

EXPERT REPORT OF LARRY MATA

EMHART et al. v UNITED STATES et al.

D.R.I. C.A. No. 11-023S

Volume 1 of 2

**Prepared for the U.S. Department of Justice
November 4, 2013
Washington, D.C.**

**Prepared by Larry Mata
1050 E. Flamingo Road
Suite W161
Las Vegas, Nevada 89119**

Signed:  Date: 11/4/13

Larry Mata

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INTRODUCTION

I, Larry Mata, have been retained by the U.S. Department of Justice (DOJ) as a technical expert in the case, Emhart et al. v United States of America et al., to provide an opinion regarding the interpretation of photographic evidence related to the Centredale Manor Superfund site in North Providence, Rhode Island.

I am currently the Lockheed Martin Corporation Contract Task Order Manager for operational remote sensing on the U.S. Environmental Protection Agency (EPA), Remote Sensing and Imagery Analysis Services contract. I hold a B.S. in Geography from Temple University and have done graduate work in Geography at The Pennsylvania State University. I have worked in the environmental remote sensing and geographic information system (GIS) fields for over 30 years. My areas of expertise include the use of aerial photographic analyses for litigation support, photogrammetry, photogeology, and technical training.

In my position as Lockheed Martin Corporation Contract Task Order Manager I provide overall supervision to the operational remote sensing section and provide Quality Control review of all products prepared by the section. Over the last 20 years I have directed and managed over 600

reports that provided EPA with aerial photographic analyses and GIS related support for site investigation and remediation efforts at CERCLA and RCRA hazardous waste sites.

A detailed resume of my experience is presented in Attachment A of this report.

AERIAL PHOTOGRAPHIC ANALYSIS

This report presents the results of an analysis of historical aerial photographs of the Centredale Manor Restoration Superfund site located in North Providence, Providence County, Rhode Island. A total of eleven sets (dates) of black-and-white historical aerial photographs spanning the years from 1939 through 1974 were analyzed to produce this report. The primary purpose of this report is to provide an opinion regarding the interpretation of photographic evidence related to the Centredale Manor Superfund site in North Providence, Rhode Island.

This report is presented in two volumes: the first volume includes the text descriptions and photographic analyses, while the second volume contains the aerial photographs and interpretive overlays.

In addition, I reviewed the findings from interpretation of historic aerial photographs presented Mr. Mutch and Ms. Robinette in their expert witness reports; these reports are listed in the Reference Section of this expert witness report. Any disagreements I have with their aerial photographic interpretations are presented in the analysis text that follows.

The following is a summary of my opinions based on my interpretation of photographic evidence related to the Centredale Manor Superfund site in North Providence, Rhode Island.

1. Analysis of operations of both the Atlantic Chemical Company/Metro Atlantic ("Metro") and New England Container Co. ("NECC") facilities shows that the facilities remained in operation from at least May 15, 1939 through the early 1970's. During this time frame building additions and new buildings were added to the facilities. For example:
 - In 1963, a building, referred to as the Metro Ancillary building in this report,

was in place. Based on collateral information, the Metro Ancillary building was used for a time for the production of Hexachlorophene. By 1965, this building had been removed or been made part of a newer larger building at the location. Three vertical tanks were adjacent to the building in 1965. By March 1970, the building had been removed.

- Building additions to the NECC facility are noted on the 1955, 1962 , and 1963 aerial photographs.

2. During most of the timeframe covered by the analysis (1951 through 1974) an access road led south from Smith Street (U.S. Highway 44), past both the Metro facility and NECC facility, and terminated in the waste disposal area located in the southern section of the site. The access road provided ready opportunity for both the Metro facility and the NECC facility to use the waste disposal area.

Mutch in his January 9, 2009 expert witness report repeatedly states that the access road extends from the NECC facility to the waste disposal area. These statements may be misconstrued to mean that aerial photographic evidence indicates that only NECC had opportunity to use the access road to the waste disposal area; this is not the case. Both the Metro facility and the NECC facility had opportunity to use the access road into the waste disposal area.

3. Waste disposal activities, dumping and associated earth-moving, occurred in the southern section of the site during most of the timeframe covered by the analysis (1951 through 1974). Derelict equipment, drums, debris, and derelict storage tanks were discarded in waste disposal areas in the southern section of the site. The various material disposed of in the waste disposal areas suggests that both Metro and NECC discarded material at the waste disposal area.

The following is the text of the aerial photographic analysis that I have performed of the Centredale Manor Superfund site located in North Providence, Rhode Island. Associated aerial photographs with findings overlays of the analysis are presented in Volume 2.

METHODOLOGY

This report was prepared using a standard methodology that includes the following steps:

- data identification and acquisition,
- photographic analysis and interpretation, and
- graphics and text preparation.

These steps are described below. All operational steps and processes used to perform this work (including data identification and acquisition, photographic analysis and interpretation, and graphics and text preparation) adhere to strict Quality Assurance/Quality Control guidelines and standard operating procedures.

Aerial photographs (analog diapositives) were acquired from government and commercial sources that hold historical aerial film for the site. Photographs with optimal spatial and temporal resolution and image quality were identified for acquisition. The references section of this report provides details concerning the film used to produce this report.

To conduct this analysis, I examined analog diapositives (transparencies) of historical aerial photographs showing the site. Diapositives were used for the analysis instead of scanned digital representations of the original photographs because the diapositives often have superior photographic resolution. The analog diapositives show minute details of significant environmental features that may not be discernible on a computer screen.

A stereoscope was used to perform the analysis. Adjacent, overlapping pairs of diapositives were viewed on a backlit light table. In most cases, the stereoscope is capable of various magnifications up to 60 power. Stereoscopic viewing involves using the principle of parallax (observing a feature from slightly different positions) to observe a three-dimensional representation of the area of interest. By allowing the analyst to observe vertical as well as horizontal spatial relationships of natural and cultural features, stereoscope viewing improves the photo interpretation process.

The process of photographic analysis involves the visual examination and comparison of many components of the photographic image. These components include shadow, tone, color, texture, shape, size, pattern, and landscape context of individual elements of a photograph. The photo analyst identifies objects, features, and "signatures" associated with specific environmental conditions or events. The term "signature" refers to a combination of components or characteristics that indicate a specific object, condition, or pattern of environmental significance. The academic and professional training, photo interpretation experience gained through repetitive observations of similar features or activities, and deductive logic of the analyst as well as background information from collateral sources (e.g., site maps, geologic reports, soil surveys) are critical factors employed in the photographic analysis.

Objects and features are identified in the graphics and text according to the analyst's degree of confidence in the evidence. A distinction is made between certain and probable identifications. When the analyst believes the identification is unmistakable (certain), no qualifier is used. "Probable" is used when a limited number of discernible characteristics allow the analyst to be reasonably sure of a particular identification are critical factors employed in the photographic analysis.

The results of the analysis were produced using a standard set of annotations and terminology to identify objects and features observed on the diapositives. Significant findings are annotated on overlays attached to the photographic prints in the report and discussed in the accompanying text.

FINDINGS

MAY 15, 1939 - No figure has been provided for this date of aerial photograph as the resolution of the film is relatively low. The only finding from analysis of the film is that both the Atlantic Chemical Company/Metro Atlantic ("Metro") facility and the New England Container Company ("NECC") facility are on the site.

OCTOBER 26, 1951 (FIGURE 1)

Access Road - An access road extends south from Smith Street (U.S. Highway 44) onto the Centredale Manor Superfund site ("site"). The access road leads past buildings of both the Metro facility and the NECC facility. The access road terminates at a waste disposal area, located in the southern portion of the site. The access road affords unobstructed usage for the Metro and NECC facilities to waste disposal activity in the southern part of the site. Throughout the analysis time frame there are no fences or gates to impede full use of the access road. Along its total length the access road is wide enough to allow use by vehicles as large as a tractor trailer.

Metro Ancillary Building - This building has not yet been constructed. The future location of the Metro ancillary building is now being used as a parking area.

Waste Disposal - Two small waste disposal areas (WDA) are visible south of the Metro and NECC facilities. Solid waste and light-toned material have been deposited at each of the waste disposal areas. The northernmost waste disposal area is located at the apparent southern terminus of the access road. The access road provides the only ingress/egress to and from this area. No access to the southernmost waste disposal area is observed on the aerial photograph. The access road into the area may be obscured by the tree canopy.

Storage Tanks - Two probable vertical storage tanks (VT) are located adjacent to the eastern side of the main Metro facility building. It cannot be discerned on the aerial photo pair whether or not the tanks sit on a tank pad or on the bare ground.

Drums - Neatly stacked probable drums (DR) are stockpiled in the open storage area south of the NECC facility.

MAY 19, 1955 (FIGURES 2 and 3)

Access Road - The access road on the site remains in use. The access road continues to connect Smith Street, the Metro facility, and the NECC facility with waste disposal areas located in the southern portion of the site. The access road configuration has not significantly changed since 1951. Portions of the access road, as well as the ground surface adjacent to both the Metro and NECC facilities, appear to be stained (ST).

Metro Ancillary Building - This building has not yet been constructed. The future location of the Metro ancillary building is being used as a parking area and also for the storage of materials (OS).

NECC Building - A building extension has been added to the southern side of the NECC building.

Waste Disposal - Two waste disposal areas (WDA-N and WDA-S) are in use south of the Metro and NECC facilities. The northern waste disposal area (WDA-N), which encompasses both of the locations of waste disposal noted in the 1951 aerial photograph, is located along the southernmost section of the access road. No access to the southern waste disposal area, WDA-S, is observed on the 1955 aerial photograph. An access road extending to the southern waste disposal area is more likely than not in place but is obscured by tree canopy. Solid waste and light-toned material have been deposited at each waste disposal area.

Storage Tanks - Four vertical storage tanks are located adjacent to the eastern side of the Metro facility. It cannot be discerned on the aerial photo pair whether or not the tanks sit on a tank pad or on the bare ground.

Drums - Drums are stockpiled near the NECC facility.

MAY 1, 1956 (FIGURES 4 and 5)

Access Road - The access road on the site remains in use. The access road configuration on the site, however, has changed since 1955. A second entrance from Smith Street to the site has been added. A spur access road leads from the new entrance and joins with the main access road near the Metro facility. The main access road can now be seen terminating at the southern waste disposal area, WDA-S.

Portions of the access road are stained, as are locations near the Metro and NECC facilities, and locations near the waste disposal areas. The access road offers unobstructed ingress and egress to the waste disposal areas in the southern portion of the site.

Metro Ancillary Building - This building has not yet been constructed. The future location of the Metro ancillary building is being used as a parking area.

Waste Disposal Area - The two waste disposal areas (WDA-N and WDA-S) remain in use south of the Metro and NECC facilities. The areal extent of the northern waste disposal area has expanded since 1955. A mound of light-toned material (LTMM) has been deposited in the northern waste disposal area. Vegetation (VEG) has been removed from along the southern edge of the northern waste disposal area. Both waste disposal areas appear to function as they had in earlier years of the analysis.

Storage Tanks - Five vertical storage tanks are located adjacent to the eastern side of the Metro facility. It cannot be discerned on the aerial photo pair whether or not the tanks sit on a tank pad or on the bare ground.

Drums - Drums continue to be stockpiled near the NECC facility

FEBRUARY 7, 1962 (FIGURES 6 and 7)

Access Road - The access roads on the site remain in use. Ground stains are noted on the access road immediately west of the NECC facility.

Metro Ancillary Building - This building has not yet been constructed. Two trucks are parked at the future location of the Metro ancillary building.

NECC Building - A small building extension has been added to the southern side of the NECC building. A smokestack approximately 4 feet tall and 2 feet in diameter is on the building.

Waste Disposal - The two waste disposal areas (WDA-N and WDA-S) remain in use and each has been significantly expanded since 1956. The waste disposal areas are easily accessed from both the Metro and NECC facilities. Several probable drums are haphazardly scattered at waste disposal area WDA-N. Dark-toned mounded material (DTMM) and ground stains are also present at WDA-N. Discarded at waste disposal area WDA-S are haphazardly scattered drums (approximately 80-100), probable drums, probable derelict equipment, and other solid waste.

Much of the vegetation has been removed from the area between WDA-N and WDA-S. At this location there are linear striations on the surface indicative of past earth-moving activity (scraping, spreading, and/or grading) using heavy equipment, likely a bulldozer. A new building, slightly larger in size than a truck trailer, has been constructed along the western side of the access road between the two waste disposal areas. The function of the building cannot be determined.

Storage Tanks - Six vertical storage tanks and two horizontal storage tanks (HT) are located adjacent to the Metro facility. It cannot be discerned on the aerial photo pair whether or not the six vertical tanks sit on a tank pad or on the bare ground. The horizontal storage tanks are each approximately 9 feet long and 5 feet wide. The horizontal tanks appear to sit on pavement.

Drums - At waste disposal area WDA-S there are haphazardly scattered, discarded drums (approximately 80-100) and probable drums. Other drums are stockpiled near the NECC facility.

SEPTEMBER 2, 1963 (FIGURES 8 and 9)

Access Road - The access roads on the site remain in use. Ground stains are present on the access road immediately west of the Metro and NECC facilities.

Metro Ancillary Building - Since February 7, 1962, a building has been constructed atop the northern part of a pad. The southern part of the pad is empty.

NECC Building - A new building addition has been attached to the southern side of the NECC building. The small building extension in place at this location in 1962 has been removed or incorporated into the new building addition. A second smaller addition has been added to the western side of the NECC building.

Waste Disposal - The two waste disposal areas (WDA-N and WDA-S) remain in use. The areal extent of the waste disposal areas is very similar to the areal extent seen in 1962. Solid waste and light-toned materials (LTM) continue to be visible on the disposal areas (WDA-N and WDA-S).

Storage Tanks - Four vertical storage tanks are present along the eastern side of the Metro facility. Due to shadows cast by the Metro building the total number of vertical storage tanks in the 1963 aerial photograph is uncertain and it cannot be determined if a tank pad is in place. In the 1962 aerial photograph, six vertical storage tanks are present at this location. The two horizontal storage tanks observed in 1962 remain in place atop a paved area.

Drums - Drums continue to be stockpiled near the NECC facility.

APRIL 5, 1965 (FIGURES 10 and 11)

Access Road - The access roads on the site remain in use. Their configuration has not significantly changed since 1962. Ground stains are present on and adjacent to the access road close to the NECC facility, where numerous drums are neatly stockpiled.

Metro Ancillary Building - The Metro ancillary building has been built sometime between September 2, 1963 and April 5, 1965. The building is approximately 25 feet by 30 feet and is one and one half stories high. The new building is approximately four times larger than the building seen at this location on the 1963 photographs. Adjacent to the southern side of the new building are three vertical storage tanks. The new building addition and vertical tanks sit on the pad seen on the 1963 photographs. Most of the pad appears to have been covered by the new building addition and vertical tanks. The three new tanks and larger building compared to the building observed on the 1963 photographs suggests that a change in operations has occurred at this location sometime since September 1963.

Waste Disposal - Much of the location of the northern waste disposal area is now being used for the stockpiling of drums. Waste disposal activity at the southern waste disposal area (WDA-S) has continued and the areal extent of the disposal area has slightly increased since 1963. Scattered probable drums, solid waste, and debris have been discarded at this waste disposal area. Areas of stained ground are also observed at the waste disposal area. Probable derelict equipment has been placed on the eastern side of the access road just north of WDA-S.

Storage Tanks - Six vertical storage tanks and two horizontal storage tanks are present alongside the Metro facility. It cannot be discerned on the aerial photo pair whether or not the six vertical tanks sit on a tank pad or on the bare ground. The two horizontal storage tanks have remained in place atop pavement.

Drums - Drums continue to be stockpiled near the NECC facility. Much of the location of the northern waste disposal area is now being used for drum storage. In addition, haphazardly scattered drums have been discarded in the southern waste disposal area.

Other Environmental Features - A pool of probable standing liquid (SL) is present south of the NECC facility. The pool of probable standing liquid has collected in an area of recent earth-moving activity. Surface striations visible in this area were likely made by earth-moving equipment. Immediately southeast of the probable standing liquid is a flat area where earth-moving activity has also occurred. The surface vegetation in the area has been removed, exposing the bare soil. Approximately one to two feet of surface material have been removed from the area.

Light-toned mounded material has been placed alongside the northwestern portion of the probable standing liquid. A fill area (FA), composed of light-toned material, is observed south of the pool of probable standing liquid. The light-toned mounded material and the fill area are likely composed of material resulting from the earth-moving activity in this area.

MARCH 9, 1970 (FIGURES 12 and 13)

Access Road - The access roads on the site remain in use. They have not significantly changed since 1965. Ground stains are present on the access road adjacent to the Metro and NECC facilities, and adjacent to the access road near the NECC facility, where numerous drums are neatly stockpiled.

Metro Ancillary Building - The Metro ancillary building has been razed since 1965. Probable derelict equipment and a probable shed are now in this location. The three vertical storage tanks seen alongside the building in the 1965 aerial photograph are not discerned on this aerial photograph.

Waste Disposal - Waste disposal activity at WDA-S appears to be ongoing; the areal extent of the waste disposal area has changed little since 1965. Scattered probable drums, solid waste, and debris have been discarded at the waste disposal area. Probable derelict equipment continues to be in place on the eastern side of the access road just north of WDA-S. Dark-toned mounded material is visible south of the NECC facility.

Storage Tanks - Three vertical storage tanks are present alongside the Metro facility. In the 1965 aerial photograph a total of six vertical storage tanks were in place. The building shadow may be obscuring the vertical storage tanks at this location. The two horizontal storage tanks located alongside the Metro facility in 1965 have been removed.

Outfalls/Impoundments - An impoundment (IM) containing standing liquid is in place south of the NECC building where probable standing liquid was noted in 1965. No outfalls are visible alongside the building, however. A drainage channel originating near stockpiled drums at the NECC facility, appears to empty into the impoundment.

Drums - Drums continue to be stockpiled near the NECC facility. Probable drums are on the southern waste disposal area (WDA-S).

APRIL 26, 1970 (FIGURES 14 and 15)

Access Road - The access roads on the site remain in use. Ground stains are present on the access road adjacent to the NECC facility, and adjacent to the access road near the NECC facility, where numerous drums are neatly stockpiled.

Metro Ancillary Building - A probable vertical storage tank, approximately six probable drums, derelict equipment, ground stains, and debris are now observed at the location of the former building. A shed (approximately 8 feet by 10 feet, and nine feet tall) is located adjacent to the northern side of the probable vertical storage tank. The previously observed building pad cannot be discerned.

Waste Disposal - Waste disposal activity at WDA-S appears to be ongoing. Haphazardly scattered drums, solid waste, debris, and a derelict storage tank have been discarded at the southern waste disposal area. Numerous ground stains are also visible. Derelict equipment continues to be in place on the eastern side of the access road just north of WDA-S.

Storage Tanks - Due to shadows, vertical storage tanks alongside the Metro facility cannot be discerned.

Outfalls/Impoundments - An impoundment containing standing liquid remains south of the NECC facility. A discharge plume emanating from the drainage channel leading into the impoundment is visible.

Drums - Numerous drums continue to be stockpiled near the NECC facility. The dark-toned material identified in the March 1970 aerial photograph can now be identified as stacked drums. Discarded drums remain scattered throughout the southern waste disposal area (WDA-S).

APRIL 30, 1972 (FIGURES 16 and 17)

Access Road - The access roads on the site remain in use. Ground stains are present on the access road adjacent to the access road near the NECC facility, where numerous drums are stockpiled.

Metro Ancillary Building - Two probable vertical storage tanks, stockpiled drums, probable derelict equipment, ground stains, and debris are now observed at the location of the former building. The shed identified on the April 1970 photographs remains in place.

Waste Disposal - Waste disposal activity at WDA-S appears to be ongoing. Haphazardly scattered drums, solid waste, debris, and a derelict storage tank have been discarded at the southern waste disposal area. Numerous ground stains are also visible. Derelict equipment continues to be in place on the eastern side of the access road just north of WDA-S.

Storage Tanks - Six vertical tanks are in place on the eastern side of the Metro facility. Light-toned material is visible at the base of some of the tanks. The area under and around the tanks does not appear to be paved.

Outfalls/Impoundments - The impoundment containing standing liquid remains south of the NECC facility. Two drainage channels lead to the impoundment; one channel was visible on the April 1970 aerial photographs and the second drainage channel is now visible leading from the eastern side of the NECC facility into the impoundment.

Drums - Numerous drums continue to be stockpiled near the NECC facility. Discarded drums remain scattered throughout the southern waste disposal area (WDA-S).

MARCH 25, 1974 (FIGURES 18 and 19)

All buildings seen on the site in 1972 have been destroyed; several building foundations (BF) and remnant structures are present in the northern portion of the site. Numerous piles of debris are scattered throughout the site and the earth surface is striated at the location of the former NECC facility; this is likely the result of earth-moving operations.

Access Road - Remnants of the access roads are still visible on the site.

Metro Ancillary Building - The building pad remains at the former location of the Metro ancillary building. Atop the pad are 4 rectangle-shaped structures; each structure is approximately one foot wide, three feet long, and one to two feet tall.

Waste Disposal - Waste materials (stained ground, several scattered probable drums, solid waste, and debris) are observed in the southern section of the site.

Storage Tanks - None are present.

Outfalls/Impoundments - A large impoundment containing standing liquid remains on the site. Numerous drums are present within the impoundment and near the impoundment.

Drums - Several areas of scattered drums and an area of piled drums adjacent to the impoundment remain on the site.

Other Environmental Features - Numerous drums are observed in the southern section of the site; many near the impoundment. A relatively large collection of horizontally stockpiled drums is located immediately northwest of the impoundment. A trench (TR), located near a pile of debris, is also noted. Approximately one-half of the stockpiled drums are in disarray; many are located in the nearby impoundment.

GLOSSARY

Access Road - A paved or unpaved route of vehicular access.

Dark-, Medium-, or Light-Toned - Tones of features in question are compared with the darkest and lightest tones of gray (if using B&W photography) on the print.

Debris (DB) - The remains of anything that can be identified as being broken down, destroyed, demolished, or dismantled.

Drums (DR) - Metal cylinders used for the storage, transportation, or disposal of materials.

Fill Area (FA) - An area where material is being deposited to fill a depression; or area where materials have been added, altering the elevation of the ground surface.

Impoundment (IM) - A liquid containment area that appears to be related to activity on a site but does not appear to be used for waste storage, disposal and/or treatment.

Material (M) - Raw or waste materials on or in the vicinity of the site.

Mounded Material (MM) - Piles of raw or waste materials on or in the vicinity of the site.

Open Storage Area (OS) - An area of open-air (outdoor) storage of containerized, raw or waste materials, within industrial or manufacturing sites.

Outfall (OF) - The place where an effluent is discharged into the environment.

Solid Waste (SW) - Any garbage, refuse, or sludge from a waste treatment, water supply treatment plant, or air pollution control facility, and other discarded material, including solid or semi-solid material resulting from industrial, commercial, mining, and agricultural operations, and from community activities; does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges.

Stain (ST) - A residue or discoloration resulting from a spill, discharge, or removed/dispersed materials.

Standing Liquid (SL) - A small, shallow, temporary collection of liquid, not necessarily waste. Not to include liquid contained in impoundments, trenches, pits, etc.

Tanks - Vertical tanks (VT), horizontal tanks (HT), pressure tanks (PT), tank farms, and solid waste management units. A large receptacle, container, or structure for holding liquid or gas.

Trench (TR) - A long, narrow excavation unrelated to drainage.

Waste Disposal Area (WDA) - An area where waste materials are discarded

REFERENCES

COLLATERAL INFORMATION

- EPA. 2000. Aerial Photographic Analysis of Centredale Manor Site Subarea, North Providence, Rhode Island, TS-PIC-20001120S, dated July 2000.
- EPA. 2001. Aerial Photographic Analysis of Centredale Manor Site Subarea, North Providence, Rhode Island Addendum Report, TS-PIC-20201153S, dated December 2001.
- Expert Report of Robert D. Mutch, Jr., P. Hg., P.E., Volumes 1 and 2, January 12, 2009.
- Expert Rebuttal Report of Robert D. Mutch, Jr., P. Hg., P.E., December 11, 2009.
- Interim Final Remedial Investigation Centredale Manor Restoration Project Superfund Site, North Providence, Rhode Island, prepared by Battelle, Duxbury, MA, June 30, 2005.
- Providence Sunday Journal Business Weekly, May 30, 1965, "Pharmaceutical Products Added", by Arthur S. Reseigh, pages 22 and 23.
- Region 1, Record of Decision, Centredale Manor Restoration Project Superfund Site, North Providence, Rhode Island, September 12, 2012.
- Technical Opinion of Muriel Robinette, New England EnviroStrategies, June 15, 2009.

AERIAL PHOTOGRAPHS

Photo source ^a	Figure ^b	Date of acquisition	Original scale	Film type ^c	Mission I.D.	Source frame #
RIPLAN	-	05-15-39	1:38,000	B&W	-	884
NAS/VIP	1	10-26-51	1:20,000	B&W	DPJ	98,99
USGS	2,3	05-19-55	1:24,000	B&W	GS-VJU	3,4
NOS	4,5	05-01-56	1:30,000	B&W	W	131,132
AVPT	6,7	02-07-62	1:20,000	B&W	118814	484,485
ASCS	8,9	09-02-63	1:20,000	B&W	DPJ	158,159
AVPT	10,11	04-05-65	1:10,000	B&W	1342	1073,1074
USGS	12,13	03-09-70	1:24,000	B&W	GS-VCLG	225,226
KEY	14,15	04-26-70	1:12,000	B&W	73	1453-1455
KEY	16,17	04-30-72	1:12,000	B&W	73	1113-1115
AIRPHO	18,19	03-25-74	1:9,600	B&W	19	728,729

^aAIRPHO Air Photographics, Inc., Martinsburg, Virginia
ASCS U.S. Department of Agriculture, Agricultural Stabilization
and Conservation Service, Salt Lake City, Utah
AVPT Aerial Viewpoint, Inc., Spring, Texas
KEY Keystone Aerial Surveys, Philadelphia, Pennsylvania
NAS/VIP National Aerial Survey Center Corp./ Visual Image Presentations,
Silver Spring, Maryland

NOS National Ocean Service, Coast and Geodetic Survey, Washington, D.C.
RIPLAN Rhode Island Planning Department, Providence, Rhode Island
USGS U.S. Department of Interior, U.S. Geological Survey, Washington, D.C.

^bPhotographs listed with no figure number were analyzed but not placed in this report.

^cB&W Black-and-white

COMPENSATION

I, Larry Mata, am employed by Lockheed Martin Environmental Services. Lockheed Martin is the prime contractor to the U.S. Environmental Protection Agency's Office of Technology Operations and Planning, Office of Environmental Information, at Research Triangle Park, North Carolina, Contact No. GS-35F-4550G. I am compensated at my regular salary paid by Lockheed Martin.

ATTACHMENT A

RESUME OF LARRY MATA

**LARRY MATA
BOX 267
BLUE DIAMOND, NEVADA 89004
PHONE: (702) 875-2645**

SUMMARY OF ACCOMPLISHMENTS

Thirty years of experience in environmental remote sensing, primarily in support of the U.S. Environmental Protection Agency. This includes twenty years of operations management, thirty years as an imagery analyst, and ten years as Quality Control technical editor. Versed in the use of ERDAS Imagine image processing software, softcopy photogrammetry software, ESRI ARCINFO software.

EMPLOYMENT HISTORY

1994 to present
TECHNICAL SUPERVISOR, REMOTE SENSING AND DATA INTEGRATION
LOCKHEED MARTIN CORP., LAS VEGAS , NV

As Technical Supervisor responsible for the supervision of eight environmental imagery analysts. The work is primarily in support of the U.S. Environmental Protection Agency. Coordinate research, perform technical and operational activities, oversee project planning, and appropriate Q/A plans, develop new applications, monitor project costs and schedule project performance. Perform all duties of the Program Manager, as assigned.

1983- 1994
IMAGERY ANALYST AND TEAM LEADER PHOTOGEOLOGY PROGRAM
HUGHES STX (10/93-9/94) AND BIONETICS CORP. (1983-1993)

As Imagery Analyst Team Leader managed eight imagery analysts and oversaw all aspects of scientific work performed by the team including: staff training and development, technical editing of all projects performed by the team, and production of cost estimates and work plans.

Developed and coordinated the photogeology program used in the assessment of more than one hundred EPA Superfund sites. Developed and taught the Remote Sensing Training Course given at EPA Regional Headquarters.

As an Imagery Analyst analyzed aerial imagery to extract environmentally significant information pertinent to EPA's regulatory and research programs and produced detailed written reports to document the analysis.

1981- 1983

PHOTO INTERPRETER
RESOURCE TECHNOLOGIES CORP.

Performed mineral assessments for the U.S. Department of Energy and the U.S. Department of Justice using photo-interpretive techniques.

EDUCATION

Temple University (1979), Bachelor of Science, Geography
The Pennsylvania State University (1981), 35 credit hours graduate work, Geography

PROFESSIONAL TRAINING

ArcInfo and ArcView Training, ERDAS OrthoMax Softcopy Photogrammetry Training, Hydrology of Karst Terrains, U.S.G.S. Hydrology Remote Sensing and Information Workshop, Terrain Analysis, EPA's Wellhead Protection Area Delineation Course.

LITIGATION SUPPORT

Served as an expert witness for:

John R. Sand & Gravel v. United States of America, 2004.

United States of America v. Atlantic Richfield Co., et al., 2001.

United States of America, State of Louisiana v. Braselman Corporation, et al., 1999.