DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

RCRA Corrective Action
Environmental Indicator (EI) RCRAInfo code (CA725)
Current Human Exposures Under Control

Facility Name: **Tioga Casting**
Facility Address: **Foundry Street Owego, NY**
Facility EPA ID #: **NYD002245819**

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EIs) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EIs developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EIs are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRA Info national database ONLY as long as they remain true (i.e., RCRA Info status codes must be changed when the regulatory authorities become aware of contrary information).

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

   X If yes - check here and continue with #2 below.

   ____ If no - re-evaluate existing data, or

   _____ If data is not available skip to #6 and enter "IN" (more information needed) status code.

Background -

The Tioga Casting Facilities in Owego is now shutdown, but during the time it was operating, from 1945-1988, significant amounts of hazardous and non-hazardous wastes were dumped on the plant property. It is estimated that approximately 30 tons of cupola dust were left on site. This dust was sampled, tested, and found to be a hazardous waste based on an E.P. Toxicity (EPTOX) test for lead. Along with the cupola dust, a number of other wastes were left abandoned on the property after it was shutdown. The unsecured waste at the facility was located adjacent to a school building. A fire occurred at the facility on July 19, 1989, and severely damaged the old foundry building. In August of 1989, a chain link fence was installed around the perimeter of the site in order to restrict access. By January of 1990, an Interim Remedial Measure (IRM) was completed to remove the cupola dust and the 100 (+/-) drums of waste that had been left on the property. In 1991, dust and asbestos inside the building were removed and afterward a large part of the building was torn down. A temporary cover was placed over the on-site landfill in the summer of 1991.

An attempt to make the PRP fund the cost of a Remedial Investigation/Feasibility Study (RI/FS) was unsuccessful. Consequently, the RI/FS was funded by the State Superfund (SSF). The RI/FS was completed in December of 1994. The Proposed Remedial Action Plan (PRAP) was issued for public comment in January of 1995. A Record of Decision (ROD) was issued in March of 1995, and called for the consolidation of on-site wastes and placement of a cap on the existing on-site landfill. The design was completed in 1996, and construction was completed in the summer of 1997.

Subsequent to the remedial action, additional investigation was required because more contaminated fill-soil was found under a building foundation. An IRM addressing this new area of contamination was completed in the fall of 2000. Asbestos debris piles, drums of slag and an asbestos contaminated building were removed from the site by the EPA in 2001.

In 2008, a site investigation was conducted and concluded that there is no significant amount of contamination under the slab. In April of 2009 the perimeter fence around the eastern portion of the site was removed. The fence around the landfill portion remains in place. Site management consisting of groundwater monitoring and landfill maintenance continues. A site reclassification from a class 2 to a class 4 is currently in process by the State. As part of this reclassification, the site boundaries will be redefined and the uncontaminated portion will be delisted. However, for

the purpose of RCRA, this area is still considered part of the entire site.

There was soil and groundwater contamination at this site caused by lead. Most of the waste that was abandoned on the site was exposed to the elements. The abandoned cupola dust and the drums were removed in 1990. There is also a small landfill at the rear of the facility that was used for disposal of foundry waste including cupola dust. This landfill was used for consolidation of wastes and was capped and closed in 1997. An IRM to deal with contaminated fill found under a building was completed in the fall of 2000. Recent monitoring data shows that lead is still present in the groundwater but at levels well below groundwater standards. In July 2008, a site investigation was conducted to determine if any contaminants of concern (COC) remain on site. Although there was a detection of the soil cleanup levels of copper in boring SB-14, an detection of lead in boring SB-19 Tioga Casting Site, August 2008 (Investigation), and an exceedance of 1,1,1-trichloroehtane in a soil vapor sample (location SV-2) as referenced in Investigation, there are no other results from locations in the surrounding media which exceed cleanup standards. Confirmatory sub-slab vapor samples were collected in December of 2010 with results showing no exceedances of action limits.

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	YES	NO	?	Rationale/Key Contaminants
Groundwater	X			IAW SMP/Metals and VOC
Air (indoors)[2]		X		
Surface Soil (e.g., <2 ft)	X			IAW SMP/Lead, Cupola Dust, and VOC
Surface Water		X		
Sediment		X		
Subsurface Soil (e.g., >2 ft)	X			IAW SMP/Lead, Cupola Dust, and VOC
Air (outdoors)		X		

IAW-In accordance with
SMP-Site Management Plan

_____ If no (for all media) - skip to #6, and enter "YE," status code after providing or

[1]"Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

[2]Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggests that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

__X__ If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

_____ If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s):

All media listed in the table above with an "X" in the yes column continues to be sampled in accordance with the Tioga Casting Site Management Plan.

Site-specific cleanup goals		
	SOIL	GROUNDWATER
Cadmium	10 ppm	10 ppb
Chromium	50 ppm	50 ppb
Lead	250 ppm to 12" 500 ppm below 12"	25 ppb

Investigation Report, Tioga Casting Site, August 2008 (Investigation)

3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

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Summary Exposure Pathway Evaluation Table

	Potential **Human Receptors** (Under Current Conditions)						
"Contaminated" Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
Groundwater	NO	NO	NO	NO	NO	NO	NO
Soil (surface, e.g., <2 ft)	NO	NO	NO	NO	NO	NO	NO
Sediment							
Soil (subsurface e.g., >2 ft)	NO	NO	NO	NO	NO	NO	NO
Air (outdoors)							

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated" as identified in #2 above.

2. enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

__X__ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.

_____ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code

Rationale and Reference(s):

The Tioga Casting Facility ceased operation in 1988. In 1989 the building was destroyed by fire.
The contamination (cupola dust, lead and asbestos) was consolidated into the landfill located at the rear of the property. The landfill consists of a final cover layer over the fill material, a 60-mil geomembrane, a geocomposite drainage layer, an 18-inch thick barrier protection layer, a 6-inch-thick vegetative layer and vegetative cover material (i.e.grasses). The purpose of this system is to:

- Eliminate the potential for direct human or animal contact with fill material and contaminated site soils; and
- Mitigate the migration of site contaminants from the landfill

Groundwater is sampled for metals and volatile organic compound (VOC) on a 5-quarter basis to ensure

[3] Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

no contamination migrates from the landfill.

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"**[4] (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

   ____ If no (exposures cannot be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

   ____ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

   ____ If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

   Rationale and Reference(s):

5. Can the "significant" **exposures** (identified in #4) be shown to be within **acceptable** limits?

   ____ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

   ____ If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

   ____ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

[4] If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

Rationale and Reference(s):

6. Check the appropriate RCRA Info status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

X YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the Tioga Casting Site, EPA ID NYD002245819 located on Foundry Street, Owego, NY under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

_____ NO - "Current Human Exposures" are NOT "Under Control."

_____ IN - More information is needed to make a determination.

Completed by: Payson Long Date: March 21, 2011
Payson Long, P.E.
Project Manager

Supervisor: Susan Edwards
Date: March 21, 2011
Susan Edwards, P.E.
Section Chief
Section D

Director: Date: 3/21/2011
Michael Cruden, P.E.
Bureau E
Division of Environmental Remediation

Locations where References may be found:

Town Hall
178 Main Street
Owego, NY 13827

Contact telephone and e-mail numbers:

Payson Long, P.E.
Project Engineer
(518) 402-9813
pdlong@gw.dec.state.ny.us

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.