CCDD Presentation
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- Hydrogeologist and Project Manager – APTIM
- BS Geology and BBA Business – St. Norbert College, De Pere, WI
- Licensed Professional Geologist – Illinois and Indiana
- 18 years of Professional Experience
  - Siting, Design, Permitting, and Compliance for Solid Waste and CCDD Facilities
  - Coordination and Implementation of Large-Scale Hydrogeologic Investigations
  - Assessment of Subsurface Stratigraphy and Groundwater Flow
  - Environmental Monitoring System Design, Installation, and Operation
  - Characterization of Contaminated Sediments and Groundwater
  - Statistical Analysis of Groundwater Quality Data
  - Contaminant Transport Modeling
WHAT IS CLEAN CONSTRUCTION AND DEMOLITION DEBRIS?

Clean Construction and Demolition Debris (CCDD) is uncontaminated broken concrete without protruding metal bars, bricks, rock, stone, or reclaimed asphalt pavement generated from construction or demolition activities. But it is mostly uncontaminated soil.
PURPOSE OF CCDD PROGRAM

- Reclaims old quarries and returns them to productive use.
  - Since the early 1800s, Illinois has been one of the leading producers and consumer of sand and gravel and crushed-stone aggregate in the country.
  - Once quarries are filled back to grade, beneficial re-development can occur.
PURPOSE OF CCDD PROGRAM (Continued)

- Saves landfill space.
- Saves money on construction.

- We estimate that over 5 million cubic yards of clean fill are diverted to CCDD and USFO facilities each year, avoiding $120M or more in landfill disposal costs annually.

- Annual transportation cost savings are estimated at $40-60M in just the Chicago metro area alone.

- The vast majority of these savings are realized by taxpayers through reduced cost of public projects!
REGULATIONS WERE DEVELOPED WITH STAKEHOLDER INPUT

- Over 88 pages of comments were received from 24 stakeholder groups.

  American Institute of Professional Geologists
  American Public Works Association – Chicago Metro Chapter
  Chicago Public Building Commission
  Chicago Street CCDD
  City of Chicago
  Forest Preserve District of Will County
  Illinois Association of Aggregate Producers
  Illinois Association of County Engineers
  Illinois Attorney General’s Office
  Illinois Department of Transportation
  Illinois Groundwater Association
  Illinois Landscape Contractors Association
  Illinois Road and Transportation Builders Association
  Illinois Society of Professional Engineers
  JAS Environmental, Inc.
  Land Reclamation and Recycling Association
  National Solid Waste Management Association
  Naval Facilities Engineering Command Midwest
  Professional Geologists of Indiana, Inc.
  Suburban Public Works Directors Association
  Vulcan Materials Company
  Waste Management of Illinois, Inc.
  Will County
  Wills Burke Kelsey Associates, Inc.

- IPCB held three hearings, considered stakeholder input, and adopted the rules with amendments.

  - Specifically rejected the need for groundwater monitoring, finding that up-front soil certification sufficiently protects groundwater.
IPCDB DECISION THAT GROUNDWATER MONITORING IS NOT REQUIRED WAS APPEALED AND UPHELD

- In 2012, the Appellate Court was petitioned to review the IPCB’s order declining to require groundwater monitoring for CCDD sites.
- The IPCB decision that groundwater monitoring is not required was upheld!
- HB4315 would call for the legislature to interfere with the well-reasoned, carefully considered, and reaffirmed, decision that monitoring is unnecessary.
RECENT INSPECTIONS FOUND PROGRAM TO BE WORKING WELL!

- Inspection and Soil Sampling at all CCDD Facilities
- Generally Found Sites to be Operating Correctly with a Handful of Exceptions (e.g. recordkeeping, etc.)

- Soil Sampling Identified One to Four Naturally Occurring Metals above Maximum Allowable Concentration (MAC) Table at Most Facilities
  - Iron, Manganese, Selenium, and/or Chromium

- Resulted in Numerous Violations for Same Issue
  - Material is a Waste, Non-CCDD Material, Impacting Environment and Drinking Water, Operating Landfill without Permit, Etc.
MAXIMUM ALLOWABLE CONCENTRATION TABLE IS FUNDAMENTALLY FLAWED

- MAC Table values for metals were derived from IEPA 1994 publication that found clean soil to have much larger range of concentration.
  - The MAC Table Values Were Derived from Medians, not the True Background Range in Clean Soil.

- The MAC Table was never intended for use at fill sites, but as a screening tool to evaluate material at the source.

- There is an effort underway to make necessary changes to the regulations, and discussions with IEPA are ongoing.
Iron: Site-Specific Concentrations Compared to Background / Maximum Allowable Concentrations

Sources:
3. Site-specific concentrations as cited by IEPA in violation notices. Includes all sites for which APTIM has received via FOIA response as of November 7, 2017.
Manganese: Site-Specific Concentrations Compared to Background / Maximum Allowable Concentrations

Sources:
3. Site-specific concentrations as cited by IEPA in violation notices. Includes all sites for which APTIM has received via FOIA response as of November 7, 2017.
Chromium: Site-Specific Concentrations Compared to Background / Maximum Allowable Concentrations

Concentration (mg/kg)

Max. Background

Mean Background (21.2 mg/kg) / Maximum Allowable Concentration (21 mg/kg)

Min. Background

2. Maximum Allowable Concentration (MAC): 35 IAC 1100 Subpart F.
3. Site specific concentrations as cited by IEPA in violation notices. Includes all sites for which APTIM has received via FOIA response as of November 7, 2017.
ADDITIONAL INFORMATION

But Most Importantly...

- The IEPA did not analyze the sample for metals using the Synthetic Precipitation Leaching Procedure (SPLP) and compare the results to the respective TACO Class I Soil Component of the Groundwater Ingestion Exposure Route as allowed by 35 Ill. Adm. Code 1100.Subpart F.

- This test replicates actual subsurface conditions and is allowed by the regulations - presumably in recognition that the MAC table was developed using the lowest pH specific values in many cases!
ADDITIONAL INFORMATION

- Iron and Manganese do not threaten the public or the environment.
  - A Manganese concentration of 1,600 mg/kg is acceptable for a residential playground, but has to be less than 636 mg/kg in a CCDD fill site!

- Chromium poses no threat unless it is in hexavalent form
  - IEPA only tested for total chromium.

- Error in IEPA’s results for selenium is suspected.
  - Flags indicate that results are biased high; not replicated by third party labs.
  - Nevertheless, the MAC table value (1.3 mg/kg) is well below what California allows for land application on vegetable gardens (100 mg/kg).
MISLEADING ARTICLES WERE PUBLISHED ANYWAY - PUSH FOR MONITORING CONTINUES

AP Exclusive: 4 in 5 Illinois debris sites high in toxins

BY JOHN O’CONNOR
Associated Press
NOVEMBER 16, 2017, 9:00 AM | SPRINGFIELD, ILL.

Four in five Illinois quarries that backfill with concrete and other demolition waste show higher-than-acceptable levels of toxins, according to state sampling results obtained by The Associated Press.

Illinois Environmental Protection Agency testing last spring produced levels exceeding allowable limits of arsenic, lead, mercury, atrazine and other heavy metals and pesticides as well as volatile organic compounds that can cause health hazards, according to violation notices disclosed to The AP under the Illinois Freedom of Information Act.

Quotes:

➢ Toxins high in 80% of Illinois Quarries...
➢ It confirms my worst fears.

➢ In fact, the IEPA inspection effort found exactly the opposite!

➢ Likely driven by market competitors and misinformation; Reputations, businesses, and taxpayer monies are at stake; Operators not guilty, but asked to prove innocence.
The IEPA’s recent inspection blitz found the program to be working.

The uncontaminated material was in the ground and unmonitored before it was trucked to a CCDD site.

The material is verified to be clean by:
- Review of historic property use
- Testing
- P.E., P.G., Certification
- Screening

CCDD facilities can’t be permitted within the setback zone of a potable water supply well. There are no wells to be impacted!

Fill sites are different than MSW landfills.
**FILL SITES ARE DIFFERENT THAN LANDFILLS**

- Landfills generate leachate due to the infiltration of stormwater into the permeable waste mass.
  - Leachate is stored at the landfill bottom and is contained by liners consisting of at least three feet of compacted clay.

![Diagram showing infiltration rates of different materials and leachate storage](image-url)
FILL SITES ARE DIFFERENT THAN LANDFILLS

- CCDD Fill is 100,000 to 1,000,000 less permeable than the surrounding earth materials.
  - Forms a clay plug, with similar permeability as a landfill liner.
  - Little infiltration of stormwater - Groundwater flows around fill unit, not through it.
ADVECTIVE FLOW AROUND RELATIVELY IMPERMEABLE FILL
The platy structure inhibits groundwater movement.

Clay minerals also effectively remove metals from groundwater through adsorption, or cation exchange, with the particle surfaces.
A WORKING, SAFE, AND BENEFICIAL PROGRAM IS BEING THREATENED

- A push for groundwater monitoring continues with no scientific basis, and despite compelling evidence that the program is working correctly.
- Mandating groundwater monitoring unnecessarily will increase disposal costs - undermining the original goals of the program.
  - Would halt reclamation of old quarries or pits and prevent redevelopment to productive uses.
  - Would increase taxpayer burden for public projects.
  - Would result in a waste of valuable landfill space.
  - Would eliminate good jobs and put CCDD sites out of business.
  - Would be detrimental to CCDD operators, while benefiting market competitors.
GROUPS OPPOSED TO WATER MONITORING MANDATE

IL Assn. of Aggregate Producers
IUOE Local 150
IL Road and Transportation Builders Assn.
Chicago Laborers District Council
Chicago Laborers District Council LMCC
IL Asphalt Pavement Assn.
Associated General Contractors of IL
LIUNA Laborers Local 681
Underground Contractors Assn. of IL
IL Construction Industry Committee
IL Mechanical & Specialty Contractors
Great Lakes Construction Association
Federation of Women Contractors
Land Reclamation & Recycling Assn.
Chicagoland Associated General Contractors
American Council of Engineering Companies of IL
Plumbing Contractors Assn. Midwest
Mason Contractors Assn. of Greater Chicago
IL Ready Mixed Concrete Assn.
American Concrete Paving Assn. – IL Chapter
Great Lakes Cement Promotion Council
Greater Peoria Contractors and Suppliers Assn.
Transportation for Illinois Coalition
Teamsters Local 731
Chicago and Cook County Building and Trades Council
Illinois Pipe Trades
Contractors Association of Will & Grundy Counties
QUESTIONS?