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New York State Department of Environmental Conservation

Site Number 7-54-012

Tioga Casting Site Quarterly Report

First Quarter 2012

April 2012

ARCADIS MALCOLM PIRNIE

Tioga Castings Site Quarterly Report

First Quarter 2012

Site Number 7-54-012

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1. Introduction

The New York State Department of Environmental Conservation (NYSDEC) has issued a Work Assignment (# D004443-8) to Malcolm Pirnie, Inc (Malcolm Pirnie), for Operation, Maintenance, and Monitoring at the Tioga Castings Site (NYSDEC site number 7-54-012) in New York State. Malcolm Pirnie has prepared this Quarterly Report in accordance with the NYSDEC-approved Site Management Plan (SMP) to summarize first quarter 2012 operation and maintenance (O&M) activities.

2. Site Description

The Tioga Castings site is located on Foundry Street, Owego, Broome County, New York. The former foundry buildings have been razed, leaving the concrete slabs in-place. A capped, closed landfill is present at the western end of the site. In August 2011, the boundaries of the site (originally encompassing approximately seven acres) were reduced by the NYSDEC to only include the approximately one acre landfill (Figure 2-1).

3. Landfill Cap Repair and Maintenance

3.1 Background

On September 29, 2011, Malcolm Pirnie performed a site inspection to assess the site for any damage caused by Tropical Storm Lee. Based on the inspection, the north and south sides of the landfill contained evidence of soil failure and minor slumping on the banks, apparently due to flooding. The NYSDEC was notified of the damage on September 30, 2011.

Malcolm Pirnie submitted an opinion of probable costs for the repairs to the NYSDEC on October 5, 2011.

A site meeting was held on February 10, 2012, between NYSDEC, Malcolm Pirnie, and the NYSDEC Call-Out-Contractor (Aztech Technologies (Aztech)) to assess damage to the landfill cap and to discuss inspection and repair procedures.

Malcolm Pirnie submitted a draft Scope of Work for the landfill cap inspection, repairs, and brush removal to the NYSDEC on February 13, 2012. The NYSDEC approved the Scope of Work with one minor revision on February 15, 2012.

At the request of NYSDEC, Malcolm Pirnie prepared a notification letter indicating the intent to perform repairs at the landfill. The notification letter was submitted to "interested parties" identified in the SMP on February 17, 2012.

3.2 Landfill Cap Inspection

Landfill inspection and repair work was initiated on February 27, 2012 by Aztech. A photograph log documenting the inspection and repair procedures is provided in Appendix A. A summary of events is presented below:

- Soil was removed from the two damaged areas of the landfill with an excavator and hand tools.
- The geo-composite drainage net was cut to expose the underlying high density polyethylene (HDPE) liner. Wrinkles and folds were observed in the HDPE liner.

- The limits of the excavations were extended to determine the extent of the folds and wrinkles in the liner.

- Exploratory trenches which extended towards the center of the landfill. The trenches were used to inspect the integrity of the liner from the excavated areas towards the middle of the landfill. The exposed liners in these trenches were intact and no visible damage was uncovered.

- The landfill anchor trench was exposed and inspected. No visible signs of damage were found.

- No visible perforations were observed in the HDPE liner during the inspection process.

3.3 Liner Repair

Chenango Contracting Inc. (Chenango) was retained to remove the wrinkles and folds in the landfill liner. The repairs were performed on March 6, 2012 using the following procedures:

- The exposed liner wrinkles and folds were removed by cutting out excess liner material and flattening folds.

- Using a scrap piece of liner material, Chenango performed several destruction weld tests. Base on the testing, Chenango determined that a weld temperature of 500^{o}F would provide the strongest and most durable repair.

- The liner was prepared for welding by using a grinder to roughen the cut edges of liner material. The edges of the liner were then overlapped and temporarily held together using a specialized heat gun. An extrusion welder was used to permanently bond the joints in liner.

- Pressure testing was performed to evaluate the integrity of the liner welds using a vacuum box. No leaks were detected at any section of the repaired liner.

- Chenango sewed all openings in the geo-fabric material and restored the geo-composite drainage net, as necessary. The geo-net material seams were covered with non-woven fabric and listered using zip ties.

- The cap was restored/backfilled using salvaged barrier soil.

- A geo-grid material was placed in the salvaged barrier soil at approximately 1.5 feet below ground surface (bgs) to provide additional structural stability and reduce the potential for future soil failure.

- The exposed areas of the landfill were seeded and mulched.

All repairs were completed on March 8, 2012.

3.4 Brush Removal

Aztech removed all brush and trees (woody vegetation) from the interior of the landfill perimeter fence between February 27, 2012 and March 8, 2012 to reduce the potential for their roots damage to the landfill cap. All tree stumps were cut to grade and large branches mulched using a wood chipper. All brush and wood chippings were loaded into a 10 yard container and disposed off-site.

4. Operation and Maintenance

Operation and Maintenance (O&M) activities were performed on March 23, 2010 in accordance with the NYSDEC-approved SMP. A Post Closure O&M Checklist (Appendix B) was used to document the current status of the landfill, including security and landfill cap maintenance and repairs. Site photographs taken during the landfill inspection are also provided in Appendix B. The next O&M event is scheduled to be performed during the second quarter 2012.

4.1 Landfill Security

The landfill perimeter fence, entry gate, and locks were inspected for proper operation and signs of deterioration. As indicated in the O&M Checklist, no problems were observed with the integrity of these components. In addition, the Foundry Street entry gate warning sign was in place and in acceptable condition.

4.2 Landfill Cap Maintenance

A visual inspection of the landfill cap was performed to assess the landfill for burrowing rodents, erosion, woody vegetation, and settlement. In addition, the landfill cap was inspected to evaluate the condition of the cap following the repairs discussed in Section 3.

As shown in the O&M Checklist (Appendix B), one burrowing rodent hole was found along the west slope of the landfill. The hole was filled with soil and marked with a flag for future inspection.

The condition of the landfill cap was in acceptable condition. As indicated in the O&M checklist, the no grass was growing in the seeded and mulched area were landfill repairs were performed.

As indicated in Section 3.4, all woody vegetation was removed from the inside of the landfill perimeter fence by Aztech between February 27, 2012 and March 8, 2012.

5. Recommendations

No recommendations are suggested at this time.

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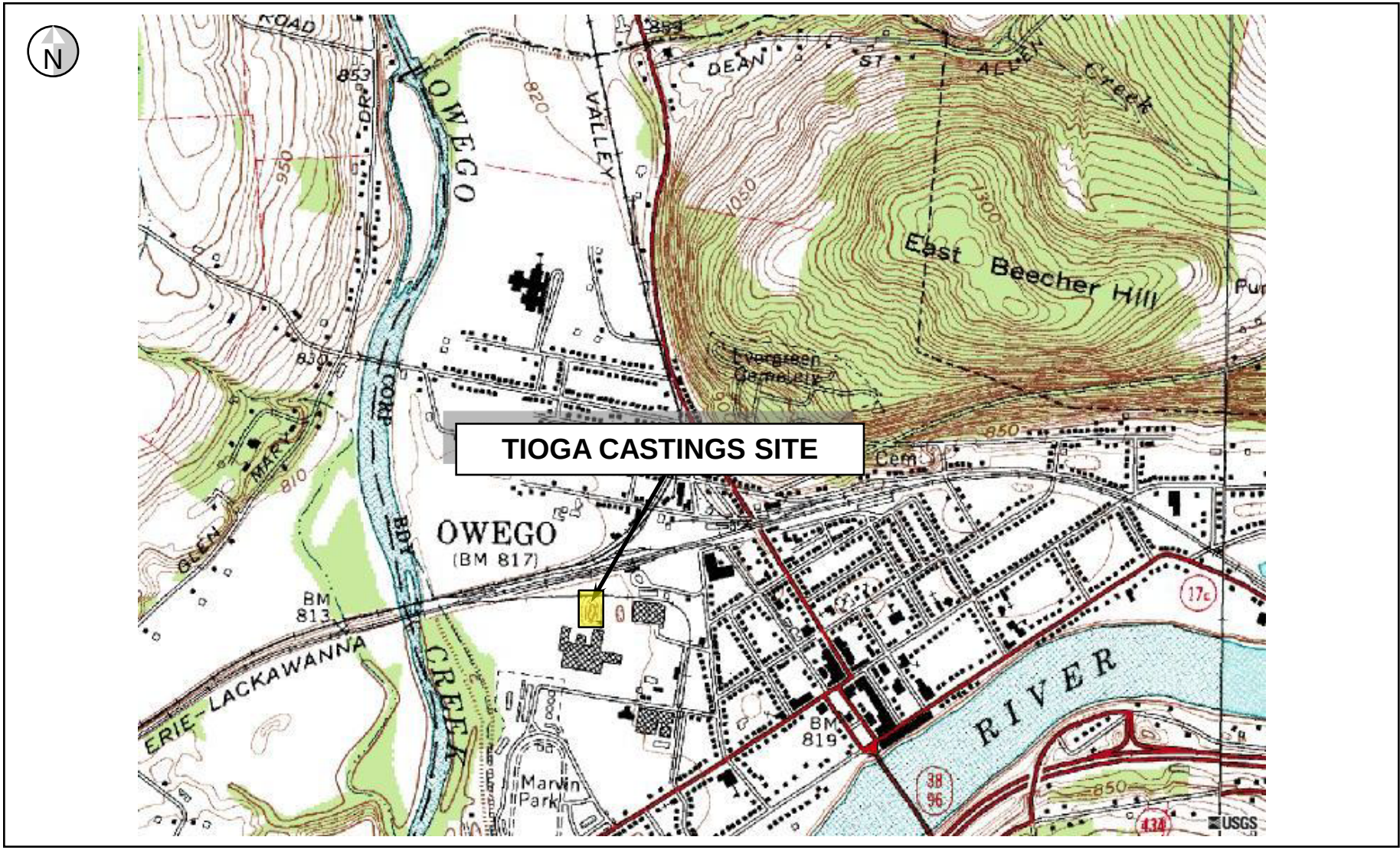
Figure 2-1
Site Location
Tioga Castings Site
NYSDEC Site Number 7-54-012
Owego, New York

0 2,000 ft



Source: USGS 7.5-minute Series Topographic Quadrangle, OWEGO (1990).

G:Project/0266362/File/Reports/1st Qtr 2012/Figure 2-1.ppt

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Appendix A

Landfill Repair Photograph Log

2/27/2012 1130

Northeast corner prior to start of work.

2/27/2012 1130

Liner visibly protruding through surface material.

2/27/2012 1258

Aztech uncovers damaged area in southwest corner.
Soil removed by hand to avoid damaging fabric or liner.

2/27/2012 1305

2/27/2012 1306

Inspecting fabric and liner.

2/27/12 1334

The exposed liner with wrinkles.

2/27/2012 1338

Liner folds flatten as they extend to the east.

2/27/2012 1457

Aztech exposing liner with hand tools.

2/27/2012 1511

Liner fold in the northeast area.

2/28/2012 1113

Liner fold extends approximately 50’.

2/28/2012 1115

Northeast area - Folds flatten at
the east and west extent of the excavation.

2/28/2012 1132

Exploratory trench extending towards the center of the landfill.
No visible damage to fabric seams or liner.

2/28/2012 1209

Anchor trench inspected for damage or displacement.

2/28/2012 1210

No damage or displacement to southern edge of anchor trench.

2/28/2012 1218

Edge of Anchor trench and fabric approximately 6’ from eastern fence. No damage observed in northen anchor trench.

2/28/2012 1220

2/29/2012 1018

Brush stock pile.

2/29/2012 1054

Southern fence boundary prior to brush removal.

2/29/2012 1359

Southern fence boundary after brush removal.

2/29/2012 1359

Southern fence boundary looking west.

2/29/2012 1359

Eastern fence boundary after brush clearing.

3/1/2012 1145

Brush cleared to Northwest corner.

3/1/2012 1428

10 yard container and wood chipper used to manage brush and wood debris.

3/1/2012 1428

Approximately 10 yards of wood chips created during brush removal.

3/6/2012 0941

Chenango Contracting Inc. on-site to make liner repairs.

3/6/2012 0944

The liner is cut and slack removed.

3/6/12 0951

Preparing liner weld test strip.

3/6/2012 0953

3/6/2012 0954

Grinding the weld connection prior to weld and stress testing.

3/6/2012 1047

Extrusion welding of the test strip at 500 degrees F.

3/6/2012 1101

Stress testing the strength of the weld.

3/6/2012 1123

Expanding the northwest excavation area further west.

3/6/2012 1156

Welding of the liner area after folds and slack was removed.

3/6/2012 1214

3/6/2012 1341

Finished patches and welds.

3/6/2012 1342

3/6/12 1342

Southwest area liner welds.

3/6/2012 1347

3/6/2012 1517

A heat gun is used to flatten folds in the liner.

3/6/2012 1534

Grinding the edge of the patch to prep for extrusion welder.

3/6/2012 1539

Grinding new seam in northeast area.

3/6/2012 1559

Extrusion welding new seam in the northwest area.

3/6/2012 1602

Finished liner repair. Folds and wrinkles removed.

3/6/2012 1611

Prepping the weld with a soapy solution for vacuum testing.

3/6/2012 1611

Vacuum testing of liner weld. No leaks found.

3/6/2012 1611

3/7/2012 1447

Geo-fabric stitched and laid back into place prior to backfill.

3/7/2012 1447

3/7/2012 1450

Hand held sewing machine. Every seam re-stitched.

3/7/2012 1453

3/7/2012 1557

Backfilling repair areas.

3/7/2012 1557

3/8/2012 1000

Backfilled and graded.

3/8/2012 1200

Rake and seed backfilled areas.

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Appendix B

Post-Closure Operation and Maintenance Checklist

TIOGA CASTINGS SITE LANDFILL

Post-Closure Operation and Maintenance Checklist

Inspected by: Jeremy Wyckoff

Date: 3/23/2012 Time: 15:15

Weather Conditions: Overcast ~70 degrees F.

LANDFILL COVER SYSTEM

Erosion		YES	X	NO
Holes or Cracks in Cover		YES	X	NO
Cap Settlement		YES	X	NO
Ponded Water or Wet Areas		YES	X	NO
Burrowing Rodents	X	YES		NO
Sparse Vegetation/Bare Soil		YES	X	NO
Brush or Other Woody Vegetation,		YES	X	NO
Excessive Weeds in Grass		YES	X	NO
Grass Mowed		YES	X	NO

DRAINAGE DITCHES

Erosion		YES	X	NO
Obstructions		YES	X	NO
Sediment Accumulation		YES	X	NO
Evidence of Surcharging		YES	X	NO
Presence of Brush		YES	X	NO

Comments: Landfill cap repairs completed. No grass growth in seeded areas.

Rodent burrow on west slope of landfill. Filled and marked burrow with pin flag.

All brush removed from inside of landfill perimeter fence.

Continued

FENCING

Warning Signs	X	OK		OTHER
Gates and Locks	X	OK		OTHER
Posts	X	OK		OTHER
Top Tension Wire	X	OK		OTHER
Barbed Wire	X	OK		OTHER

Comments: _____

_____

MONITORING WELLS

Capped and Locked	X	YES		NO
Casing Damage		YES	X	NO

Comments: _____

_____

INSPECTOR'S SIGNATURE _____ DATE _____

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Appendix B
Post-closure Site Photographs

Tioga Castings Site
NYSDEC Site #7-54-012
Owego, New York

Landfill Access Gate

South edge of landfill – looking west

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Appendix B
Post-closure Site Photographs

Tioga Castings Site
NYSDEC Site #7-54-012
Owego, New York

Southwest landfill repair area – looking west.

Southwest landfill repair area – looking east.

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West side of landfill – looking north. Pink pin flag shows location of rodent burrow.

Close-up of filled rodent burrow.

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Post-closure Site Photographs

Tioga Castings Site
NYSDEC Site #7-54-012
Owego, New York

North side of landfill – looking east.

Northeast landfill repair area – looking east.

Northeast landfill repair area – looking west.

East side of landfill – looking south.

Landfill – looking northwest.

Landfill – looking southwest.

Landfill – looking southeast.

Landfill – looking northeast.