



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

EPA Region 5 Records Ctr.



286341

REPLY TO THE ATTENTION OF

MEMORANDUM

SUBJECT: ENFORCEMENT ACTION MEMORANDUM: Determination of an Imminent and Substantial Threat to Public Health and the Environment at the Countywide Recycling & Disposal Facility Site, East Sparta, Stark County, Ohio (Site ID #B5FC)

FROM: James E. Augustyn, On-Scene Coordinator
Emergency Response Branch 1 – Removal Section 1

TO: Richard C. Karl, Director
Superfund Division

THRU: Jason H. El-Zein, Chief
Emergency Response Branch 1

I. PURPOSE

The purpose of this Action Memorandum is to document the determination of an imminent and substantial threat to public health and the environment at the Countywide Recycling & Disposal Facility (Countywide) Site. Countywide is a Subtitle D municipal solid waste (MSW) landfill which accepted for disposal aluminum production waste from approximately 1991 to 2006. The aluminum production waste, when exposed to water-based liquids, undergoes an exothermic reaction resulting in the creation of excessive heat and the generation of high levels of methane, ammonia, hydrogen, and acetylene gases.

The response actions proposed in this Action Memorandum will mitigate threats to public health, welfare, and the environment resulting from the presence of an uncontrolled subsurface reaction and/or fire at the Countywide Site. Due to the uncontrolled nature of the subsurface reaction and/or fire, the continued release of carbon monoxide, ammonia, hydrogen, and acetylene gases, and potential exposure of the public to these gases, this removal action will be classified as time-critical.

The proposed response actions include installation of an enhanced active gas extraction, collection & treatment system, installation of an enhanced temperature monitoring system, and development and implementation of a comprehensive landfill

cover plan. Additional actions include extensive air monitoring and sampling and monthly aerial thermal imagery fly over's.

The response activities will require approximately 180 working days to complete. Republic Services of Ohio II, LLC (Republic) is the current owner and operator of the facility.

There are no nationally significant or precedent-setting issues associated with the Site and the Site is not on the National Priorities List (NPL).

II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID # OHD 000 510 155

A. Physical Location and Description

The Countywide Site is located at 3619 Gracemont Street SE, East Sparta, Stark County, Ohio, 44626. Countywide is a solid waste municipal landfill owned and operated by Republic. Countywide is regulated under Subtitle D of the Resource Conservation Recovery Act. The facility is permitted and licensed by the Ohio Environmental Protection Agency (Ohio EPA) to accept solid waste as defined in the Ohio Revised Code. The facility has been in operation since 1991. Republic purchased and has operated the facility from March 1999 to the present. Countywide was designed and constructed with engineered systems to protect the environment, including a composite liner system, leachate collection system, and landfill gas collection and control system (GCCS). The geographical coordinates for the Countywide Site are longitude 81° 25' 53.66" West and latitude 40° 40' 18.43" North.

Republic estimates that Countywide accepted, as one of its waste streams, approximately 600,000 tons of aluminum process waste between 1993 and 2006. The majority of this material is described as "dross" or "salt cake." It is a by-product of the melting of aluminum with a salt flux. Other related aluminum-containing wastes disposed of at Countywide (at much smaller quantities) include cyclone and bag house dusts from various processes from both pre-processing and the melting of recycled aluminum. Aluminum waste reacts with water-based liquids to form ammonia, hydrogen, carbon monoxide, and acetylene gasses. In addition, excessive heat is generated due to the reaction.

In January 1998, Countywide's prior owner and operator submitted to the Ohio EPA an alteration request for authority to recirculate leachate at the facility. On March 3, 1998, Ohio EPA granted approval for the request. In July 2001, Republic was aware of elevated temperatures in landfill gas wells located in cells 3 and 4 and requested from the Canton Health Department higher operating temperature values for the facility. In

July 2001, Republic made a similar request for cells 2 and 4A. In 2003, a third request was submitted for Cell 6A.

Beginning in 2004, the City of Canton Health Department received 30 citizen odor complaints associated with the facility. In November 2004, Republic began the installation of landfill gas collection and control systems in the western part of the landfill to assist in the elimination of potential odors.

In December 2004, the Stark County Health Department issued Republic its 2005 operating license stipulating that Republic identify and install a fully operational odor suppression system. The system was required to be operational in conjunction with best management practices at the facility. In May 2005, Republic started operation of the odor suppression system. Additionally, in June 2005, Republic completed construction and started operating the GCCS.

From June 2005, through the middle of December 2005, only four odor complaints were received by the Canton Health Department. Beginning in December 2005, Republic identified landfill gas (LFG) wells with higher than expected temperatures. During this time, increased odors were being attributed to the landfill. From January through August 2006, the Canton Health Department received over 660 odor complaints. As many as 25 complaints were received in a single day.

In 2006, Republic observed an unusual increase in well temperatures, leachate outbreaks, accelerated settlement, and an increase in odors. Republic undertook numerous activities to reduce odor generation from the landfill. Actions included, but were not limited to, discontinued leachate recirculation, discontinued acceptance of all aluminum production waste, installation of 38 additional LFG wells, upgrading and repairing various components to its gas collection system, more frequent temperature and well monitoring, and installing additional gas flares.

From May 2006 through December 2006, an area of the landfill experienced settlement of approximately thirty feet. A localized, section along the south toe of this area was observed to have moved laterally. Republic constructed a stabilizing berm to arrest the lateral movement and an approximately 30-acre temporary flexible membrane liner (FML) cap over the impacted area. Republic also discovered changes in the landfill gas composition, including a decrease in methane, an increase in carbon monoxide, and an increase in hydrogen concentrations.

In light of the odors attributed to Countywide, the Ohio EPA issued the first of six Director's Final Findings and Orders (DFF&Os) on September 6, 2006. The first Orders required Republic to conduct the following activities:

- Weekly monitoring and tuning of all gas wells and fields as required by 40 CFR, Part 60, Subpart WWW.

- Monthly surveying of intermediate cover condition, and as needed scarify and recompact the intermediate cover.
- Conducting vacuum surveys of the headers and lateral piping system.
- Identifying and sealing of locations allowing either the venting of landfill gas or the intrusion of air.
- Weekly monitoring of the strength, location, and time of any odor identified by facility personnel at the facility boundary and identification of the possible causes of that odor.
- Investigating all odor complaints to identify possible causes.
- Evaluating the current slope stability conditions in the affected areas.
- Monitoring landfill gas extraction wells for flow, temperature, methane content, and oxygen content.
- Sampling leachate and analyzing for Ohio EPA required parameters on an annual basis.

Between December 16, 2006, and February 16, 2007, over 150 odor complaints were registered against Countywide.

The Ohio EPA concluded that a fire was occurring in the landfill involving both the aluminum production waste and the MSW. The Ohio EPA issued Republic a second set of DFF&Os which became effective on March 28, 2007. The DFF&Os prohibited all leachate recirculation in the impacted 88 acre portion of the landfill. In addition, Republic was required to prepare and submit a Fire Suppression Plan (FSP). The DFF&Os specified that Republic should evaluate a minimum of four remedial alternatives in the FSP, including application of a magnesium chloride solution, application of specialty foams, excavation of the aluminum production wastes, and additional capping. The DFF&Os required Republic to conduct a comprehensive evaluation of subsurface conditions at the facility to evaluate the extent and magnitude of the reaction.

In a letter dated October 1, 2007, the Director of the Ohio EPA selected an interim remedial action for the Site and directed Republic to install an Isolation Barrier between Cells 8A and 8B. The Isolation Barrier would provide a physical separation which would eliminate the potential migration of the reaction into a permitted expansion area of the landfill.

On November 7, 2007, the Ohio EPA issued a third set of DFF&Os to Republic. The Orders directed Republic to aggressively reduce liquid in the explosive gas extraction system (EGES) and in the waste mass that was contributing to the reaction of the aluminum production waste and releasing significant amounts of heat. Data collected from the facility revealed the gas extraction wells contained liquid which prevented the gas collection system from functioning at peak efficiency. On December 6, 2007, the Director issued a fourth set of DFF&Os to Republic modifying certain requirements and extending deadlines.

On December 31, 2007, the Ohio EPA issued a fifth set of DFF&Os to Republic. The Orders directed Republic to install four large-diameter relief wells to recover and remove leachate from the waste mass. The Orders also specified requirements for liquid draw down in the existing gas extraction wells to improve their efficiency.

On February 7, 2008, the Ohio EPA issued a sixth set of DFF&Os to Republic. The Orders directed Republic to conduct additional air testing in the community and expanded the list of parameters to be analyzed

B. Environmental Justice Analysis

To meet Region 5's Environmental Justice (EJ) concern criteria, the area within 1 mile of a Site must have a population that is at least twice the state's average low-income percentage and/or twice the state's minority percentage. Among all Ohio residents, the low-income percentage is 30% and the minority percentage is 16%. To meet EJ concern criteria, the area must be at least 60% low-income and/or 32% minority. U.S. EPA's EJ analysis of the population within 2 miles of Countywide determined that the low-income percentage is 35% and the minority percentage is 2%. Therefore, the Countywide Site does not meet the Region's EJ criteria based on demographics, as identified in "Region 5 Interim Guidelines for Identifying and Addressing a Potential EJ Case, June 1998."

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Conditions present at the Countywide Recycling & Disposal Facility Site may constitute a threat to public health, welfare or the environment based upon the factors set forth in 40 C.F.R. § 300.415(b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). These include, but may not be limited to, the following:

- Actual or potential exposure to nearby populations, animals, or the food chain from hazardous substances or pollutants or contaminants.

Starting in 2004, and continuing to the present, hundreds of odor complaints have been registered with the Stark County Health Department. Over this time period, numerous air sampling events conducted by the Health Department, Ohio EPA, and Republic have

confirmed the presence of volatile organic compounds (VOCs) such as Benzene, Methylene Chloride, 1,2,4-Trimethylbenzene, and Trichloroethylene, all of which are hazardous substances as defined by Section 101(14) of CERCLA, 42 U.S.C. §9601(14) at off-site sampling locations. While these substances are commonly present in gas at municipal solid waste landfills, action is needed to determine if the reaction creates conditions that may inhibit effective collection and control of landfill gas. The ineffective collection and control of landfill gas might lead to an actual or threatened release of landfill gases that may contain hazardous substances. Several landfill experts from Ohio EPA, U.S. EPA, and retained by Republic's contractors have confirmed that a subsurface reaction continues in the landfill.

- Threat of fire or explosion.

A reaction involving aluminum production waste and producing elevated temperatures has been and still is occurring at the Countywide Facility. Surface manifestations of the reaction became evident during 2006. U.S. EPA believes that liquids in the landfill interacted with the aluminum production waste as follows:



The heat generated by the reaction may have caused pyrolysis to occur in the adjacent MSW. Pyrolysis is a chemical process brought about by heat which accelerates the decomposition of the waste. In areas where temperatures or moisture is not adequate for pyrolysis to occur, incomplete combustion of the waste may have occurred. In addition, the reaction is generating high levels of hydrogen, carbon monoxide and acetylene gases. These gases, in conjunction with the methane gas that is naturally generated at MSW landfills, create a dangerous mixture of gasses potentially creating an explosive atmosphere (i.e. flash-fire or surface fire) around the surface of the landfill.

From May 2006 to December 2006, part of the 88-acre reaction area experienced settlement of approximately 30 feet (landfill depth 200 ft). Carbon monoxide levels in the gas collection system of the Countywide Facility have been measured at levels up to 7,000 ppmv. This suggests rapid decomposition of the waste mass in the landfill and is evidence of accelerated biological decomposition, drying, pyrolysis, and possibly a subsurface fire.

According to 40 CFR 60.753(c) and Part 111, A.11.6 of the Title V operating permit, the facility is required to operate each interior wellhead in the gas collection system with a landfill gas temperature less than 55° C (131° F). Numerous gas collection wells in the affected area of the landfill have landfill gas temperatures in excess of 160° F. Some downhole well temperatures reached up to 230° F. In addition, Ohio EPA staff has reported to have observed what they described as fire-charred waste from drill cuttings in one boring. Gas monitoring probes installed pursuant to the November 7th DFF&Os (the SGP series wells), adjacent to the south toe of the 88-acre area and within the

facility boundary, exhibited methane concentrations up to 15.7%.

- The availability of other appropriate federal or state response mechanisms to respond to the release.

In a letter dated February 5, 2008, the Director of the Ohio EPA requested U.S. EPA's assistance in requiring Republic to perform a time-critical removal action to address potential threats posed by the reaction within Cells 1-6 at the Site. The Director's letter specifically requested that U.S. EPA require Republic to install a fire break at the Countywide Facility in the vicinity of cells 5 and 7 to prevent the reaction from migrating into Cell 7.

IV. ENDANGERMENT DETERMINATION

The conditions at the Countywide Recycling & Disposal Facility, the nature of the hazardous substance there, and the potential exposure pathways described above, including the actual or threatened release of toxic gasses from Countywide, if not addressed by implementing the response actions selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. PROPOSED ACTIONS

A. Description of the Proposed Action

The preferred response action to mitigate threats associated with the subsurface reaction and/or fire at the Countywide Facility consists of installing an enhanced active gas extraction, collection & treatment system, installing an enhanced temperature monitoring system, and installing a comprehensive landfill cover over all impacted landfill cells. The AOC will specify all required response actions, which will include, but may not be limited to, the following tasks:

Development of a Removal Work Plan that describes in detail the removal activities to be taken at the Site and which includes:

- a. Installation and operation of an enhanced active gas extraction system. This system will have the capacity to effectively redirect gasses from projecting toward Cell 7;
- b. Installation of an enhanced temperature monitoring system to accurately track the progression of temperatures toward Cell 7 and the western slope of Cells 1 through 6 of the landfill;

c. Development of a comprehensive landfill cover and or long term capping plan for Cells 1-6 that would include:

i. For areas that are deemed to be stable and not likely subject to untypical differential settlement, Republic shall install a "composite cap." The composite cap shall, at a minimum, meet the performance objectives of OAC Rule 3745-27-08(C)(4) and, further, be able to minimize, to the extent practical, fugitive emissions and oxygen infiltration; a composite cap is also expected to increase gas collection efficiency; and/or,

ii. Placement of an exposed geomembrane or other equivalent sealant over selected portions of the landfill where necessary and in areas that U.S. EPA considers unsuitable for a composite cap. The cover would more effectively capture landfill gases, the source of the offensive odors, and reduce precipitation infiltration into the impacted cells.

The landfill cover shall be designed considering gas collection system and leachate collection requirements. All systems shall be designed to support Ohio EPA's efforts to dewater the landfill and effectively capture landfill gases;

d. On-site disposal of any excavated MSW that may be specified in the Removal Work Plan into existing cells at the landfill as determined by the Ohio EPA;

e. Development of an Air Monitoring and Sampling Plan for selected VOCs to expand air monitoring and sampling efforts in order to yield data which can be used to assess potential exposures in the community and demonstrate the effectiveness of implemented control technologies. A record of sample locations and analytical results of sampling must be maintained and submitted to the Ohio EPA and U.S. EPA;

f. Stabilization of the area within which the removal action work is conducted, which may include backfilling/grading, storm water control, and erosion control; and

g. Conduct of monthly thermal imagery flights for the purpose of providing visual images of thermal activity in Cells 1 through 6, and provide a monthly report that includes an interpretation of the observations.

The response action will be conducted in a manner not inconsistent with the NCP. The OSC has initiated planning for provision of post-removal site control consistent with the provisions of Section 300.415(l) of the NCP.

The response actions described in this memorandum directly address actual or threatened releases of hazardous substances, pollutants, or contaminants at the

Countywide Recycling & Disposal Facility which may pose an imminent and substantial endangerment to public health, welfare and the environment. These response actions do not impose a burden on the affected property disproportionate to the extent to which that property contributes to the conditions being addressed.

These construction activities will require approximately 180 on-site working days to complete.

B. Applicable or Relevant and Appropriate Requirements

All applicable or relevant and appropriate requirements (ARARs) of Federal and state law will be complied with to the extent practicable. By letter dated February 8, 2008, Region 5 requested that Ohio EPA identify potential state ARARs for this response action. Any state ARARs identified in a timely manner for this removal action will be complied with to the extent practicable.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Continued risk to public health and the environment will result if the proposed response action is delayed or not taken. Delayed action increases the likelihood that human populations will be exposed to air releases from the facility.

VII. OUTSTANDING POLICY ISSUES

No outstanding policy issues have been identified in relation to the Countywide Recycling & Disposal Facility Site.

VIII. ENFORCEMENT

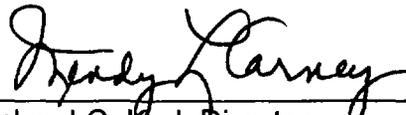
For administrative purposes, information concerning the enforcement strategy associated with this removal action is contained in a confidential Enforcement Addendum.

IX. RECOMMENDATION

This decision document represents the selected response action for the Countywide Recycling & Disposal Facility Site. It was developed in accordance with CERCLA as amended, and is not inconsistent with the NCP. This decision is based upon the Administrative Record for the removal action, an index of which is attached to this Action Memorandum.

Conditions at the Countywide Recycling & Disposal Facility Site meet the criteria of Section 300.415(b)(2) of the NCP for a removal action, and I recommend your approval

of the proposed removal action. Region 5 expects that the potentially responsible party will perform all removal actions under the oversight of the OSC. You may indicate your decision by signing below.

APPROVE:  DATE: 4/11/08
Richard C. Karl, Director
Superfund Division

DISAPPROVE: _____ DATE: _____
Richard C. Karl, Director
Superfund Division

Enforcement Addendum

Attachments:

1. Environmental Justice Analysis
2. Administrative Record Index

cc: David Chung, U.S. EPA, 5104A
Michael Chezik, U.S. Department of the Interior, **w/o Enf. Addendum**
Chris Korleski, Director, Ohio EPA, **w/o Enf. Addendum**
Marc Dann, Ohio Attorney General, **w/o Enf. Addendum**

**ENFORCEMENT ADDENDUM
COUNTYWIDE RECYCLING & DISPOSAL FACILITY SITE
EAST SPARTA, STARK COUNTY, OHIO
MARCH 2008**

(REDACTED 1 PAGE)

**ENFORCEMENT CONFIDENTIAL
NOT SUBJECT TO DISCOVERY**

ATTACHMENT 1

EJ ANALYSIS

**COUNTYWIDE RECYCLING & DISPOSAL FACILITY SITE
EAST SPARTA, STARK COUNTY, OHIO
MARCH 2008**

ATTACHMENT 2

ADMINISTRATIVE RECORD INDEX

COUNTYWIDE RECYCLING & DISPOSAL FACILITY SITE EAST SPARTA, STARK COUNTY, OHIO MARCH 2008

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10/01/07	Korleski, C. OEPA	Republic Services Of Ohio II, LLC	Letter – Installation of Firebreak as Interim Fire Suppression Measure	4
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