Remedial Investigation Report Addendum
Gibson Scrapyard
NYSDEC Site No. 851058

Glass Manufacturing Waste Characterization

Prepared for

New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233

Prepared by

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May 2024
Version: FINAL
EA Project No. 1602505

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1. INTRODUCTION

EA Engineering, P.C. and its affiliate EA Science and Technology (EA), under contract to the New York State Department of Environmental Conservation (NYSDEC), Work Assignment Number (No.) D009806-05, was tasked to perform a remedial investigation (RI) and feasibility study (FS) at the Gibson Scrapyard Site (Site) (No. 851058) located at the end of Main Street in the Hamlet of Gibson, Town of Corning, Steuben County, New York. The Site is listed as a Class 2 in the State Registry of Inactive Hazardous Waste Disposal Sites (list of superfund sites), meaning that the Site represents a significant threat to public health or the environment, and action is required. The purpose of this Remedial Investigation Addendum is to identify and characterize evidence of glass manufacturing waste found at the Site based on a review of historical documents and field reports from the Remedial Investigation. Industrial waste material containing ash, brick, and/or glass (ABG) observed in the City of Corning, New York and surrounding area are known to contain contaminants of concern (primarily include arsenic, cadmium, lead, and semi-volatile organic compounds). ABG wastes are a concern for NYSDEC and have been identified as a potential human health hazard. A portion of the ABG encountered to date has met the definition of hazardous wastes and if encountered should be presumed to be a hazardous waste until analytical sample results demonstrate otherwise.

A fact sheet describing industrial waste materials commonly found in the City of Corning, New York produced by former glass manufacturing companies was used to support this investigation and is included as **Appendix A** (Parsons 2022). Wastes outlined in the fact sheet include glass (cullet), thermometer tubing, hollow glass tubing, glass filter rods, Pyrex and trademarked products, signal ware and lenses, electrical ware, uranium glass, and in situ waste. In situ waste includes ABG components that are generally uncompacted and loose. The fact sheet also includes descriptions of waste characterizations, possible variations, and example photographs for each category listed.

The objectives of this addendum are to:

- Document the review process performed to characterize glass manufacturing waste found at the Site from previous investigations and sampling activities.
- Catalog the descriptions, locations, and photographs of any mention of glass manufacturing wastes.
- Classify glass manufacturing wastes found during previous field activities based on the waste profiles described in the Waste Summary Fact Sheet provided in **Appendix A** (Parsons 2022).

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2. REVIEW PROCESS

EA reviewed historical documents from previous investigation activities and sampling events performed at the Site for evidence of the presence of glass manufacturing waste. Wastes recorded in photographic logs, field reports, sampling logs, and descriptive text in reports were compared to the Waste Summary Fact Sheet in **Appendix A**.

The following documents were reviewed for inclusion of the glass manufacturing waste profiles:

- Historical and RI field reports and photographs,
- Phase I Site Investigation Report (ARGO 2009),
- Phase II Site Investigation Report (ARGO 2010),
- Remedial Investigation Report (EA 2022).

All waste found to be a possible match to the waste profiles included in the Fact Sheet (**Appendix A**) were recorded in **Table 1**. A description of the waste, the location where the waste was found, and the document the information was pulled from were recorded. Any related photographs were compiled in the Photographic Log (**Appendix B**).

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3. RESULTS

After reviewing historical documents and RI field reports, EA found evidence of waste profiles associated with former glass manufacturing companies. Specifically, in situ waste and glass (cullet) were observed and previously described at the Site. There were no reported observations of thermometer tubing, hollow glass tubing, glass filter rods, Pyrex and trademarked products, signal ware and lenses, electrical ware, or uranium glass. **Table 1** contains a summary of the locations that recorded presence of glass manufacturing waste. **Figure 1** shows the sampling locations with evidence of glass manufacturing waste. Photographs associated with identified wastes can be found in **Appendix B**.

Glass and in situ waste were observed in multiple test pits that were excavated during the Phase II Site Investigation (SI) efforts in February 2010 (ARGO 2010). Test pit logs in Appendix A of the Phase II SI Report indicated 9 of 15 test pits had recorded observations of brick (TP- 01, TP-05, TP-06, TP-07, TP-08, TP-10, TP-11, TP-12, and TP-15), which is a characteristic of in situ waste. Eleven of 15 test pits had recorded observations of black ash fill, which is also a characteristic of in situ waste (TP-02, TP-04, TP-06, TP-07, TP-08, TP-09, TP-10, TP-11, TP-12, TP-13, and TP-15). Five of 15 test pits had recorded observations of glass (TP-04, TP-06, TP-10, TP-11, and TP-15). Boring logs in Appendix A of the Phase II SI Report also noted brick observed at soil boring SB-04 in February 2010 (ARGO 2010).

In November 2020, an underground storage tank (UST) found at test pit TP-05 was removed. Photographs from this field activity (**Appendix B**) show evidence of yellow glass in the excavated soil.

In January 2021, photographs from installation of monitoring well MW- 01 (**Appendix B**) show evidence of glass found in the boring.

Soil boring logs in Appendix D of the Gibson Scrapyard RI Report indicated evidence of glass and in situ waste during the RI field efforts in 2021 (EA 2022). Boring logs show observations of glass at five of six monitoring wells (MW-01, MW-02, MW-03, MW-04, and MW-05). The boring logs also note observations of brick at monitoring wells MW-01 and MW-06, and black fill at monitoring wells MW-04, MW-05, and MW-06.

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4. SUMMARY

The key findings of the waste characterization are summarized below:

- A review of historical documents and RI field reports indicated evidence of in situ and glass waste at the Site that are consistent with waste described in the Waste Summary Fact Sheet (**Appendix A**).

- Glass and in situ waste were described at excavations during both Phase II SI and RI efforts in 2010 and 2021, respectively.

- Glass and in situ waste were observed at several locations across the site; there does not appear to be a concentrated area of industrial glass manufacturing waste at the Site.

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5. REFERENCES

ARGO Systems, LLC and its subcontractor EA Engineering, P.C. and its affiliate EA Science and Technology (The ARGO Team). 2009. *Phase I Environmental Site Assessment Report, Coring Materials Site, Hamlet of Gibson, Town of Corning, Steuben County, New York.* April.

———. 2010. *Phase II Site Investigation Report, Corning Materials Site, Hamlet of Gibson, Town of Corning, Steuben County, New York.* June.

EA Engineering, P.C. and its affiliate EA Science and Technology (EA). 2022. *Remedial Investigation Report Gibson Scrapyard NYSDEC Site No. 851058.* February.

Parsons. 2022. *Waste Summary (Industrial Wastes in Corning, New York).* (Fact sheet). https://www.dec.ny.gov/data/DecDocs/851046/Fact%20Sheet.HW.851046.2022-04-28.Industrial%20Waste%20Exhibit%20Corning%20NY%20.pdf

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Tables

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Table 1 - Summary of Evidence of Industrial Waste from Former Glass Manufacturing in Corning, New York

Document Date	Document Title	Date Material Found	Material Description (from text/photo)	Location on Site	Category of Waste	Photo Number*
June 2010	Phase II Site Investigation Report	2/18/2010	glass	TP-04	glass (cullet)	No photos
		2/17/2010	brick	TP-01	in-situ waste	Photo 2, Photo 3
		2/17/2010	black fill	TP-02	in-situ waste	Photo 4
		2/18/2010	black fill, glass	TP-04	in-situ waste, glass (cullet)	Photo 5
		2/18/2010	brick	TP-05	in-situ waste	Photo 6
		2/18/2010	black fill, brick, glass	TP-06	in-situ waste, glass (cullet)	Photo 7
		2/18/2010	black ash fill, brick	TP-07	in-situ waste	Photo 8, Photo 9
		2/19/2010	black ash fill, brick	TP-08	in-situ waste	Photo 10
		2/19/2010	black ash	TP-09	in-situ waste	Photo 11
		2/19/2010	black silt fill, glass, brick	TP-10	in-situ waste, glass (cullet)	Photo 12
		2/19/2010	black burnt soil, brick, glass	TP-11	in-situ waste	Photo 13
		2/22/2010	brick, black ash	TP-12	in-situ waste	Photo 14
		2/23/2010	black ash	TP-13	in-situ waste	Photo 15
		2/23/2010	black ash, brick, glass	TP-15	in-situ waste, glass (cullet)	Photo 17
		2/17/2010	brick	SB-09	in-situ waste	No photos
May 2022	Remedial Investigation Report	1/6/2021	glass	MW-01	glass (cullet)	No photos
		1/8/2021	glass	MW-03	glass (cullet)	No photos
		1/9/2021	glass	MW-04	glass (cullet)	No photos
		1/10/2021	glass, black fill material	MW-05	glass (cullet), in-situ waste	No photos
		1/11/2021	brick	MW-06	glass (cullet)	No photos
		1/6/2021	loose brick, glass	MW-01	glass (cullet), in-situ waste	No photos
		1/7/2021	glass	MW-02	glass (cullet)	No photos
		1/8/2021	glass	MW-03	glass (cullet)	No photos
		1/9/2021	black fine fill, glass	MW-04	glass (cullet), in-situ waste	No photos
		1/10/2021	fine black millings, glass	MW-05	glass (cullet), in-situ waste	No photos
		1/11/2021	glass, black fill,red brick	MW-06	glass (cullet), in-situ waste	No photos

Notes:
MW = monitoring well
SB = soil boring
TP = test pit
* Photo numbers listed here reference the photos shown in Appendix B.
Items listed without corresponding photographic records have a lower certainty of classification.

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Figures

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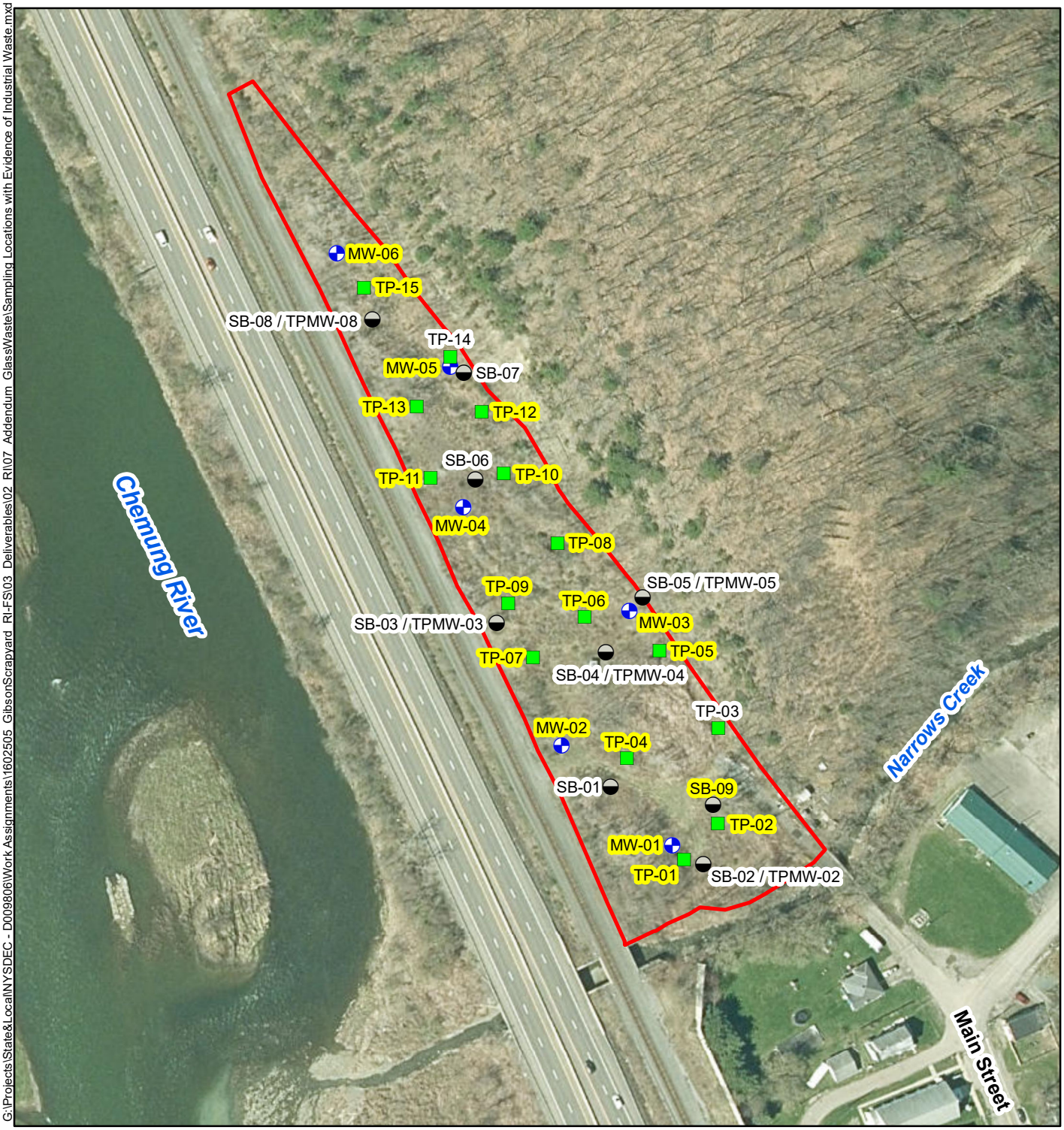

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Legend

- Site Boundary
- 2021 Monitoring Well/Soil Boring Locations
- 2010 Soil Boring
- 2010 Test Pit

0 100 200
Feet

N

Note:
Highlighted sampling locations indicate areas with potential evidence of industrial waste from former glass manufacturing in Corning, New York.

Figure 1
SAMPLING LOCATIONS WITH EVIDENCE OF GLASS MANUFACTURING WASTE
Gibson Scrapyard (NYSDEC Site 851058) Gibson, NY

Map Date: 11/15/2022
Projection: NAD83 State Plane New York Central
FIPS 3102 Feet

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Appendix A

Waste Summary Fact Sheet

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WASTE SUMMARY

INDUSTRIAL WASTES IN CORNING, NEW YORK

Purpose

This document is a resource for field personnel to distinguish industrial waste historically produced by former glass manufacturing companies from potentially other waste types encountered in the City of Corning, New York and surrounding area.

This informational packet describes industrial waste material containing ash, brick, and/or glass (ABG) observed in the City of Corning, New York and surrounding area. The packet lists characteristics and variations of ABG wastes. Contaminants of concern primarily include arsenic, cadmium, lead, and semi-volatile organic compounds.

ABG wastes are a concern for NYSDEC and have been identified as a potential human health hazard. A portion of the ABG encountered to date has met the definition of hazardous wastes and if encountered should be presumed to be a hazardous waste until analytical sample results demonstrate otherwise.

If public works departments, utility companies, contractors, or others encounter industrial waste material similar to material described within this informational packet, they should contact NYSDEC immediately. When contacting NYSDEC, please convey approximate locations and volumes of ABG material. Please notify NYSDEC through our engineering consultant, Parsons, using the below contact information:

- Emailing us at StudyArea.Corning@Parsons.com; or
- Calling our hotline at the toll-free number 833-770-1716.

IN SITU WASTE

Characteristics

- Has included ash, brick, and/or glass (ABG).
  - Ash colors include black, gray, orange, and white.
  - Various brick types (red construction brick, white or yellow refractory brick, puzzle piece brick (Picture 1)).
  - Various glass types, colors, and sizes.
- Generally uncompacted and loose.
- ABG has been observed in discrete layers and discontinuous throughout a soil column.
- ABG observed at various depths (from ground surface to over 10 feet below ground surface).
- Excavation areas in the Corning Study Area have sometimes been observed with mixed ash and brick with trace or no glass.
- Generally not odorous.

See Pictures 1, 2, 3, and 4

Picture 1: Primarily ash and brick in a 2-ft excavation.

Picture 2: Excavation heavily impacted with ABG.

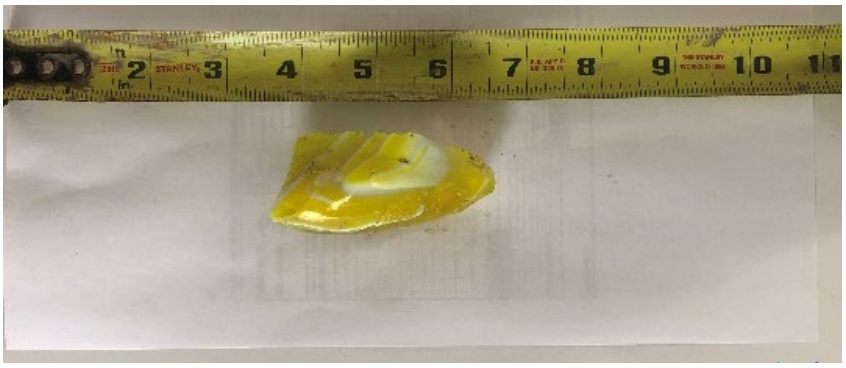
Picture 3: Excavation heavily impacted with ABG.

Picture 4: Test pit excavation heavily impacted with ABG.

GLASS (CULLET)

Characteristics

- Broken, fragmented, or discarded glass indiscernible from a final product.
- Sometimes air bubbles are trapped within glass media.
- Sometimes speckled or fused with other colored glass.



Picture 5: Cullet with layers of yellow and white.

Variations

- Primarily between the size of a penny and a softball but can be as large as a mailbox and as small as fine grains.
- Can be any color or combination of colors. Multi-color layered glass has been observed.
- Opacity can vary (even within the same piece).
- Can be jagged, smooth, and/or porous.
- Density varies; some lead glasses have lead oxide content upwards of 50% by weight.
- Glass may be fused to construction or refractory brick. Glass can encapsulate brick pieces.

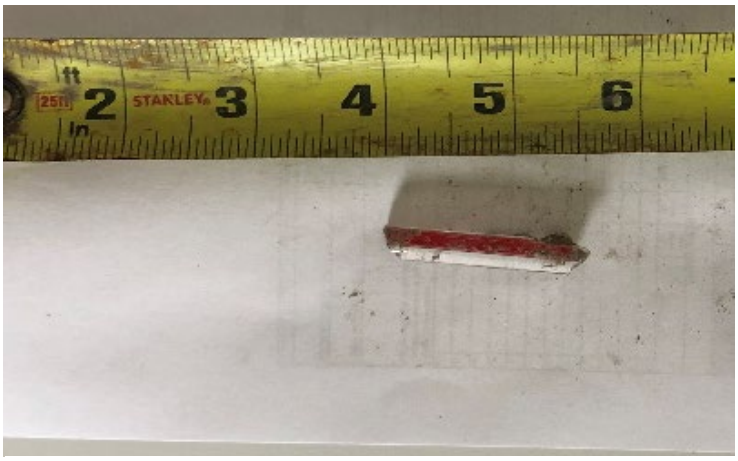
Picture 6: Blue cullet with white specks.

See Pictures 5, 6, and 7

Picture 7: Clear spaghetti-shaped cullet.

THERMOMETER TUBING

Characteristics



Picture 8: Piece of thermometer tubing with red and white strips.

- Tubing is generally smaller than 1 inch diameter. Lengths of up to 1.5 feet have been observed.
- Clear glass makes up majority of the tubing; colored glass is encased within the clear glass and extends along the length of the piece.
- Most pieces have a hollow center (called a bore) extending the length of the tubing.
  - A visible bore is a manufacturing defect. The bore is not supposed to be visible to the naked eye.

Variations

- Observed cross-section shapes include triangular, circular, and irregular.
- Encased colored glass is usually white, red, orange, and/or yellow but can be black, green, or blue.

See Pictures 8 and 9


Picture 9: Most thermometer tubing fragments have strips of white and red glass encased in clear glass. One piece has an orange strip (top left). One piece has only a white strip (bottom right).

HOLLOW GLASS TUBING

Characteristics

- Hollow glass tubing with at least one open end.
- Generally straight with lengths from 2 inches to 12 inches.

Variations

- Various inner and outer diameters, from less than 1 millimeter to greater than 1 inch.
- Diameter can vary for an individual piece.
- Primarily clear and transparent but can be blue, orange, yellow, green, and red. Opacity varies.

See Pictures 10 and 11

Picture 10: Collection of hollow tubing.

Picture 11: Hollow tubing fragment.

GLASS FILTER RODS

Characteristics

- Unique shape with embossing “Cory Filter Rod” or “New Cory Rod” and US Patent numbers.
- Pieces usually have one broken end (side with rounded bulb shape).
- Clear or reddish-brown color.
- The center cross section is circular and rounded-square.

See Pictures 12 and 13

Picture 12: Reddish-brown Cory Filter Rod fragment.

Picture 13: Clear Cory Filter Rod fragment.

PYREX AND TRADEMARKED PRODUCTS

Characteristics

- Unique embossed or engraved logo.
  - Often just embossed as “PYREX.”
  - Embossing size varies.
- Some glass pieces have patent numbers embossed on them.
- Various manufactured glass products were branded PYREX.
- Other trademarked names include Corningware, Flameware, Nonex, Macor, Multiform, Vycor, Corelle, and Fota-Lite.

See Pictures 14 and 15

Picture 14: Pyrex baby bottle.

Picture 15: Pyrex glass cone.

SIGNAL WARE AND LENSES

Characteristics

- Glass with a light-focusing purpose (e.g., for automobile headlights or lighthouses) or magnifying purpose (e.g., for eyeglasses or cameras).
- Sometimes embossed with trademark names or magnification (e.g., Corning, +1.25).
- Thickness generally less than 2 inches.

Variations

- Shapes include rounded square lenses, circular smooth dual-faced lenses (similar diameter to eyeglasses), circular smooth dual-faced lenses about ½-inch to 2-inch diameter, and circular smooth dual-faced lenses greater than 5 inches diameter.
- Lens face types:
  - Angular or prismatic horizontal grooves or furrows on a concave or convex lens face.
  - Smooth concave, convex, or flat faces.
  - Raised bubble-shape on one or both sides (like plastic bubble wrap).
- Colors include clear, pink, red, yellow, orange, green, blue, violet, or brown.

See Pictures 16, 17, and 18

Picture 16: Blue signal ware embossed with "PYREX."

Picture 17: One orange and two red disk lenses. Each lens is embossed along the rim with "CORNING T. M. REG. U. S. PAT. OFF. MADE IN USA."

Picture 18: Green, light brown, and clear optical and ophthalmic lens blanks of various shapes.

ELECTRICAL WARE

Characteristics

- Intact or recognizable pieces are usually embossed with “PYREX” and patent number.
- Generally clear glass but may be opaque and opalescent.

See Pictures 19, 20, and 21

Picture 19: Insulator (left) and two glass fuses. “PYREX” is embossed on each piece.

Picture 20: Glass radio antenna insulator (left) and insulator (right).

Picture 21: Opalescent insulator with approximately 1-ft diameter.

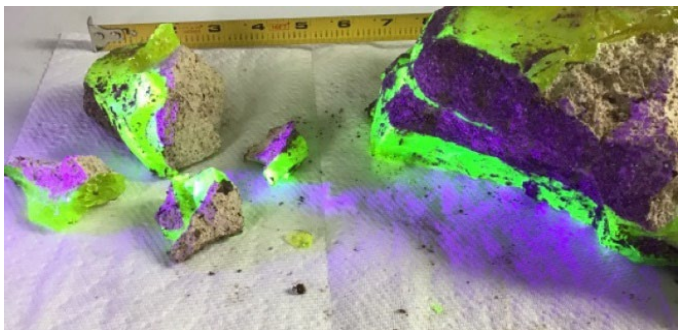
URANIUM GLASS

Characteristics

- Generally colored yellow, yellow-green, or green. Opacity varies.
- Fluoresces green under ultraviolet light.
- Generally observed as cullet (irregular pieces and chunks) but has been observed as hollow tubing.

See Pictures 22, 23, and 24

Picture 23: Uranium glass fused to refractory brick.



Picture 22: The glass fluoresces green under ultraviolet light.

Picture 24: Translucent yellow-green uranium glass collected from an excavation.

IN SITU WASTE (CONTINUED)

See Pictures 25 and 26

Picture 25: Comingled red brick, refractory chunks, and cullet. ABG ejected from animal burrow (circled red).

Picture 26: Comingled black ash and slag (top, along yellow gas line), cullet, refractory pieces, gray ash, and light orange ash.

SUMMARY

The waste types listed above include commonly observed industrial waste materials found in the City of Corning, New York. These waste materials may be brought to the ground surface from humans, other animals, plants, or erosive forces.

- Human Activities:
  - Examples include subsurface excavations, grading, utility clearing, and utility pole removal and installation
- Bioturbation: Reworking of soils and sediments by animals or plants.
  - Examples include burrowing animals and root growth causing subsurface material to come to the surface
- Erosion:
  - Examples include from surface water runoff, streams, rivers, and gravity

Appendix B

Photographic Log

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Photo Name:	"Macrocore2"	**Photograph 1**
Document Citation:	Phase II Site Investigation	**Date:** February 2010
Description:	Brick fragments; evidence of in-situ waste	

Photo Name:	"TP01 debris"	**Photograph 2**
Document Citation:	Phase II Site Investigation	**Date:** February 2010
Description:	Brick fragments; evidence of in-situ waste	

Photo Name:	"TP01 excavated soil2"	**Photograph 3**
Document Citation:	Phase II Site Investigation	**Date:** February 2010
Description:	Yellow glass fragment, black ash; evidence of in-situ waste and glass cullet	

Photo Name:	"TP02 excavated soil1"	**Photograph 4**
Document Citation:	Phase II Site Investigation	**Date:** February 2010
Description:	Yellow glass fragments; possible evidence of glass (cullet)	

Photo Name:	"TP04 excavated soil1"	**Photograph 5**
Document Citation:	Phase II Site Investigation	**Date:** February 2010
Description:	Green glass fragment, black ash; evidence of in-situ waste and glass (cullet)	

Photo Name:	"TP05 excavated soil1"	**Photograph 6**
Document Citation:	Phase II Site Investigation	**Date:** February 2010
Description:	Brick fragments; evidence of in-situ waste	

Photo Name:	"TP06 wall4"	**Photograph 7**
Document Citation:	Phase II Site Investigation	**Date:** February 2010
Description:	Black ash; evidence of in-situ waste	

Photo Name:	"TP07 pit"	**Photograph 8**
Document Citation:	Phase II Site Investigation	**Date:** February 2010
Description:	Black ash; evidence of in-situ waste	

Photo Name:	"TP07 wall1"	**Photograph 9**
Document Citation:	Phase II Site Investigation	**Date:** February 2010
Description:	Black ash; evidence of in-situ waste	

Photo Name:	"TP08 sidewall2"	**Photograph 10**
Document Citation:	Phase II Site Investigation	**Date:** February 2010
Description:	Black ash; evidence of in-situ waste	

Photo Name:	"TP09 sidewall1"	**Photograph 11**
Document Citation:	Phase II Site Investigation	**Date:** February 2010
Description:	Black ash; evidence of in-situ waste	

Photo Name:	"TP10 sidewall2"	**Photograph 12**
Document Citation:	Phase II Site Investigation	**Date:** February 2010
Description:	Black ash; evidence of in-situ waste	

Photo Name:	"TP11 frontwall"	**Photograph 13**
Document Citation:	Phase II Site Investigation	**Date:** February 2010
Description:	Black ash; evidence of in-situ waste	

Photo Name:	"TP12 pit 3"	**Photograph 14**
Document Citation:	Phase II Site Investigation	**Date:** February 2010
Description:	Black ash; evidence of in-situ waste	

Photo Name:	"TP13 excavation2"	**Photograph 15**
Document Citation:	Phase II Site Investigation	**Date:** February 2010
Description:	Black ash; evidence of in-situ waste	

Photo Name:	"TP14 backwall"	**Photograph 16**
Document Citation:	Phase II Site Investigation	**Date:** February 2010
Description:	Black ash; evidence of in-situ waste	

Photo Name:	"TP15 sidewall1"	**Photograph 17**
Document Citation:	Phase II Site Investigation	**Date:** February 2010
Description:	Black ash; evidence of in-situ waste	

Photo Name:	"PXL_20201110_164810714"	**Photograph 18**
Document Citation:	UST Removal	**Date:** November 2020
Description:	Yellow glass fragment; evidence of glass (cullet)	

Photo Name:	"PXL_20210106_192348336"	**Photograph 19**
Document Citation:	Well Development	**Date:** January 2021
Description:	Glass fragment; evidence of glass	