-0123, May 23, 2011

Attached is the Region III's response to the Office of Inspector General ("OIG") Draft Early Warning Report, *Observed Conditions at Five Deleted Superfund Sites, Project No. 2008-0123,dated May 23, 2011.* Outlined below are the Region's responses to the recommendations and a corrective action plan for agreed upon actions, including estimated milestone timeframes.

OIG Recommendation #1

Add the information in the Early Warning Report to the appropriate site-specific case files for the Middletown Road Dump and the Matthews Electroplating Sites.

Corrective Action

Region 3 has reviewed the information and added the Early Warning report to the site-specific files for the two Sites on June 20, 2011. However, the Region requests the full data reports including the exact location, depth, etc. of the soil samples collected.

OIG Recommendation #2

Assess whether any additional action is warranted for the Middletown Road Dump and Matthews Electroplating Sites.

Corrective Action

Middletown Road Dump: The Remedial Project Manager and Risk Assessor assigned to the Site reviewed the OIG Report. Upon review of the data reported in Table 1 and the map attached in Appendix A, there doesn't appear to be any pattern or specific area where the detections are noted. One sample indicated the detections of arsenic and chromium. Two of the sample locations indicated the detections of mercury and the remaining six sample locations detected antimony. The map includes no information on depth or concentration.

However, based on the general information provided in the Early Warning Report, the Region believes further evaluation of the data is warranted and additional sampling may be conducted. However, the full data reports along with field notes are requested so that the Region can make the final determination as to whether additional follow-up sampling is necessary.

Matthews Electroplating: The Remedial Project Manager assigned to the Site reviewed the OIG Report. Upon review of Table 2 and the map attached in Appendix B, the closest 'hits' to what appears to be the residential building are two locations approximately 40 feet from the structure where nickel exceeded its R-RBC. The closest hits for arsenic and antimony were approximately 80 and 100 feet away, respectively. The map includes no information on concentration or depth.

However, based upon the OIG findings, the Region believes further evaluation of the data with the regional toxicologist is warranted. Please provide the Region with the following information:

- All data from the soil sampling effort, including depths of soil where samples were taken and results of any samples of the contents (if any) of drums reportedly found.

- All field notes/data on the automotive bumpers, drums, other artifacts and debris found during the site visit.

Upon receipt of the above information the Region will then determine if further sampling of Matthews Electroplating is warranted.

Appendix G

Distribution

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