

HOPEDALE TOWNSHIP RESOLUTION

PC 9

WHEREAS, Tazewell County Landfill, Inc. ("TCL") is the owner and operator of Indian Creek Landfill located in Hopedale Township, Tazewell County, Illinois;

WHEREAS, on October 1, 2003, TCL and the County of Tazewell entered into a Host Community Agreement which was amended by a First Amendment to Host Community Agreement effective September 27, 2006 ("Host Community Agreement");

WHEREAS, on September 12, 2006, TCL and Hopedale Township entered into a Host Township Agreement ("Host Township Agreement");

WHEREAS, on March 28, 2007, the County of Tazewell granted local siting approval for an approximate 10,000,000 ton expansion of Indian Creek Landfill;

WHEREAS, in accordance with the procedures set forth in Section 32 of the Host Community Agreement, on May 30, 2007, the County of Tazewell authorized TCL to accept for disposal at Indian Creek Landfill De-Listed and De-Characterized Stabilized Residues from the Waste Stabilization Facility owned and operated by Peoria Disposal Company ("PDC"), an affiliate of TCL, located in Peoria County, Illinois;

WHEREAS, on April 25, 2008, PDC filed with the Illinois Pollution Control Board ("Board") a RCRA Delisting Adjusted Standard Petition petitioning for an upfront and conditional delisting for the stabilized residues generated by PDC from the treatment of K061 electric arc furnace dust generated by steel mills that produce steel using electric arc furnaces ("Treated K061 Residues");

WHEREAS, PDC would like to dispose of the Treated K061 Residues in Indian Creek Landfill;

WHEREAS, other than the County of Tazewell, Hopedale Township is the only local governmental entity having jurisdiction over Indian Creek Landfill;

RESOLVED, that Hopedale Township supports the RCRA Delisting Adjusted Standard Petition filed by PDC with the Board petitioning for an upfront and conditional delisting for the Treated K061 Residues;

FURTHER RESOLVED, that Hopedale Township supports the disposal of the Treated K061 Residues by TCL at Indian Creek Landfill.

ADOPTED on August 12, 2008.

Linda J. Slager Trustee
Bill Baker Road Commissioner
Del Alden Trustee
Don Seemans
108-1607
Daryl W. Birk Trustee

HOPEDALE TOWNSHIP

By: *Jess Slager*
Its: *Supervisor*
Harold Lee Schifano
TOWNSHIP CLERK

PCIO

Jerry & Carol VanWinkle
9731 W. Lamplighter Lane
Hanna City, IL 61536
309.565.7870 / vancj41@yahoo.com

August 18, 2008

Re: Illinois Pollution Control Board Hearing
August 18, 2008
Peoria Public Library

To Whom it May Concern:

Before a hazardous waste is sent to municipal landfills as 'safe', a study should be done (not just a few 'testings') to ensure the long term viability of a new treatment process.

Some of the treated material should be put in the conditions of a municipal landfill and over the course of several years the runoff, the condition of the treated material, and the safety of that material (did it break down? Did toxins leach from the treated material?) - we should do this to be safe before placing material in a municipal landfill; especially when that landfill is over an aquifer, and we are dealing with (the untreated) waste that will be hazardous for a long, long, time.

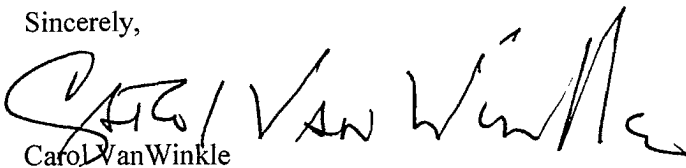
Another area of concern to me regarding this request; I understand the governing bodies controlling landfills in Tazewell County have given their agreement to have this waste put in their municipal landfills. PDC wants to landfill in their locations. If that is what Tazewell wants - so be it. But...does the permit application specify that PDC would NOT be able to place this material in our municipal landfill in Peoria County? PDC made a strong statement at the hearing that was their intent. We in Peoria County - from the Citizens to rulings by the County Board - have indicated very strongly we do NOT want an expansion of the hazardous landfill - and, quite frankly, are extremely suspicious that this is just another end run by PDC to accomplish their goal of staying in operation and land filling hazardous waste - regardless of what the County wants. And that this 'secret process' has not been tested sufficiently to determine whether it will stand the test of time.

Because of these concerns, I urge you to consider two things:

- One, testing the process over a period of at least a year to determine if it will stand up to conditions prevalent in a landfill - not just a test in a laboratory
- Two, requiring the waste - regardless of what it is eventually classified - not allowed to be put in a Peoria County landfill of any type.

I understand this has been a long and rigorous process for the Illinois Pollution Control Board, and I really do appreciate the response of the agency to the concerns of the citizens of Peoria County. We have never had so many people so involved in 'the process' on an issue. I think that speaks volumes, in and of itself.

Sincerely,


Carol VanWinkle



Keystone Consolidated Industries, Inc.
Keystone Steel & Wire – Peoria, Illinois
Keystone Wire Products – Sherman, Texas
7000 S.W. Adams Street • Peoria, IL 61641
309/697-7020 Phone • 309/697-7487 Fax
www.redbrand.com • www.keystonesteel.com

pell

August 18, 2008

Illinois Pollution Control Board
James R. Thompson Center
100 W. Randolph
Suite 11-500
Chicago, Illinois 60601

**Re: Keystone Steel & Wire Co.
Statement of Support
PDC K061 Delisting
Case Number AS 2008-010**

Dear Illinois Pollution Control Board:

My name is Chad Erdmann. I am the Environmental Engineering Manager at Keystone Steel & Wire Company (“Keystone”) located in Bartonville, Illinois. Keystone currently employs over 900 people. Even though Keystone is one of the largest recyclers in the area, we, like any other large industrial facility, have some process byproducts that must be handled as hazardous wastes under current environmental regulations. PDC has a strong history of environmental compliance, which is very important to Keystone. For many years these wastes have been transported, treated, and disposed of by PDC in an environmentally safe manner while still being convenient and cost effective.

If PDC would no longer have the capability to treat and landfill K061, Electric Arc Furnace Dust, in the near future, Keystone’s cost for waste disposal will increase significantly because of high transportation costs to the next nearest facility capable of receiving K061 hazardous waste. It is a short trip from Keystone’s facility to the PDC waste stabilization plant and Indian Creek Landfill. Currently, at PDC’s facilities the wastes are stabilized and treated as necessary to meet stringent land ban requirements before being placed in the landfill cell.

PDC is a valuable supplier in Keystone’s business plan moving forward. Keystone has followed PDC’s K061 Delisting Petition Application and supports Illinois EPA’s “Response to RCRA Delisting Adjusted Standard Petition” submitted on June 12, 2008 to the Illinois Pollution Control Board.

Keystone holds PDC’s environmental stewardship in high regards and supports this K061 Delisting Petition Application.

Sincerely,

Chad Erdmann
Manager, Energy & Environmental Engineering
On behalf of Keystone Steel & Wire Co.

Gerdau Ameristeel Comments in Support Of the PDC K061 Delisting Petition Public Hearing, Monday Aug. 18, 2008



Monday, August 18, 2008

PCLZ

Good afternoon; My name is Jack Skelley and I am here today on behalf of Gerdau Ameristeel to offer our support for the Peoria Disposal Company Delisting Petition Application. My current position is serving as a Corporate Environmental Affairs Manager for Gerdau Ameristeel based at the Wilton, IA Steel Mill.

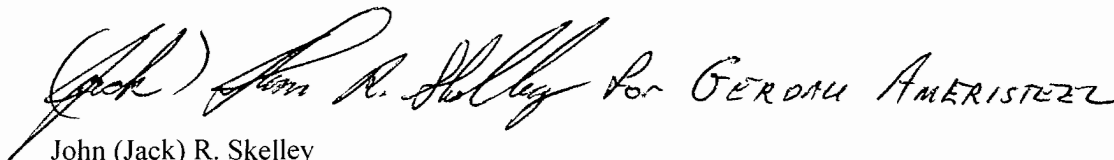
Gerdau Ameristeel¹ is first and foremost a recycling company. Our preference is to recycle, but in the case of EAF dust, there is not enough capacity to recycle the annual North American production of 800,000-1,100,000 tons. Secure, well-run treatment and landfill operations like PDC No. 1 are critical to the steel industry until such time as there is sufficient capacity to recycle all the EAF Dust produced annually. There are a number of recycling projects being conducted worldwide to solve the EAF dust recycling challenge, however it will be a number of years before enough commercial recycling capacity is available. Therefore, PDC's K061 delisting petition is crucial to meet the EAF dust capacity requirements in the interim.

Peoria Disposal Company is one of Gerdau Ameristeel's approved strategic regional suppliers in our MRO purchasing program for our Wilton, IA, St. Paul, MN, and Jackson, TN mills. As an approved supplier, Gerdau Ameristeel has monitored the delisting petition application process, as PDC's continued service is a key component to our environmental program.

Gerdau Ameristeel supports the conclusions of the Illinois EPA in the "RESPONSE TO RCRA DELISTING ADJUSTED STANDARD PETITION" submitted by William D. Ingersoll-Manager, Enforcement Programs-IEPA to the Illinois Pollution Control Board on June 12, 2008. PDC has shown with thorough, objective, scientific data that the treated K061 is environmentally stable and safe. In addition the Indian Creek Landfill exceeds the design requirements for a subtitle D landfill and will be an environmentally sound facility to store the treated K061.

PDC's environmental performance record is unmatched in the landfill industry, which is well known and highly respected in the steel industry. Gerdau Ameristeel, as a current customer, has great confidence in PDC and their future. We therefore respectfully urge you to support the K061 Delisting Petition application.

THANK YOU



John (Jack) R. Skelley
Corporate Environmental Affairs Manager
Gerdau Ameristeel Wilton

¹ Gerdau Ameristeel is the fourth largest overall steel company and the second largest minimill steel producer in North America. Our company has the capacity to manufacture over 12 million tons of mill finished steel products annually. Gerdau Ameristeel serves customers throughout North America through an integrated network of minimills, steel scrap recycling facilities, and downstream operations.

August 18, 2008

To: The Illinois Pollution Control Board

PCB

Regarding: Case Number AS 2008-10
Peoria Disposal Company Filing
to Delist Electric Arc Furnace Dust Waste

Comments for the Public Hearing in Peoria:

My name is Rudy Habben. I reside at 3732 North Monroe, Peoria Heights, IL 61616. I am currently Vice Chairman of the Heart of Illinois Group Sierra Club and I wish to state my great concerns about this delisting.

I am concerned that the Illinois Environmental Protection Agency only says in its June 12th, 2008, comment letter:

“... that PDC's request... will likely meet the required level of justification with some additional information

I respectfully wish to point out that “ will likely “ is a very open-ended way to consider a regulation that could impact municipal waste landfills and area water resources across Illinois for years, and years, and years to come.

This delisting should be denied. PDC should not be allowed to send treated Electric Arc Furnace Dust Waste to any Subtitle D Municipal Waste landfill in Illinois. I also think PDC should not be allowed to delay reaching capacity of their Hazardous Waste Landfill at Peoria until 2018, and that it should be closed next year.

Because this delisting could impact municipal waste landfills across Illinois, I think a second hearing must be held. I request that the Illinois Pollution Control Board hold a public hearing in Clinton.

Thank you for the opportunity to comment at this hearing.

Sincerely,



Rudy Habben
3732 N. Mohroe
Peoria Heights, IL 61616

To or waste landfill - duty from Tazewell Co

To: Illinois Pollution Control Board, public hearing
Re: Case No. AS 08-10

August 18, 2008

Peoria Disposal Co. (PDC) request to delist EAF dust as "hazardous waste."
From: Tom Edwards, 902 W. Moss Ave, Peoria, IL 61606

PC14

I request that Peoria Disposal Co.'s appeal to the IPCB to uphold delisting electric arc furnace dust (EAF) as a KO61 hazardous waste after going through secret "proprietary stabilization technology," be summarily rejected because of PDC's denial of any public disclosure of the process itself, and ^{of the} ~~proof~~ of any short or longterm effectiveness and safety. The public's right of due process is, therefore, being violated because it has no way to consider let alone respond to the PDC request for exemption from the hazardous waste classification.

Dust from where the samples come from

Where did samples come from

PDC wants to have the highly hazardous electric arc furnace wastes from, so far, at least 10 steel manufacturers from throughout the Midwest brought to its hazardous waste landfill adjoining Peoria's west side to go through this secret processing to, theoretically, "reduce" its toxicity by, at least temporarily, immobilizing (but not removing) the bevy of toxic materials in the waste to qualify it as a non-hazardous. It could then be re-shipped, PDC says, to local municipal waste dumps.

Since this steel mill furnace dust is loose and fluffy, it is now also mixed with soil or non-hardening cement to hold it stable, i.e., keep it from blowing away. But this "dilution" of toxic waste with regular soils is not now permitted to be considered as a reduction of the toxic hazard of the original chemical waste. PDC would have the law changed to permit this, too. This is termed "solution by dilution."

There are many contaminants listed in the steel mill wastes, both metals and chemicals, including very toxic lead and mercury, which will also volatilize into the air.

Under its proposed permit change PDC would be allowed to truck in 95,000 cubic yards of such waste per year for so-called "treatment" at the PDC landfill adjoining Peoria (at Pottstown). After this treatment, if it proves effective, the waste would be reloaded onto trucks and taken to one or more other local landfills for non-hazardous municipal waste.

If 95,000 cubic yards were stacked vertically yard by yard, it would be a tower 54 miles high. At a 5-yard per load truck trip, it would be 19,000 trips into PDC's Peoria dump site, then probably re-trucked 30 miles to PDC's regular landfill in Tazewell County.

work not allow air

PDC's landfill for hazardous ^{they are dangerous} toxic wastes is one of only 16 such commercial landfills still operating in the nation, and the only one in the top half of the nation from 50 miles this side of Indianapolis to the Rocky Mts. The Indiana one is closer to Chicago and Milwaukee and the entire east side of Illinois, and is centrally located for Indiana, Ohio, Michigan, and the bulk of Kentucky and Tennessee.


We need to work with EPA & PDC to find a safe place in a landfill, land above the

Tom Edwards

Tom Edwards



SIERRA
CLUB
FOUNDED 1892

Heart of Illinois Group  P.O. Box 3593, Peoria, IL 61614

PCIS

August 18, 2008

TO: Illinois Pollution Control Board
100 W. Randolph Street, Suite 11-500
Chicago, IL 60601

RE: List of Exhibits & Exhibits /HOI Sierra /Blumenshine
for the August 18, 2008, IPCB Public Hearing in Peoria
Case No. As 08-10

Hearing Officer Webb and Members of the Illinois Pollution Control Board,

Attached to this cover page are exhibit documents presented by Joyce Blumenshine
at the August 18th hearing.

Sincerely,



Joyce Blumenshine
volunteer, Heart of Illinois Sierra
2419 E. Reservoir
Peoria, IL 61614-8029

LIST OF EXHIBITS:

1. US Army Corps of Engineers Public Notice CEMVR-OD-P-2006-801, June 5, 2007 *and #1A (below)*
2. "Wetland" from Wikipedia, the free encyclopedia Internet source
3. United Nations World Health Association "Dioxins and their effects on human health" Internet Source
4. email from Charles Norris, IL Professional Geologist, Lic 196.001082

#1A - Letter from Dr. Cindy Skrakvad, Ph.D., Illinois Sierra Club's Clean Water Advocate, to U.S. Army Corps



PUBLIC NOTICE

#1
Blen...

US Army Corps
of Engineers
Rock Island District

Applicant: Tazewell County Landfill

Date: June 5, 2007

Expires: July 4, 2007

CEMVR-OD-P-2006-801

Section: 404

Joint Public Notice
US Army Corps of Engineers
Illinois Environmental Protection Agency
Illinois Department of Natural Resources / Office of Water Resources

1. **Applicant.** Tazewell County Landfill, Post Office Box 9071, Peoria, Illinois.

2. **Project Location.**

- Sections 20, 29, Township 23 North, Range 3 West; approximately 2 miles west of Hopedale, Tazewell County, Illinois; wetland area and an unnamed tributary to Indian Creek.
- Datum NAD-83. UTM Zone 16, Northing 4 477 017, Easting 290 820.
- Latitude: 040.4175. Longitude: -089.4655.

3. **Project Description.** Tazewell County Landfill, Inc. proposes to expand the current landfill operations at Indian Creek Landfill #2 by an additional 140 acres. The additional area measures approximately 140 acres, including perimeter buffer areas, retaining walls, and sediment basin. Approximately 0.89 acres of emergent wetland on the property will be filled by the expansion.

Mitigation. The proposed mitigation area is located approximately 200 feet to the south of the impact site. The mitigation area will comprise 1.3 acres, which is a mitigation ratio of 1.5:1. The site is a grassy pasture. Approximately 2 to 3 feet of material will be excavated to contact the groundwater table. Excavated soil will be removed from the site but will be stockpiled within the boundary of the property. The applicant intends to allow vegetation in the mitigation site to establish naturally through wind, water, and wildlife dissemination of plant seeds. The only planting planned is a cover crop of wheat or annual ryegrass on all bare soil surfaces to reduce soil erosion. The mitigation area will be monitored and maintained to keep invasive species such as *Lythrum salicaria* (purple loosestrife), *Typha* species (cattails), and *Phalaris arundinacea* (reed canary grass) from overtaking the site.

4. **Agency Review.**

a. **Department of the Army, Corps of Engineers.** The Department of the Army application is being processed under the provisions of Section 404 of the Clean Water Act (33 U.S.C. 1344).

b. **State of Illinois.**

(1) The applicant has applied to the Illinois Environmental Protection Agency (IEPA) for water quality certification, or waiver thereof, for the proposed activity in accordance with Section 401 of the Clean Water Act. Certification or waiver indicates that IEPA believes the activity will not violate applicable water quality standards. The review by the IEPA is conducted in accordance with the Illinois water quality standards under 35 Illinois Administrative Code Subtitle C. The water quality standards provide for the IEPA to review individual projects by providing an antidegradation assessment, which includes an evaluation of alternatives to any proposed increase in pollutant loading that may result from this activity. The "Fact Sheet" containing the antidegradation assessment for this proposed project may be found on the IEPA's web site, at www.epa.state.il.us/public-notices/. In the event that the IEPA is unable to publish the "Fact Sheet" corresponding to the timeframe of this Joint Public Notice, a separate public notice and "Fact Sheet" will be published by the IEPA at the web site identified above. You may also obtain a copy of the "Fact Sheet" by contacting the IEPA at the address or telephone number shown below. Written comments specifically concerning possible impacts to water quality should be addressed to: Illinois Environmental Protection Agency, Bureau of Water, Watershed Management Section, 1021 N. Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276. A copy of the written comments should be provided to the Corps of Engineers. If you have any questions, please contact IEPA at (217) 782-3362.

(2) The Illinois Department of Natural Resources, Office of Natural Resources (IDNR/OWR), application is being processed pursuant to an Act in Relation to the Regulation of the Rivers, Lakes and Streams of the State of Illinois, Chapter 615, ILCS 5 (Illinois Compiled Statutes (1994)). Comments concerning the IDNR/OWR permit should be addressed to the Illinois Department of Natural Resources, Office of Water Resources, One Natural Resources Way, Springfield, Illinois 62702-1271, with a copy provided to the Corps of Engineers (see paragraph 11. of this public notice for address). Mr. Mike Diedrichsen, IDNR/OWR (217/782-3863), may be contacted for additional information.

5. Historical/Archaeological. The Corps of Engineers did not consult with the District geographic information systems (GIS) archeological site and survey databases. The Corps reviewed the report dated 27 February 2006 entitled Phase I Archeological Reconnaissance Survey of a Proposed Landfill Expansion in Tazewell County, Illinois (PSAP Project No. 05-396) authored by Brian Adams of the Public Service Archaeology Program, Department of Anthropology, University of Illinois, Urbana-Champaign. The Corps concurs that only sites 11T492, 11T496 and 11T500 are potentially eligible for inclusion in the National Register of Historic Places (NRHP). The Corps also reviewed the report dated 20 July 2006 entitled National Register of Historic Places Evaluation of 11T496 and 11T500 in Tazewell County, Illinois (PSAP Project No. 06-166) also authored by Brian Adams. Based on the findings in this report the Corps concurs that sites 11T496 and 11T500 are not eligible for inclusion in the NRHP. The Corps will require additional investigations to evaluate 11T492 for NRHP eligibility.

6. Endangered Species. District staff have performed a preliminary review of this application for the potential impact on threatened or endangered species pursuant to Section 7 of the Endangered Species Act as amended. The following threatened or endangered species are listed by the United States Fish and Wildlife Service as occurring in Tazewell County, Illinois:

- Indiana bat. The endangered Indiana bat (*Myotis sodalis*) is considered to potentially occur in any area with forested habitat in any county in Illinois. Since there is no forested habitat to be affected by the project (mostly row crop), there should be no effect on the Indiana bat.
- Prairie Bush Clover. The prairie bush clover (*Lespedeza leptostachya*) is considered to potentially occur statewide based on historical habitat and could potentially be found in any Illinois county. It occupies dry to mesic prairies with gravelly soil. There is no critical habitat designated for this species. Since there is no dry to mesic prairies with gravelly soil to be affected by the project, there should be no effect on the prairie bush clover.
- Eastern Prairie Fringed Orchid. The eastern prairie fringed orchid (*Platanthera leucophaea*) may potentially be found in any Illinois county. It occupies wet prairie remnant habitat. There is no critical habitat designated for this species. Since there is no wet prairie remnant habitat to be affected by the project, there should be no effect on the eastern prairie fringed orchid.
- Bald Eagle. The threatened bald eagle (*Haliaeetus leucocephalus*) is listed as wintering along large rivers, lakes and reservoirs. Since the project is not located near a large river, lake, or reservoir, there will be no impacts to bald eagles.
- Lakeside Daisy. The lakeside daisy (*Hymenoxys herbacea*) is listed as threatened in Tazewell County, Illinois, where it has been introduced. Since the project area consists of agricultural cropland, there should be no effect on the lakeside daisy.
- Decurrent False Aster. The decurrent false aster (*Boltonia decurrens*) is listed as threatened and known to occur in Tazewell County, Illinois (Illinois River floodplain). Since the project area is over 10 miles from the Illinois River, there should be no effect on the decurrent false aster.

The proposed project is being coordinated with the United States Fish and Wildlife Service. Any comments it may have concerning Federally-listed threatened or endangered species or their critical habitat will be considered in the final assessment of the proposed project. Accordingly, our preliminary determination is subject to change should further information become available.

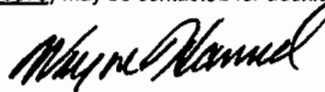
7. Dredge/Fill Material Guidelines. The evaluation of the impact of the proposed activity on the public interest will also include application of the guidelines promulgated by the Administrator of the United States Environmental Protection Agency under authority of Section 404(b) of the Clean Water Act (40 CFR Part 230).

8. Public Interest Review. The decision whether to issue the Corps permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food production and, in general, the needs and welfare of the people.

9. **Who Should Reply.** The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity. These statements should be submitted on or before the expiration date specified at the top of page 1. These statements should bear upon the adequacy of plans and suitability of locations and should, if appropriate, suggest any changes considered desirable.

10. **Public Hearing Requests.** Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing. A request may be denied if substantive reasons for holding a hearing are not provided.

11. **Reply to the Corps of Engineers.** Comments concerning the Corps permit should be addressed to the District Engineer, U. S. Army Corps of Engineers, Rock Island District, ATTN: OD-P (Wayne Hannel), Clock Tower Building - Post Office Box 2004, Rock Island, Illinois 61204-2004. Mr. Wayne Hannel (309/794-5378) may be contacted for additional information.

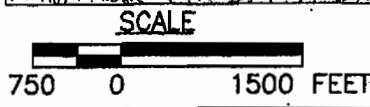
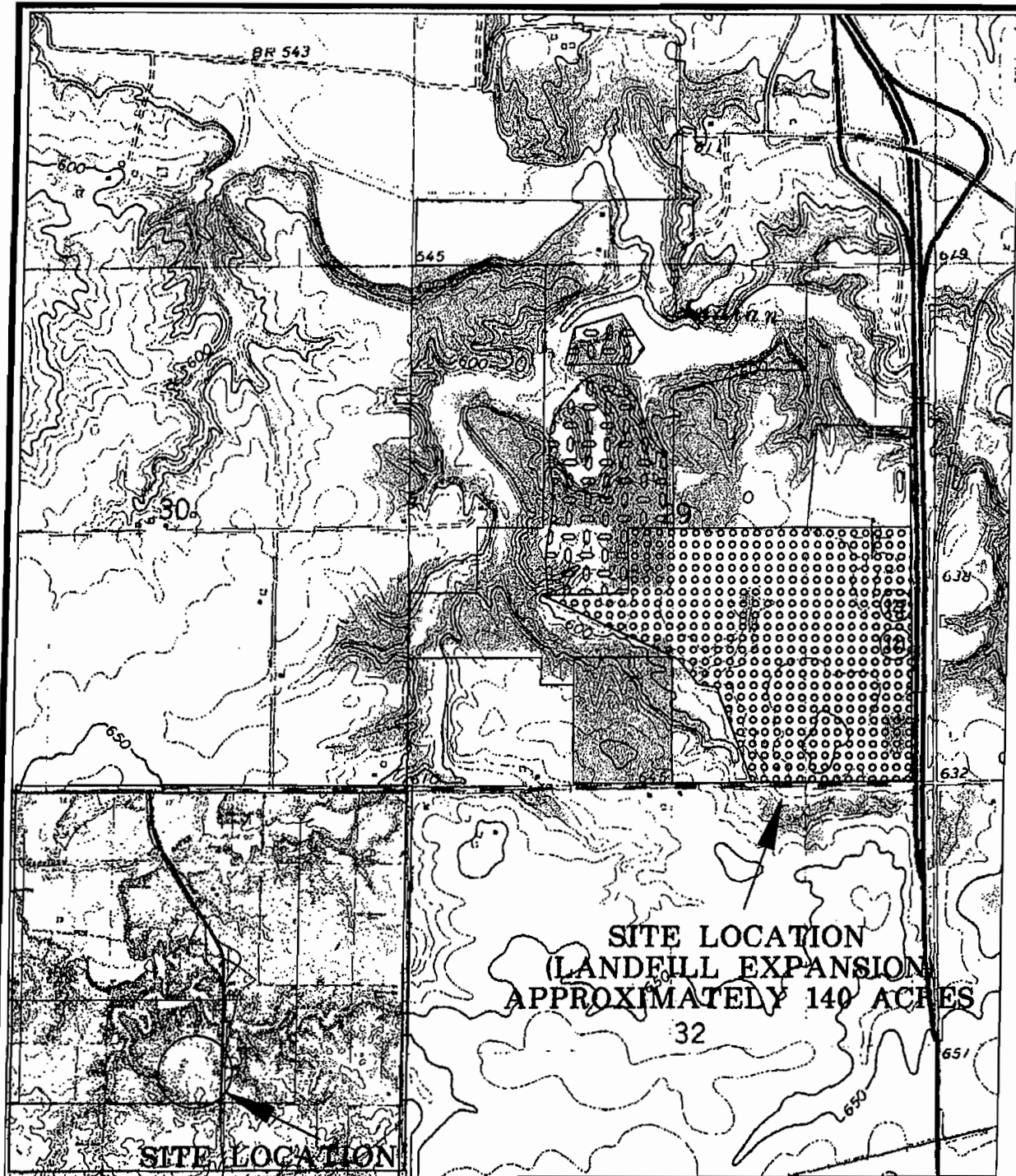


Wayne Hannel
Project Manager
Regulatory Branch

Attach
Plan

REQUEST TO POSTMASTERS: Please post this notice conspicuously and continuously until the expiration date specified at the top of page 1.

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LANDFILL EXPANSION AREA



ACTIVE LANDFILL OPERATIONS/
STORMWATER DETENTION
BASIN PREVIOUSLY APPROVED

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ENGINEERING & APPLIED SCIENCE Inc.

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125 E. LOCUST ST. SUITE B • CANTON, IL 61530 • (309) 647-0608

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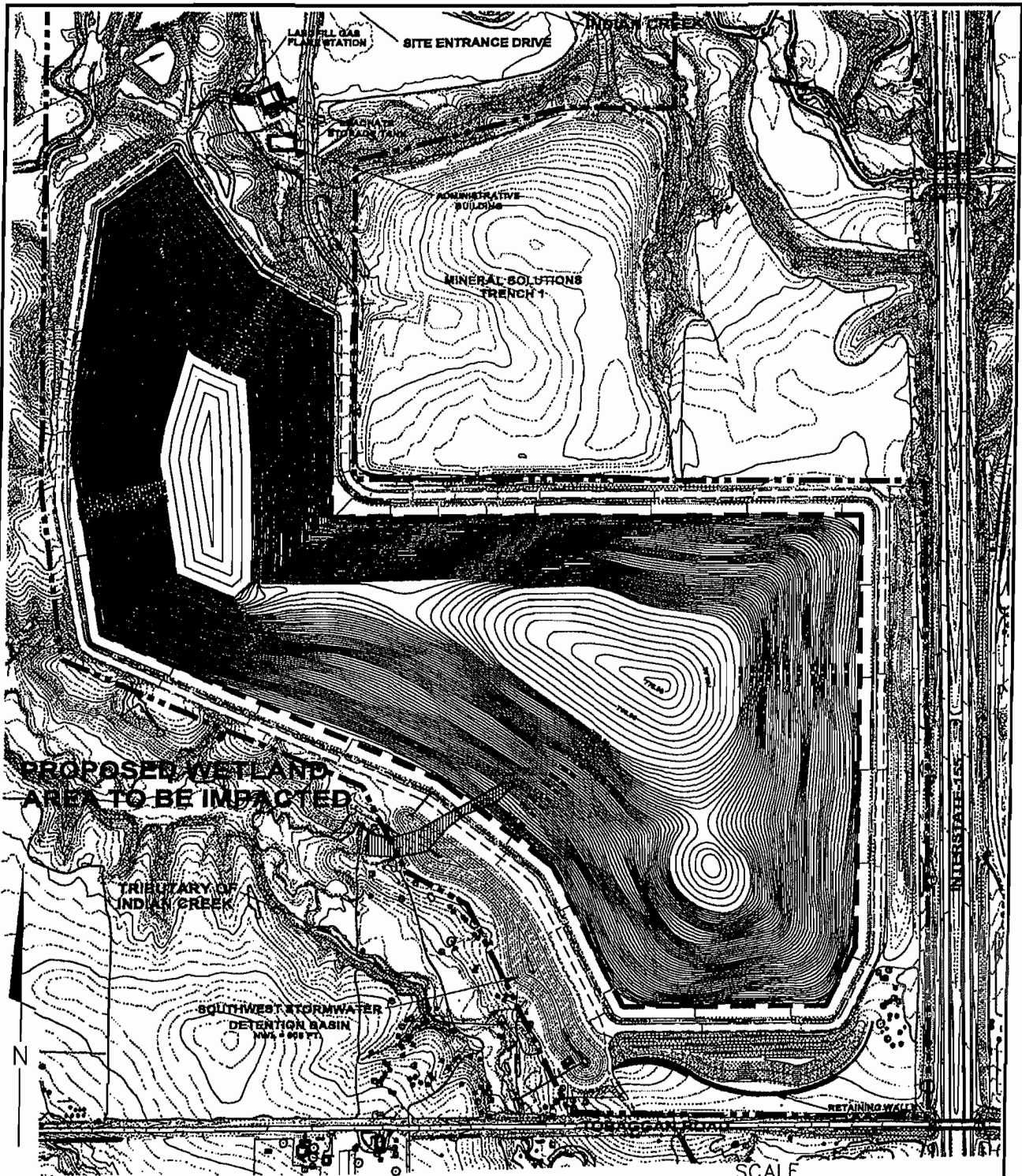
SITE LOCATION MAP

LANDFILL EXPANSION

INDIAN CREEK LANDFILL
TAZEWELL COUNTY, IL

CEMVR-OD-P-2006-801
Vicinity Map
Sheet 1 of 4

PROJECT: SA06068 DRAWING: SLM



SCALE
300 0 600 FEET

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ENGINEERING & APPLIED SCIENCE Inc.

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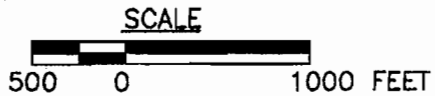
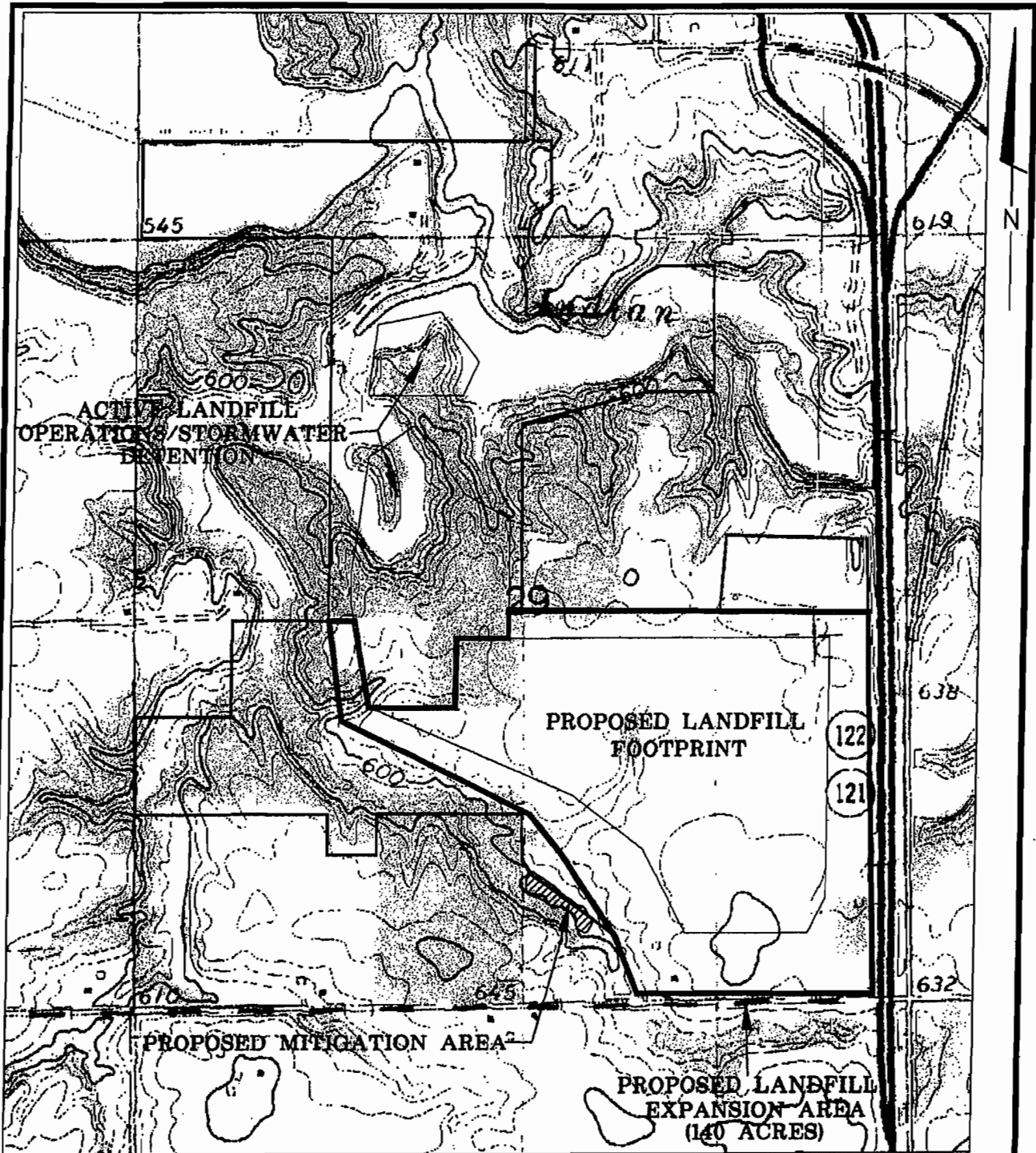
Figure 2 SITE PLAN (IMPACT AREA)

WETLAND MITIGATION PLAN
 INDIAN CREEK LANDFILL
 TAZEWELL COUNTY

CEMVR-OD-P-2006-801
 Site Plan - Project
 Sheet 2 of 4

PROJECT: SA06068

DRAWING: FIG :



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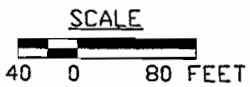
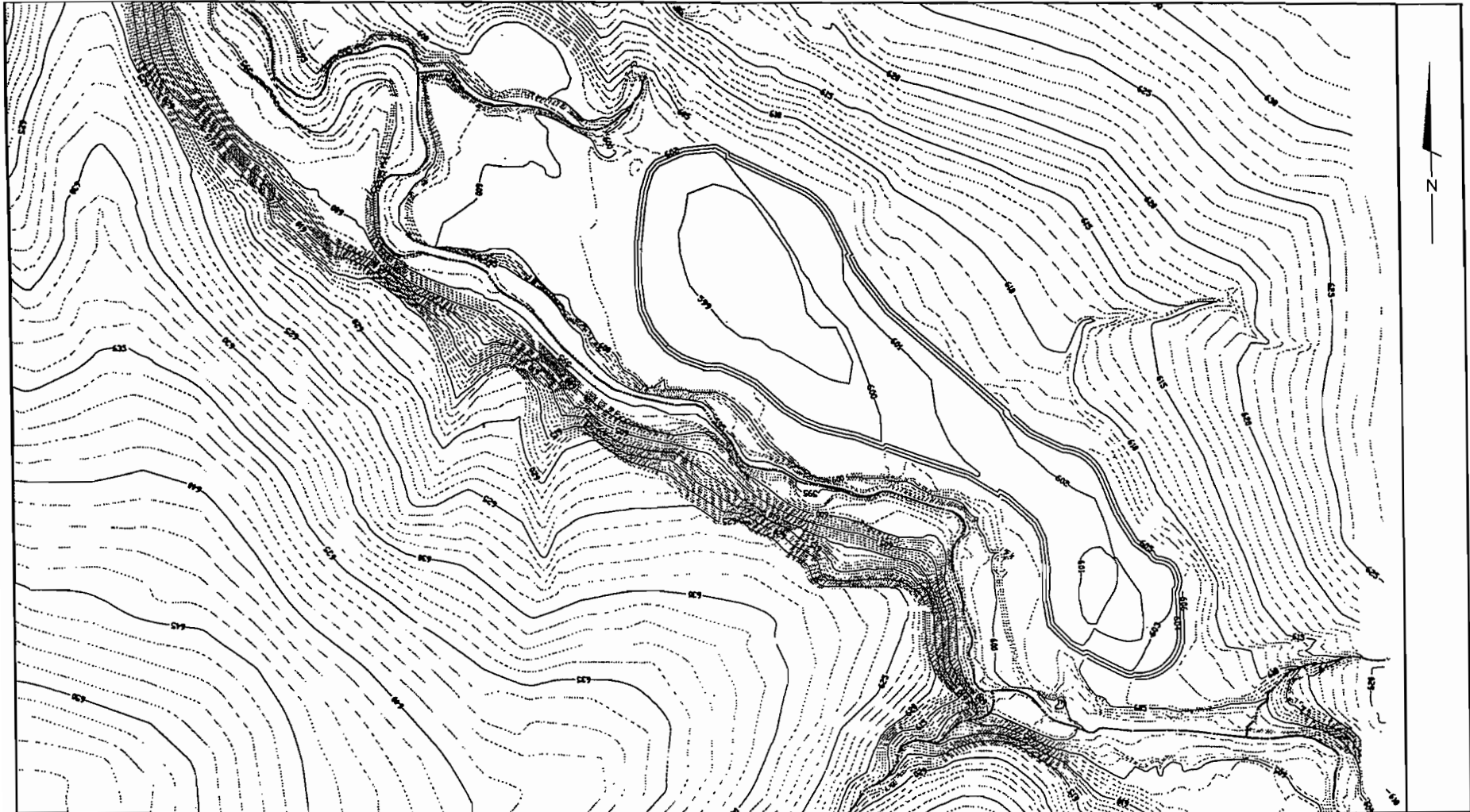
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Figure 3 SITE LOCATION MAP (MITIGATION AREA)

WETLAND MITIGATIC
 INDIAN CREEK LANI
 TAZEWELL COUNTY,

CEMVR-OD-P-2006-801
 Location - Mitigation
 Sheet 3 of 4

PROJECT: SA06068 DRAWING: FIG 3



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 125 E. LOCUST ST. SUITE 9 • CAROTON, IL 61830 • (309) 647-8608
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Figure 9
PROPOSED SITE DESIGN
 WETLAND MITIGATION
 INDIAN CREEK LANDFILL #2
 TAZEWELL COUNTY, ILLINOIS

PROJECT: SA08045 DRAWING: FIG 9 DATE: 02/2007

Exhibit #1A



SIERRA CLUB
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July 4, 2007

Sent via regular mail and fax to 309-794-5190 and 217-785-1225

District Engineer
US Army Corps of Engineers
Rock Island District
ATTN: OD-P (Wayne Hannel)
Clock Tower Building
Post Office Box 2004
Rock Island, Illinois 61204-2004

Illinois Environmental Protection Agency
Bureau of Water
Watershed Management Section
ATTN: Mr. Bruce Yurdin
1021 N. Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

Re: CEMVR-OD-P-2006-801, Tazewell County Landfill, Tazewell County, Illinois

Dear Messrs. Hannel and Yurdin:

The Illinois Chapter of the Sierra Club objects to the issuance of a 404 permit and a 401 certification to Tazewell County Landfill for impacts to 0.89 acres of wetland associated with expansion of Indian Creek Landfill #2 west of the town of Hopedale in Tazewell County, Illinois. Members of our group live in the Mackinaw River watershed and depend on clean waters in the watershed's streams and wetlands for recreational activities including fishing, birdwatching and other wildlife viewing. The landfill site lies close to a tributary to Indian Creek and over the Mahomet Aquifer, the water supply for many of our group's members and thousands of other citizens of Tazewell County. We are not only concerned with the proposed wetland fill; we are also concerned with potential impacts on Indian Creek and the underlying aquifer.

OBJECTIONS

Impacts to Aquatic Functions and Services

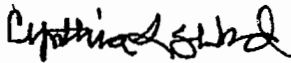
1. The proposed landfill site lies in an area subject to high water tables, since the public notice states that the proposed wetland mitigation 200 feet south of the landfill expansion will only require 2-3 feet to contact groundwater. There is potential for stream contamination to occur as the result of landfill leachate reaching the groundwater that likely feeds the Indian Creek tributary which runs along the SW edge of the proposed landfill expansion. There is also potential for runoff from the landfill site to contaminate the creek. We are concerned about the long-term impacts on the water quality of the Indian Creek tributary based on its close proximity to the proposed landfill site. 40 CFR 230.11(h) requires that long-term, secondary effects on aquatic ecosystems such as 'leachate and runoff from a sanitary landfill' be determined.
2. The public notice provides no information on alternatives. 40 CFR 10(a) requires that practicable alternatives which would have less adverse impact on the aquatic environment be employed. Siting of the landfill expansion to avoid the impacted wetland would also increase the buffer area for the Indian Creek tributary.

3. No information is provided in the public notice that describes the functions and values of the wetland which proposed to be filled. A functional assessment needs to be done and all functions need to be mitigated.

Cumulative Impacts on the Public Interest

Besides our concerns about the potential impacts of landfill leachate on Indian Creek waterways, we ask that the Army Corps of Engineers and Illinois EPA also address the potential for this landfill, which will accept special waste, to contaminate groundwater, the water supply for residents of Tazewell County. According to the Illinois State Geological Survey (in *Water International*, Vol. 28, No. 2, pages 170-180, June 2003), the Mahomet aquifer is unconfined at its western end in Mason, Menard and Tazewell counties increasing the vulnerability to contamination of this water resource, the major sand and gravel aquifer of East-Central Illinois. Thank you for the opportunity to review the public notice and provide our comments on the proposed 404 permit and 401 certification. You can reach me at 815-675-2594, cindy.skrukrud@sierraclub.org or via mail to: 4209 W Solon Rd, Richmond, IL 60071

Sincerely,



Cynthia L Skrukrud, Ph.D.
Clean Water Advocate

#2 Blumhans

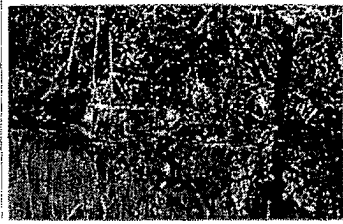
Wetland

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For the 2008 novel by Charlotte Roche, see its German title, Feuchtgebiete.



A subtropical wetland in Florida, USA, with an endangered American Crocodile.

A **wetland** is an area of land consisting of soil that is saturated with moisture, such as a swamp, marsh, or bog.

As defined in terms of physical geography, a wetland is an environment "at the interface between truly terrestrial ecosystems and aquatic systems making them inherently different from each other yet highly dependent on both"^[1]. In essence, wetlands are ecotones. Wetlands often host considerable biodiversity and endemism. In many locations such as the United Kingdom and United States they are the subject of conservation efforts and Biodiversity Action Plans.

The United States Army Corps of Engineers and the United States Environmental Protection Agency jointly define wetlands as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetations typically adapted for life in saturated soils. Wetlands generally include swamps, marshes, bogs, and similar

areas."^[2]^[3]

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Characteristics

Soils

Wetlands are found under a wide range of hydrological conditions, but at least some of the time water saturates the soil. The result is a hydric soil, one characterized by an absence of free oxygen some or all of the time, and therefore called a "reducing environment."

Vegetation

Plants (called hydrophytes or just wetland plants) specifically adapted to the reducing conditions presented by such soils can survive in wetlands, whereas species intolerant of the absence of soil oxygen (called "upland" plants) cannot survive. Adaptations to low soil oxygen characterize many wetland species.

There are many types of vegetation in wetlands. There are plants such as cattails, bulrushes, sedges, arrowhead, water lilies, blue flag, and floaters like common duckweed. Pondweed is also another type of plant that grows in wetlands, but it is not easily seen. Peatland can be dominated by red maple, silver maple, and elm trees. Some types of trees in peatland can exhibit lower trunks and roots that have adapted to the wet surroundings by forming buttresses, like the cypress, enlarged root bases to better support the trees in the mucky soil. Trees can also form knees, raised roots that allow for gas exchange. Swamps can also have whitecedar, [[Tamarack Larch|tamarack, and white pine. Below the canopy, there are often limited amounts of shrubs such as speckled alder, Winterberry, and sweet gale.

Mangroves are a species of plant which typically thrive in coastal wetlands (called marine or estuarine environments). They are a special tree taxon that can survive in salty wetland water. Mangroves also provide the base for the wetland food chain. They are the producers in the wetland environment. Because mangroves add sulfur to the wetlands, it makes the water more acidic, therefore allowing decomposed matter in the water to biodegrade faster than it normally would, which in turn, provides more food for the organisms in the wetland ecosystem.

Hydrology

Generally, the hydrology of a wetland is such that the area is permanently or periodically inundated or saturated at the soil surface for a period of time during the growing season. The presence (or absence) of water is not necessarily a good method for identifying wetlands because the amount of water generally fluctuates depending on such things as rainfall patterns, snow melt, dry seasons, longer droughts, and tidal patterns. Often the same wetland can appear to be an open body of water sometimes and a dry field at other times because of significant fluctuations in water levels. The three water sources that contribute to wetlands are:

- precipitation falling within the wetland
- groundwater moving up or out from the subsurface of the wetland
- surface flow from the surrounding watershed or nearby water bodies (lakes, streams, oceans, etc.)

Location determines which of these sources will be contributing water to a wetland.

Topography

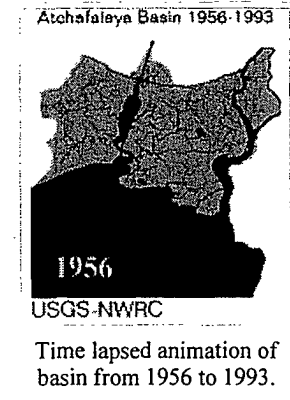
Generally, wetlands are located within topographic features that are lower in elevation than the surrounding landscape such as depressions, valleys, and flat areas.

Topography plays an important role in determining the size and shape of a wetland by controlling where the water goes and how long it stays there.

Classification

Below are terms used for various types of wetlands:

- A bog or muskeg is acidic peat land (peat bog).
- A moor was originally the same as a bog but has come to be associated with this soil type on hill-tops.
- A moss is a raised bog in Scotland
- A fen is a freshwater peat land with chemically basic (which roughly means alkaline) ground water. This means that it contains a moderate or high proportion of hydroxyl ions (pH value greater than 7).
- A carr is a fen which has developed to the point where it supports trees. It is a European term, mainly applied in the north of the UK.
- A freshwater marsh's main feature is its openness, with only low-growing or "emergent" plants. It may feature grasses, rushes, reeds, typhas, sedges, and other herbaceous plants (possibly with low-growing woody plants) in a context of shallow water. It is an open form of fen.
- A vernal pool (or ephemeral) is a shallow, freshwater pond that is seasonal, having water during rainy months and drying up completely during the remainder of the year. One distinctive characteristic is the lack of fish species in the pool.
- A coastal salt marsh may be associated with estuaries and along waterways between coastal barrier islands and the inner coast. The plants may extend from reed in mildly brackish water to salicornia on otherwise bare marine mud. It may be converted to human use as pasture (salting) or for salt production (saltern).
- A swamp is wetland with more open water surface and deeper water than a marsh. In North America, it is used for wetlands dominated by trees and woody bushes rather than grasses and low herbs, but this distinction does not necessarily apply in other areas, for instance in Africa where swamps may be dominated by papyrus.
- A dambo is a shallow, grass-covered depression of the central and southern African plateau which is waterlogged in the rainy season and usually forms the headwaters of a stream or river. It is marshy at the edges and at the headwater but maybe swampy in the centre and downstream.
- A mangrove swamp or mangal is a salt or brackish water environment dominated by the mangrove species of tree, such as *Sonneratia*.
- A paperbark wetland is a fresh or brackish water environment dominated by the *Melaleuca* tree.
- A bayou or slough is a southern United States terms for a creek amongst swamp. In an Indian mangrove swamp, it would be called a creek.
- A constructed wetland is artificially contrived wetland, intended to absorb flash floods, clean sewage, enhance wildlife or for some other human reason.
- A pocosin is a bog-like wetland dominated by fire-adapted shrubs and trees, found mainly in the southeastern United States on the Atlantic Coastal Plain.
- Seasonally flooded basins or flats.
 - Inland fresh meadows.
 - Inland shallow fresh water.



The U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) produces and provides information on the characteristics, extent, and status of U.S. wetlands and deepwater habitats and other wildlife habitats. The NWI also produces periodic reports on the status and trends of wetlands in the conterminous U.S. The NWI website includes a Wetlands Mapper.

Hydrogeomorphic classes

The Hydrogeomorphic (HGM) Approach is a system developed by the United States Army Corps of Engineers to classify all wetlands based on three factors that influence how they function: position in the landscape (geomorphic setting), water source (hydrology), and the flow and fluctuation of the water once in the wetland

(hydrodynamics). There are seven classes (types) of wetlands in this system:

- riverine
- depressional
- slope
- mineral soil flats
- organic soil flats
- estuarine fringe
- lacustrine fringe

This approach also intends to develop subclasses of wetlands to account for specific conditions of various regions.



Marsh in Point Pelee, Ontario, Canada

Wetlands in drylands

In contrast to wetlands in other biomes (usually permanent and fresh water), wetlands in drylands are more diverse in their composition, depending on the local climate and other particularities of the surroundings. They can be fresh or saline, permanent, seasonal or temporary, filling intermittently or regularly.

Wetlands in drylands can be attributed all values and uses of wetlands found in other biomes. However, given the stark contrast to their dry surroundings, many of these values are enhanced. This applies to the water balance where gradual release and storage of rainwater by wetlands amid drylands is crucial because of the unpredictability and incalculability of rain. During dry seasons, wetlands in drylands are also pivotal as refugia for wildlife, livestock and people. Moreover, biodiversity levels are higher than in wetlands in other major biomes, in particular because of the accessibility of water amid an otherwise very dry environment.

Intertidal wetlands

In intertidal wetlands the majority of natural stress comes from salinity and tidal movements. The intertidal wetlands must be able to survive extreme conditions of mainly salt water at high tide, fresh water at low tide and times of flood and brackish water at other times. The saline water is a very difficult condition for plants to survive in. The grey mangrove accomplishes this by excluding salt in the root system, salt glands in the leaf, and waxy leaves to minimize water loss. However it is vulnerable to changes in salinity levels. Changes to tidal movements through increased run-off or altered drainage can cause the roots of mangroves to be inundated for longer than normal periods affecting their pneumatophones. It can also be pushed past its threshold level if water quality is changed. Thus even healthy ecosystems are vulnerable to change. Some species such as oysters and mollusks have been used as indicator species, with any decline in their numbers indicating the ecosystem is

under stress. A change in nutrient levels may also affect primary productivity and thus bring about change.

Functions

Hydrologic

Hydrologic functions include long term and short term water storage, subsurface water storage, energy dissipation, and moderation of groundwater flow or discharge.

By absorbing the force of strong winds and tides, wetlands protect terrestrial areas adjoining them from storms, floods, and tidal damage.

Biogeochemical

Nutrient cycling, retention of particulates, removal of imported elements and compounds, and the import and export of organic carbon are all biogeochemical functions of wetlands. Wetlands remove nutrients from surface and ground water by filtering and by converting nutrients to unavailable forms. Denitrification is arguably the most important of these reactions because humans have increased nitrate worldwide by applying fertilizers. Increased nitrate availability can cause eutrophication, but denitrification converts biologically available nitrogen back into nitrogen gas, which is biologically unavailable except to nitrogen fixing bacteria. Denitrification can be detected in many soils, but denitrification is fastest in wetlands soils^[4].

Intertidal wetlands provide an excellent example of invasion, modification and succession. The invasion and succession process is establishment of seagrasses. These help stabilize sediment and increase sediment capture rates. The trapped sediment gradually develops into mud flats. Mud flat organisms become established encouraging other life forms changing the organic composition of the soil.

Habitat

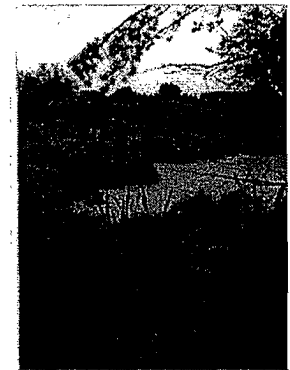
Wetland provide a safe and lush environment for many different species of fish, birds, and insects. It includes the mallard duck, the Sickleback fish, mangroves, and water moccasins.

Like animals, there are many plant communities that will only survive in the unique environmental conditions of a wetland. In the continental U.S. wetlands account for only 5% of the total land area, but over 30% of the nation's vascular flora occur in wetlands.

Mangroves establish themselves in the shallower water upslope from the mudflats. Mangroves further stabilize sediment and over time increase the soil level. This results in less tidal movement and the development of salt marshes. (succession) The salty nature of the soil means it can only be tolerated by special types of grasses e.g. saltbush, rush and sedge. There is also changing species diversity in each succession.

Value to humans

While many of the functions above are directly or indirectly beneficial to humans and society, wetlands are specifically valuable to people as places for recreational and educational activities such as hunting, fishing, camping, and wildlife observation. Wetlands are often filled in to be used by humans for everything from agriculture to parking lots, in part because the economic value of wetlands has only been recognized



Home of water birds in wetland near Tuchlovice, Czech Rep.

recently: the shrimp and fish that breed in salt water marshes are generally harvested in deeper water, for example. Humans can maximize the area of healthy, functioning wetlands by minimizing their impacts and by developing management strategies that protect, and where possible rehabilitate those ecosystems at risk.

Wetlands are sometimes deliberately created to help with water reclamation. One example is Green Cay Wetlands in Boynton Beach, Florida, in the United States.

Protection and rehabilitation

Historically, humans have made large-scale efforts to drain wetlands for development or to flood them for use as recreational lakes. Since the 1970s, more focus has been put on preserving wetlands for their natural function—sometimes also at great expense. One example is the project by the U.S. Army Corps of Engineers to control flooding and enhance development by taming the Everglades, a project which has now been reversed to restore much of the wetlands as a natural habitat and method of flood control.

The creation of the treaty known as the Ramsar Convention (1971), or more properly "The Convention on Wetlands of International Importance, especially as Waterfowl Habitat", demonstrates the global concern regarding wetland loss and degradation. The primary purposes of the treaty are to list wetlands of international importance and to promote their wise use, with the ultimate goal of preserving the world's wetlands.

Exclusion

Those responsible for the management of wetland areas often facilitate public access to a small, designated area while restricting access to other areas. Provision of defined boardwalks and walkways is a management strategy used to restrict access to vulnerable areas, as is the issuing of permits whilst visiting.

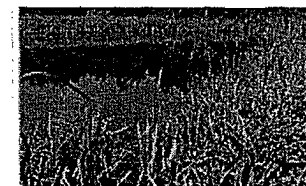
Education

In the past, wetlands were regarded as wastelands. Education campaigns have helped to change public perceptions and foster public support for the wetlands. Because of their location in the catchment area, education programs need to teach about total catchment management programs. Educational programs include guided tours for the general public, school visits, media liaison, and information centers.

United States

In the United States, some wetlands are regulated by the federal government under the Clean Water Act. Determining the boundary between regulated wetlands and non-regulated lands therefore can be contentious. In reality, there is no natural boundary between the classes that humans define on these gradients (wetland/upland), and this issue is highlighted by the U.S. Fish and Wildlife Service's definition from Classification of Wetlands and Deepwater Habitats of the United States, which defines wetlands as "lands transitional between terrestrial and aquatic systems." Regulations to protect water quality and highway safety require that we create arbitrary boundaries within those gradients, but these boundaries are scientifically definable, and consist of areas where three criterion of the presence of hydric soils, the presence of wetland vegetation, and the presence of appropriate hydrology. Such regulations must be predictable, reproducible, and enforced. Otherwise, we will sacrifice clean water for development in the case of wetlands regulation (or vice versa), or sacrifice safe travel for quick travel (or vice versa) in the case of speed limits.

Determining which wetlands are regulated under section 404 of the clean water act^[5] or section 10 of the rivers and harbors act is termed "jurisdictional determination". Determining the boundary of wetland, whether jurisdictional under sections 404 or 10, or not jurisdictional but still meeting the technical definition of a wetland, that is having the soils, vegetation and hydrology criterion



A temperate wetland in Britain, with shallow open water and reedbeds.

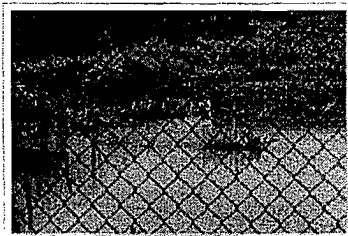


Small wetland in Marshall County, Indiana in the United States.



among the Salt Marsh Nature Center, in Brooklyn, NY

met is called a "wetland delineation", and generally is performed by college graduates with natural science or biology degrees working for engineering firms or environmental consulting firms who are familiar with the 1987 U.S. Army Corps of Engineers Wetland delineation manual.



Wetlands protected by steel fence,
San Francisco, CA

Defining a boundary depends upon soil and vegetation characteristics; it is easier to do where the slope of the land is steeper. Deciding if a wetland is a regulated wetland depends on classifying the water in it as "water of the United States" or not. Classifying water as "of the U.S." or "not of the U.S." for purposes of enforcing the Clean Water Act suggests a natural boundary that probably does not exist in nature, and one that was not created regarding air for purposes of enforcing the Clean Air Act. Indiana Wetlands are the focus of the U.S. National Wetlands Coalition, which in turn has become the focus of some controversy over "false fronts," a form of political camouflage.

See also: National Wetlands Research Center and Wetlands Reserve Program

See also

- Asmat Swamp (in Indonesia)
- Bog
- Cardiff Bay Wetlands Reserve (in Wales UK)
- Flooded grasslands and savannas
- Freshwater swamp forest
- Marsh
- Peat swamp forest
- Salt marsh
- Slough
- Swamp

References

1. ^ Mitsch, William J.; James G. Gosselink (2007-08-24). "?", *Wetlands*, 4th edition, New York: John Wiley & Sons, p. ?. ISBN 978-0471699675.
2. ^ Definition from Corps of Engineers, Wetlands Delineation Manual, by Environmental Laboratory, U.S. Army Corps of Engineers, Waterways Experiment Station, 3909 Halls Ferry Road, Vicksburg, MS 39180-6199
3. ^ 42 Federal Register 37125-26, 37128-29. 1977-07-19. via Gingras, Glenn (2006-08-21). "VTrans Proposal" (PDF). Retrieved on 2008-01-19.
4. ^ Ullaha, Sami; S.P. Faulkner (2006-11-30). "Denitrification potential of different land-use types in an agricultural watershed, lower Mississippi valley". *Ecological Engineering* **28** (2): 131–140. Elsevier. doi:10.1016/j.ecoleng.2006.05.007. ISSN 0925-8574. Retrieved on 2008-01-19. "Low-elevation clay soils in wetlands exhibited 6.3 and 2.5 times greater DP compared to high-elevation silt loam and low-elevation clay soils in croplands, respectively."
5. ^ "Section 404 of the Clean Water Act: How Wetlands are Defined and Identified". *Wetlands fact sheet*. EPA (2006-02-22). Retrieved on 2008-01-19.

Further reading

- Ghabo, A. A. (2007) Wetlands Characterization; Use by Local Communities and Role in Supporting Biodiversity in the Semi-arid Ijara District, Kenya. Terra Nuova East Africa. Wetlands in drylands.
- 1987 U.S. Army Corps of Engineers Wetland delineation manual

External links

- Wetlands: The Ecological Effect of Loss (Research article)
- Marshlands of Iberá (in English and Spanish)
- Federal Register (1996-08-16). "National Action Plan to Develop the Hydrogeomorphic Approach to Assessing Wetland Functions"
- National Wetland Inventory (USA)
- Brinson, M. M., Hauer, F. R., Lee, L. C., Nutter, W. L., Rheinhardt, R. D., Smith, R. D., and Whigham, D. (1995). "A guidebook for application of hydrogeomorphic assessments to riverine wetlands" Technical Report WRP-DE-11, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. NTIS No. AD A308 365.
- Rutgers University Wetland Delineation and Wetland Education Courses
- *Wetlands* in Te Ara - the Encyclopedia of New Zealand

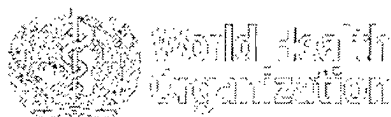
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Categories: Wetlands

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November 2007

Dioxins and their effects on human health

Background

Dioxins are environmental pollutants. They have the dubious distinction of belonging to the "dirty dozen" - a group of dangerous chemicals known as persistent organic pollutants. Dioxins are of concern because of their highly toxic potential. Experiments have shown they affect a number of organs and systems. Once dioxins have entered the body, they endure a long time because of their chemical stability and their ability to be absorbed by fat tissue, where they are then stored in the body. Their half-life in the body is estimated to be seven to eleven years. In the environment, dioxins tend to accumulate in the food chain. The higher in the animal food chain one goes, the higher is the concentration of dioxins.

The chemical name for dioxin is: *2,3,7,8-tetrachlorodibenzo para dioxin (TCDD)*. The name 'dioxins' is often used for the family of structurally and chemically related *polychlorinated dibenzo para dioxins (PCDDs)* and *polychlorinated dibenzofurans (PCDFs)*. Certain dioxin-like *polychlorinated biphenyls (PCBs)* with similar toxic properties are also included under the term "dioxins". Some 419 types of dioxin-related compounds have been identified but only about 30 of these are considered to have significant toxicity, with TCDD being the most toxic.

Sources of dioxin contamination

Dioxins are mainly by products of industrial processes but can also result from natural processes, such as volcanic eruptions and forest fires. Dioxins are unwanted by products of a wide range of manufacturing processes including smelting, chlorine bleaching of paper pulp and the manufacturing of some herbicides and pesticides. In terms of dioxin release into the environment, waste incinerators (solid waste and hospital waste) are often the worst culprits, due to incomplete burning.

Although formation of dioxins is local, environmental distribution is global. Dioxins are found throughout the world in practically all media. The highest levels of these compounds are found in some soils, sediments and food, especially dairy products, meat, fish and shellfish. Very low levels are found in plants, water and air.

Extensive stores of PCB-based waste industrial oils, many with high levels of PCDFs, exist throughout the world. Long-term storage and improper disposal of this material may result in dioxin release into the environment and the contamination of human and animal food supplies. PCB-based waste is not easily disposed of without contamination of the environment and human populations. Such material needs to be treated as hazardous waste and is best destroyed by high temperature incineration.

Dioxin contamination incidents

Many countries monitor their food supply for dioxins. This has led to early detection of contamination and has often prevented impact on a larger scale. One example is the detection of increased dioxin levels in milk in 2004 in the Netherlands, traced to a clay used in the production of the animal feed. In another incident, elevated dioxin levels were detected in animal feed in the Netherlands in 2006 and the source was identified as contaminated fat used in the production of the feed.

Some dioxin contamination events have been more significant, with broader implications in many countries.

In July 2007, the European Commission issued a health warning to its Member States after high levels of dioxins were detected in a food additive - guar gum - used as thickener in small quantities in meat, dairy, dessert or delicatessen products. The source was traced to guar gum from India that was contaminated with pentachlorophenol (PCP), a pesticide no longer in use. PCP contains dioxins as contamination.

animal feed exported from Brazil. The investigation resulted in a ban on all citrus pulp imports to the EU from Brazil.

Another case of dioxin contamination of food occurred in the United States of America in 1997. Chickens, eggs, and catfish were contaminated with dioxins when a tainted ingredient (bentonite clay, sometimes called "ball clay") was used in the manufacture of animal feed. The contaminated clay was traced to a bentonite mine. As there was no evidence that hazardous waste was buried at the mine, investigators speculate that the source of dioxins may be natural, perhaps due to a prehistoric forest fire.

Large amounts of dioxins were released in a serious accident at a chemical factory in Seveso, Italy, in 1976. A cloud of toxic chemicals, including 2,3,7,8-Tetrachlorodibenzo-p-dioxin, or TCDD, was released into the air and eventually contaminated an area of 15 square kilometres where 37 000 people lived. Extensive studies in the affected population are continuing to determine the long-term human health effects from this incident. These investigations, however, are hampered by the lack of appropriate exposure assessments. A minor increase in certain cancers and effects on reproduction have been detected and are being further investigated. Possible effects on the children of exposed people are currently being studied.

TCDD has also been extensively studied for health effects linked to its presence as a contaminant in some batches of the herbicide Agent Orange, which was used as a defoliant during the Vietnam War. A link to certain types of cancers and also to diabetes is still being investigated.

Earlier incidents of food contamination have been reported in other parts of the world. Although all countries can be affected, most contamination cases have been reported in industrialized countries where adequate food contamination monitoring, greater awareness of the hazard and better regulatory controls are available for the detection of dioxin problems.

A few cases of intentional human poisoning have also been reported. The most notable incident is the 2004 case of Viktor Yushchenko, President of the Ukraine, whose face was disfigured by chloracne.

Effects of dioxins on human health

Short-term exposure of humans to high levels of dioxins may result in skin lesions, such as chloracne and patchy darkening of the skin, and altered liver function. Long-term exposure is linked to impairment of the immune system, the developing nervous system, the endocrine system and reproductive functions. Chronic exposure of animals to dioxins has resulted in several types of cancer. TCDD was evaluated by the WHO's International Agency for Research on Cancer (IARC) in 1997. Based on animal data and on human epidemiology data, TCDD was classified by IARC as a "known human carcinogen". However, TCDD does not affect genetic material and there is a level of exposure below which cancer risk would be negligible.

Due to the omnipresence of dioxins, all people have background exposure and a certain level of dioxins in the body, leading to the so-called body burden. Current normal background exposure is not expected to affect human health on average. However, due to the high toxic potential of this class of compounds, efforts need to be undertaken to reduce current background exposure.

Sensitive subgroups

The developing fetus is most sensitive to dioxin exposure. The newborn, with rapidly developing organ systems, may also be more vulnerable to certain effects. Some individuals or groups of individuals may be exposed to higher levels of dioxins because of their diets (e.g., high consumers of fish in certain parts of the world) or their occupations (e.g., workers in the pulp and paper industry, in incineration plants and at hazardous waste sites, to name just a few).

Prevention and control of dioxin exposure

Proper incineration of contaminated material is the best available method of preventing and controlling exposure to dioxins. It can also destroy PCB-based waste oils. The incineration process requires high temperatures, over 850°C. For the destruction of large amounts of contaminated material, even higher temperatures - 1000°C or more - are required.

Prevention or reduction of human exposure is best done via source-directed measures, i.e. strict control

More than 90% of human exposure to dioxins is through the food supply, mainly meat and dairy products, fish and shellfish. Consequently, protecting the food supply is critical. One approach includes, as mentioned above, source-directed measures to reduce dioxin emissions. Secondary contamination of the food supply needs to be avoided throughout the food-chain. Good controls and practices during primary production, processing, distribution and sale are all essential to the production of safe food.

Food contamination monitoring systems must be in place to ensure that tolerance levels are not exceeded. It is the role of national governments to monitor the safety of food supply and to take action to protect public health. When incidents of contamination are suspected, countries should have contingency plans to identify, detain and dispose of contaminated feed and food. The exposed population should be examined in terms of exposure (e.g. measuring the contaminants in blood or human milk) and effects (e.g. clinical surveillance to detect signs of ill health).

What should consumers do to reduce their risk of exposure?

Trimming fat from meat and consuming low fat dairy products may decrease the exposure to dioxin compounds. Also, a balanced diet (including adequate amounts of fruits, vegetables and cereals) will help to avoid excessive exposure from a single source. This is a long-term strategy to reduce body burdens and is probably most relevant for girls and young women to reduce exposure of the developing fetus and when breastfeeding infants later on in life. However, the possibility for consumers to reduce their own exposure is somewhat limited.

What does it take to identify and measure dioxins in the environment and food?

The quantitative chemical analysis of dioxins requires sophisticated methods that are available only in a limited number of laboratories around the world. These are mostly in industrialized countries. The analysis costs are very high and vary according to the type of sample, but range from over US\$ 1700 for the analysis of a single biological sample to several thousand US dollars for the comprehensive assessment of release from a waste incinerator.

Increasingly, biological (cell- or antibody) -based screening methods are being developed. The use of such methods for food samples is not yet sufficiently validated. Nevertheless, such screening methods will allow more analyses at lower cost. In case of a positive screening test, confirmation of results must be carried out via more complex chemical analysis.

WHO activities related to dioxins

Reducing dioxin exposure is an important public health goal for disease reduction, also with respect to sustainable development. In order to give guidance on acceptable levels of exposure, WHO has held a series of expert meetings to determine a tolerable intake of dioxins to which a human can be exposed throughout life without harm.

In the latest of such expert meetings held in 2001, the Joint FAO/WHO Expert Committee on Food Additives (JECFA) performed an updated comprehensive risk assessment of PCDDs, PCDFs, and "dioxin-like" PCBs. The experts concluded that a tolerable intake could be established for dioxins on the basis of the assumption that there is a threshold for all effects, including cancer. The long half-lives of PCDDs, PCDFs and "dioxin-like" PCBs mean that each daily ingestion has a small or even a negligible effect on overall intake. In order to assess long- or short-term risks to health due to these substances, total or average intake should be assessed over months, and the tolerable intake should be assessed over a period of at least one month. The experts established a provisional tolerable monthly intake (PTMI) of 70 picogram/kg per month. This level is the amount of dioxins that can be ingested over lifetime without detectable health effects.

WHO, in collaboration with the Food and Agriculture Organization (FAO), through the joint FAO/WHO Codex Alimentarius Commission, has established a 'Code of Practice for the Prevention and Reduction of Dioxin and Dioxin-like PCB Contamination in Foods and Feed'. This document gives guidance to national and regional authorities on preventive measures. The establishment of Codex guideline levels for dioxins in foods is under consideration.

Since 1976 WHO has been responsible for the Global Environment Monitoring System's Food Contamination Monitoring and Assessment Programme. Commonly known as GEMS/Food, the programme provides information on levels and trends of contaminants in food through its network of participating laboratories in over 70 countries around the world. Dioxins are included in this monitoring programme.

WHO is now working with the United Nations Environmental Programme (UNEP) on the implementation of the 'Stockholm Convention', an international agreement to reduce emissions of certain persistent organic pollutants (POPs), including dioxins. A number of actions are being considered internationally to reduce the production of dioxins during incineration and manufacturing processes. In responding to the needs of the Stockholm Convention on POPs, the WHO GEMS/Food has developed a new protocol for a Global Survey of Human Milk for POPs in order to meet the health, food safety and environmental objectives of WHO, UNEP and their member countries. This protocol will assist national and regional authorities to collect and analyse representative samples in order to assess the current state of background exposure and in the future to assess the effectiveness of measures taken to reduce exposure.

Dioxins occur as a complex mixture in the environment and in food. In order to assess the potential risk of the whole mixture, the concept of toxic equivalence has been applied to this group of contaminants. TCDD, the most toxic member of the family, is used as reference compound, and all other dioxins are assigned a toxic potency relative to TCDD, based on experimental studies. During the last 15 years, WHO, through the International Programme on Chemical Safety (IPCS), has established and regularly re-evaluated toxic equivalency factors (TEFs) for dioxins and related compounds through expert consultations. WHO-TEF values have been established which apply to humans, mammals, birds and fish. The last such consultation was held in 2005 to update human and mammalian TEFs. These international TEFs have been developed for application in risk assessment and management, and have been adopted formally by a number of countries and regional bodies, including Canada, Japan, the United States and the European Union.

RELATED LINKS

- [WHO programme on food safety](#), zoonoses and foodborne disease
- [International Programme on Chemical Safety](#)
- [Technical report: Evaluation of Certain Food Additives and Contaminants](#) [pdf 911 kb]

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#4 Blumenshine

From: Joyce Blumenshine (joblumen@yahoo.com)
To: Charles Norris
Date: Monday, August 18, 2008 10:49:13 AM
Cc: Dave Wentworth
Subject: Re: IL Pollution Control Board Hearing

Thank you for your letter Chuck.
I will read this at the hearing.
Joyce

----- Original Message -----

From: Charles Norris <cnorris@geo-hydro.com>
To: Joyce Blumenshine <joblumen@yahoo.com>
Sent: Sunday, August 17, 2008 4:29:34 PM
Subject: IL Pollution Control Board Hearing

Joyce,

Thank you for your contact regarding the possibility of my reviewing and offering comments on the proposal by PDC to delist EAF wastes after processing, for eventual disposal in municipal landfills.

I have completed a preliminary review of the proposal and related Agency, Board and PDC materials. Based upon that review and my education, training, and experience, I believe your concerns well founded.

As we discussed earlier, my existing obligations to other clients make it impossible to attend the public meeting in person to offer sworn testimony. I am sorry for that, because I do believe personal testimony, with the opportunity for cross examination, the most effective way present technical issues.

However, in lieu of that, I can provide written comments to you and the Board for its and its technical staff's consideration. I will try to have my comments ready for submittal by August 21. By filing early, I hope to generate a dialog before the Board with the Applicant during the public comment period, instead of simply providing crossing statements at the end of the comment period. It isn't the same as testimony with cross, but it is the best I can do this time.

At present, my principle concerns are the modeling performed by the applicant, the environment(s) targeted for disposal, the reliance upon problematic test protocols, and the poor performance record of lime-enhanced coal combustion waste as a stabilizing agent for other waste streams. I will likely comment upon some or all of these, and I may address other issues that arise.

--
Chuck

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